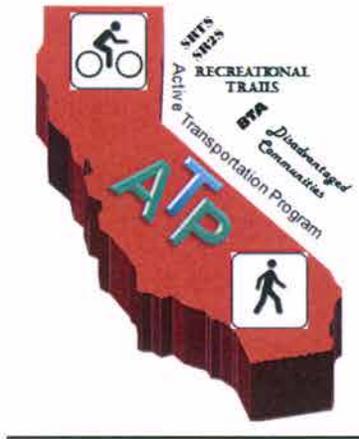


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# ACTIVE TRANSPORTATION PROGRAM CYCLE 1

## APPLICATION Part 1 (Includes Sections I, V, VI, VII, VIII & XI)

Please read the Application Instructions at  
<http://www.dot.ca.gov/hq/LocalPrograms/atp/index.html>  
prior to filling out this application

Project name:

Merced County - Walnut Avenue Complete Street Upgrade

For Caltrans use only:  TAP  STP  RTP  SRTS  SRTS-NI  SHA  
 DAC  Non-DAC  Plan

**Active Transportation Program (ATP)  
Cycle 1**

**Grant Application**

**ORIGINAL COPY**

**Walnut Avenue Complete Street Upgrade**

Merced County  
Department of Public Works  
345 W. 7<sup>th</sup> Street  
Merced, CA 95341

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## I. GENERAL INFORMATION

**Project name:** Merced County - Walnut Avenue Complete Street Upgrade

(fill out all of the fields below)

<b>1. APPLICANT (Agency name, address and zip code)</b> Merced County Department of Public Works 345 W. 7th Street, Merced, CA 95341	<b>2. PROJECT FUNDING</b> ATP funds Requested      \$ <u>1,779,000.00</u> Matching Funds                \$ <u>249,932.00</u> (If Applicable) Other Project funds            \$ <u>150,068.00</u> <b>TOTAL PROJECT COST</b> \$ <u>2,179,000.00</u>
<b>3. APPLICANT CONTACT (Name, title, e-mail, phone #)</b> Steve Rough, Supervising Engineer srough@co.merced.ca.us 209-385-7601	<b>5. PROJECT COUNTY(IES):</b> <p style="text-align: center;">Merced County</p>
<b>4. APPLICANT CONTACT (Address &amp; zip code)</b> Merced County DPW 345 W. 7th Street, Merced, CA 95341	<b>7. Application #</b> <u>1</u> <b>of</b> <u>1</u> <b>(in order of agency priority)</b>
<b>6. CALTRANS DISTRICT #-</b> Click Drop down menu below District 10	

**Area Description:**

8. Large Metropolitan Planning Organization (MPO)- Select your "MPO" or "Other" from the drop down menu>	Other
9. If "Other" was selected for #8- select your MPO or RTPA from the drop down menu>	MCAG
10. Urbanized Area (UZA) population (pop.)- Select your UZA pop. from drop down menu>	Small Urban (Pop =or<200,000 but > than 5,000)

**Master Agreements (MAs):**

11.  Yes, the applicant has a FEDERAL MA with Caltrans. 10-5939R
12.  Yes, the applicant has a STATE MA with Caltrans. 00033S
13. If the applicant does not have an MA. Do you meet the Master Agreement requirements? Yes  No   
 The Applicant MUST be able to enter into MAs with Caltrans

**Partner Information:**

14. Partner Name*: N/A	15. Partner Type N/A
16. Contact Information (Name, phone # & e-mail) N/A	17. Contact Address & zip code N/A

Click here if the project has more than one partner; attach the remaining partner information on a separate page

\*If another entity agrees to assume responsibility for the ongoing operations and maintenance of the facility, documentation of the agreement must be submitted with the application, and a copy of the Memorandum of Understanding or Interagency Agreement between the parties must be submitted with the request for allocation.

**Project Type:** (Select only one)

18. Infrastructure (IF)       19. Non-Infrastructure (NI)       20. Combined (IF & NI)

**Project name:** Merced County - Walnut Avenue Complete Street Upgrade

**I. GENERAL INFORMATION-continued**

**Sub-Project Type** (Select all that apply)

21.  Develop a Plan in a Disadvantaged Community (select the type(s) of plan(s) to be developed)  
 Bicycle Plan     Safe Routes to School Plan     Pedestrian Plan  
 Active Transportation Plan

(If applying for an Active Transportation Plan- check any of the following plans that your agency already has):

- Bike plan     Pedestrian plan     Safe Routes to School plan     ATP plan

22.  Bicycle and/or Pedestrian infrastructure  
Bicycle only:     Class I     Class II     Class III  
Ped/Other:     Sidewalk     Crossing Improvement     Multi-use facility

Other:

23.  Non-Infrastructure (Non SRTS)

24.  Recreational Trails\*-     Trail     Acquisition

**\*Please see additional Recreational Trails instructions before proceeding**

25.  Safe routes to school-     Infrastructure     Non-Infrastructure

If SRTS is selected, provide the following information

26. SCHOOL NAME & ADDRESS: Sybil N. Crookham Elementary School; 7160 W. Walnut Avenue Winton, CA 95388
27. SCHOOL DISTRICT NAME & ADDRESS: Winton School District; Mailing Address: P.O. Box 8 Winton, CA 95388; Address: 7000 N. Center Street Winton, CA 95388

28. County-District-School Code (CDS) 6025837	29. Total Student Enrollment 436	30. Percentage of students eligible for free or reduced meal programs ** 90.50
31. Percentage of students that currently walk or bike to school 25.7	32. Approximate # of students living along school route proposed for improvement 240	33. Project distance from primary or middle school 0

\*\*Refer to the California Department of Education website: <http://www.cde.ca.gov/ds/sh/cw/filesafdc.asp>

- Click here if the project involves more than one school; attach the remaining school information including school official signature and person to contact, if different, on a separate page



### **SECTION III. SCREENING CRITERIA**

#### **1. Demonstrated Needs of the Applicant**

Infrastructure: The purpose of this project is to provide safe walking and bicycling routes for local residents and students of the adjacent Sybil Crookham Elementary School. Walnut Avenue currently lacks continuous sidewalk; no designated bike routes exist in the area. Students walking to school must walk along areas with partial sidewalk and areas of dirt shoulders. Young bicyclists must share the road with vehicular traffic traveling at moderate rates of speed. One of the primary goals of this project is to improve safety which is intended to encourage increased walking and bicycling in the community of Winton. The construction of improved pedestrian and bicycle facilities as well as the reduction in motor vehicle speed as a result of the construction of traffic calming features is intended to significantly improve mobility and the quality of service for underserved non-motorized transportation modes (pedestrians and bicyclists).

Plans: This project does not include the preparation of any new planning documents.

Education/Encouragement Program: The primary purpose of the education program is to teach correct bicycle use and safety practices to students in the community. The education program is also intended to include a driver awareness “Share the Road” campaign and outreach to reduce crime along pedestrian walkways. Special events such as special walk/bicycle to school days, bicycle rodeos, and bicycle helmet fitting events are proposed to be included.

#### **2. Consistency with Regional Transportation Plan**

This project has been coordinated with the Merced County Association of Governments (MCAG) and the Merced County Planning Department. This project is consistent with the Regional Transportation Plan (RTP) adopted by MCAG. Walnut Avenue is listed as part of the proposed bikeway system in the Merced County Regional Bicycle Transportation Plan prepared by MCAG.

This project conforms to the goals and objectives included in the Winton Community Specific Plan and the Merced County General Plan adopted by the Merced County Board of Supervisors.

#### **SECTION IV. NARRATIVE QUESTIONS**

##### **Q1: POTENTIAL FOR INCREASED WALKING AND BICYCLING**

A. Describe how your project encourages increased walking and bicycling, especially among students.

The project encourages walking and bicycling through the construction of improved pedestrian and bicycle facilities including Class 2 bike lanes and sidewalk. Non-continuous sidewalk currently exists along Walnut Avenue from Santa Fe Drive to Winton Way. Having continuous sidewalk along the main road leading to Sybil Crookham Elementary School will encourage more parents to allow their children to walk to school. A Class 2 bike lane is proposed on Walnut Avenue to encourage parents to allow their children to ride their bicycles to school.

The proposed project incorporates the 5 E's of a comprehensive safe route to school program: encouragement, enforcement, education, evaluation, and engineering. The project encourages increased walking and biking among students by building on previously established partnerships between the Merced County Department of Public Health and the Winton School District. Additional relationships with local community based organizations such as Lifeline CDC, California Regional Obesity Prevention Program, and Merced Bicycle Coalition will be established. The proposed project encourages walking and bicycling through three channels: in-school encouragement, community encouragement, and media.

In-School encouragement will include the promotion of events throughout the year as supported in the Winton School District safe routes to school policy. Examples will include coordinating with the Merced Bicycle Coalition to conduct safety assemblies, helmet fittings and bike rodeos. Bike to School Day and Walk to School day events will be held and coupled with

school bike/walk challenges in an effort to build excitement around active transportation. By working with the school district staff, walking school buses and bicycle trains will be organized and implemented. Public Health will coordinate with classroom and PE teachers to include bike/pedestrian lessons for 4<sup>th</sup> and 5<sup>th</sup> graders that focus on safety and the benefits of walking/bicycling.

Community encouragement will involve reaching out to parents and community residents around the proposed site. Activities will include community bike rides and community walks, trainings on proper use of sidewalks and bike lanes, and a community bike/walk challenge that will promote the health benefits of being active. A safe routes to school workgroup will also be formed consisting of community members, school district staff, students and law enforcement, planning and public works. They will coordinate and organize events around the promotion of walking and bicycling.

Encouragement will be reinforced through a local media campaign that will utilize social media to promote walking/bike challenges, events, and send out safety messages to residents. Traditional media will also be utilized as a source of encouragement with press releases in local newspapers, school fliers, and posters.

B. Describe the number and type of possible users and their destinations, and the anticipated percentage increase in users upon completion of your project. Data collection methods should be described:

Destinations in the project area include: Sybil N. Crookham Elementary School, Winton School District Office, Winfield Elementary School, Rancho Market Gas Station, Veterans of Foreign Wars (VFW) Post, Winton Community Hall, Winton Branch Library, Nazarene Church, Heating & Air Conditioning Sales & Repair, LV Market, Vanessa's Ice Cream Shop, Tamarindos Restaurant, Super A Gas & Food, Apostolic Assembly of the Faith Church, and a bus stop on Center Street.

Users of destinations: Local residents, employees (school, school district, library, and businesses), students, and parents.

190 students were surveyed at Sybil N. Crookham Elementary School. One hundred thirty-six students (72%) arrive and are picked up by car while 54 students (28%) bike/walk to school. The survey was conducted through parents. Sidewalk improvements will improve safety, while encouraging more parents to allow their children to bike/walk to school. An anticipated 34% increase in pedestrians and bicyclists are expected with the completion of the project.

Using the National Center for Safe Routes to School parent survey tool, the Merced County Department of Public Health is in partnership with Winton School District. Public Health distributed nearly 1300 surveys to Winton School District parents in September of 2013. Over 400 at Sybil Crookham Elementary alone. Based on survey results, 82% of students live within walking distance (1 mile), and nearly all students, 92% live within bicycling distance (2 miles). Survey results demonstrate the most common mode of transportation to and from school is the family vehicle with 60% of Sybil Crookham parents dropping their child off in the morning, and 52% picking them up. While 23% of students walk in the morning, data shows a low percentage of people using bikes meaning there is much room for improvement. Based on the proposed activities and the size and characteristics of the community, it is reasonable to expect a 5-10% overall increase in the number of students walking/bicycling over the project period.

C. Describe how this project improves walking and bicycling routes to and from, connects to, or is part of a school or school facility, transit facility, community hall, employment center, state or national trail system, points of interest, and/or park.

Possible destinations are listed above in 1B. The infrastructure improvements for this project will upgrade walking and bicycling routes to the above listed locations. Connection of 2 schools, 1 school facility, 1 transit facility, 1 community hall, 1 employment center (Winton School District

Office, does the hiring for all of the district), Veterans of Foreign Wars (VFW) Post, library, and various other businesses.

This project adds continuous curb, gutter, sidewalk, striping and bike lanes along with LED lights, which improves routes. Continuous curb, gutter, sidewalk, striping and bike lanes gives pedestrians and bikers clear areas to walk and bike, respectively. This keeps them away from drivers and improves roadway safety for all involved. LED lights gives all users of the street better roadway vision. Greater sight on the road is not only for the good of drivers, pedestrians and bikers but also for law enforcement because it may help prevent crime by deterring it.

D. Describe how this project increases and/or improves connectivity, removes a barrier to mobility, and/or closes a gap in a non-motorized facility.

Having continuous sidewalk and bike lanes down Walnut Avenue gives people more non-motorized transportation options by giving them the option to walk and bike, respectively. Giving people more transportation options encourages them to walk/bike around the city more, which encourages them to use their vehicles less often. A barrier to mobility is also removed due to flooding by the installation of drainage facilities.

## **Q2: POTENTIAL TO REDUCE FATALITIES/INJURIES**

A. Describe the potential of the project to reduce pedestrian and/or bicycle injuries or fatalities.

The potential for pedestrian and bicycle related injuries and fatalities is likely to be reduced along Walnut Avenue as a result of this project due to several factors including: improved walking paths, increased visibility, and reduced vehicle/pedestrian conflicts.

- **Improved Walking Paths:** A combination of dirt and uneven sidewalk currently exists along Walnut Avenue from Santa Fe Drive to Winton Way. The non-continuous curb, gutter and sidewalk results in potential tripping obstacles along

Walnut Avenue. At locations where curb and gutter does not exist, storm water puddles and creases areas where pedestrian cannot feasible walk during inclement weather. Constructing continuous curb, gutter, sidewalk and an improved storm drainage system provides a solution for both of these problems.

- **Improved Visibility:** Due to the presence of vehicles parked along the road, pedestrians are unable to see motorists until they have already stepped into the roadway. The construction of bulb-outs at each intersection will provide pedestrians with a raised sidewalk located beyond parked vehicles; this will provide both the pedestrian and motorist with improved visibility as well as providing a shorter distance that pedestrians must cross the roadway. In winter months, students must walk to school before daylight hours; upgrading the existing streetlights with modern LED luminaires will improve visibility during hours of darkness.
- **Reduced Motor Vehicle/Pedestrian/Bicycle Conflicts:** Bicyclists currently share the travel way along Walnut Avenue with motorized vehicles. This increases the potential for conflicts between bicycles and motor vehicles. The proposed Class 2 Bike Path will provide a well-defined area for bicyclists to travel in order to reduce potential conflicts. Currently, along the Walnut Avenue frontage of the elementary school, numerous conflicts exist between motorists and pedestrians during both the morning and afternoon times when students walk to/from school. The installation of a speed table/raised pedestrian crosswalk will help slow the speed of motor vehicles while providing for a distinct location for pedestrians to cross the road. An area designated for parents to drop-off their students will also be constructed along the frontage of the elementary school to further guide traffic

along the frontage of the school. Educating students on the proper use of bicycles, as part of the education component of this project, will also help reduce the potential for bicycle/motor vehicle conflicts; the majority of bicycle collisions occurring in Winton are the result of bicyclists riding on the wrong side of the road.

B. Describe if/how your project will achieve any or all of the following:

- o Reduces speed or volume of motor vehicles:

The construction of traffic calming features, including bulb-outs at intersections and a speed table/raised pedestrian crosswalk will contribute to the reduced speed of motor vehicles along Walnut Avenue.

- o Improves sight distance and visibility:

Sight distance at intersections will be improved through the construction of bulb-outs at each intersection. The bulb-outs will create a raised sidewalk area beyond parked cars that will permit pedestrians a significantly improved view of oncoming motor vehicles before they step off the curb. The bulb-outs will also shift the stop bar for motor vehicles further into the roadway to enable motorist to better see approaching vehicles. The installation of modern LED streetlighting will improve visibility during hours of darkness.

- o Improves compliance with local traffic laws:

Compliance with local traffic laws will be improved by slowing traffic through use of traffic calming features (bulb-outs and a speed table). The bulb-outs will slow traffic resulting in less cases of speeding. In addition, the education component of this project intends to work with law enforcement to conduct a driver awareness campaign that may involve increased enforcement, increased education, and informational awareness via

newspapers and billboards in Spanish and English. A workgroup made up of: law enforcement, parents, students, and residents will be formed and strategies will be developed to ensure the public is being educated traffic laws.

- Eliminates behaviors that lead to collisions:

Traffic calming devices will help decrease incidents of speeding, which is a contributing factor to many traffic collisions. The education portion of this project is intended to education students on the proper operation of bicycles; this is intended to modify the behavior of bicyclists that currently ride their bicycles on the wrong side of the street.

- Addresses inadequate traffic control devices:

Traffic control devices are adequate through the project site. No changes in traffic control devices is necessary.

- Addresses inadequate bicycle facilities, crosswalks, or sidewalks

In places where sidewalks and crosswalks are non-existent, constructing continuous sidewalk; installing a raised crosswalk adjacent to the school will significantly improve pedestrian facilities. The project adds a Class 2 bike lane where one does not currently exist.

C. Describe the location's history of events and the source(s) of data used (e.g. collision reports, community observation, surveys, audits) if data is not available include a description of safety hazard(s) and photos.

Since 2009 there have been 12 accidents on Walnut Avenue (data obtained from CHP collision reports). Appendix E includes collision diagrams. Two of the accidents involved pedestrians. This project has been designed to provide improvement to pedestrian facilities to address the type of accidents that have occurred along Walnut

Avenue. Please see responses to Q3 related to data obtained through public outreach efforts.

### **Q3: PUBLIC PARTICIPATION AND PLANNING**

- A. Describe the community based public participation process that culminated in the project proposal or plan, such as noticed meetings/public hearings, consultation with stakeholders, etc.

On April 15, 2014 the Merced County Public Works Director met with members of the Municipal Advisory Council and received community support with regards to the project. Enclosed in Appendix A is a letter showing their support.

The main stakeholders for this project are the adjacent Sybil N. Crookham Elementary School and nearby Winfield Elementary School. The project was discussed with the school's principal and superintendent so they would be aware of the grant process and be able to provide necessary information to aid in grant writing. In Appendix A is a letter from the principal showing the school's support.

Through a previous CA4Health grant, the Public Health Department was able to promote active and safe transportation in the community of Winton. In collaboration with the Local Government Commission, two walk/bike audits were held in September 2013. The audits involved a member of the Board of Supervisors, Winton Municipal Advisory Council members, representatives from: County Planning, Public Works and Public Health, as well as: school district personnel, community based organizations, and residents. The walk and bike audits focused on the proposed site areas and involved a presentation on the link between community design and health. This was followed by a participant walk which provided input, discussed challenges, and identified solutions. This information was later put on maps by participants and gathered into a community

report which was shared at a Winton MAC meeting and made available to residents. 'Safety of Intersections and Crossings' and 'Speed of Traffic Along Route' were the two top reasons that parents of the Winton Community described as a reason why walking and bicycling was not allowed for their children to/from school. The data was referenced from the Winton Walkable & Bikeable Community Summary Report.

Safety is a top priority for Winton. The ATP funds will be used to add infrastructure improvements making the community safer and more usable. Enclosed in Appendix A is a congressman's (elected official) letter of support and CHP (law enforcement) commander's letter of support.

- B. Describe the local participation process that resulted in the identification and prioritization of the project:

Safety has been an ongoing concern for residents of Winton. These concerns have been voiced by members of the Winton Municipal Advisory Council. The County has been unable to construct any improvements along Walnut Avenue due to the presence of utility poles. To address this constraint, Merced County has been working with PG&E on a Rule 20A underground utility project. Undergrounding of the overhead utilities is planned to occur in 2014/15, before the start of any project that may be funded with ATP grant funding.

The public participation process also included coordination with the Merced County Planning Department and the County Board of Supervisors. Some of the more meaningful coordination occurred as part of the process that occurred with the help of the Public Health Department described in the previous question.

- C. Is the project cost over \$1 Million? Y/N  Y

If Yes- is the project Prioritized in an adopted city or county bicycle transportation plan, pedestrian plan, safe routes to school plan, active transportation plan, trail plan, circulation element of a general plan, or other publicly approved plan that incorporated elements of an active transportation plan? Y/N  Y

Walnut Avenue is listed as a future bike route in the Merced County Regional Bicycle Transportation Plan prepared by MCAG. The project is a priority based on recommendations of the Winton Walkable & Bikeable Community Summary Report.

#### Q4: COST EFFECTIVENESS

A. Describe the alternatives that were considered. Discuss the relative costs and benefits of all the alternatives and explain why the nominated one was chosen.

The project chosen is to construct roadway improvements on Walnut Avenue from Santa Fe Drive to Winton Way. The alternative project that was considered is to construct similar improvements further along Walnut Avenue to California Street. The preferred project has logical termini and was selected for this application because of its overall lower project cost.

B. Calculate the ratio of the benefits of the project relative to both the total project cost and funds requested (i.e.,  $\frac{Benefit^*}{Total\ Project\ Cost}$  and  $\frac{Benefit^*}{Program\ Funds\ Requested}$ ).

\*Benefits must directly relate to the goals of the Active Transportation Program.

#### Assumptions/Explanations:

1. Cost effectiveness analysis tool: 'generic methods program' from the California Environmental Protection Agency Air Resources Board is used to calculate indirect benefits. Indirect benefits are \$409,000. In this report, the overall data is enclosed in Appendix H.

2. Appendix D of Local Roadway Safety Manual used to calculate direct benefits. 3 evident injury - other visible, 1 possible injury - complaint of pain and 8 property damage counts for a total sum of \$341,000. In this report, the overall data is enclosed in Appendix I.
3. \$1,793,000 is the construction infrastructure cost of the project on Walnut Avenue from Santa Fe Drive to Winton Way. \$3,503,500 is the whole construction infrastructure cost of the project on Walnut Avenue from Santa Fe Drive to California Street.
4. Inputs for Trips Eliminated (Auto trips eliminated = 436 students, length of auto trips eliminated = 2 miles due to the fact that 92% of students live within 2 miles of the school, and weeks of operation per year = 40 weeks due to 3 months of summer vacation ) viewed with only school in mind.
5. Program Funds Requested: \$200,000 for NEPA + \$36,200 for the completion of plans + project infrastructure construction cost + \$150,000 non-infrastructure public health funds - \$397,000 (this amount is from the Winton Bridge and Thoroughfare Fund and is not being requested)

Chosen Project Ratio:  $\frac{\textit{Benefit*}}{\textit{Total Project Cost}} = \frac{\$750,000}{\$1,793,000} = 0.42$

$$\frac{\textit{Benefit*}}{\textit{Program Funds Requested}} = \frac{\$750,000}{\$1,782,200} = 0.42$$

Alternative Project Ratio:  $\frac{\textit{Benefit*}}{\textit{Total Project Cost}} = \frac{\$750,000}{\$3,503,500} = 0.21$

$$\frac{\textit{Benefit*}}{\textit{Program Funds Requested}} = \frac{\$750,000}{\$3,492,700} = 0.21$$

**Q5: IMPROVE PUBLIC HEALTH**

Due to Winton being a rural unincorporated area, community specific data is not available for many health conditions. However, we are able to obtain county level data and draw the conclusion that Winton is similar. In Merced County, currently low levels of people walk and bike.

According to the Robert Wood Johnson Foundation, for Merced County, obesity is the highest in the state at 31% and physical inactivity is at 19% (roughly 1 in every 5 individuals). Childhood obesity is of special concern. Within the Winton School District 61.2% of 5<sup>th</sup> and 49.5 of 7<sup>th</sup> graders are not in the healthy fit zone in the area of body composition as measured through body mass index (BMI). Only 12% of students throughout Winton School District passed all 6 fitness test according to the California Department of Education 2012-2013 physical fitness report.

According to the 2011-2012 California Health Interview Survey, for Merced County, lifetime asthma prevalence for children ages 0-17 is 32.5% (compared with California's 15.4%) and for adults is 17.9% (compared with California's 13.7%). A particular concern related to asthma is the rate of asthma-related hospitalizations. Within Winton there is an asthma hospitalization rate of 145.3 per 100,000. This is much higher than state average of 94.3 per 100,000 population. Diabetes is another health concern closely tied to physical inactivity. Within Winton, there is a diabetes hospitalization rate of 244.8 per 100,000. The average diabetes hospitalization rate in California is 145.6 per 100,000. Some identified asthma risk factors are: percent of adults who are obese, percent of people below federal poverty level, and unemployment rate. All these will be improved with the implementation of the project. The project will improve the infrastructure and make it safer by constructing continuous curb, gutter, sidewalk, bike lanes and LED lights. Law enforcement will provide safety awareness to the community. Parents will help with the Spanish language barrier. With education and encouragement, there will be an increase in walking and bicycling, thus improving the health of the youth in the disadvantaged community of Winton.

Law enforcement, volunteer parent translators and Department of Public Health will all work together in the Winton community to help educate and encourage bicycling and walking. Law enforcement will be incorporated into this program by implementing a driver awareness campaign, conducting bicycle traffic/helmet safety classes, and helping address identified safety/crime related

issues along the routes that children walk home to. According to the 2010 United States Census Bureau, 65.6% of Winton residents speak Spanish or Spanish Creole and only 54.6% speak English very well and 45.4% speak English less than very well. By recruiting volunteer parents from the community, they will serve as translators and help with educating the Winton population about bicycling, walking, and driver/pedestrian safety. Department of Public Health's role will be to hold large scale events to promote an active lifestyle. This will be done by having walk/bike to school day events, bike rodeos, and safety assemblies.

From the September 2013 Safe Routes to School results for Sybil Crookham Elementary School, roughly 90% of students live within 2 miles of the school. Currently, 23% of students walk and 0% bike to school. According to the Health Economic Assessment Tool, the walking students can reduce their risk of mortality from 48% to 3%. 3% was calculated by taking a round trip of 0.2 miles and 48% was obtained by taking a round trip of 4 miles. Physical inactivity is a known contributor to chronic health problems and a person's health is significantly influenced by the social, physical, and economic environments where they: live, work, learn, and play. Creating an environment conducive to physical activity is an effective strategy in reducing the risk for chronic disease. Walking and bicycling are excellent forms of physical activity which can reduce risk factors for obesity, diabetes and asthma. Efforts to improve the walkability and bikeability of Winton can result in the increased physical activity of residents and ultimately lower rates of chronic disease.

**Q6: BENEFIT TO DISADVANTAGED COMMUNITIES**

- A. I. Is the project located in a disadvantaged community? Y/N  Y
- II. Does the project significantly benefit a disadvantaged community? Y/N  Y
- a. Which criteria does the project meet? All criteria are satisfied for Winton
- o Median household income for the community benefited by the project:  
\$ 37,756 (approximately 61% of statewide median)
  - o California Communities Environmental Health Screen Tool  
(CalEnvironScreen) score for the community benefited by the project:  
46.51
  - o For projects that benefit public school students, percentage of students  
eligible for the Free or Reduced Price Meals Programs: 90.5 %  
(greater than the 75% minimum)

- B. Describe how the project demonstrates a clear benefit to a disadvantaged community and what percentage of the project funding will benefit that community, for projects using the school based criteria describe specifically the school students and community will benefit.

The project will specifically benefit the disadvantaged community of Winton, California, the adjacent Sybil N. Crookham Elementary School and the nearby Winfield Elementary School. 100% of the funds are to be used in the improvements on Walnut Avenue from Santa Fe Drive to Winton Way which is the primary street leading to both elementary schools, shopping, community hall, library, school district office, and the local VFW Post.

The construction of continuous sidewalk eliminates the tripping obstacles that non-continuous sidewalk provides. Continuous curb and gutter along Walnut Avenue

will decrease localized flooding that currently occurs. The installation of traffic calming features will slow motor vehicles driving on Walnut Avenue. Modern LED streetlights will improve visibility during hours of darkness and potentially reduce the incidents of crime. Bulb-outs will improve visibility at intersections and reduce the distance pedestrians need to occupy the road to cross the street; bulb-outs reduce conflicts between pedestrians and motorists which has the potential to reduce the occurrence of accidents.

With continuous pedestrian and bicycle facilities, the project is anticipated to increase walking by both local residents and students which will contribute to reduced obesity and improved general health.

Improvements to Walnut Avenue will significantly improve the appearance of the area which results in the potential for improved property values and increased business opportunities.

**Q7: USE OF CALIFORNIA CONSERVATION CORPS (CCC) OR A CERTIFIED COMMUNITY CONSERVATION CORPS**

A. The applicant has coordinated with the CCC to identify how a state conservation corps can be a partner of the project. Y/N

a. Name, e-mail, and phone # of the person contacted and the date the information was submitted to them

Name: Virginia Clark

Phone #: (916) 341-3147

Email: Virginia.Clark@CCC.CA.GOV

Date: 4/8/14

B. The applicant has coordinated with a representative from the California Association of Local Conservation Corps (CALCC) to identify how a certified community conservation corps can be a partner of the project. Y/N

C. The applicant intends to utilize the CCC or a certified community conservation corps on all items where participation is indicated? Y/N  N

I have coordinated with a representative of the CCC; and the following are project items that they are qualified to partner on:

CCC will be opting out of participating in this project.

I have coordinated with a representative of the CALCC; and the following are project items that they are qualified to partner on:

Not Applicable

**Q8: APPLICANT'S PERFORMANCE ON PAST GRANTS**

A. Describe any of your agency's ATP type grant failures during the past 5 years, and what changes your agency will take in order to deliver this project.

N/A (Not applicable) - Merced County has successfully delivered numerous ATP-type grant projects.

**PROJECT PROGRAMMING REQUEST**

DTP-0001 (REV. 6/11)

General Instructions

<input checked="" type="checkbox"/> New Project					<input type="checkbox"/> Amendment (Existing Project)		<b>Date:</b> 05/15/14	
<b>District</b>		<b>EA</b>	<b>Project ID</b>		<b>PPNO</b>	<b>MPO ID</b>		<b>TCRP No.</b>
10								
<b>County</b>	<b>Route/Corridor</b>	<b>PM Bk</b>	<b>PM Ahd</b>	<b>Project Sponsor/Lead Agency</b>				
MER	Walnut Avenue			Merced County				
				<b>MPO</b>		<b>Element</b>		
				MCAG		Local Assistance		
<b>Project Mgr/Contact</b>			<b>Phone</b>		<b>E-mail Address</b>			
Steve Rough			209-385-7601		srough@co.merced.ca.us			
<b>Project Title</b>								
Walnut Avenue Complete Street Upgrade								
<b>Location, Project Limits, Description, Scope of Work, Legislative Description</b>								
Walnut Avenue between Santa Fe Drive to roughly 200' east of Winton Way in Winton, Merced County, CA. Cross streets are Winton Way and Santa Fe Drive.								
<b>Component</b>		<b>Implementing Agency</b>					<b>Reimbursements</b>	
PA&ED		Merced County						
PS&E		Merced County						
Right of Way		Merced County						
Construction		Merced County						
<b>Legislative Districts</b>								
<b>Assembly:</b> 21				<b>Senate:</b> 12				
<b>Congressional:</b> 16								
<b>Purpose and Need</b>								
Purpose of project is to build sidewalk, curb, gutter, traffic calming features, Class 2 bike lanes and LED streetlights along Walnut Avenue to benefit local residents and students of the abutting elementary school. These improvements will improve safety and encourage walking and biking.								
<b>Project Benefits</b>								
Encouragement of more active lifestyle thus lowering overall obesity rate and increasing longevity of life. Other benefits include decreasing cars on roadway thus decreasing overall travel time especially during peak periods (dropping off and picking up students). Addition of LED lights will improve visibility and decrease accidents and crime.								
<b>Project Milestone</b>							<b>Proposed</b>	
Project Study Report Approved								
Begin Environmental (PA&ED) Phase							10/01/14	
Circulate Draft Environmental Document					<b>Document Type</b> N/A			
Draft Project Report								
End Environmental Phase (PA&ED Milestone)							03/01/15	
Begin Design (PS&E) Phase							01/01/14	
End Design Phase (Ready to List for Advertisement Milestone)							03/01/15	
Begin Right of Way Phase							03/01/15	
End Right of Way Phase (Right of Way Certification Milestone)							04/01/15	
Begin Construction Phase (Contract Award Milestone)							07/15/15	
End Construction Phase (Construction Contract Acceptance Milestone)							12/15/14	
Begin Closeout Phase							01/01/16	
End Closeout Phase (Closeout Report)							04/01/16	

**ADA Notice**

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

**PROJECT PROGRAMMING REQUEST**

DTP-0001 (REV. 6/11)

Date: 05/15/14

District	County	Route	EA	Project ID	PPNO	TCRP No.
10	MER	Walnut Avenue				
<b>Project Title:</b> Walnut Avenue Complete Street Upgrade						

Proposed Total Project Cost									Notes
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	
E&P (PA&ED)				200				200	\$200,000 NEPA costs. \$36,200 costs to finish plans. Construction Costs are \$1,793,000 Infrastructure costs (public works) with \$150,000 non-infrastructure costs (public health) for total construction cost.
PS&E				36				36	
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON					1,943			1,943	
<b>TOTAL</b>				236	1,943			2,179	

Fund No. 1:	ATP Grant Fund								Program Code
Proposed Funding									20.30.720
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)				200				200	State
PS&E				36				36	
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON					1,545			1,545	
<b>TOTAL</b>				236	1,545			1,781	

Fund No. 2:	Winton Bridge and Thoroughfare Fund								Program Code
Proposed Funding									
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)									Merced County
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON					398			398	
<b>TOTAL</b>					398			398	

Fund No. 3:									Program Code
Proposed Funding									
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
<b>TOTAL</b>									

**PROJECT PROGRAMMING REQUEST**

DTP-0001 (REV. 6/11)

Date: 05/15/14

District	County	Route	EA	Project ID	PPNO	TCRP No.
10	MER	Walnut Avenue				
<b>Project Title:</b> Walnut Avenue Complete Street Upgrade						

<b>Fund No. 4:</b>									<b>Program Code</b>
<b>Proposed Funding</b>									
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
<b>TOTAL</b>									

<b>Fund No. 5:</b>									<b>Program Code</b>
<b>Proposed Funding</b>									
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
<b>TOTAL</b>									

<b>Fund No. 6:</b>									<b>Program Code</b>
<b>Proposed Funding</b>									
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
<b>TOTAL</b>									

<b>Fund No. 7:</b>									<b>Program Code</b>
<b>Proposed Funding</b>									
Component	Prior	12/13	13/14	14/15	15/16	16/17	17/18+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
<b>TOTAL</b>									

Project name: Merced County - Walnut Avenue Complete Street Upgrade

**VI. ADDITIONAL INFORMATION**

Only fill in those fields that are applicable to your project

**FUNDING SUMMARY**

**ATP Funds being requested by Phase** (to the nearest \$1000)

**Amount**

PE Phase (includes PA&ED and PS&E)	\$	236,000
Right-of-Way Phase	\$	0
Construction Phase-Infrastructure	\$	1,793,000
Construction Phase-Non-infrastructure	\$	150,000
<b>Total for ALL Phases</b>	<b>\$</b>	<b>2,179,000</b>

**All Non-ATP fund types on this project\*** (to the nearest \$1000)

**Amount**

	\$	
	\$	
	\$	
	\$	
	\$	
	\$	

\*Must indicate which funds are matching

Total Project Cost	\$	2,179,000
Project is Fully Funded	No	

**ATP Work Specific Funding Breakdown** (to the nearest \$1000)

**Amount**

Request for funding a Plan	\$	36,200
Request for Safe Routes to Schools Infrastructure work	\$	1,793,000
Request for Safe Routes to Schools Non-Infrastructure work	\$	150,000
Request for other Non-Infrastructure work (non-SRTS)	\$	
Request for Recreational Trails work	\$	

**ALLOCATION/AUTHORIZATION REQUESTS SCHEDULE**

	Proposed Allocation Date	Proposed Authorization (E-76) Date
PA&ED or E&P	09/01/2014	10/01/2014
PS&E	09/01/2014	10/01/2014
Right-of-Way	02/01/2015	03/01/2015
Construction	05/01/2015	04/01/2016

All project costs MUST be accounted for on this form, including elements of the overall project that will be, or have been funded by other sources.



Project name: Walnut Avenue Complete Street Upgrade

### VIII. APPLICATION SIGNATURES

**Applicant:** The undersigned affirms that the statements contained in the application package are true and complete to the best of their knowledge.

Signature: [Handwritten Signature]  
Name: Steven E. Rough  
Title: Supervising Engineer

Date: 5-14-14  
Phone: 209-385-7601  
e-mail: srough@co.merced.ca.us

**Local Agency Official (City Engineer or Public Works Director):** The undersigned affirms that the statements contained in the application package are true and complete to the best of their knowledge.

Signature: [Handwritten Signature]  
Name: Dana S. Hertfelder  
Title: Director of Public Works

Date: May 9, 2014  
Phone: (209) 385-7601  
e-mail: dhertfelder@co.merced.ca.us

**School Official:** The undersigned affirms that the school(s) benefited by this application is not on a school closure list.

Signature: [Handwritten Signature]  
Name: Ka Vang  
Title: Principal

Date: 5/9/14  
Phone: 1-209-357-6182  
e-mail: kvang@winton.k12-ca.us

**Person to contact for questions:**

Name: Steve Roush  
Title: Supervising Engineer

Phone: 209-385-7601  
e-mail: srough@co.merced.ca.us

**Caltrans District Traffic Operations Office Approval\***

If the application's project proposes improvements on a freeway or state highway that affects the safety or operations of the facility, it is required that the proposed improvements be reviewed by the district traffic operations office and either a letter of support or acknowledgement from the traffic operations office be attached ( ) or the signature of the traffic personnel be secured below.

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

Date: \_\_\_\_\_  
Phone: \_\_\_\_\_  
e-mail: \_\_\_\_\_

\*Contact the District Local Assistance Engineer (DLAE) for the project to get Caltrans Traffic Ops contact information. DLAE contact information can be found at <http://www.dot.ca.gov/hq/LocalPrograms/dlae.htm>

# Appendix A

## Letters of Support



# Sybil Crookham Elementary School

"Home of the Cougars"

*Ka Vang, Principal*

7160 W. Walnut Avenue  
Winton, California 95388

Phone: 209-357-6182

Fax: 209-357-6185

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February 28, 2014

Re: Safe Route to School Project



To Whom It May Concern:

Our school is in a high poverty area in Winton, CA. Most of our students walk to school. Sidewalks are needed to ensure the safety of kids. An example is there is no sidewalk across the street from our school. This forces our students to walk on the street due to not having a sidewalk. This is a major concern for me for the safety of our students and kids in Winton. Any plans for having more sidewalks are strongly supported by me, our school, parents, and community.

Sincerely,



Ka Vang  
Principal of Sybil Crookham

# Winton Municipal Advisory Council

P.O. Box 1205  
Winton, CA 95388

April 29, 2014

Re: Active Transportation Program

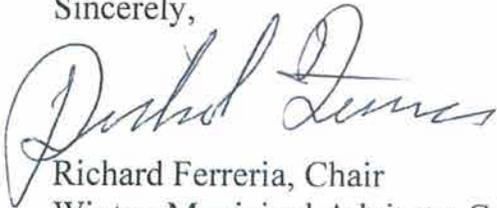
To Whom It May Concern:

The Winton MAC held a public meeting on April 15, 2014 and voted unanimously to support the proposed Walnut Avenue project improvements for the Active Transportation Program Grant.

Safety has always been a primary concern for the community, especially since the local schools are situated directly on Walnut Avenue. As a result, many children walk to and from school along Walnut Avenue, as well as areas that are lacking sidewalks and other street improvements.

The Council is therefore respectfully asking for consideration for funding, through the ATP grant, so that these areas may be completed and made safe for the children of this community.

Sincerely,



Richard Ferreria, Chair  
Winton Municipal Advisory Council

cc: Kathleen Chen  
Merced County DPW

**JIM COSTA**  
16TH DISTRICT, CALIFORNIA  
WEB PAGE: [www.costa.house.gov](http://www.costa.house.gov)

COMMITTEE ON NATURAL RESOURCES  
SUBCOMMITTEE ON  
ENERGY AND MINERAL RESOURCES  
SUBCOMMITTEE ON  
WATER AND POWER



CONGRESS OF THE UNITED STATES  
HOUSE OF REPRESENTATIVES  
WASHINGTON, DC 20515

COMMITTEE ON AGRICULTURE  
SUBCOMMITTEE ON  
LIVESTOCK, RURAL DEVELOPMENT AND CREDIT  
RANKING MEMBER  
SUBCOMMITTEE ON  
HORTICULTURE, RESEARCH, BIOTECHNOLOGY, AND  
FOREIGN AGRICULTURE  
SUBCOMMITTEE ON  
GENERAL FARM COMMODITIES AND RISK MANAGEMENT

April 30, 2014

Mr. Malcolm Dougherty  
Director  
California Department of Transportation  
P.O. Box 942873  
Sacramento, CA 94273

RE: Expressing support for the application submitted by the Department of Public Works of Merced County to the California Department of Transportation, Division of Local Assistance for the Active Transportation Program Grant (ATP) for the Sybil N. Crookham Elementary School in Winton, CA.

Dear Mr. Dougherty:

This letter serves to express my support for the application submitted by the Department of Public Works of Merced County to the California Department of Transportation, Division of Local Assistance for the Active Transportation Program Grant (ATP) for Sybil N. Crookham Elementary School in Winton, CA. Over 400 students attend classes at Sybil Crookham Elementary every day. The walk for these students is often an unsafe path, as neither a continuous sidewalk nor a bike path exists between the school and the nearest major residential crosswalk (Walnut Ave and Winton Way).

Sybil Crookham Elementary serves the hard-hit, unincorporated community of Winton. According to data from the 2010 Census, Winton's economic condition is well below the statewide average. Winton suffers from an unemployment rate of 18.6% and a poverty level of 26.1%. With the slowly improving economy, now is the time to invest in our public infrastructure around our schools. Approval of this grant will enable pedestrian students and their families to travel to and from Sybil Crookham without walking alongside traffic on a main road.

As the representative of California's 16<sup>th</sup> Congressional District, I recognize the overwhelming impact that these funds will have in the Winton community. I also understand the vital importance of access to education in our rural communities, especially in economically impacted regions like Winton, CA. Safer and easier access to Sybil N. Crookham Elementary via improved sidewalks and bike lanes would give parents, teachers, and administrators a greater peace of mind.

It is my hope that you give thoughtful consideration to this application to enable the Merced County Department of Public Works to improve and create much needed infrastructure for Sybil Crookham Elementary School. Thank you in advance for your attention to this request.

WASHINGTON OFFICE  
1314 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
PHONE: (202) 225-3341  
FAX: (202) 225-9308

FRESNO OFFICE  
855 M STREET, SUITE 940  
FRESNO, CA 93721  
PHONE: (559) 495-1620  
FAX: (559) 495-1027

MERCED OFFICE  
2222 M STREET, SUITE 305  
MERCED, CA 95340  
PHONE: (209) 384-1620  
FAX: (209) 384-1629

Director Malcolm Dougherty  
April 30, 2014  
Page Two

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Costa". The signature is stylized with a large initial "J" and "C".

JIM COSTA  
Member of Congress

**DEPARTMENT OF CALIFORNIA HIGHWAY PATROL**

1500 Bell Drive  
Atwater, CA 95301  
(209) 356-2956  
(800) 735-2929 (TT/TDD)  
(800) 735-2922 (Voice)



May 6, 2014

File No.: 460.10546.14802.exec.ltrs.2014.wintonpublicworks.docx

Merced County Department of Public Works  
Dana Hertfelder  
715 Martin Luther King Jr. Way  
Merced, CA 95340-6041

Dear Mr. Hertfelder:

The California Highway Patrol (CHP), Merced Area fully supports the Merced County Department of Public Work's funding application for the Active Transportation Program (ATP). As the CHP Merced Area commander, I strongly believe this proposed infrastructural improvements on Walnut Avenue will greatly improve the safety for those utilizing the project area. Specifically, the construction of continuous curb, gutter, sidewalks and bikes lanes will also designate safe areas for walkers and bicyclists. Additionally, the proposed LED lighting, in the project area, will also improve visibility for drivers and pedestrians during the evening hours.

I anticipate this completed project will significantly decrease of loss of life, injuries and property damage resulting from traffic collisions which will ultimately lead to improved safety for the community of Winton, CA. It is for these reasons, the CHP Merced Area is pleased to support the Merced County Department of Public Works and their efforts to seek funding directed toward improving traffic safety for Winton residents.

If I or the Department can ever be of any assistance in the future, please do not hesitate to contact me or Acting Lieutenant, Sergeant Shane Ferriera, ID 14802, at (209) 356-5956.

Sincerely,

A handwritten signature in black ink that reads "M. S. Samra".

M. S. SAMRA, Captain  
Commander  
Merced Area





DEPARTMENT OF PUBLIC HEALTH

Kathleen Grassi, R.D., M.P.H.  
Director

April 23, 2014

Re: Active Transportation Program

To Whom It May Concern:

The Merced County Department of Public Health (Department) submits this letter in support of Merced County Department of Public Work's funding application for the Active Transportation Program (ATP). The Department strongly believes the proposal to make infrastructure improvements to Walnut Avenue, when coupled with education and community engagement, will increase the number of residents and students who walk and bike in the project area. The end result is enhanced public health opportunities for the community of Winton.

Through the Department's CA4Health initiative to promote safe routes to school, survey data was gathered in 2013 showing less than 25% of students at Sybil Crookham Elementary walk to and from school and less than 1% bike. Survey data also shows the condition of sidewalks and pathways are a major concern of parents who do not currently allow their child to walk or bike to school. The proposed project to construct curb, gutter, sidewalks and bike lanes along Walnut Avenue from Santa Fe Drive to Winton Way will improve connectivity making it safer and easier for students to walk and bike and address parental concerns expressed in the safe routes to school survey.

Walking and bicycling are excellent forms of physical activity for children and adults and can contribute to the reduction in risks for chronic diseases such as obesity and diabetes. Other public health benefits of walking and bicycling include increased air quality with possible reduction of asthma rates.

The Department is pleased to partner with the Merced County Department of Public Works and supports the effort to seek funding that will support healthy and active living for Winton residents.

Sincerely,

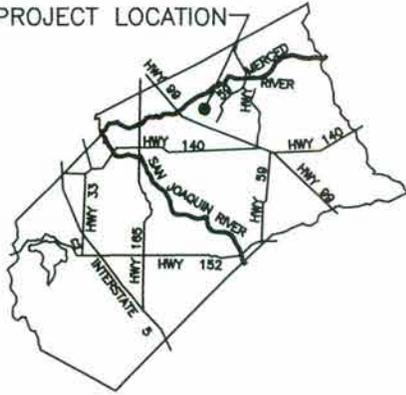
Kathleen Grassi, RD, MPH  
Director  
Merced County Department of Public Health

KAG:sn

# Appendix B

## Vicinity Map

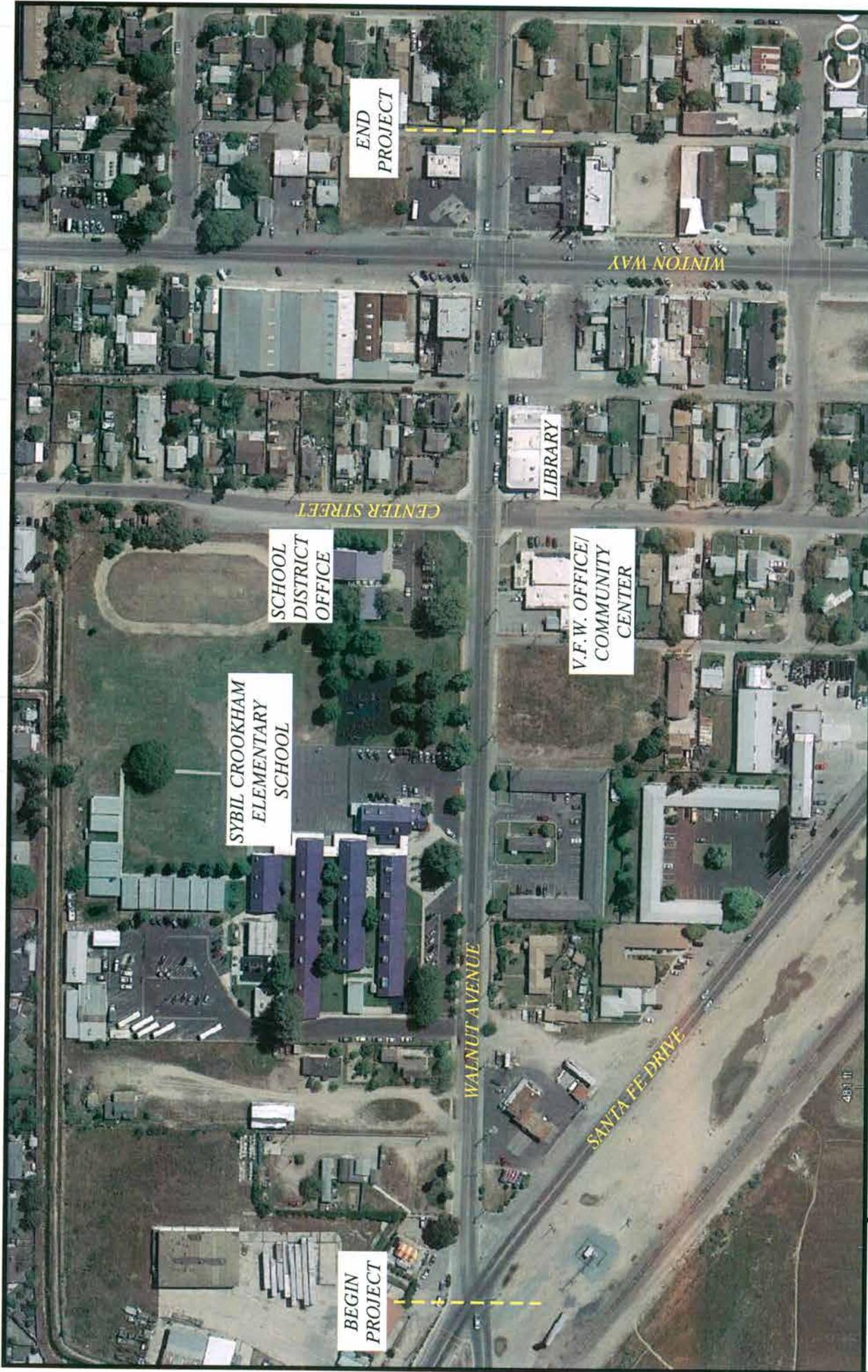
PROJECT LOCATION



VICINITY MAP

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS

WALNUT AVENUE SIDEWALK IMPROVEMENTS N.T.S.



LOCAL VICINITY MAP

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS

WALNUT AVENUE PROJECT IMPROVEMENTS

# Appendix C

## Pictures



**Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous sidewalk

Next to gas station, south side



## **Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous sidewalk

Next to gas station, south side



**Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous sidewalk

Next to gas station, south side



## **Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous sidewalk  
North side



## **Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous curb, gutter and sidewalk  
North side



**Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous curb, gutter and sidewalk, south side



## **Walnut Avenue between Santa Fe Drive and Center Street**

Non continuous curb, gutter and sidewalk  
Across the street from the school, south side

# Walnut Avenue between Santa Fe Drive and Center Street

Dirt Sidewalk with flooding leading up to Sybil N. Crookham Elementary School





## **Walnut Avenue at Center Street**

Sybil N. Crookham Elementary School



## **Walnut Avenue at Center Street**

Across the street from Sybil N. Crookham Elementary School  
Non continuous curb, gutter and sidewalk



## **Walnut Avenue at Center Street**

Across the street from Sybil N. Crookham Elementary School  
Non continuous curb, gutter and sidewalk



## **Walnut Avenue at Center Street**

Across the street from Sybil N. Crookham Elementary School  
Non continuous curb, gutter and sidewalk



## Walnut Avenue at Center Street

Veterans of Foreign Wars Office



## **Walnut Avenue at Center Street**

Winton School District Office



**Walnut Avenue at Center Street**

Winton Community Hall Inc., Community Center



**Walnut Avenue at Center Street**

Winton Branch Library

# Appendix D

## Detailed Engineer's Estimate

**MERCED COUNTY**  
**Walnut Avenue Rule 20A Improvements**  
**PRELIMINARY CONSTRUCTION COST ESTIMATE**

4/4/2014

ITEM No.	ITEM DESCRIPTION	UNIT OF MEASURE	ENTIRE PROJECT			WALNUT AVE (FROM SANTA FE DRIVE TO WINTON WAY)		
			APPROX. QUANTITY	UNIT PRICE	TOTAL PRICE (in Figures)	APPROX. QUANTITY	UNIT PRICE	TOTAL PRICE (in Figures)
1	WATER POLLUTION CONTROL	LS	1	\$100,000	\$100,000	1	\$60,000	\$60,000
2	TRAFFIC MANAGEMENT PLAN	LS	1	\$10,000	\$10,000	1	\$10,000	\$10,000
3	TRAFFIC CONTROL SYSTEM	LS	1	\$200,000	\$200,000	1	\$100,000	\$100,000
4	CONSTRUCTION AREA SIGNS	LS	1	\$15,000	\$15,000	1	\$15,000	\$15,000
5	DETENTION BASIN EXCAVATION	CY	2,700	\$30	\$81,000	2,100	\$30	\$63,000
6	ROADWAY EXCAVATION (INCLUDES SIDEWALK, CURB AND GUTTER, DRIVEWAY AND CURB RAMP)	CY	6,650	\$35	\$232,750	3,530	\$35	\$123,550
7	REMOVE TREES	EA	60	\$700	\$42,000	30	\$700	\$21,000
8	REMOVE FENCE	LF	2,200	\$5	\$11,000	740	\$5	\$3,700
9	RELOCATE FLASHING TRAFFIC SIGN	EA	2	\$2,500	\$5,000	2	\$2,500	\$5,000
10	RELOCATE FIRE HYDRANT & WATER METER	EA	20	\$5,000	\$100,000	6	\$5,000	\$30,000
11	RELOCATE ROADSIDE SIGN	EA	30	\$200	\$6,000	18	\$200	\$3,600
12	ADJUST MANHOLE AND WATER VALVE TO GRADE	EA	30	\$700	\$21,000	15	\$700	\$10,500
13	COLD PLANE	SY	901	\$15	\$13,515	590	\$15	\$8,850
14	PLANTER WALL	LF	50	\$80	\$4,000	30	\$80	\$2,400
15	WOOD FENCE	LF	1,674	\$15	\$25,110	430	\$15	\$6,450
16	AGGREGATE SUBBASE	CY	3,668	\$50	\$183,400	1,725	\$50	\$86,250
17	HOT MIX ASPHALT	TON	4,012	\$100	\$401,200	1,905	\$100	\$190,500
18	MINOR CONCRETE (SIDEWALK)	SF	30,849	\$8	\$246,792	16,416	\$8	\$131,328
19	MINOR CONCRETE (CURB AND GUTTER)	LF	6,950	\$25	\$173,750	3,310	\$25	\$82,750
20	MINOR CONCRETE (DRIVEWAY)	SF	12,224	\$10	\$122,240	5,860	\$10	\$58,600
21	MINOR CONCRETE (CURB RAMP)	SF	2,944	\$12	\$35,328	1,160	\$12	\$13,920
22	2" WATER SERVICE & METER	EA	1	\$32,000	\$32,000	1	\$32,000	\$32,000
23	15" REINFORCED CONCRETE PIPE	LF	792	\$110	\$87,120	424	\$110	\$46,640
24	18" REINFORCED CONCRETE PIPE	LF	3,230	\$110	\$355,300	1,680	\$110	\$184,800
25	DRAINAGE INLET	EA	39	\$4,000	\$156,000	18	\$4,000	\$72,000
26	MANHOLE	EA	21	\$8,000	\$168,000	10	\$8,000	\$80,000
27	THERMOPLASTIC TRAFFIC STRIPE	LF	17,875	\$3.00	\$53,625	9,140	\$3.00	\$27,420
28	THERMOPLASTIC PAVEMENT MARKING	SF	1,330	\$10.00	\$13,300	1,120	\$10.00	\$11,200
29	MOBILIZATION	LS	1	\$290,000	\$290,000	1	\$149,000	\$149,000
PRELIMINARY TOTAL INFRASTRUCTURE CONSTRUCTION COST					\$3,185,000			\$1,630,000
CONTINGENCIES (10%)						\$318,500		\$163,000
30	CONSTRUCTION PHASE NON-INFRASTRUCTURE				\$150,000			\$150,000
PRELIMINARY TOTAL CONSTRUCTION COST					\$3,653,500			\$1,943,000

Notes:

1. The contingencies shown in this estimates includes the costs associated with:
  - Landscaping and irrigation on private properties
  - Hardscape repair, i.e., concrete walkways, construct brick columns, relocate decorative rocks, etc, on private properties
  - Relocate mail boxes, relocate iron fence and gates, construct driveways behind back of walk
2. The total construction cost does not include the costs associated with underground utility (PG&E, AT&T, Comcast, etc) as well as the street lighting.
3. Winton Bridge and Major Thoroughfare Fund to be used on items 5, 24,25, and 26. All other items are to be funded through the ATP grant.

# Appendix E

## Collision Diagram

CENTER STREET

WALNUT AVENUE



7-23-11 DUI

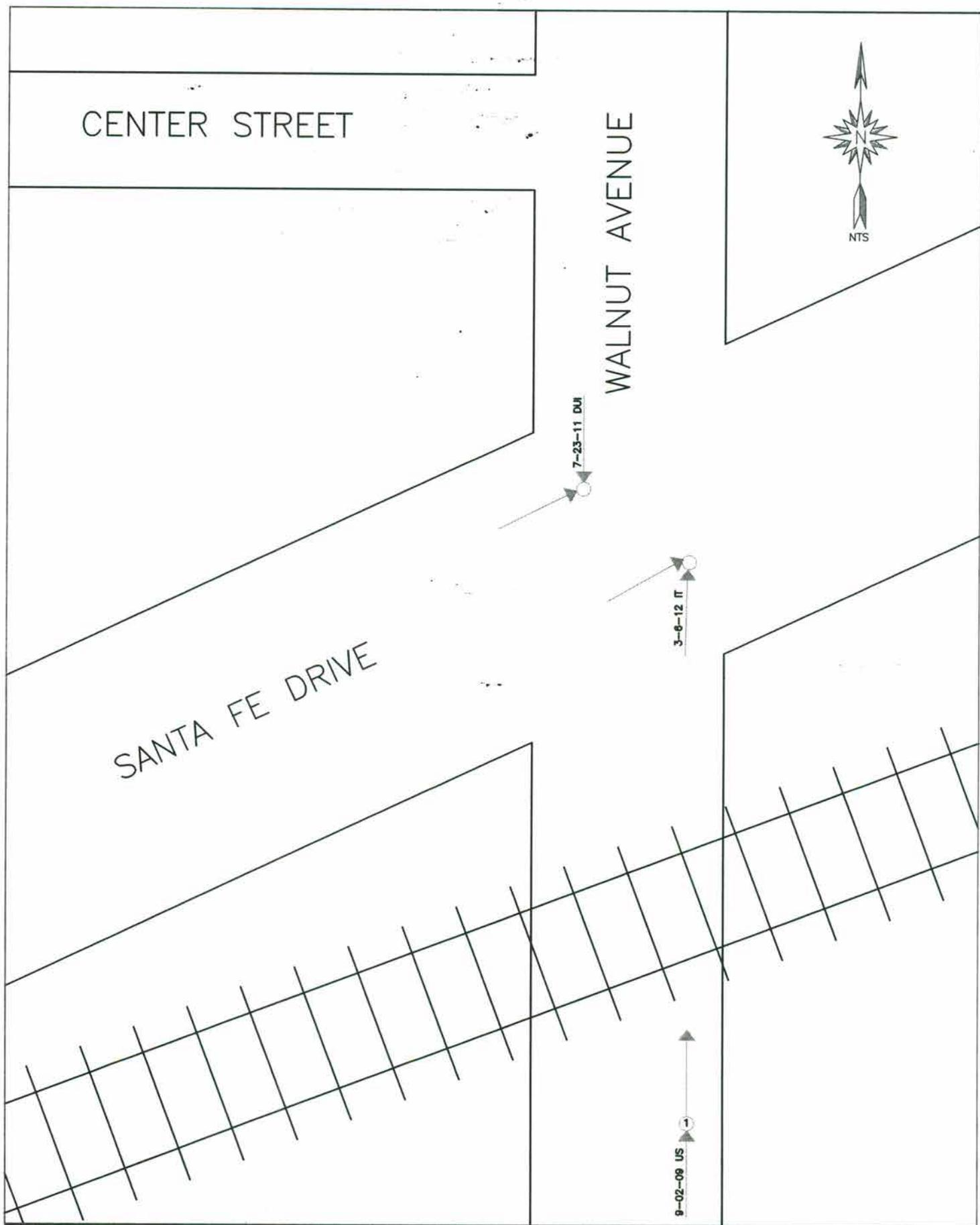
3-6-12 IT

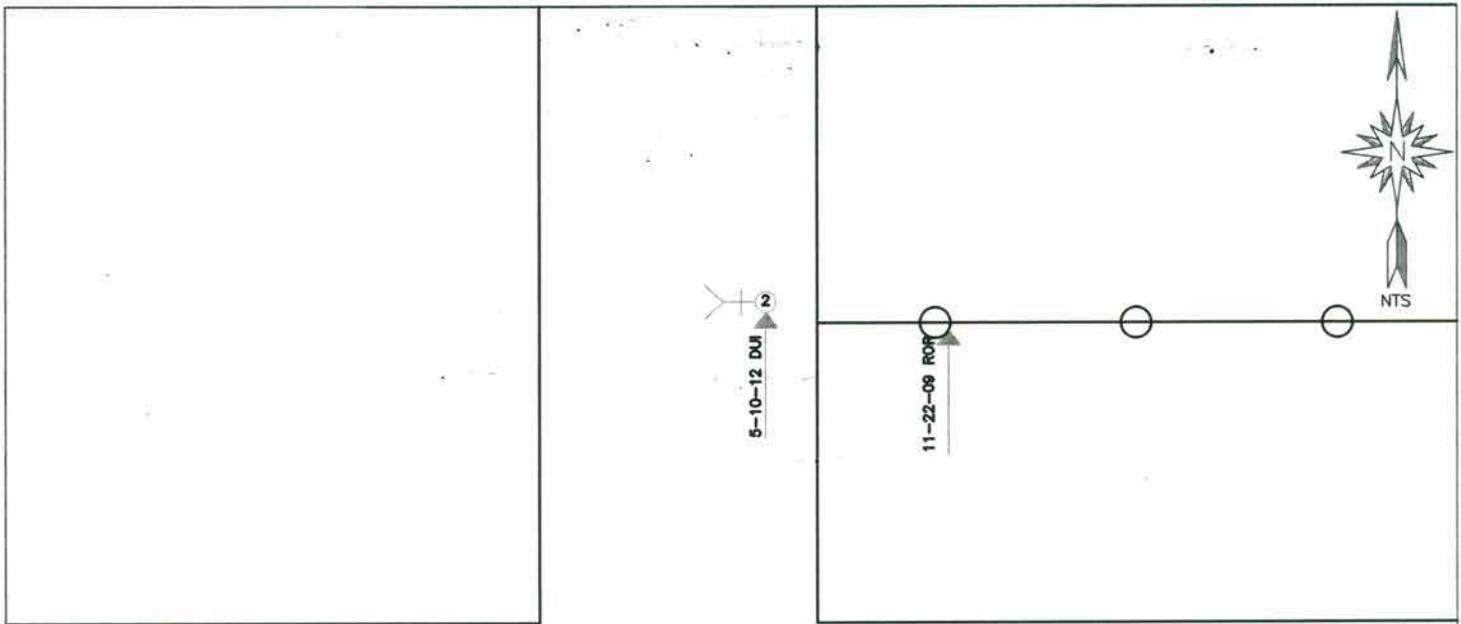
9-02-09 US

SANTA FE DRIVE

COLLISION DIAGRAM

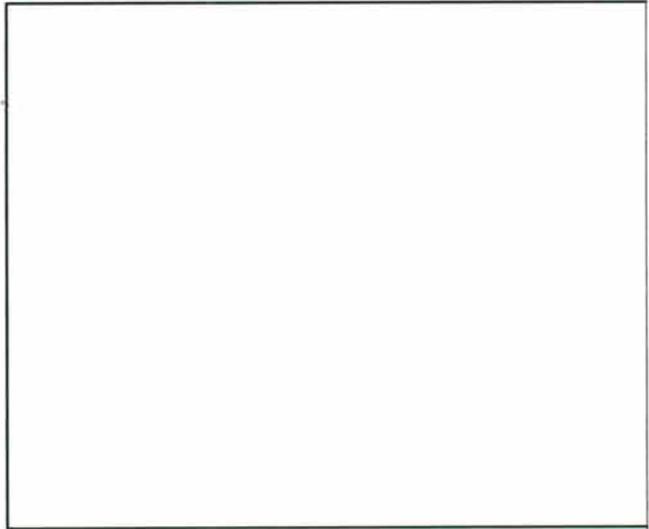
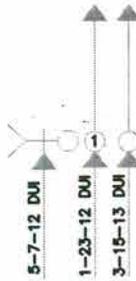
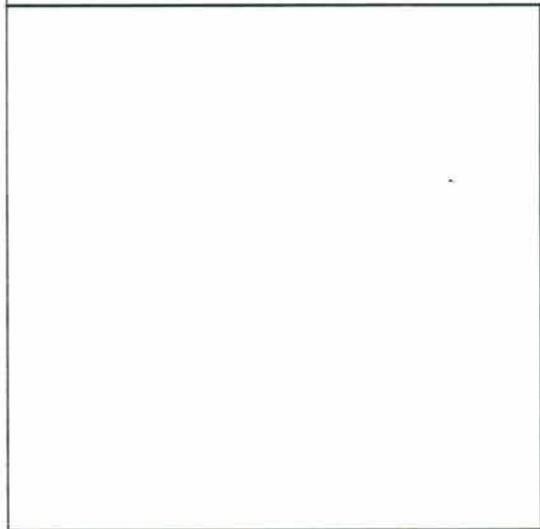
WALNUT AVENUE BETWEEN SANTA FE DRIVE AND WINTON WAY





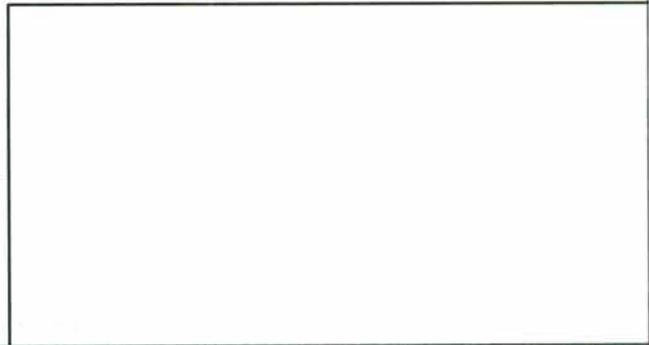
WINTON WAY

WINTON WAY



CENTER STREET

CENTER STREET



COLLISION DIAGRAM

WALNUT AVENUE BETWEEN SANTA FE DRIVE AND WINTON WAY

# Appendix F

## Preliminary Plans

INDEX OF SHEETS

SHEET TITLE	DESCRIPTION
T-1	TITLE SHEET AND LOCATION MAP
K-1	KEY MAP
X-1	TYPICAL CROSS SECTIONS
DM-1 TO 7	DEMOLITION PLANS
L-1 TO 7	LAYOUT PLAN AND PROFILE
C-1 TO 14	CONSTRUCTION DETAILS
U-1 TO 7	UTILITY/DRAINAGE PLAN AND PROFILE
UD-1 TO 2	UTILITY/DRAINAGE DETAILS
SC-1 TO 4	STAGE CONSTRUCTION PLANS
TH-1 TO 4	TRAFFIC HANDLING PLANS
SS-1 TO 4	SIGNING AND STRIPING PLANS

**COUNTY OF MERCED**  
**DEPARTMENT OF PUBLIC WORKS**  
**PROJECT PLANS FOR THE CONSTRUCTION OF**  
**RULE 20A UTILITY UNDERGROUNDING**  
**& PEDESTRIAN PROJECT**  
**IN MERCED COUNTY IN CITY OF WINTON**  
**ALONG WALNUT AVENUE BETWEEN SANTA FE DRIVE AND CALIFORNIA STREET**  
(THE MERCED COUNTY STANDARDS THAT ARE UTILIZED FOR THIS PROJECT ARE INCLUDED IN THE SPECIAL PROVISIONS AND SUPPLEMENTED BY STATE STANDARD PLANS DATED MAY 2010)



**GENERAL NOTES:**

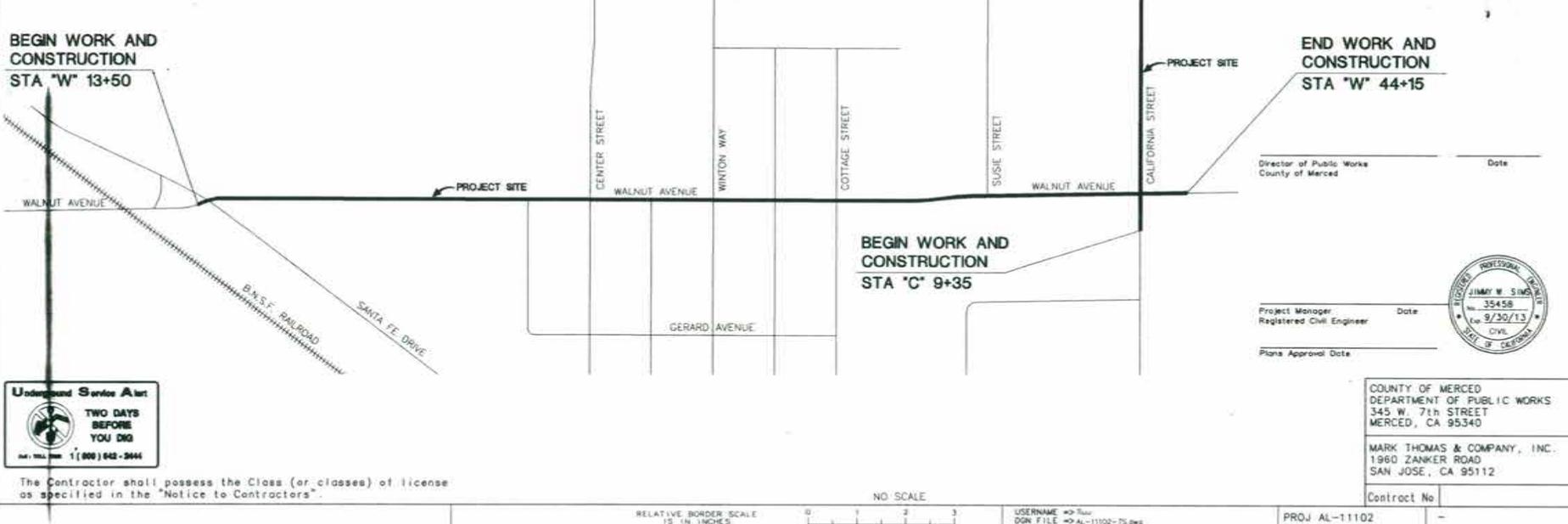
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING GRADES.
- PARTIAL REMOVAL OF CURBS, SIDEWALKS AND PAVEMENT REQUIRES SAWCUTTING AT THE LIMITS FOR REMOVAL. PROVIDE SMOOTH TRANSITION WHERE NEW PAVEMENT / CONCRETE MEETS EXISTING. AREA OF REMOVAL SHALL BE LOCATED BY THE ENGINEER AND CONFIRMED BY THE CITY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING / REPLACING DAMAGED CURB, SIDEWALK AND PAVEMENT RESULTING FROM CONSTRUCTION OPERATIONS.
- IT IS CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES WITH THE APPROPRIATE UTILITY AGENCIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY OWNERS 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO THE UTILITY. CONTACT SERVICE ALERT (USA) AT 800-642-2444.

**END WORK AND CONSTRUCTION**  
STA "C" 17+25

**BEGIN WORK AND CONSTRUCTION**  
STA "W" 13+50

**END WORK AND CONSTRUCTION**  
STA "W" 44+15

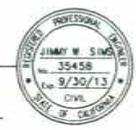
**BEGIN WORK AND CONSTRUCTION**  
STA "C" 9+35



Director of Public Works \_\_\_\_\_ Date \_\_\_\_\_  
County of Merced

Project Manager \_\_\_\_\_ Date \_\_\_\_\_  
Registered Civil Engineer

Plans Approval Date \_\_\_\_\_



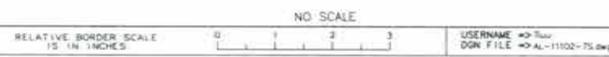
COUNTY OF MERCED  
DEPARTMENT OF PUBLIC WORKS  
345 W. 7th STREET  
MERCED, CA 95340

MARK THOMAS & COMPANY, INC.  
1960 ZANKER ROAD  
SAN JOSE, CA 95112

Contract No. \_\_\_\_\_



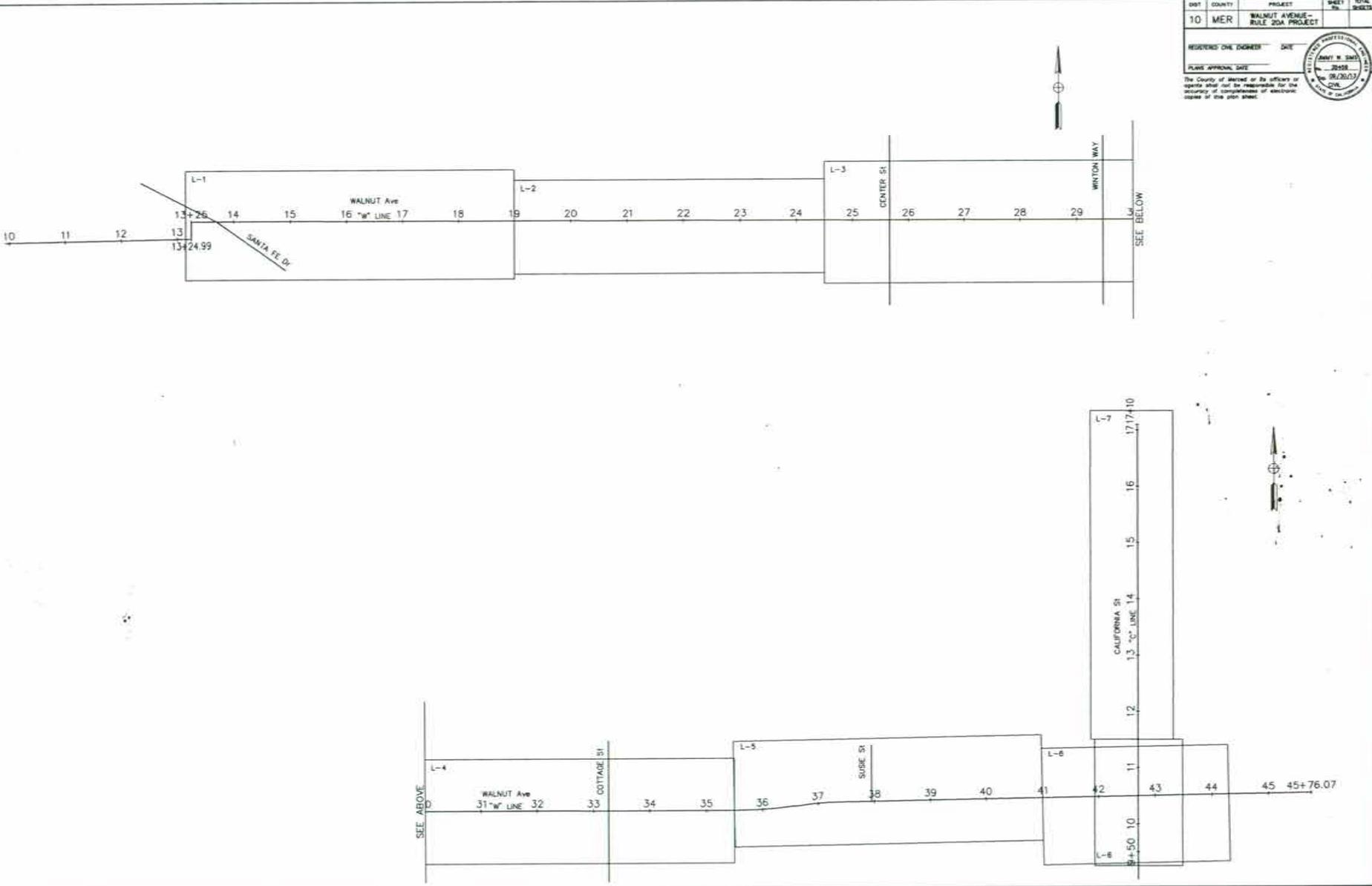
The Contractor shall possess the Class (or classes) of license as specified in the "Notice to Contractors".



PROJ AL-11102

DATE PLOTTED => 10-29-2011 TIME PLOTTED => 7:27 AM

PROJECT ENGINEER: JIMMY W. SIMS  
 DESIGN OVERSIGHT APPROVAL: [Signature]  
 REGISTRATION NO.: [Blank]  
 DATE: [Blank]



DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20A PROJECT		
REGISTERED ONE DRAWING		DATE		
PLANS APPROVAL DATE		DATE		
The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.				



**MERCED COUNTY**  
DEPARTMENT OF PUBLIC WORKS

REVISIONS	DATE	BY	SCALE

**MARK THOMAS & COMPANY, INC.**  
 3000 Highway 99, Suite 310  
 Pasadena, CA 91108 627/411-0000

**MERCED COUNTY DEPARTMENT OF PUBLIC WORKS**  
**WALNUT AVENUE-RULE 20A PROJECT**  
**KEY MAP**

CY	EXC	EMB	SMIERT TOTAL	PROJECT TOTAL





NOTE:  
REFER TO Sht DM-1 FOR NOTES AND LEGEND.

SHT	COUNTY	PROJECT	SHEET	TOTAL
10	MER	WALNUT AVENUE - RULE 20A PROJECT	2058	2058
DESIGNED BY		ENGINEER	DATE	
PLANS APPROVAL DATE				

DATE	BY	DESIGN	CHECKED
SCALE: 1" = 20'			

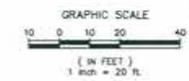
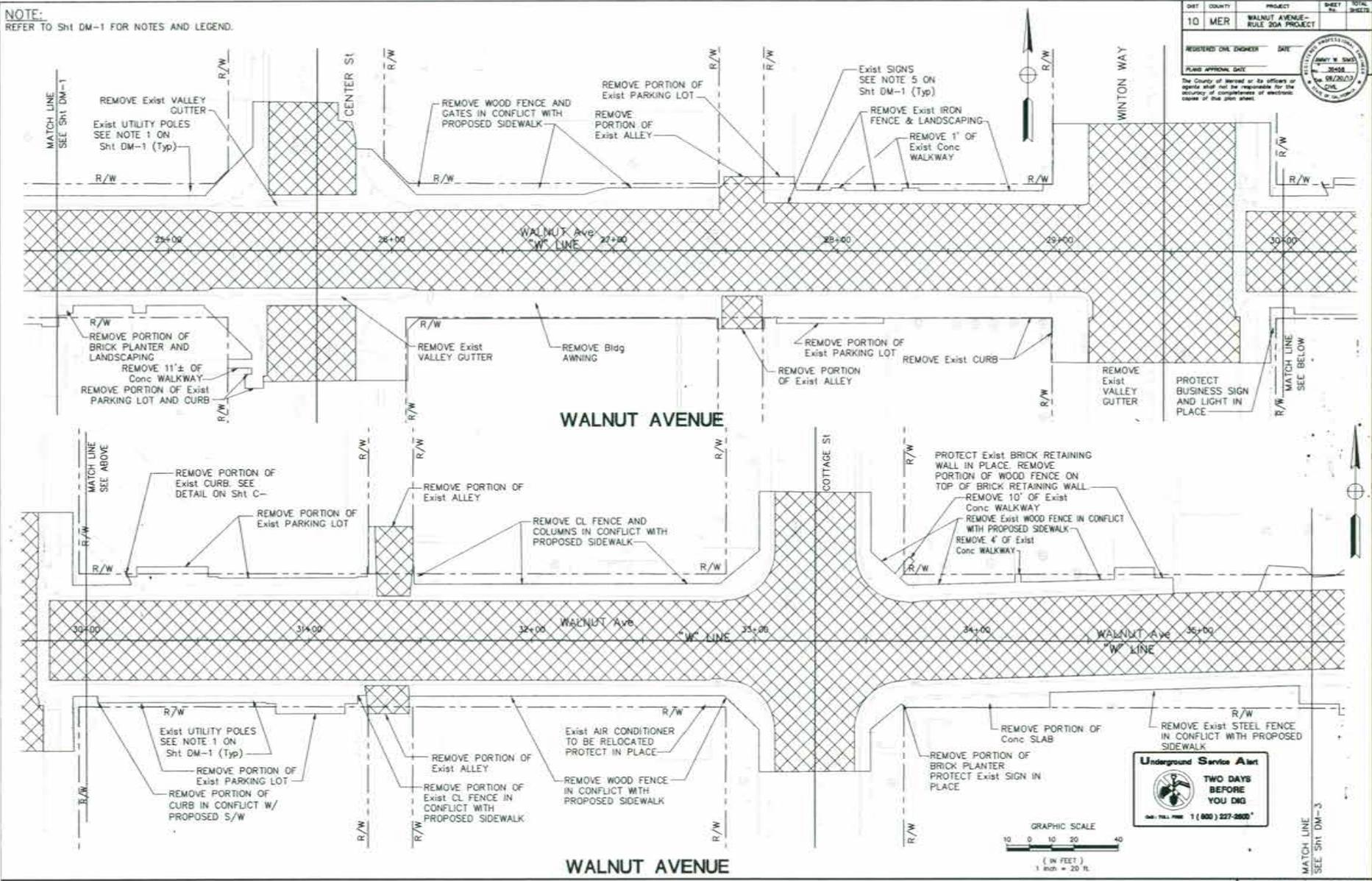


REVISIONS	DATE	BY

MARK THOMAS & COMPANY, INC.  
Professional Engineers, Surveyors, and Planners  
Pasadena, CA 91767-1700  
TEL: 626-797-1100

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20A PROJECT  
DEMOLITION STA. 24+50 TO 35+50

DM-2



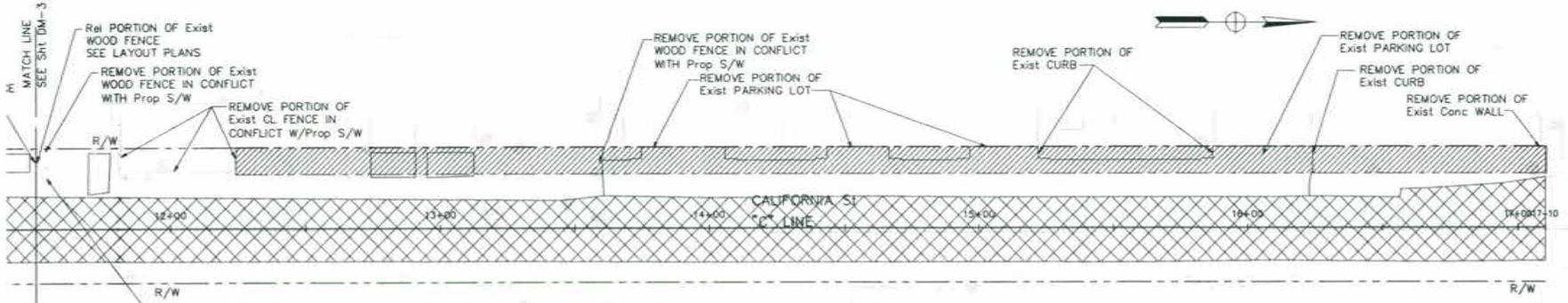
CY	EXC	EMB	SHEET TOTAL	PROJECT TOTAL



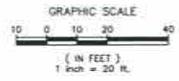
**NOTE:**  
REFER TO Sht DM-1 FOR NOTES AND LEGEND.

SHT	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MERC	WALNUT AVENUE - RULE 20A PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVED DATE				

The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



CALIFORNIA STREET



**Underground Service Alert**



**TWO DAYS BEFORE YOU DIG**

CALL TOLL FREE 1 (800) 227-2808

REVISIONS	DATE	BY	DESIGN	CHECKED	SCALE

MARK THOMAS & COMPANY, INC.  
Professional Engineer, License No. 2058, State of California, Civil  
Professional Seal, No. 2058, State of California, Civil, Exp. 02/20/23  
815/717-8000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20A PROJECT  
DEMOLITION STA. 11+50 TO 17+10

CY	EXC.	EMB.	SHEET TOTAL	PROJECT TOTAL

DM-4

- NOTES:**
1. CONSTRUCT CURB & GUTTER, SIDEWALK AND PAVEMENT SECTIONS PER PLANS AND TYPICAL CROSS SECTIONS.
  2. SEE COUNTY Std DWG SD-01 FOR CURB & GUTTER DETAILS AND DWG DW-01 FOR DRIVEWAY DETAILS.
  3. SEE SHEETS C-6 THRU C-10 FOR ADDITIONAL DRIVEWAY DETAILS.
  4. SEE COUNTY Std DWG MS-08A FOR SIDEWALK DETAILS AND DWG MS-09A FOR RAMP DETAILS.
  5. SEE UTILITY PLANS FOR LOCATIONS AND TYPES OF DRAINS.
  6. SEE Sht C-10 FOR CURB TRANSITION DETAILS AND SPECIAL CURB DETAILS.
  7. SEE SHEETS C-6 THRU C-10 FOR 5' W/ EASEMENT AND TCE DIMENSIONS NOT SHOWN IN LAYOUT PLANS.
  8. CONSTRUCT SIDEWALK TO MATCH EXIST BACK OF WALK IMMEDIATELY ADJACENT TO BUILDINGS, EXCEPT AS NOTED.

- NOTES, Cont:**
1. RECONSTRUCT EXIST WALKWAYS TO MATCH Prop B/W. MAX WALKWAY GRADE IS 5% CONSTRUCT WALKWAYS PER COUNTY Std DWG MS-08A.
  2. REPLACE EXISTING LANDSCAPING IN KIND ON AFFECTED PROPERTIES.
  3. GRADE AT 3:1 SLOPE IN THE AREAS WHERE BACK OF WALK IS ADJACENT TO LANDSCAPING.
  4. PROPOSED DRIVEWAYS BEHIND B/W TO MATCH EXIST DRIVEWAY LIMITS EXCEPT AS SHOWN.

- LEGEND:**
- [Pattern] COLD PLANE HMA PAVEMENT (SEE Sht C-X FOR DETAILS)
  - [Symbol] DRIVEWAY (SEE COUNTY DRAWING DW-01 AND Sht C-X)
  - [Symbol] MODIFIED D/W "A" DETAIL (SEE Sht C-X)
  - [Symbol] CURB RAMP (TYPE A PER COUNTY DRAWING MS-09A)
  - [Symbol] DRIVEWAY No. (SEE Sht C-X TO C-X FOR MORE INFORMATION)

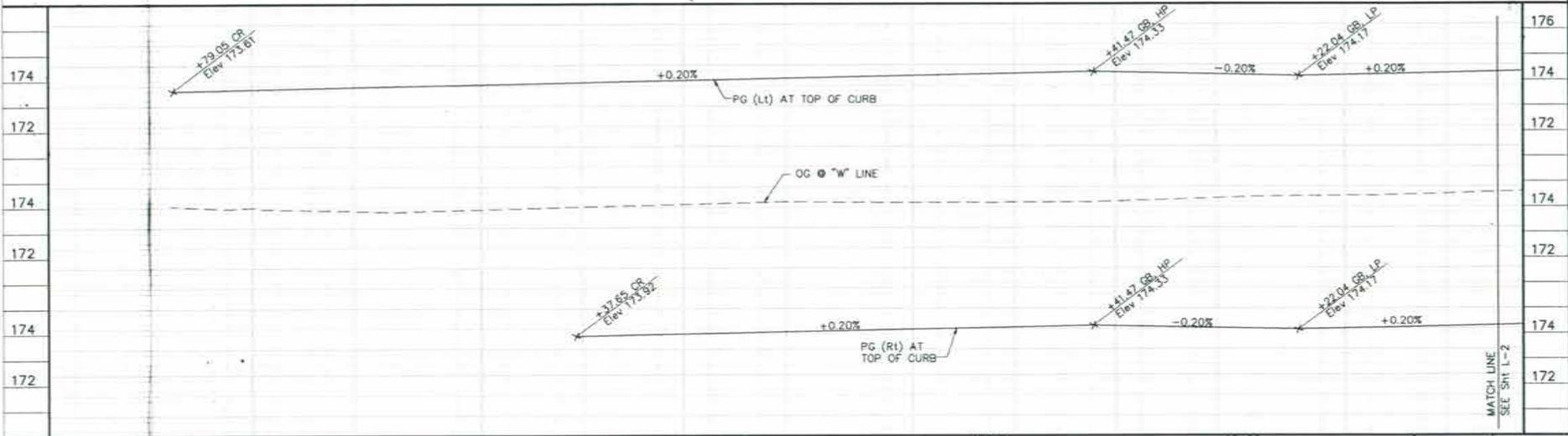
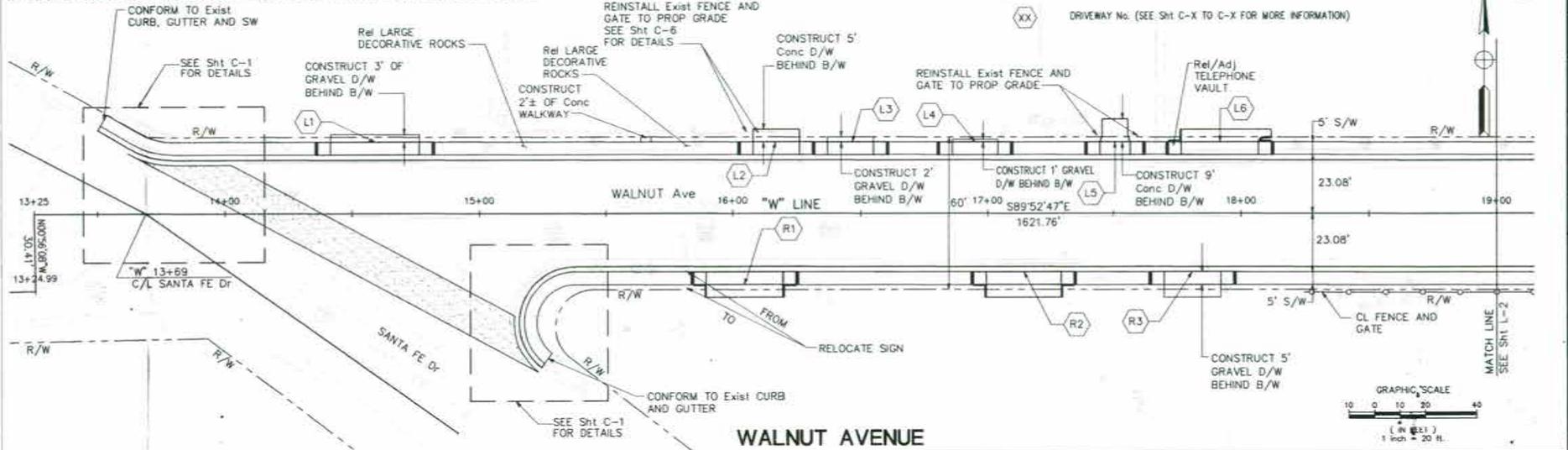
JOB NO.	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		

REGISTERED CIVIL ENGINEER DATE: 08/28/08  
 PLANS APPROVAL DATE: 08/28/08  
 The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of the plan sheet.



REVISIONS	DATE	BY

DESIGN: [Blank]  
 DRAWING: [Blank]  
 CHECKED: [Blank]  
 SCALE: H: 1"=20' V: 1"=2'  
 MARK THOMAS & COMPANY, INC.  
 15000 Highway 99, Suite 100  
 Fresno, CA 93727-4000  
 (559) 438-8888

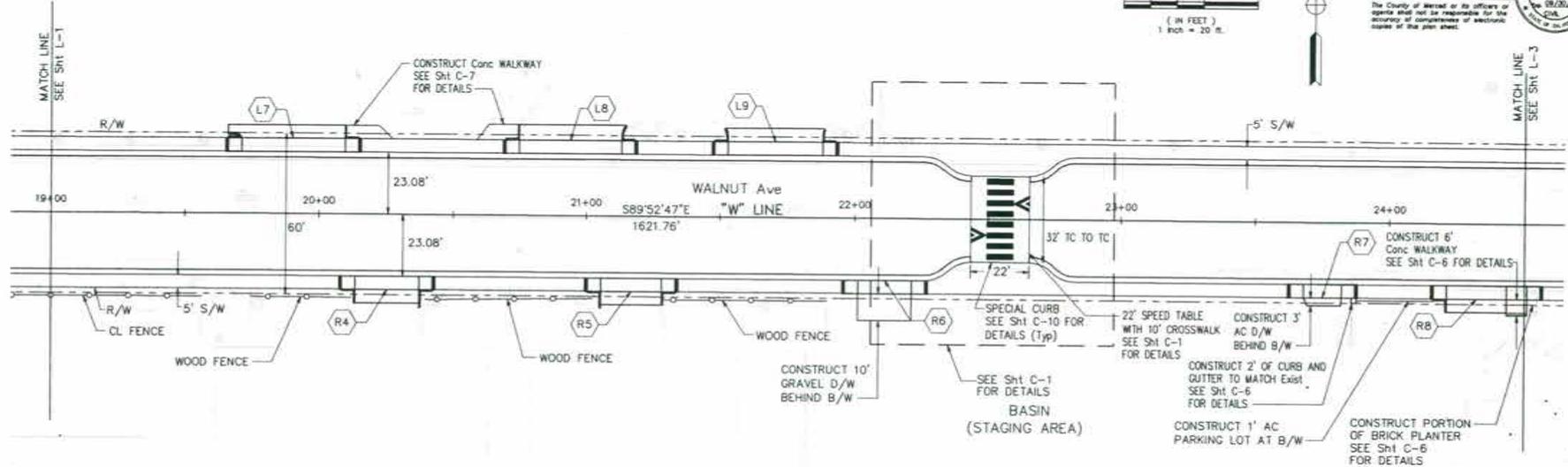
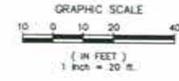


Station	14+00	15+00	16+00	17+00	18+00	SHEET TOTAL	PROJECT TOTAL
CY							

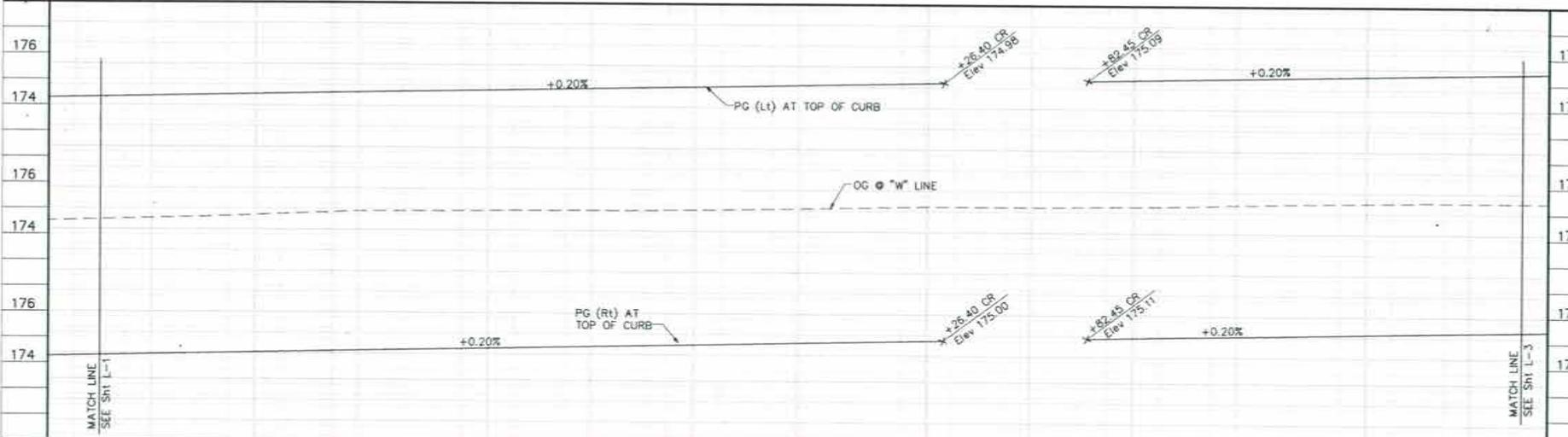
MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20 PROJECT  
 LAYOUT STA. 13+30 TO 19+00

NOTE:  
1. REFER TO SHEET L-1 FOR NOTES AND LEGEND.

SHEET NO.	10	TOTAL SHEETS	20
COUNTY	MERCED	PROJECT	WALNUT AVENUE - RULE 20 PROJECT
REGISTERED CIVIL ENGINEER	DATE	DATE	DATE
PLANS APPROVAL DATE			



WALNUT AVENUE



Station	20+00	21+00	22+00	23+00	24+00	SUBSET TOTAL	PROJECT TOTAL
CY EXC.							
EMB.							



MARK THOMAS & COMPANY, INC.  
Professional Engineer, Surveyor, and Planning Consultant  
Fresno, CA 93702 432/471-7100

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20 PROJECT  
LAYOUT STA. 19+00 TO 24+50



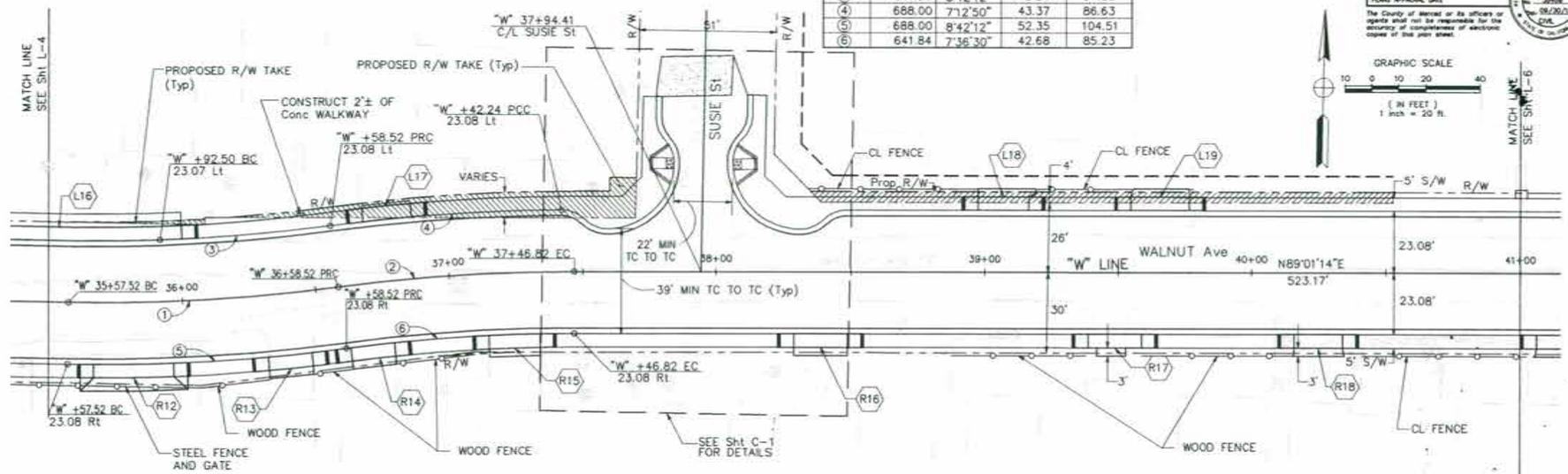
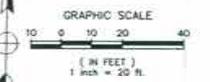


NOTE:  
1. REFER TO SHEET L-1 FOR NOTES AND LEGEND.

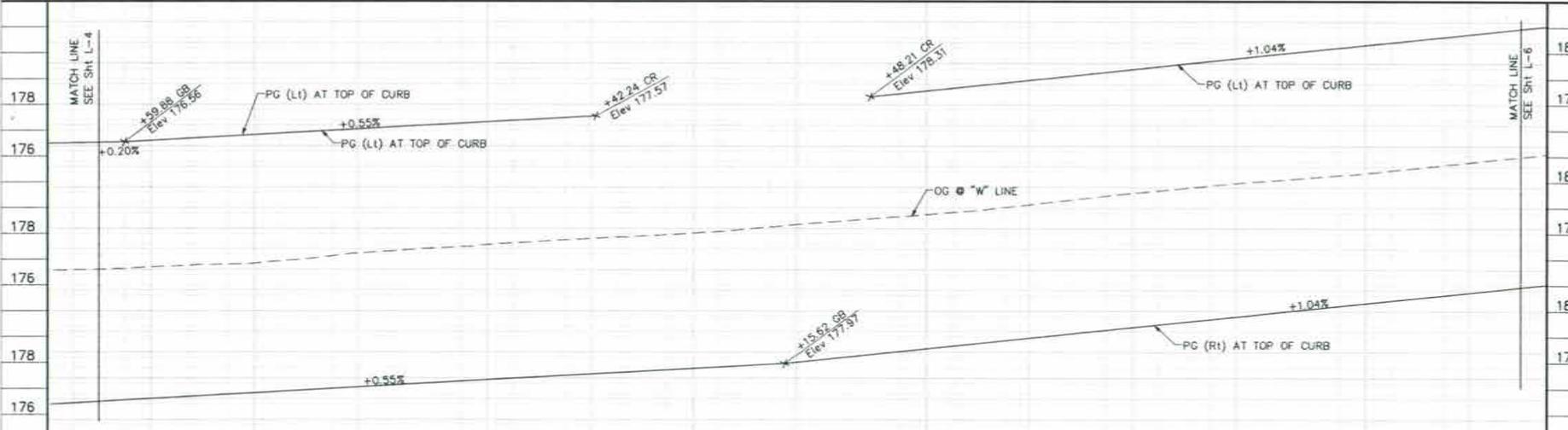
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(2)	664.92	7°36'30"	44.21	88.30
(3)	641.84	8°42'12"	48.84	97.50
(4)	688.00	7°12'50"	43.37	86.63
(5)	688.00	8°42'12"	52.35	104.51
(6)	641.84	7°36'30"	42.68	85.23

DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		

REGISTERED CIVIL ENGINEER DATE: 05/20/23  
 CIVIL  
 PLANS APPROVAL DATE: 05/20/23  
 COUNTY OF MERCER  
 DEPARTMENT OF PUBLIC WORKS



WALNUT AVENUE



Station	36+00	37+00	38+00	39+00	40+00		
Exc. CY							
Emb. CY							
	SHEET TOTAL					PROJECT TOTAL	

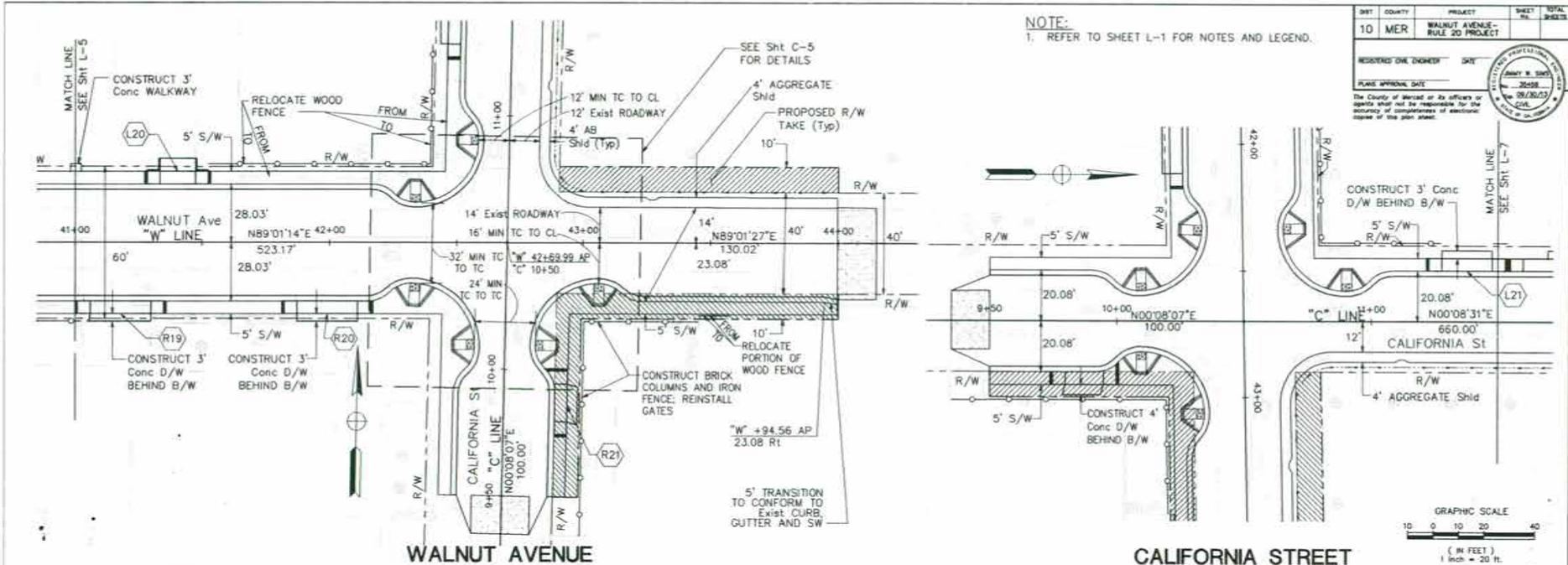
REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN: [Signature]  
 CHECKED: [Signature]  
 SCALE: H: 1"=20' V: 1"=2'  
 MARK THOMAS & COMPANY, INC.  
 3000 Highway 99, Suite 315  
 Prunedale, CA 94368 875/477-8000

MERCER COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20 PROJECT  
 LAYOUT STA. 35+50 TO 41+00

L-5



NOTE:  
1. REFER TO SHEET L-1 FOR NOTES AND LEGEND.

DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		24/23
RESIDING CIV. ENGINEER		DATE		
PLANS APPROVAL DATE				

The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

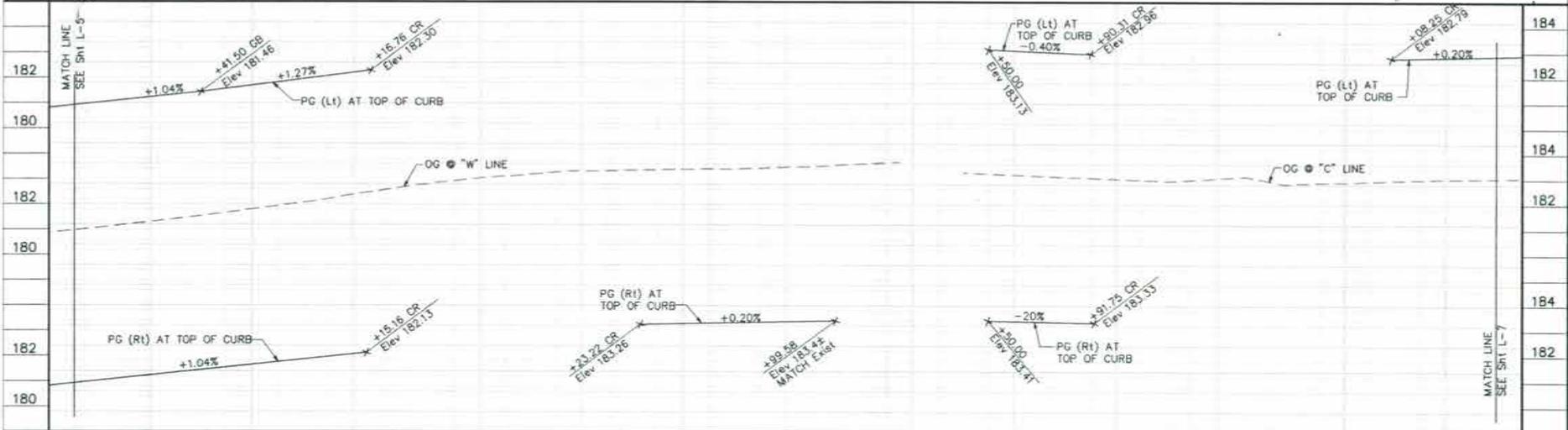


REVISIONS	DATE	BY

MARK THOMAS & COMPANY, INC.  
Creating Engineering, Surveying, and Planning Solutions  
Palo Alto, CA 94308 415.471.1200



MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE - RULE 20 PROJECT  
WALNUT STA. 41+00 TO 44+00 & CALIFORNIA STA. 9+50 TO 11+50

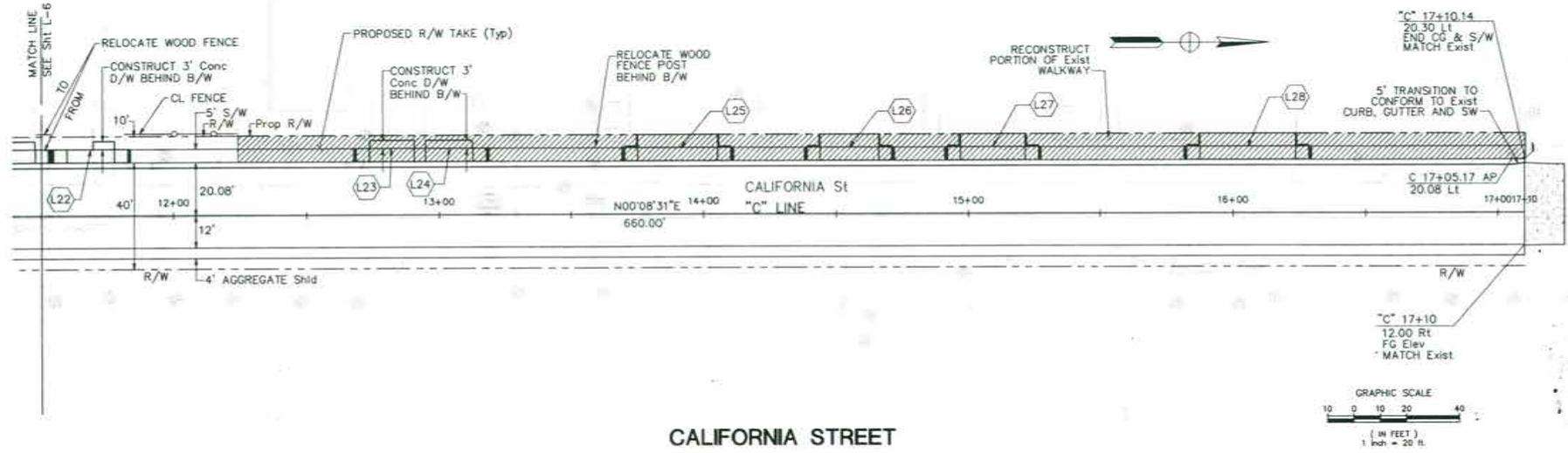


Station	41+00	42+00	43+00	44+00	10+00	11+00	SHEET TOTAL	PROJECT TOTAL
CY EXC								

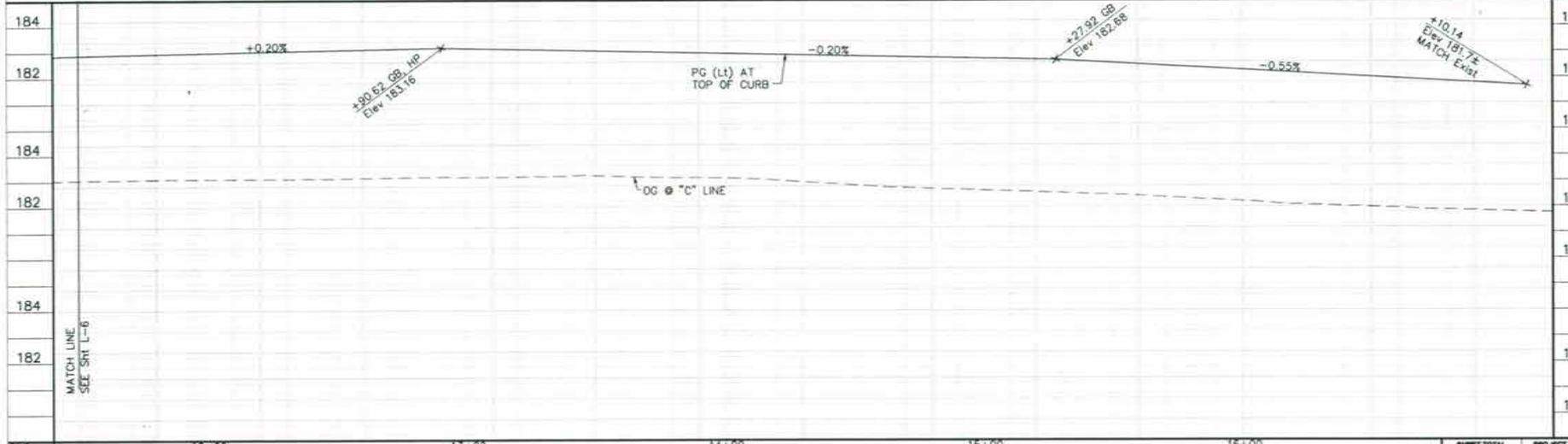
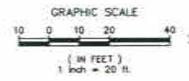
NOTE:  
1. REFER TO SHEET L-1 FOR NOTES AND LEGEND.

DIST	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
10	MER	WALNUT AVENUE-RULE 20 PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE				

MERCER COUNTY  
DEPARTMENT OF PUBLIC WORKS



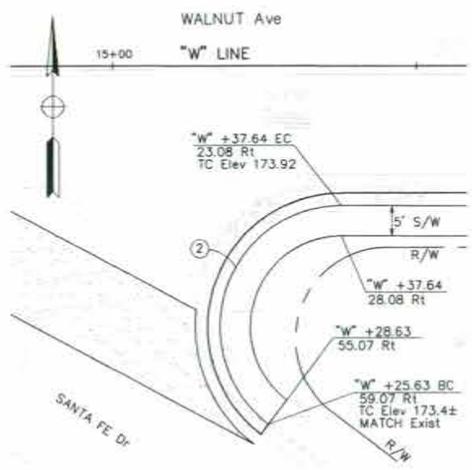
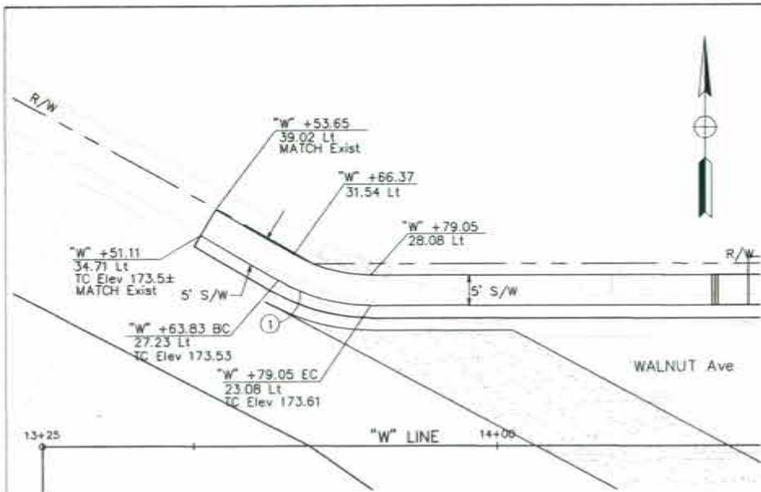
CALIFORNIA STREET



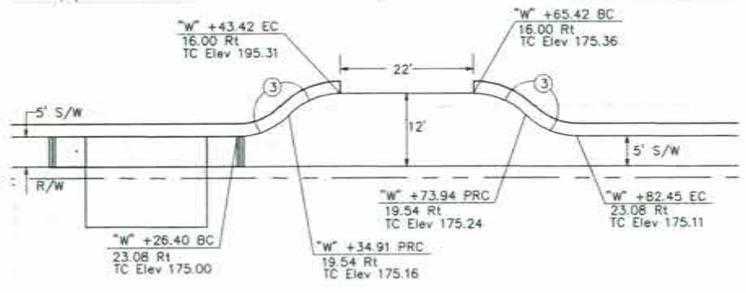
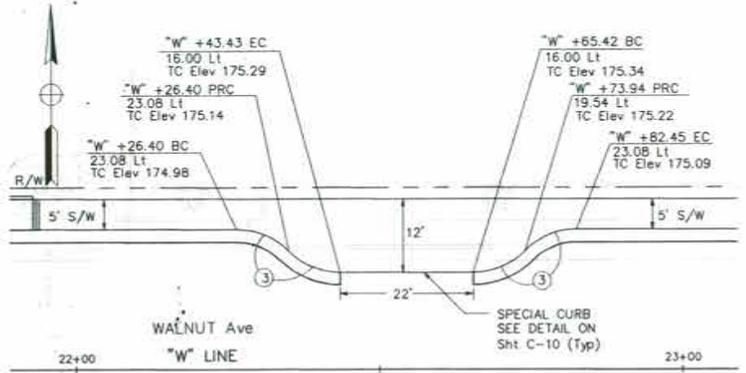
Station	12+00	13+00	14+00	15+00	16+00	SHEET TOTAL	PROJECT TOTAL
CY EXC.							
PLAN							

REVISIONS  
DATE  
BY  
DESIGN  
DRAWN  
CHECKED  
SCALE: H. 1"=20' V. 1"=2'  
MARK THOMAS & COMPANY, INC.  
5000 Industrial Blvd., Suite 110  
Fresno, CA 93728 (559) 431-9000

MERCER COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20 PROJECT  
LAYOUT STA. 11+50 TO 17+10



CURVE TABLE			
NO.	RADIUS	LENGTH	DELTA
1	30.00	15.96	30°28'30"
2	20.00	49.94	143°04'32"
3	12.00	9.46	45°10'54"
4	12.00	9.46	45°10'54"
5	12.00	9.53	45°31'20"
6	12.00	9.45	45°07'40"
7	25.00	38.80	88°55'09"
8	25.00	39.74	91°04'51"



DIST COUNTY PROJECT SHEET TOTAL  
 10 MER WALNUT AVENUE-RULE 20A PROJECT 20  
 REVISIONS ONE ENGINEER DATE  
 PLANS APPROVAL DATE  
 The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



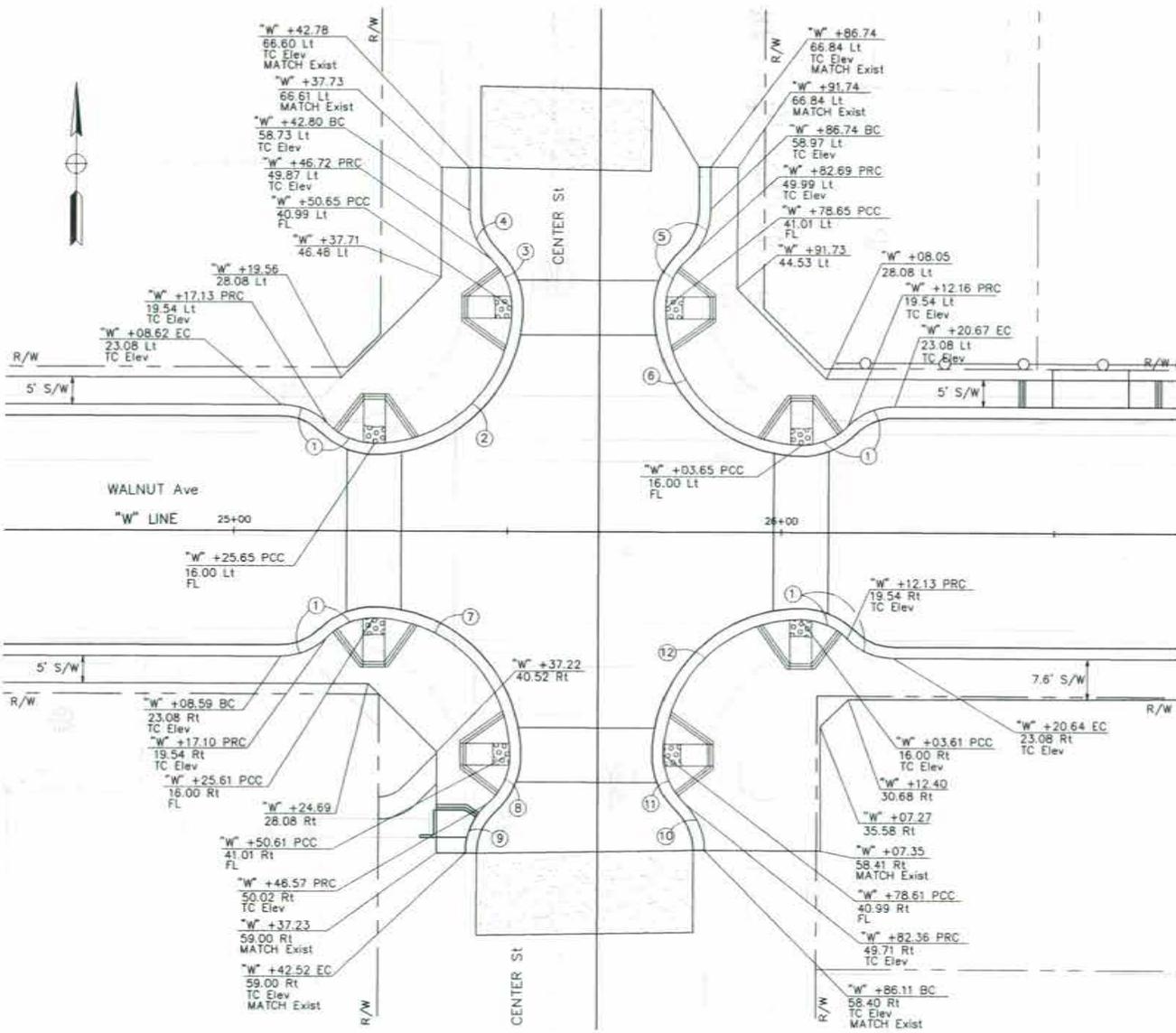
**MERCER COUNTY**  
 DEPARTMENT OF PUBLIC WORKS

REVISIONS	DATE	BY

DESIGN DRAWN CHECKED  
**MARK THOMAS & COMPANY, INC.**  
 Professional Engineer, Surveyor, and Planning Services  
 Modesto, CA 95208 872/471-8000

MERCER COUNTY DEPARTMENT OF PUBLIC WORKS  
**WALNUT AVENUE-RULE 20A PROJECT**  
 CONSTRUCTION DETAILS: CURB RETURN ELEVATIONS

CY	EXC	EMB	SHEET TOTAL	PROJECT TOTAL



SHEET NO.	10	COUNTY	MER	PROJECT	WALNUT AVENUE - RULE 20A PROJECT	SHEET NO.	TOTAL SHEETS
ISSUED FOR ENGINEER	DATE	DESIGNED BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

PLANS APPROVAL DATE: MAY 18 2008

The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of the plans.



**MERCED COUNTY**  
DEPARTMENT OF PUBLIC WORKS

CURVE NO.	RADIUS	LENGTH	DELTA
1	12.00	9.46	45°10'54"
2	25.00	39.26	89°58'36"
3	12.00	10.00	47°44'02"
4	12.00	9.97	47°37'07"
5	12.00	10.15	48°27'22"
6	25.00	39.28	90°01'24"
7	25.00	39.28	90°01'25"
8	12.00	10.18	48°35'58"
9	12.00	10.15	48°27'22"
10	12.00	9.73	46°27'49"
11	12.00	9.75	46°33'58"
12	25.00	39.26	89°58'36"

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN: [ ]  
 CHECKED: [ ]  
 SCALE: 1" = 10'

**MARK THOMAS & COMPANY, INC.**  
 Professional Engineers, Surveyors, and Planning Services  
 10000 N. G Street, Suite 100, Fresno, CA 93720 (559) 231-0000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
**WALNUT AVENUE-RULE 20A PROJECT**  
 CONSTRUCTION DETAILS: CURB RETURN ELEVATIONS

CY	EXC	EMB	SHRUB TOTAL	PROJECT TOTAL

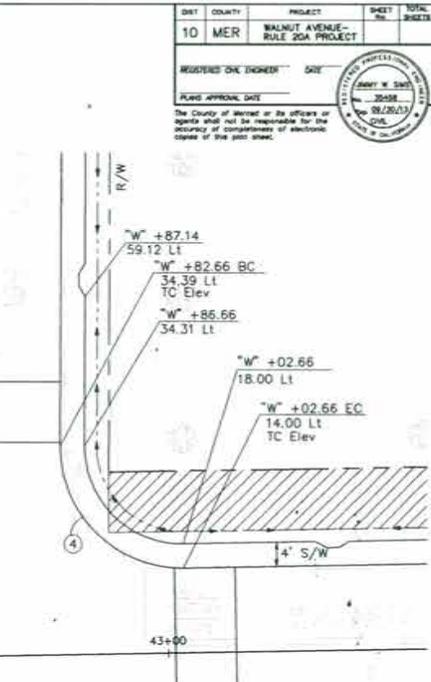
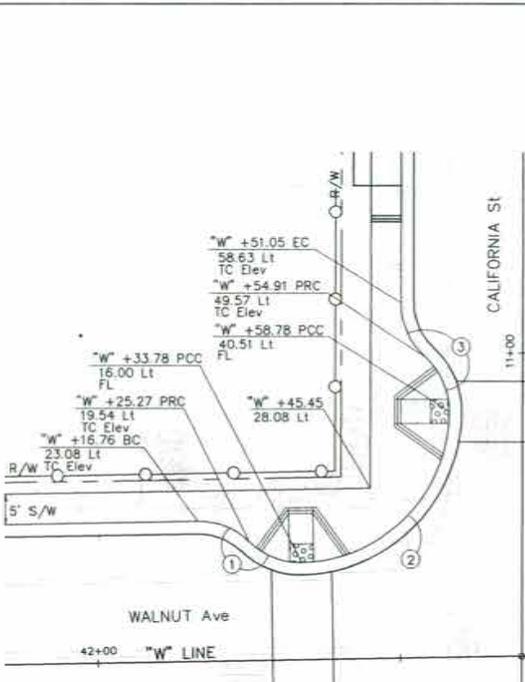
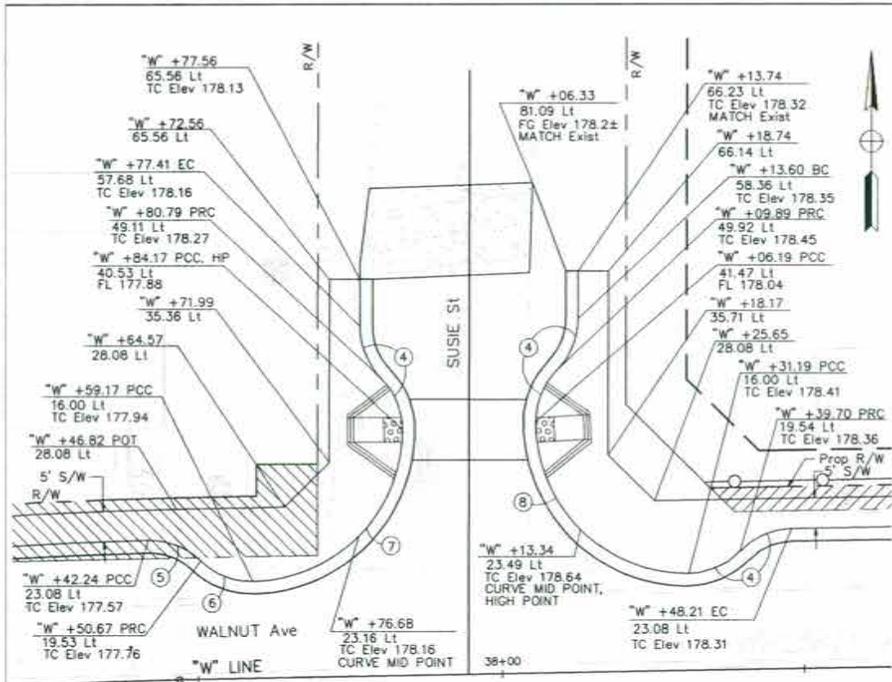




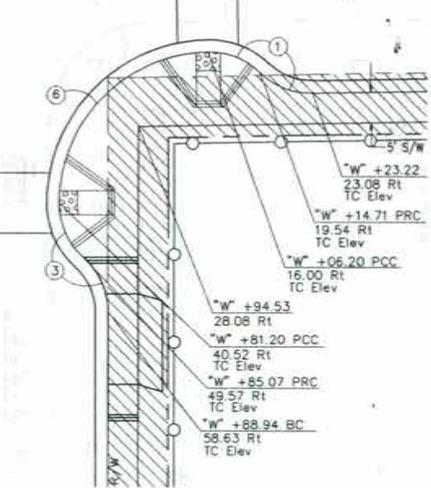
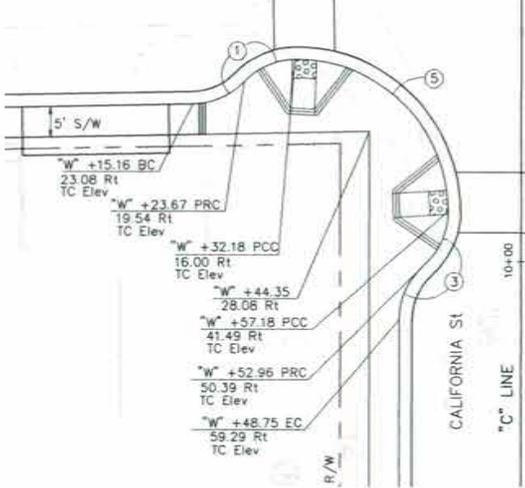
SHEET	10	COUNTY	MER	PROJECT	WALNUT AVENUE - RULE 20A PROJECT	SHEET No.	10	TOTAL SHEETS	20																
REVISIONS: <table border="1"> <tr><th>NO.</th><th>DATE</th><th>BY</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>										NO.	DATE	BY	DESCRIPTION												
NO.	DATE	BY	DESCRIPTION																						
PLANS APPROVAL DATE: _____																									
The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of the plan sheet.																									



**MERCED COUNTY**  
DEPARTMENT OF PUBLIC WORKS

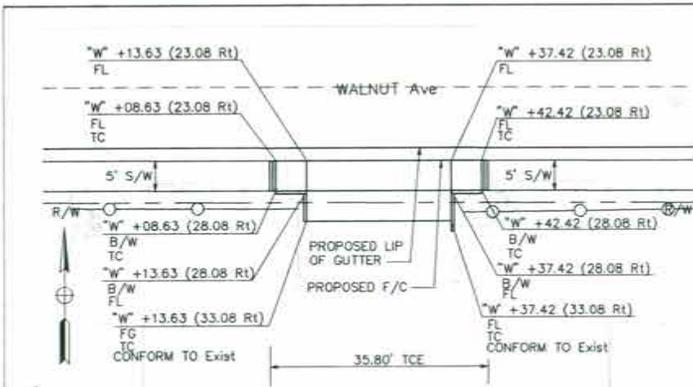


CURVE TABLE			
	RADIUS	LENGTH	DELTA
C1	12.00	9.46	45°10'54"
C2	25.00	38.78	88°52'43"
C3	12.00	10.15	48°27'22"
C4	20.00	31.81	91°07'04"
C5	25.00	39.76	91°06'53"
C6	25.00	38.79	88°53'20"

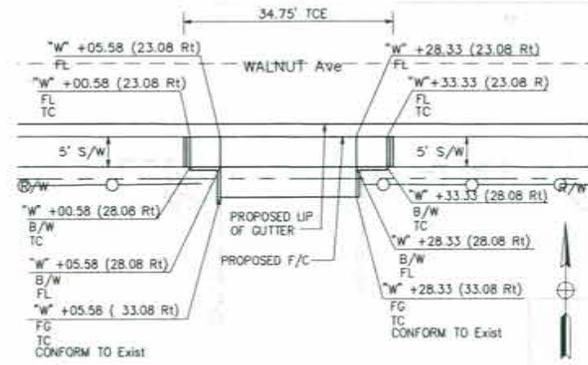


CY EXC									
EMB.									
								SHEET TOTAL	PROJECT TOTAL

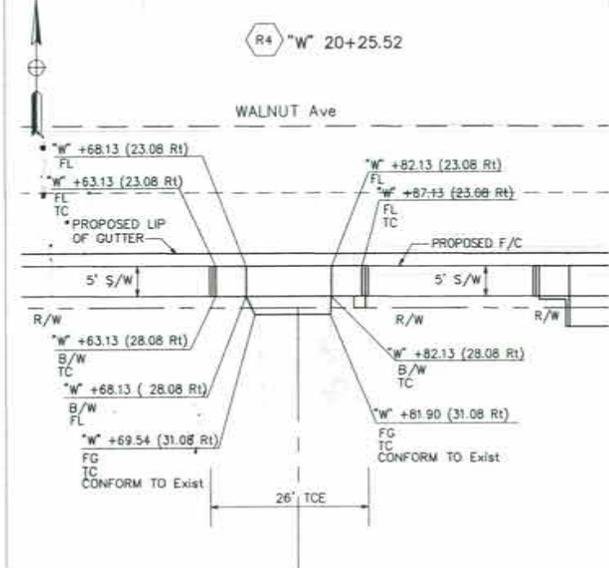
MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20A PROJECT  
CONSTRUCTION DETAILS: CURB RETURN ELEVATIONS



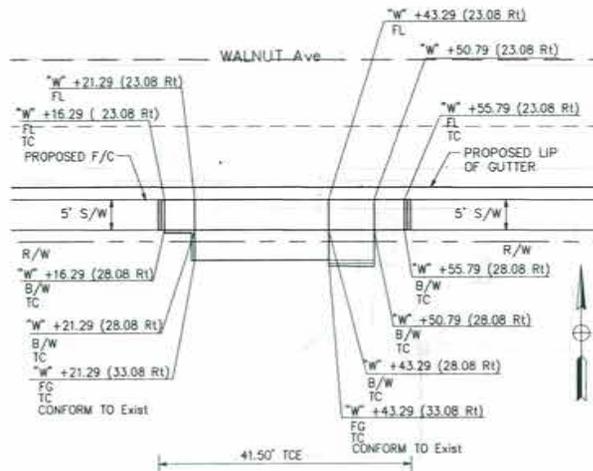
R4 "W" 20+25.52



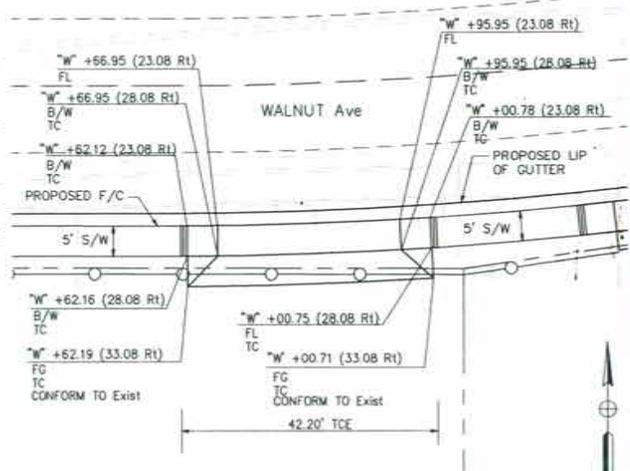
R5 "W" 21+16.95



R7 "W" 23+75.13



R8 "W" 24+32.29



R12 "W" 35+81.45

DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20A PROJECT		
DESIGNED BY	CHECKED	DATE		
PLANS APPROVAL DATE	The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of the plan sheet.			



REVISIONS	DATE
BY	
DESIGN	CHECKED
SCALE:	1"=10'

MARK THOMAS & COMPANY, INC.  
 3000 Highway 99, Suite 315  
 Patterson, CA 95368 925/417-8000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20A PROJECT  
 CONSTRUCTION DETAILS: CURB RETURN ELEVATIONS

CY EXC		SHEET TOTAL	PROJECT TOTAL
EMB			





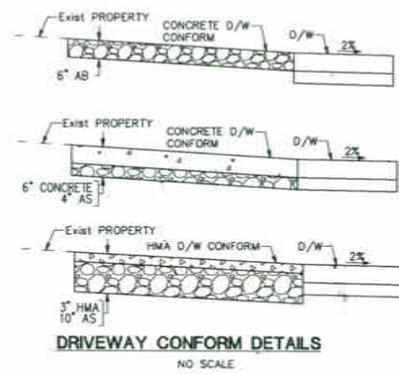
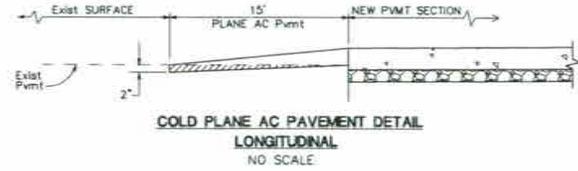
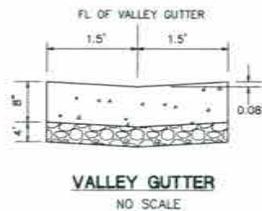
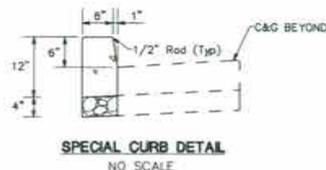
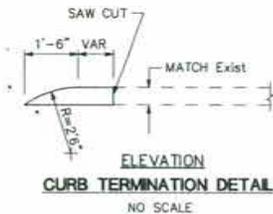


DRIVEWAY TABLE

C/L STATION	OFFSET TO F/C	WIDTH	ELEVATION @ B/W		D/W TYPE (SEE NOTES)	DETAIL ON SHEET
			Lt	Rt		
R1	"W" 16+04.56	23.08 Rt	42	173.81 173.75	MOD TYPE A	
R2	"W" 17+14.30	23.08 Rt	42	174.03 173.97	MOD TYPE A	
R3	"W" 17+80.99	23.08 Rt	34	173.95 174.00	DW-01	
R4	"W" 20+25.52	23.08 Rt	35.80	174.34 174.29	MOD TYPE A	C-6
R5	"W" 21+16.95	23.08 Rt	34.75	174.52 174.48	MOD TYPE A	C-6
R6	"W" 22+11.40	23.08 Rt	32	174.71 174.67	DW-01	
R7	"W" 23+75.13	23.08 Rt	26	175.04 175.01	DW-01	C-6
R8	"W" 24+32.29	23.08 Rt	41.50	175.17 175.12	MOD TYPE A	C-6
R9	"W" 27+56.76	23.08 Rt	32	210.11 210.06	MOD TYPE A	
R10	"W" 31+00.10	23.08 Rt	41.50	175.78 175.72	MOD TYPE A	
R11	"W" 31+36.60	23.08 Rt	31.50	175.80 175.80	MOD TYPE A	
R12	"W" 35+81.45	23.08 Rt	42	176.49 176.33	DW-01	C-6
R13	"W" 36+37.96	23.08 Rt	28.50	176.76 176.68	DW-01	
R14	"W" 36+68.76	23.08 Rt	28.41	176.94 176.84	DW-01	
R15	"W" 37+23.73	23.08 Rt	31	177.25 177.14	DW-01	
R16	"W" 38+38.68	23.08 Rt	32	178.04 177.83	DW-01	
R17	"W" 39+48.89	23.08 Rt	32	179.19 178.98	DW-01	
R18	"W" 40+24.84	23.08 Rt	30	179.97 179.78	DW-01	
R19	"W" 41+17.98	23.08 Rt	36	180.97 180.72	DW-01	
R20	"W" 41+99.16	23.08 Rt	36	181.82 181.57	DW-01	
R21	"C" 9+87.23	20.08 Rt	27	183.05 183.08	DW-01	

DRIVEWAY TABLE

C/L STATION	OFFSET TO F/C	WIDTH	ELEVATION @ B/W		D/W TYPE (SEE NOTES)	DETAIL ON SHEET
			Lt	Rt		
L1	"W" 14+58.88	23.08 Lt	47	173.46 173.53	DW-01	
L2	"W" 16+16.94	23.08 Lt	30	173.79 173.82	DW-01	C-8
L3	"W" 16+46.44	23.08 Lt	30	173.85 173.88	DW-01	
L4	"W" 16+94.94	23.08 Lt	30	173.94 173.98	DW-01	
L5	"W" 17+50.52	23.08 Lt	24	174.05 174.03	DW-01	
L6	"W" 17+91.60	23.08 Lt	42	173.99 173.93	MOD TYPE A	C-7
L7	"W" 19+90.29	23.08 Lt	50.60	174.19 174.27	MOD TYPE A	C-7
L8	"W" 20+93.85	23.08 Lt	50.30	174.40 174.48	MOD TYPE A	C-7
L9	"W" 21+70.30	23.08 Lt	47	174.56 174.63	MOD TYPE A	C-7
L10	"W" 26+56.56	23.08 Lt	26	175.63 175.66	DW-01	
L11	"W" 27+56.76	23.08 Lt	32	175.83 175.85	DW-01	
L12	"W" 30+38.62	23.08 Lt	43	176.19 176.25	MOD TYPE A	
L13	"W" 31+36.61	23.08 Lt	31.32	176.14 176.10	MOD TYPE A	C-8
L14	"W" 31+58.93	23.08 Lt	20	176.09 176.06	DW-01	C-8
L15	"W" 34+69.29	23.08 Lt	28.80	176.09 176.13	MOD TYPE A	
L16	"W" 35+49.68	23.08 Lt	111.37	176.17 176.51	DW-01	
L17	"W" 36+79.15	23.08 Lt	30	176.90 176.99	DW-01	
L18	"W" 39+06.98	23.08 Lt	31	178.55 178.75	DW-01	
L19	"W" 39+65.59	23.08 Lt	34	179.14 179.37	DW-01	
L20	"W" 41+40.43	23.08 Lt	26	181.01 181.15	MOD TYPE A	
L21	"C" 11+37.70	20.08 Lt	33	182.29 182.33	DW-01	
L22	"C" 11+68.70	20.08 Lt	31	182.35 182.39	DW-01	
L23	"C" 12+82.12	20.08 Lt	23	182.58 182.62	DW-01	C-9
L24	"C" 13+03.89	20.08 Lt	24	182.62 182.66	DW-01	C-9
L25	"C" 13+90.25	20.08 Lt	42	182.77 182.71	MOD TYPE A	
L26	"C" 14+54.91	20.08 Lt	34	182.63 182.59	MOD TYPE A	C-9
L27	"C" 15+09.18	20.08 Lt	36.32	182.53 182.44	MOD TYPE A	C-9
L28	"C" 16+05.54	20.08 Lt	48	182.06 181.85	MOD TYPE A	



DIST COUNTY PROJECT SHEET TOTAL  
 10 MER WALNUT AVENUE-RULE 20A PROJECT 10 10  
 REQUIRED CMC DESIGNER DATE  
 PLANS APPROVAL DATE  
 THE COUNTY OF MERCED OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SET.

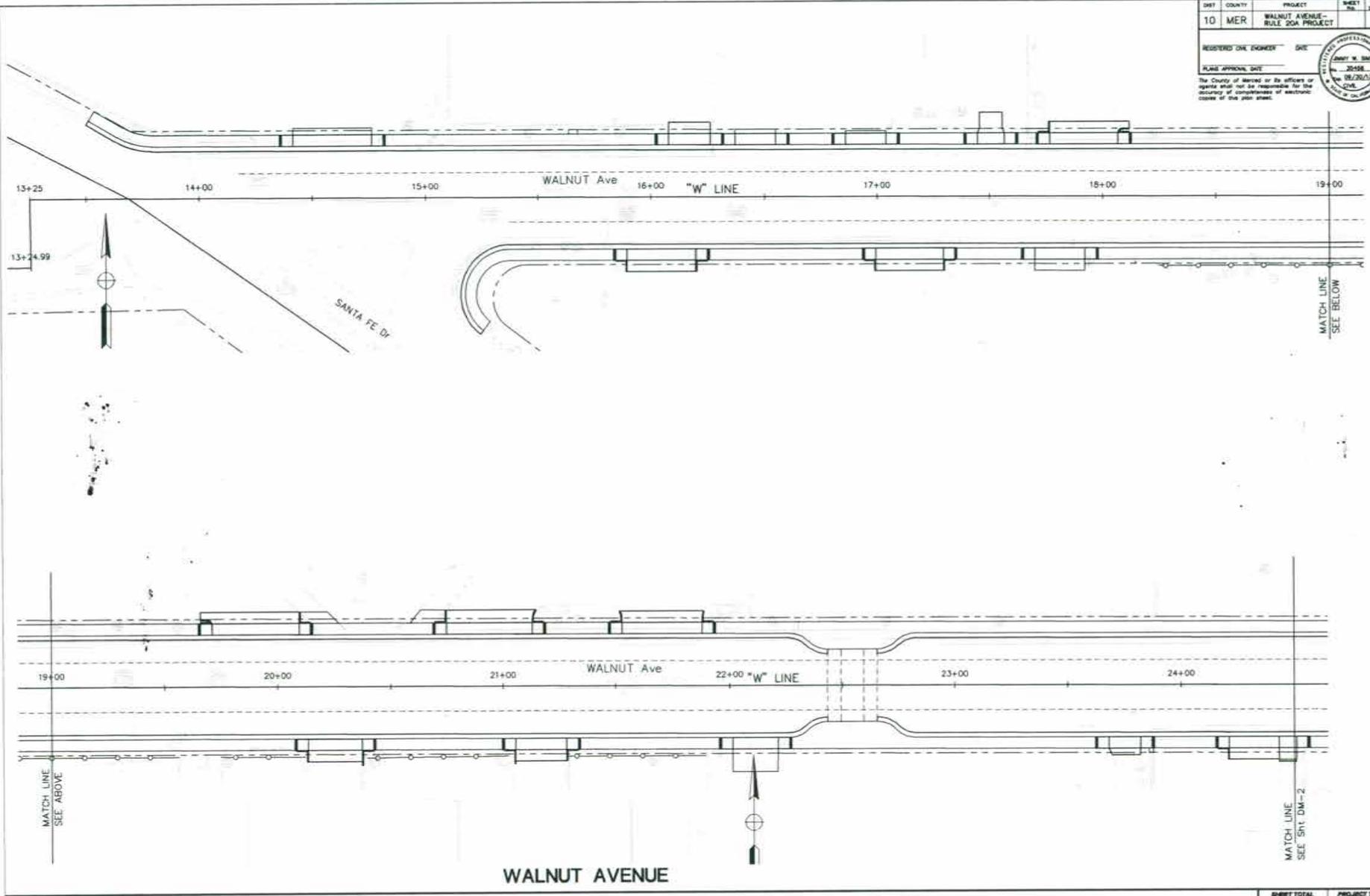


REVISIONS	DATE	BY	CHKD

DESIGN CHECKED  
 DRAWN BY  
 MARK THOMAS & COMPANY, INC.  
 Professional Engineer  
 License No. 44388 822/A 1/1-2000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20A PROJECT  
 CONSTRUCTION DETAILS; DRIVEWAY TABLES

CY	EXC	EMB	SHEET TOTAL	PROJECT TOTAL



DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20A PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE		DATE		
The County of Merced or its officers or agents shall not be responsible for the accuracy of completeness of electronic copies of this plan sheet.				



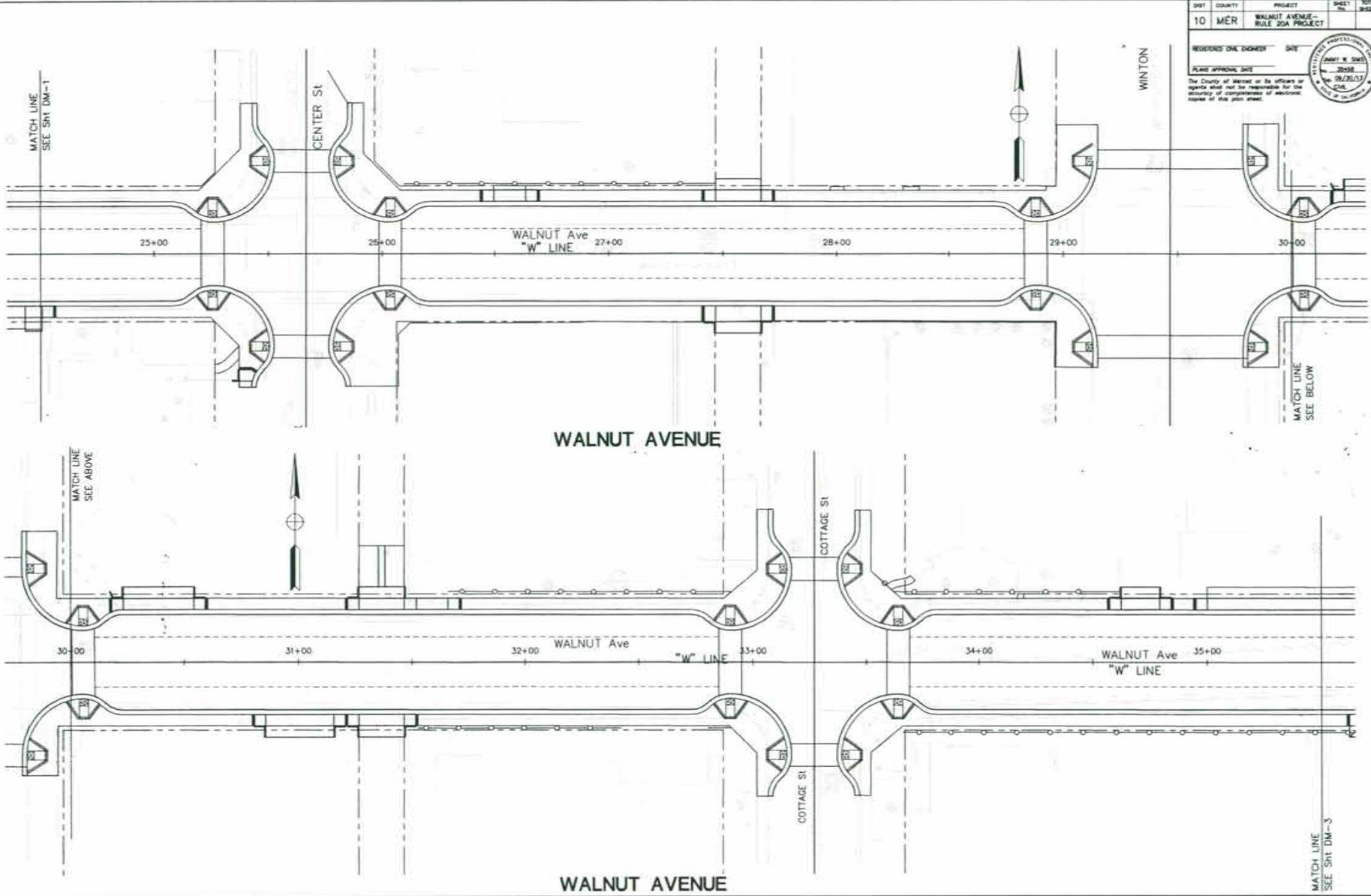
**MERCED COUNTY**  
DEPARTMENT OF PUBLIC WORKS

REVISIONS	BY	DATE

**MARK THOMAS & COMPANY, INC.**  
Professional Engineers, Surveyors, and Planning Services  
Fresno, CA 93702 557-7717-8000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20A PROJECT  
CONSTRUCTION DETAILS - PAVEMENT ELEVATIONS

CY	EXC	EMB	SHEET TOTAL	PROJECT TOTAL



DIST	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20A PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLEASE APPROVAL DATE The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.				



REVISIONS	BY	DATE

**MARK THOMAS & COMPANY, INC.**  
 CIVIL ENGINEERING, SURVEYING AND PLANNING SERVICES  
 3000 Industrial Way, Suite 115  
 Fresno, CA 93720-1150 (559) 437-0000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20A PROJECT  
 CONSTRUCTION DETAILS - PAVEMENT ELEVATIONS

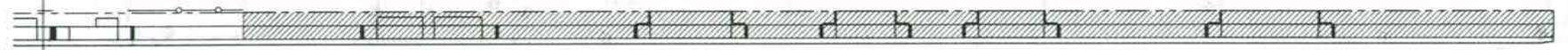
CY	EXC.	EMB.		
			SHEET TOTAL	PROJECT TOTAL



DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20A PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE				
<small>The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>				



MATCH LINE  
SEE SHT DM-3



12+00                      13+00                      14+00                      15+00                      16+00                      17+0017+10

CALIFORNIA St  
"C" LINE

CALIFORNIA STREET

REVISIONS	BY	DATE

DESIGN: [ ]  
 DRAWN: [ ]  
 CHECKED: [ ]  
 SCALE: [ ]

**MARK THOMAS & COMPANY, INC.**  
 Professional Engineer & Surveyor  
 1000 W. 9th Street, Suite 315  
 Prater, CA 95361 877/477-8000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20A PROJECT  
 CONSTRUCTION DETAILS - PAVEMENT ELEVATIONS

CY	EMB		SHEET TOTAL	PROJECT TOTAL

- NOTES:  
 1. RELOCATE AND/OR ADJUST EXIST FIRE HYDRANTS, METERS, MANHOLES, VALVES, VAULTS, ETC. TO PROPOSED FINISHED GRADES.  
 2. REMOVAL OF OVERHEAD UTILITY LINES AND DESIGN OF JOINT TRENCH AND STREET LIGHTS WILL BE PROPOSED BY UTILITY COMPANIES.

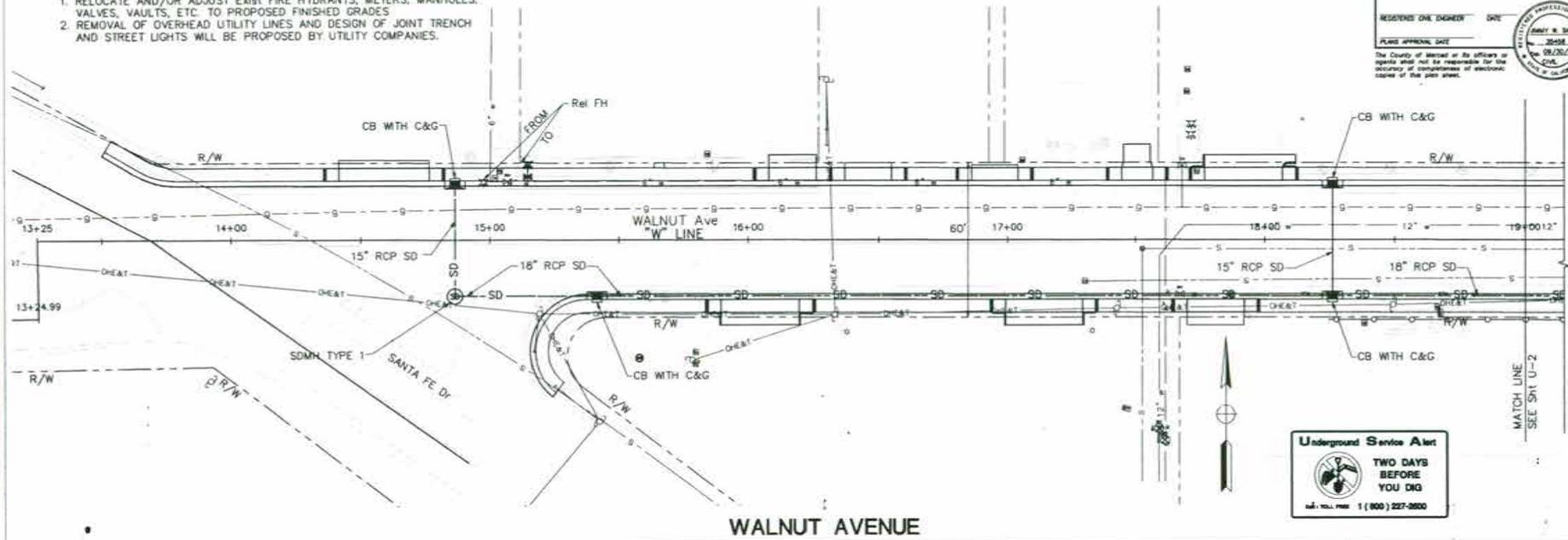
DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		

REVISIONS ONE DRAWER ONE

PLANS APPROVAL SHEET

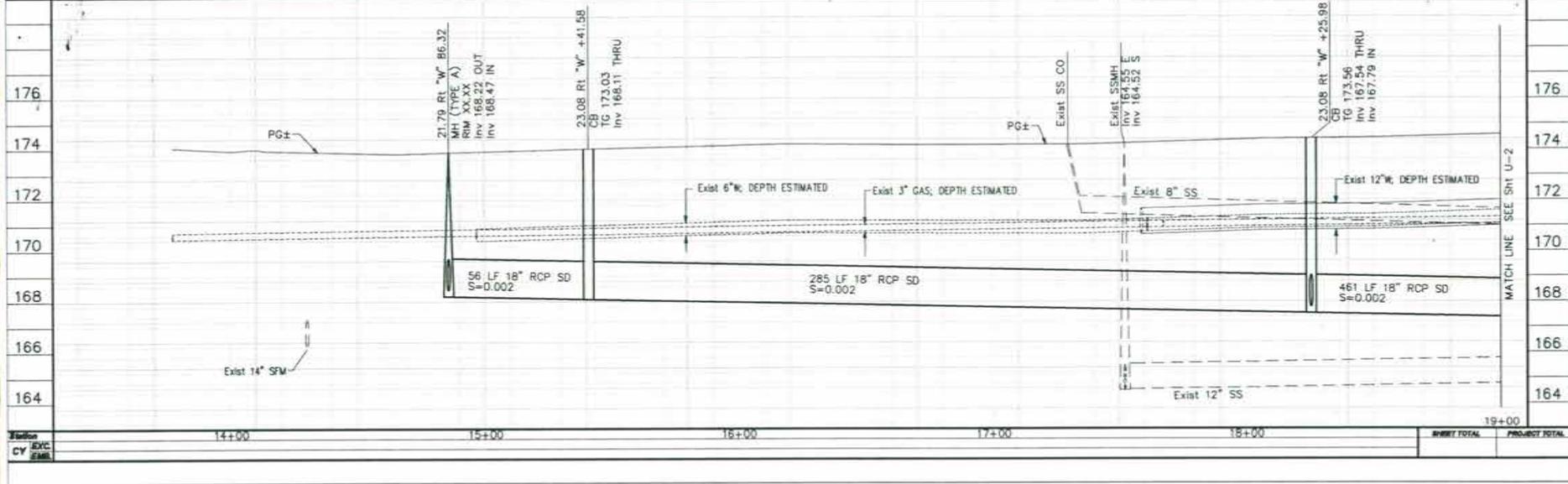
The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 JIMMY R. BOWEN  
 No. 20558  
 Exp. 09/20/23  
 State of California



**Underground Service Alert**  
 TWO DAYS BEFORE YOU DIG  
 800.451.7000 1 (800) 227-2600

WALNUT AVENUE



Station	14+00	15+00	16+00	17+00	18+00	19+00	SHRIFT TOTAL	PROJECT TOTAL
Exc. CY								
Emb. CY								

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN: JTB  
 DRAWN: JTB  
 CHECKED: JTB

SCALE: H: 1"=20' V: 1"=2'

MARK THOMAS & COMPANY, INC.  
 5000 Ingot Road, Suite 310  
 Fremont, CA 94538 925/711-8000

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20 PROJECT  
 UTILITY/DRAINAGE STA. 13+19-18+94

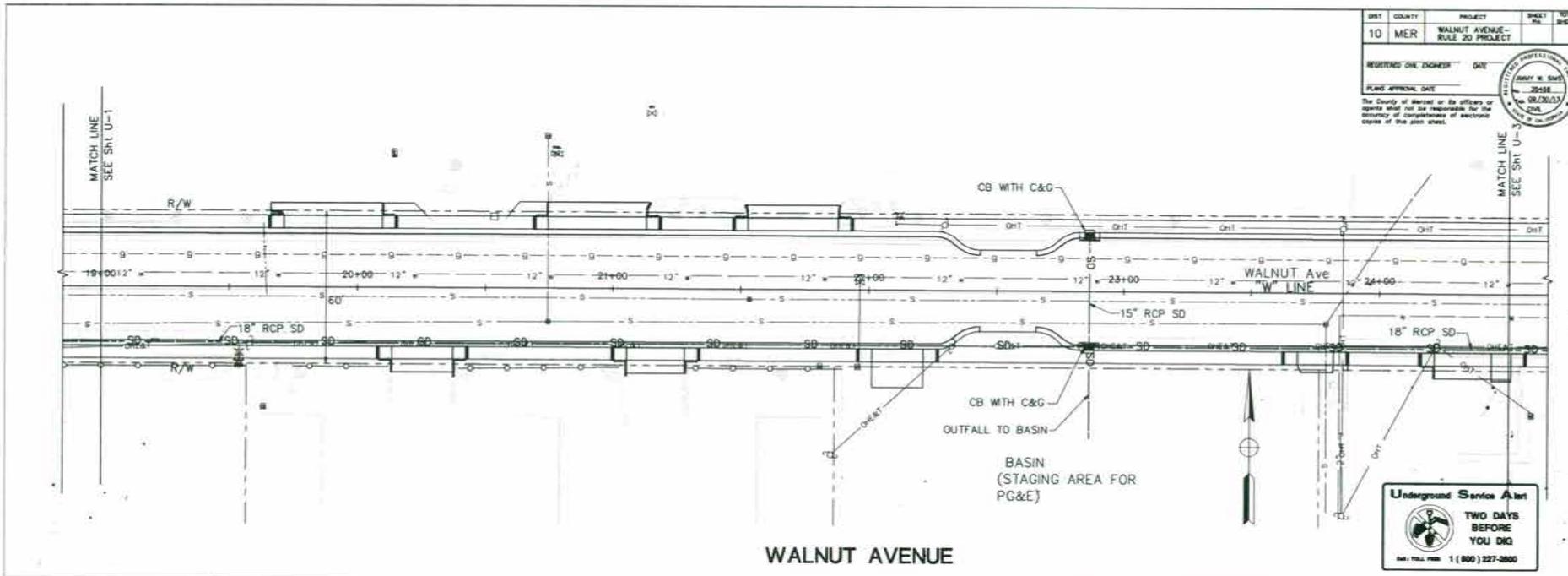
C-1

DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE				
<small>The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of the plans.</small>				

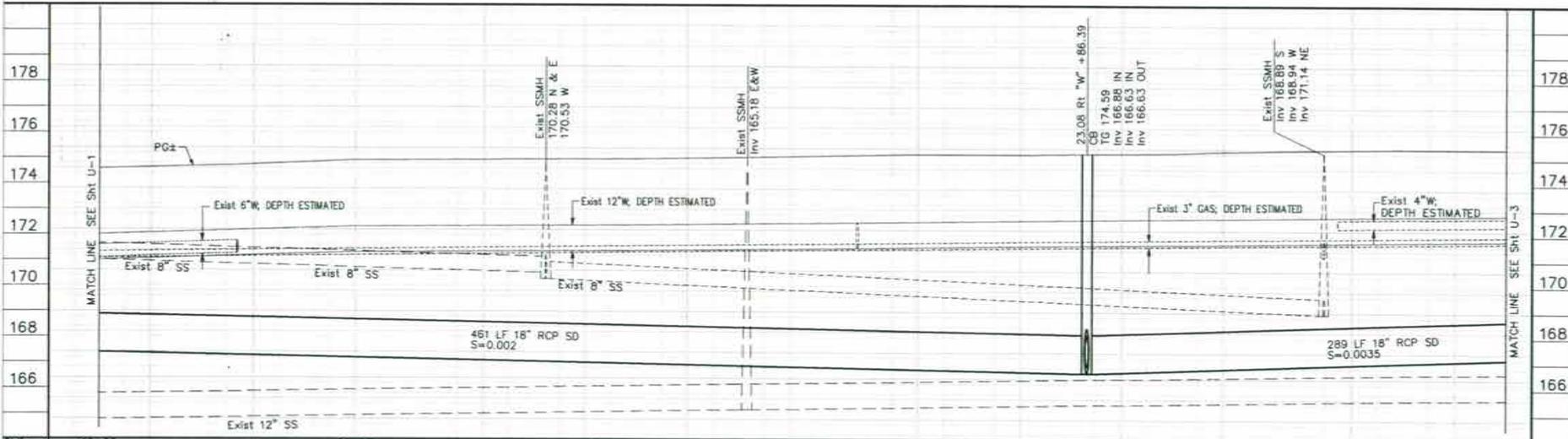


REVISIONS	DATE	BY
DESIGN		
DRAWN		
CHECKED		
SCALE: H: 1"=20' V: 1"=2'		

MARK THOMAS & COMPANY, INC.  
 Professional Engineers, Surveyors, and Planning Scientists  
 10000 N. G Street, Fresno, CA 93720  
 (559) 435-7100

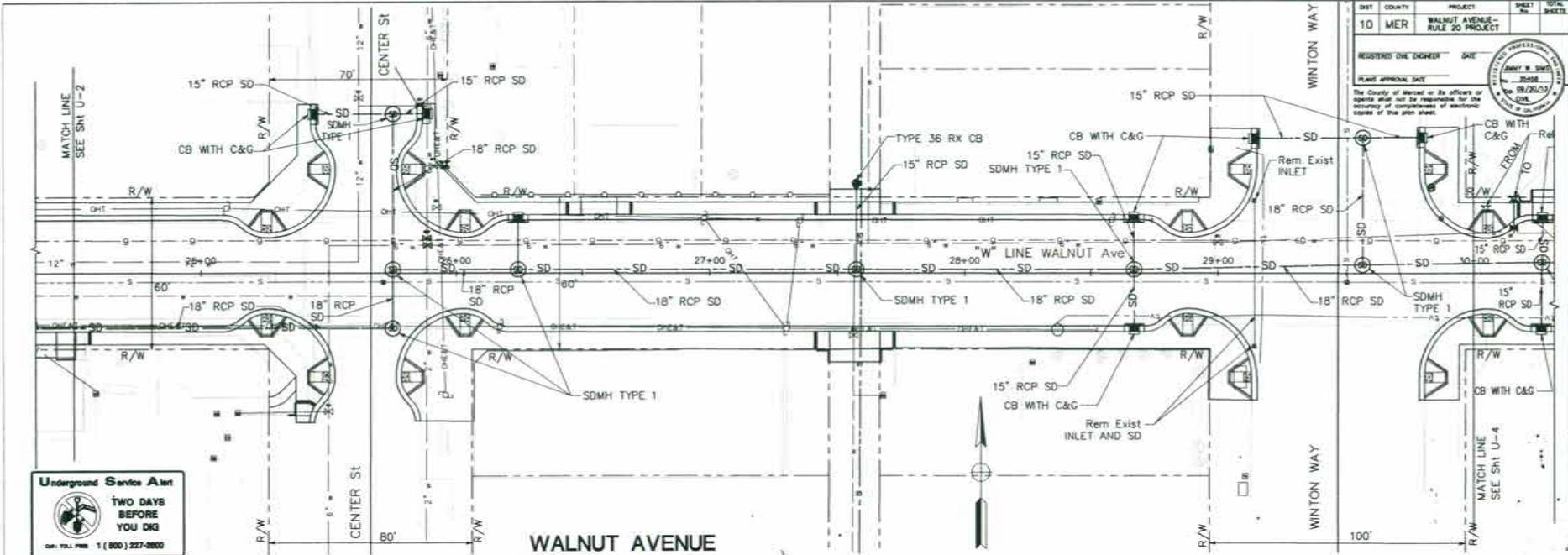


WALNUT AVENUE



Station	19+00	20+00	21+00	22+00	23+00	24+00	SHEET TOTAL	PROJECT TOTAL
CY Exc.								
Emb.								

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20 PROJECT  
 UTILITY/DRAINAGE STA. 18+94-24+63



**Underground Services Alert**

**TWO DAYS BEFORE YOU DIG**

Call Toll Free 1 (800) 227-2800

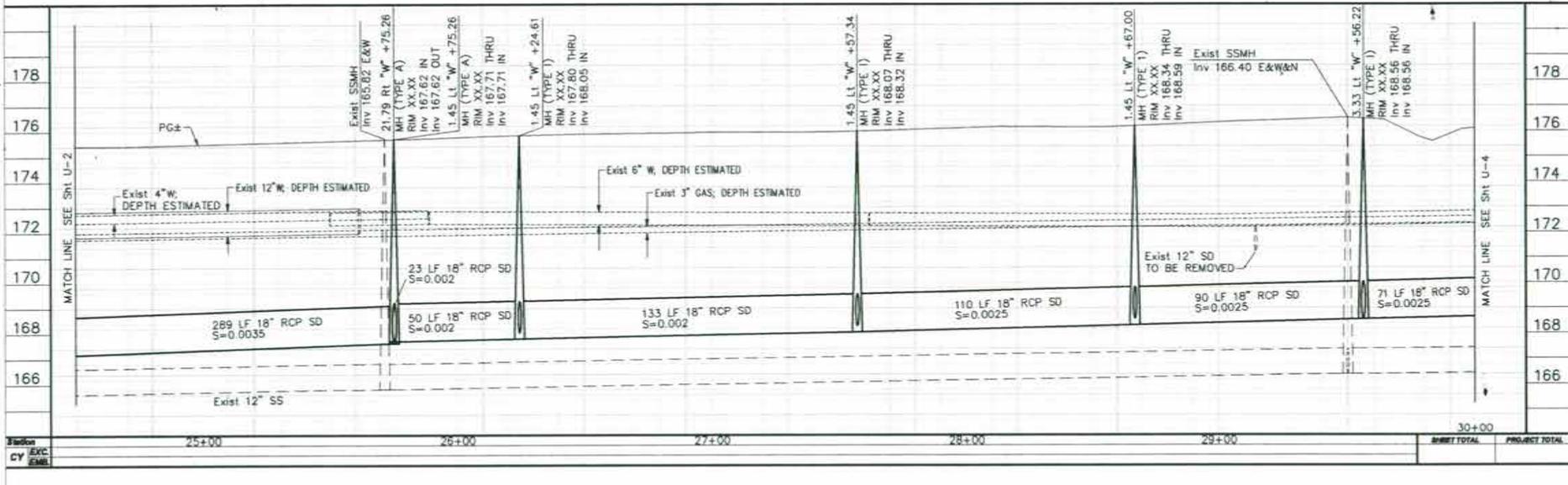
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COUNTY	MERC	PROJECT	WALNUT AVENUE - RULE 20 PROJECT
REGISTERED CIVIL ENGINEER	DATE	DATE	DATE
PLANS APPROVAL DATE			

The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

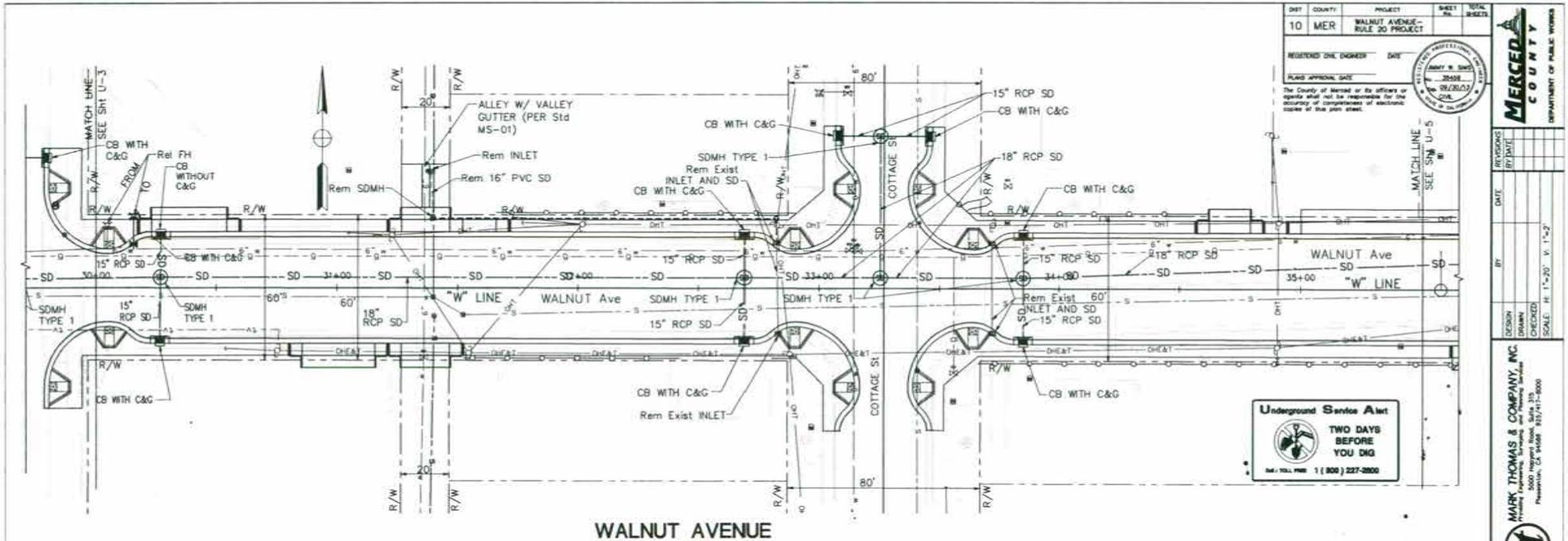


REVISIONS	DATE	BY

DESIGN: **MARK THOMAS & COMPANY, INC.**  
 DRAWING: **Utility Facilities, Stormwater, and Planning Services**  
 CHECKED:   
 SCALE: H: 1"=20' V: 1"=2'



MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20 PROJECT  
 UTILITY/DRAINAGE STA. 24+63-30+76

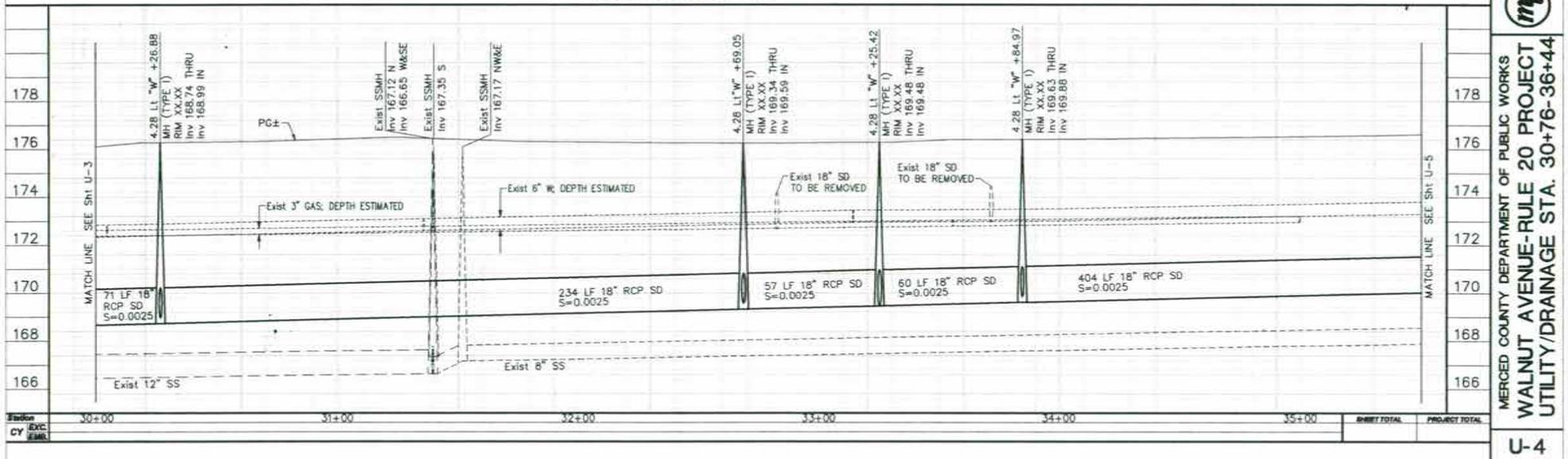


SHEET	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		
REGISTERED CIVIL ENGINEER	DATE	PLANS APPROVAL DATE		



REVISIONS	DATE	BY	DATE

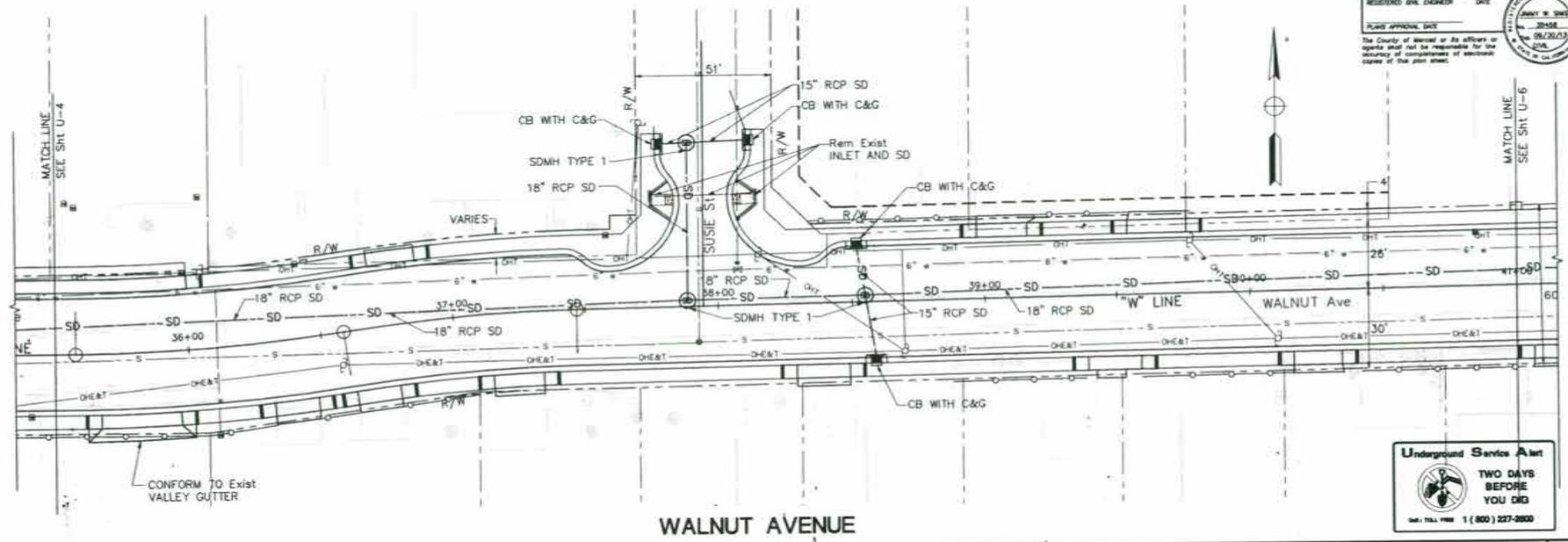
MARK THOMAS & COMPANY, INC.  
 Utility Engineering, Surveying and Planning Services  
 1000 N. G Street, Suite 200, Merced, CA 95324  
 Phone: (209) 385-8888 Fax: (209) 385-8888



MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
**WALNUT AVENUE-RULE 20 PROJECT**  
 UTILITY/DRAINAGE STA. 30+76-36+44

DIST	COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE		The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of any or all copies of this plan sheet.		

**MERCED COUNTY**  
DEPARTMENT OF PUBLIC WORKS



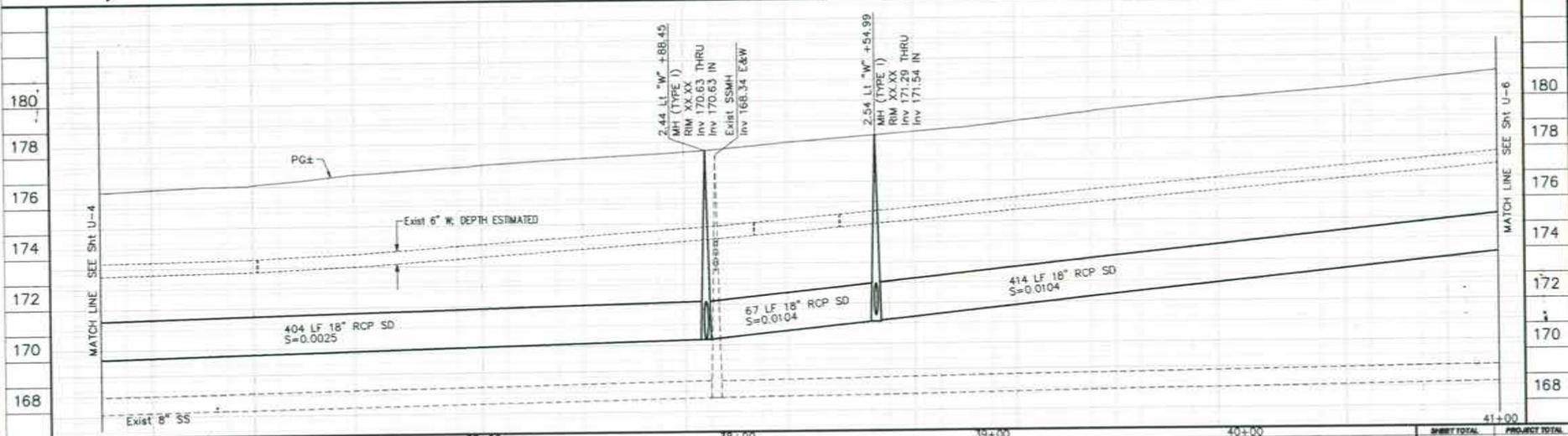
**Underground Service Alert**



**TWO DAYS BEFORE YOU DIG**

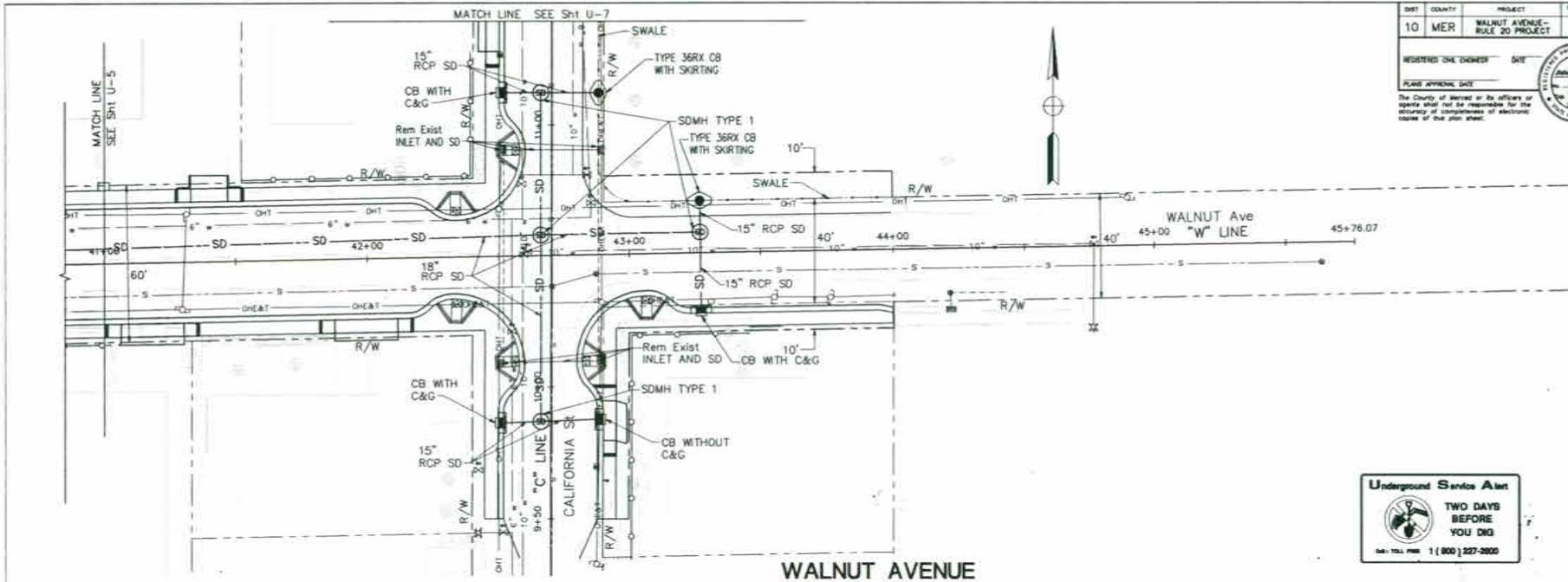
800 TOLL FREE 1 (800) 227-2620

**WALNUT AVENUE**



Station	36+00	37+00	38+00	39+00	40+00	41+00	SHEET TOTAL	PROJECT TOTAL
CY								

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20 PROJECT  
UTILITY/DRAINAGE STA. 36+44-42+12



DIST	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20 PROJECT		
REVISIONS ONE CHECKED		DATE		
PLANS APPROVAL DATE		DATE		
<small>The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>				

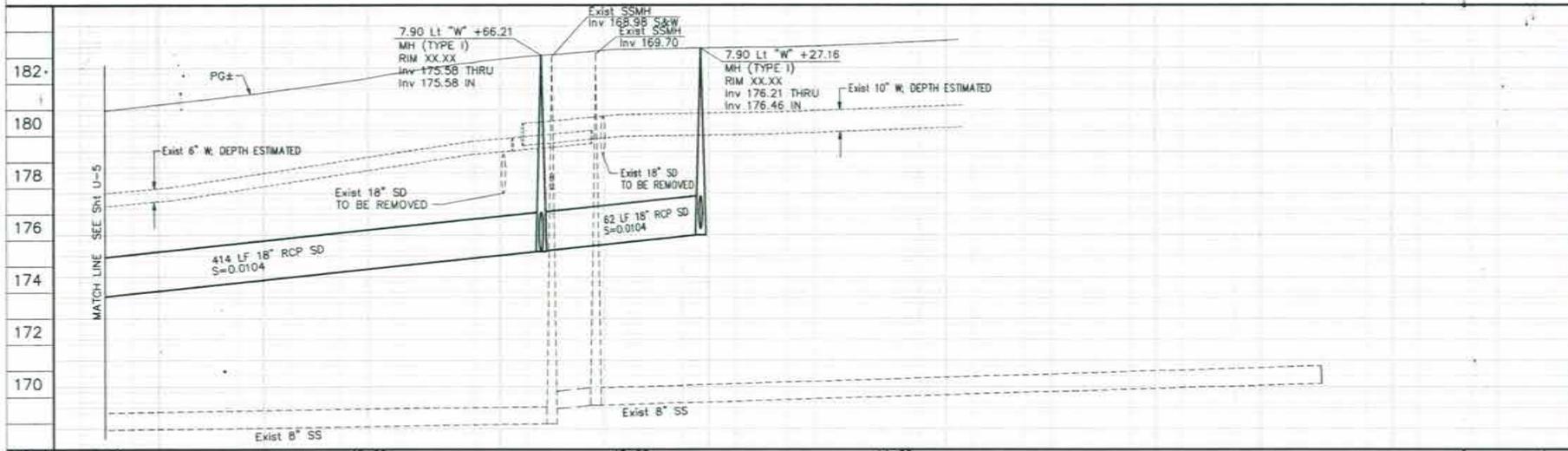


REVISIONS	DATE	BY	DESIGN	CHECKED	SCALE
					H. 1"=20' V. 1"=2'

MARK THOMAS & COMPANY, INC.  
 Utility Engineering, Surveying, and Planning Services  
 Modesto, CA 95811 432.471.7000



WALNUT AVENUE



Station	41+00	42+00	43+00	44+00	SHEET TOTAL	PROJECT TOTAL
Exc. CV						

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20 PROJECT  
 UTILITY/DRAINAGE PLAN  
 WALNUT STA. 42+12-44+00 & CALIFORNIA STA. 9+50-11+38

DIST	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
10	MER	WALNUT AVENUE-RULE 20 PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE				



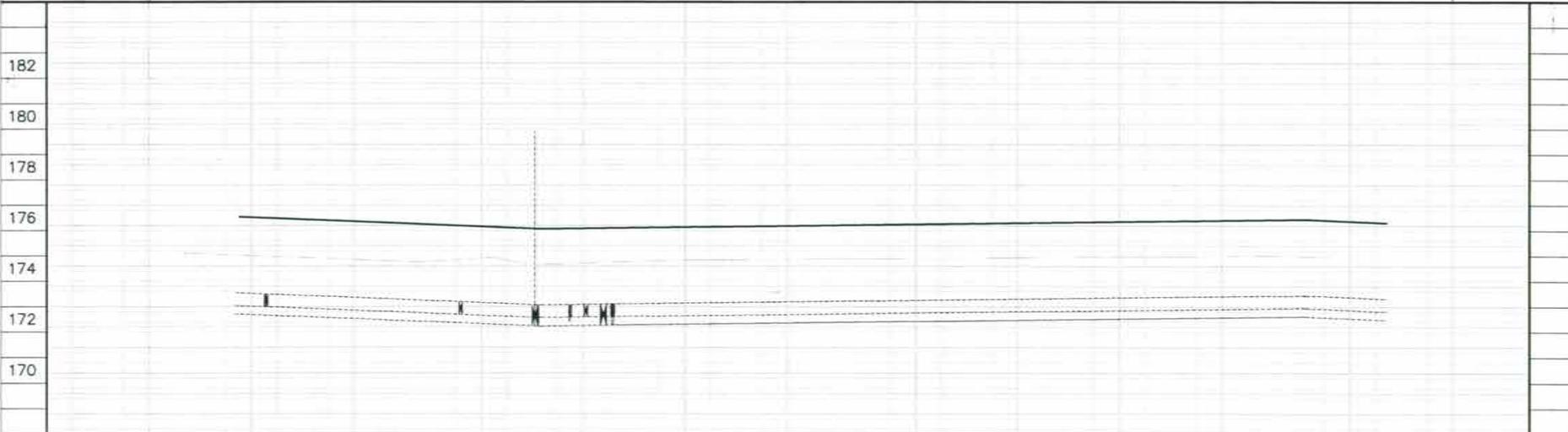
**MERCED COUNTY**  
DEPARTMENT OF PUBLIC WORKS



**CALIFORNIA STREET**

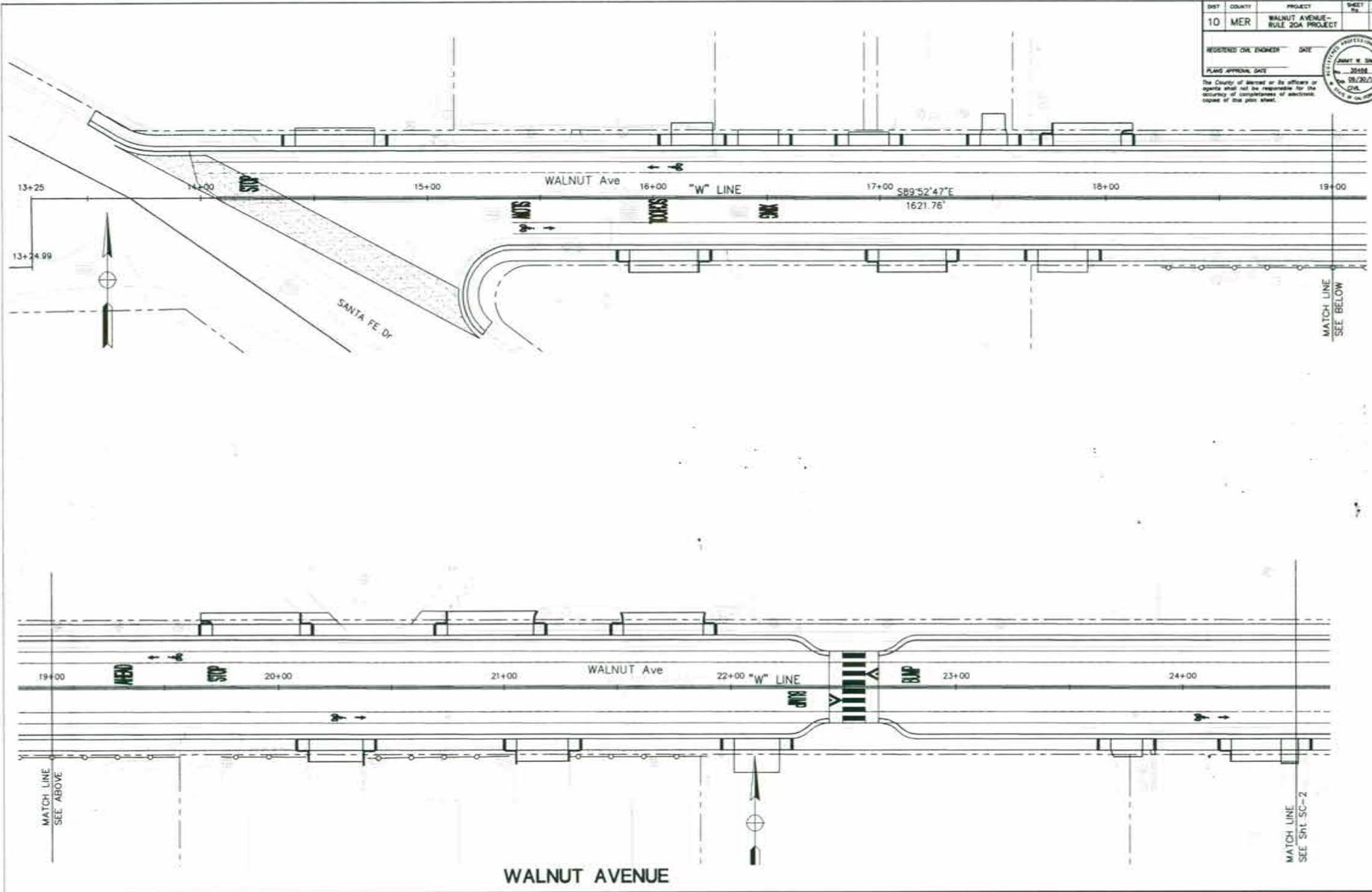


**MARK THOMAS & COMPANY, INC.**  
Professional Engineer  
1000 North Street, Suite 315  
Paso Robles, CA 93448 827/471-8000



Station	42+00	43+00	44+00	45+00	46+00		
Exc. CY							
Emb. CY							
						SUBSET TOTAL	PROJECT TOTAL

MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
WALNUT AVENUE-RULE 20 PROJECT  
UTILITY/DRAINAGE STA. 11+38-17+10



DIST	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
10	MER	WALNUT AVENUE - RULE 20A PROJECT		
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE				
The County of Merced or its officers or agents shall not be responsible for the accuracy or completeness of sections issued if the plans sheet.				



REVISIONS	DATE	BY

MARK THOMAS & COMPANY, INC.  
 Consulting Engineers, Surveyors, and Planning Services  
 Pasadena, CA 91103 818/797-1700



MERCED COUNTY DEPARTMENT OF PUBLIC WORKS  
 WALNUT AVENUE-RULE 20A PROJECT  
 STAGE CONSTRUCTION STA. 13+30-24+50

CY	EST.		
		SHEET TOTAL	PROJECT TOTAL

SC-1







# Appendix G

Air Resources Board  
Cost Effectiveness Analysis Tool

# RIDESHARING AND PEDESTRIAN FACILITIES

**County:** Merced

**Federal Number:**

**Approval Date:**

**Caltrans DIST-EA:**

**Short Description:** Walnut Avenue Complete Street Upgrade

**Project Scope:**

**Project Sponsor:**

**Private Agency:** No

<b>CMAQ Funding:</b>	\$0	
<b>Local Match:</b>	\$397,655	
<b>Capital Recovery Factor:</b>	1.03	
<b>Project Analysis Period:</b>	1	years
<b>Auto Trips Eliminated (T):</b>	436	trips (one-way) per week
<b>Length of auto trips eliminated (L):</b>	2.00	miles in one direction of trip
<b>Weeks of operation per year (W):</b>	40	weeks
<b>Adjustment (A) for auto access trips to transit, vanpools and carpools:</b>	0.70	adjustment factor
<b>Annual Auto Trips Reduced:</b>	12,208	annual trips
<b>Annual Auto VMT Reduced:</b>	34,880	annual miles

<i>EMISSION FACTORS:</i>	<b>Auto Trip End Factors</b>	<b>Auto VMT Factors</b>
	<b>ROG :</b> 1.719 <i>grams per trip</i>	0.470 <i>grams per mile</i>
	<b>NOx :</b> 0.721	0.602
	<b>PM10 :</b> 0.014	0.218

<i>EMISSION REDUCTIONS:</i>	<b>Pounds per Year</b>	<b>Kilograms per Day</b>
<b>ROG:</b>	82	0
<b>NOx:</b>	66	0
<b>PM10:</b>	17	0
<b>Total:</b>	<u>165</u>	<u>0</u>

**COST-EFFECTIVENESS OF:**

<b>CMAQ Funds:</b>	\$0.00	per pound	\$0	per ton
<b>All Funding Sources:</b>	\$2,480.89	per pound	,961,770	per ton
			<i>\$4,961,770</i>	

# Appendix H

Appendix D of Local Roadway Safety Manual

## Appendix D: Benefit/Cost Ratio Calculations

This appendix includes the Benefit/Cost methodology used in the Caltrans calls-for-projects in the HSIP and HR3 programs. The HSM, Part B - Chapter 7, includes more details on conducting Economic Appraisal for roadway safety projects.

The University of California, Berkeley – SafeTREC Transportation Injury Mapping System (TIMS) website includes a tool to allow local agency users to complete the Benefit/Cost methodology used in the Caltrans calls-for-projects. Local agencies will be required to utilize TIMS B/C calculator as part of their application for HSIP or HR3 funding. After the Benefit/Cost methodology is presented, this appendix includes screen shots from TIMS website.

### Safety Index Calculation Method

$$1) \text{ Benefit (Annual)} = \frac{CRF \times \sum_{S=0}^4 (N_S \times CC_S)}{Y}$$

- *CRF*: Crash reduction factor in each countermeasure
- *S*: Severity (0:PDO, 1:Minor Injury, 2:Injury, 3:Severe Injury, 4:Fatal)
- *N<sub>S</sub>*: Number of Crashes, in severity levels, related to selected countermeasure
- *Y*: Crash data time period (Year)
- *CC<sub>S</sub>*: Crash costs in severity levels

Crash Severity **	Crash Cost *
Fatality (K)	\$4,008,900
Severe/Disabling Injury (A)	\$216,000
Evident Injury – Other Visible (B)	\$79,000
Possible Injury – Complaint of Pain (C)	\$44,900
Property Damage Only (O)	\$7,400

\* The letters in parenthesis (K, A, B, C and O) refer to the KABCO scale; it is commonly used by law enforcement agencies in their crash reporting efforts and is further documented in the HSM.

\*\* Highway Safety Manual (HSM), First Edition, 2010.

$$2) \text{ Benefit (Life)} = \text{Benefit (annual)} \times \text{Years of service life}$$

$$3) \text{ Benefit/Cost Ratio (each countermeasure): } \text{Benefit Cost Ratio}_{(CM)} = \frac{\text{Benefit (Life)}_{(CM)}}{\text{Total Project Cost}_{(CM)}}$$

$$4) \text{ Benefit/Cost Ratio (project): } \text{Benefit/Cost Ratio (Project)} = \frac{\sum_{CM=1}^3 \text{Benefit (Life)}_{(CM)}}{\text{Total Project Cost}}$$

# Screenshots of the TIMS B/C Calculator

