

TECHNICAL SPECIFICATIONS

CITY WIDE ACCESSIBLE PEDESTRIAN SIGNAL UPGRADES-PHASE 1

List of Specifications

SECTION 01170 ACCIDENT PREVENTION

SECTION 01200 PROJECT MEETINGS

SECTION 01300 SUBMITTALS

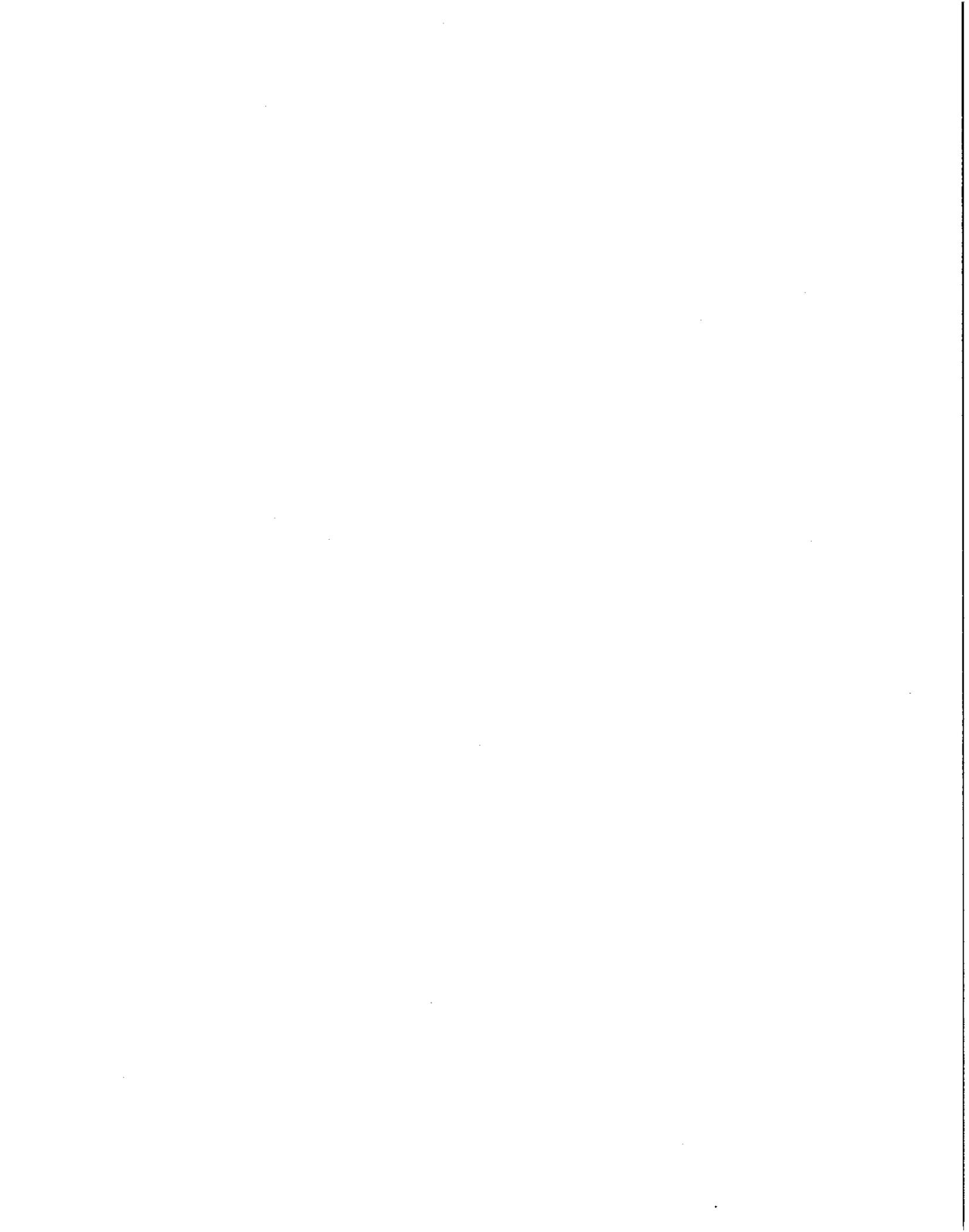
SECTION 01700 PROJECT CLOSE OUT

SECTION 03500 DUST CONTROL

SECTION 03750 STREET SWEEPING

ADDITIONAL TECHNICAL SPECIFICATIONS PREPARED BY MARK THOMAS
& COMPANY, INC.

CITY OF SARATOGA DETAILS GENERAL CONSTRUCTION SPECIFICATIONS



**ACCESSIBLE
INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

**Technical Specifications
for
Construction**

IN THE CITY OF SARATOGA

**Final Submittal
April 8, 2010**

SUBMITTED BY:



MARK THOMAS & COMPANY, INC.
Providing Engineering, Surveying and Planning Services

**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

TABLE OF CONTENTS

TS-1 MOBILIZATION AND DEMOBILIZATION.....	1
TS-2 WATER POLLUTION CONTROL	1
TS-3 TEMPORARY CONCRETE WASHOUT BIN	5
TS-4 TEMPORARY DRAINAGE INLET PROTECTION.....	6
TS-5 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES.....	9
TS-6 CONSTRUCTION AREA SIGNS	10
TS-7 MAINTAINING TRAFFIC.....	11
TS-8 BARRICADE	12
TS-9 EXISTING HIGHWAY FACILITIES	12
1) PRESERVATION OF PROPERTY.....	12
2) MODIFY INLET.....	13
3) RELOCATE AND RESET MONUMENTS TO GRADE.....	13
4) REMOVE DRAINAGE FACILITY	14
5) REMOVE ASPHALT CONCRETE DIKE.....	14
6) REMOVE BASE AND SURFACING.....	14
7) REMOVE CONCRETE	15
8) SAWCUT AND CONFORM.....	15
TS-10 CLEARING AND GRUBBING.....	15
TS-11 FINISHING ROADWAY.....	16
TS-12 AGGREGATE BASE.....	16
TS-13 HOT MIX ASPHALT.....	16
TS-14 CONTROLLED DENSITY FILL	17
TS-15 REINFORCED CONCRETE PIPE	17
TS-16 MISCELLANEOUS CONCRETE CONSTRUCTION	19
TS-17 CONCRETE INLET.....	20
TS-18 PAINT TRAFFIC STRIPE AND PAVEMENT MARKING.....	21
TS-19 TRAFFIC SIGNAL	21
TS-20 STANDARD PLANS LIST.....	27

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consist of establishing an effective accident prevention program and providing a safe environment for all the public and workers within the construction zone.

1.2 SUBMITTALS:

A. Accident Prevention Program: Before on-site work begins, submit for review and comment an accident prevention program. The Engineer will review the proposed program for compliance with OSHA and project requirements. If the program requires any revisions or corrections, the Contractor shall resubmit the program within 10 days. No progress payments will be processed until the program is approved. The program shall include:

1. Name of responsible supervisor to carry out the program.
2. Weekly and monthly safety meetings.
3. First aid procedures
4. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to ensure property protection and safety of the public, and Contractor's employees. Identify the work included under each phase by reference to specification section or division numbers
5. Training, both initial and continuing.
6. Planning for possible emergency situations, such as floods, fires, cave-ins, slides, explosions, power outages, and wind storms. Such planning shall take into consideration the nature of construction, site conditions, and degree of exposure of persons and property.

7. Housekeeping

8. Fire Protection

B Certificates: Certify that all mechanical equipment has been inspected and meets OSHA requirements.

C. Submit a copy of test reports, as required by OSHA, for personnel working with hazardous materials.

D. Submit a report of safety meetings and of inspections.

E. Upon request, submit proof of employees' qualifications to perform assigned duties in a safe manner.

F. Confined Space Training Certification

1.3 QUALITY ASSURANCE:

A. Clauses entitled "Accident Prevention" and "Permits and Responsibilities" of the General Provisions. In case of conflicts between Federal, state, and local safety and health requirements, the most stringent shall apply. Equipment or tools not meeting OSHA requirements will not be allowed on the project sites. Failure to comply with the requirements of this section and related sections may result in suspension of work.

B. Qualification of Employees:

1. Ensure that employees are physically qualified to perform their assigned duties in a safe manner.
2. Do not allow employees to work whose ability or alertness is impaired because of drugs, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.
3. Operators of vehicles, mobile equipment, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, and operating instructions, and be capable of operating such equipment. Provide operating instructions for all equipment. Newly hired operators shall be individually tested by an experienced operator or supervisor to determine if they are capable of safely operating equipment.

1.4 ACCIDENT REPORTING:

A. Reportable Accidents: A reportable accident is defined as death, occupational disease, traumatic injury to employees or the public, property damage by accident in excess of \$100, and fires. Notify the City and appropriate regulatory agencies within 24 hours of the reportable accident.

B. All other Accidents: The Contractor shall report all other accidents to the City and appropriate regulatory agencies as soon as possible and assist the City and other officials as required in the investigation of the accident.

PART 2: PRODUCTS

- 2.1 FIRST AID FACILITIES: Provide adequate facilities for the number of employees and the type of construction at the site.
- 2.2 PERSONNEL PROTECTIVE EQUIPMENT: Meet requirements of NIOSH and MSHA, where applicable, as well as ANSI.
- 2.3 BARRIERS: Section 01530.

PART 3: EXECUTION

- 3.1 EMERGENCY INSTRUCTIONS: Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.
- 3.2 ESCAPE ROUTES: Provide and maintain adequate escape routes at all times in accordance with the Life Safety Code (NFPA 101-85). No corridor, aisle, stairway, door, or exit shall be obstructed or used in a manner that interfered with escape routes.
- 3.3 PROTECTIVE EQUIPMENT:
 - A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair, as appropriate, personal items before issuing them to another individual.
 - B. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.
- 3.4 SAFETY MEETINGS:
 - A. As a minimum, conduct weekly 15-minute "toolbox" safety meetings. These meetings shall be conducted by a foreman and attended by all construction personnel at the worksite.
 - B. Conduct monthly safety meetings for all levels of supervision. Notify the Contracting Officer so that he may attend. These meetings shall be used to review the effectiveness of the Contractor's safety effort, to resolve current health and safety problems, to provide a forum for planning safe construction activities, and for updating the accident prevention program. The Contracting Officer will enter the results of the meetings into his daily log.
- 3.5 HARD HATS AND PROTECTIVE EQUIPMENT AREAS:
 - A. A hard hat areas shall be designated and posted by the Contractor in a manner satisfactory to the City.

- B. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary protective equipment at all times. As a minimum, provide six hard hats for use by visitors. Change liners before reissuing hats.
- C. The contractor shall provide barricades and warning signs, or other warning devices as necessary prevent unauthorized access into the construction work area.

3.6 TRAINING:

- A. First Aid: Provide adequate training to ensure prompt and efficient first aid.
- B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage. Hazardous materials are defined as explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.
- C. OSHA Confined Space Training: The Contractor shall be required to submit their written policy for confined space entry. The policy shall include a copy of the permit used by the Contractor and identification of their safety/confined space entry equipment

END OF SECTION 01170

SECTION 01200

PROJECT MEETINGS

PART 1: GENERAL

- 1.1 PRECONSTRUCTION CONFERENCE: Before start of construction, the Contractor shall arrange an on-site pre-construction meeting with City of Saratoga.
- 1.2 PROGRESS MEETINGS:
- A. The City will require, as a minimum, the Contractor to conduit weekly meetings with appropriate subcontractors, utility companies as required, and the Engineer and staff. The city reserves the right to require progress meeting on a more frequent basis during crucial periods of the project which require extra coordination efforts.
 - B. The Contractor shall be required to update his project schedule prior to the weekly progress meetings. The schedule shall include, as a minimum, activity ID numbers, task descriptions, task duration's, start and finish dates, identification of Critical Path tasks, % complete for each activity, total estimated cost for each activity, and float or slack time. The Contractor shall provide ten copies to the City prior to the Status meeting.
 - C. The Engineer will take meeting minutes for each meeting and assign actions accordingly. Meeting minutes will include action assignments to specific personnel and a completion date.

PART 2: PRODUCTS Not used.

PART 3: EXECUTION Not used.

END OF SECTION 01200

SECTION
SUBMITTALS

01300

PART 1: GENERAL

- 1.1 DESCRIPTION: The work of this section consists of submittal requirements before and during construction.
- 1.2 RELATED REQUIREMENTS: Closeout submittals - Section 01700.
- 1.3 SCHEDULES: As soon as possible after Notice of Award and before beginning any work, submit Progress Schedule and Schedule of Values as a package. The City will review the Progress Schedule and the Schedule of Values for format and content.
 - A. Progress Schedule: Submit to the Engineer for approval, four copies of a Critical Path Method Progress Schedule (normally in bar chart form) showing estimated starting and completion dates for each part of the work. The Critical Path method schedule shall be prepared using computer scheduling programs such as Primavera, Microsoft Project, Suretrak, P3, or others. The progress payment will not be approved by the City until an acceptable, up to date progress schedule is provided to the Engineer. The purpose of the schedule will be to assure adequate planning and execution of the work by the Contractor; to assure coordination of the work of the various subcontractors and utility companies; to assist the contractor, City and Engineer in monitoring the progress of the work and evaluating proposed changes to the contract and schedule; to assist the Engineer, City, and Contractor in the preparation and evaluation of the Contractor's monthly progress payments; and to alert the City as to the proposed closure of streets and other public facilities.
 - B. Schedule of Values: Submit a schedule values for the dollar values based on the Contract Bid Schedule including all bid items, and for the work activities identified in the project schedule. Break down into component parts each bid item involving a series of operations for which progress payments may be requested. The total costs for the component parts shall equal the bid amount for that item, and the total cost of all items shall equal the contract sum. The City may request additional tasks be identified in the schedule of values or data to verify accuracy of dollar values. The Schedule of Values will form the basis for progress payments as provided for in the General Provisions.

1.4 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES:

A. General Procedures:

1. As specified in the individual sections, forward submittals to the City at least 15 days before need for review. Unless a different number is specified, submit five copies of each shop drawing, three specimens of each sample, and five copies of all other submittals requested, all of which will be retained by the City. Submit any additional copies that are to be returned.
2. Coordinate all submittals and review them for legibility, accuracy, completeness, and compliance with contract requirements. Forward submittals that are related to or affect one another as a package to facilitate coordinated review.
3. Submittals will not be accepted for review if they are not on the correct form, an incorrect amount of submittals are submitted, the transmittal form is incorrectly filled out, submittals are not coordinated, or submittals do not show evidence of Contractor's approval.
4. The City reserves the right to require submittals in addition to those called for in individual sections.

B. Specific Procedures:

1. Shop Drawings: Identify each copy of shop drawings with contract drawing number in lower right hand corner.
2. Samples: Samples shall be large enough to illustrate clearly the functional characteristics and full range of color, texture, or pattern.
3. Manufacturers' Literature: Submit only pertinent pages; mark each copy of standard printed data to identify products referenced in specification section.

C. The City's Review:

1. After approving submittals, The City will return Contractor's copies.
2. If submittals are not approved, The City will return all copies to Contractor with reasons for rejection. Resubmit, identifying changes.
3. Any work done before approval shall be at Contractor's own risk.

1.5 APPROVED EQUALS:

A. For each item proposed as an "approved equal," submit a separate request. With each request submit supporting data, including:

1. Drawings and samples as appropriate.
2. Comparison of the qualities of the proposed item with that specified.
3. Changes required in other elements of the work because of the substitution.
4. Name, address, and telephone number of vendor.
5. Manufacturer's literature regarding installation, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts list. Describe availability of maintenance service, and state source of replacement materials.

B. A request for approval constitutes a representation that Contractor:

1. Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.
2. Will provide the same warranties for the proposed item as for the item specified.
3. Has determined that the proposed item is compatible with interfacing items.
4. Will coordinate the installation of an approved item and make all changes required in other elements of the work because of the substitution.
5. Waives all claims for additional expenses that may be incurred as a result of the substitution.

C. The Engineer has the final determination as to whether the proposed substitute product is equal. If the determination is made the product is not equal, the contractor shall be required to provide a product which meets the specifications.

1.6 MANUFACTURER'S INSTALLATION INSTRUCTIONS: When contract documents require compliance with manufacturer's printed instructions, provide

one complete set of instructions for The City and keep another complete set of instructions at the project site until substantial completion.

- 1.7 MATERIAL SUBMITTAL LIST- The names of the manufactures/producers of the materials proposed by the Contractor for use under this contract shall be submitted to the Engineer, for review, within (30) calender days after the award of the contract prior to beginning work. The manufacture's producers specifications and or certificates of compliance shall be submitted for all applicable products on the list.

ITEM DESCRIPTION

- Construction Schedule
- Storm Water Pollution Prevention Plan
- Material Submittal List
- Site Inspection photo/pictures
- Notices to Residents, Businesses and Schools
- Traffic Control Plan
- Class 2 Aggregate Base
- Asphalt Concrete (Caltrans) Type A Medium ½ inch maximum aggregate size, medium graded. Recycle Asphalt Product (RAP) will not be accepted
- Class B Portland Cement Concrete (5 sack mix with 1 pint lampblack /cubic yard
- Truncated Domes for Wheelchair Ramp (Color Armor Title Dark Grey Federal Color No. 36118
- Thermoplastic stripping
- Vibro-tactile pedestrian system

END OF SECTION 01300

SECTION 01700

PROJECT CLOSE OUT

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consist of final cleanup, closeout submittals, and final inspection procedures.

1.2 SUBMITTALS

A. As specified in this section.

PART 2: PRODUCTS - Not Used

PART 3: EXECUTION

3.1 POSTED OPERATING INSTRUCTIONS: As specified in the individual sections. Furnish operating instructions attached to or posted adjacent to equipment. Include wiring diagrams, control diagrams, control sequence, start-up, adjustment, operation, lubrication, shut-down, safety precautions, procedures in the event of equipment failure, and other items of instruction recommended by the manufacturer.

3.2 CLEANING: Remove all tools, equipment, surplus materials, and rubbish. Restore or refinish surfaces of existing facilities that are marred, scratched, or damaged due to the work of this contract to match original condition. Remove grease, dirt, stains, foreign materials, and labels from interior and exterior finished surfaces. Do any required waxing and polishing. Sweep paved areas; rake grounds. At time of final inspection, project shall be thoroughly clean and ready for use.

3.3 PROJECT RECORD DRAWINGS:

A. The contractor shall maintain an up to date set of red-lined record drawings which indicate all changes and revisions to the original design that affect the permanent structures and will exist in the completed work. The contractor shall also reference all underground utilities to semi-permanent or permanent physical objects. Reference water, sewer, telephone, and electric lines to corners of buildings. Include schematic diagrams showing terminal numbers for all electrical equipment.

B. Keep record drawings current. Inspection will be made monthly. Certification of accuracy and completeness will be required on monthly payment requisitions. Project record drawings are the property of the City and shall be delivered to the City before closeout.

3.4 CLOSEOUT SUBMITTALS: Submit before final inspection request

A. Project Record Drawings: As specified above.
B. Guarantees and Bonds: As specified in individual sections.

- C. Spare Parts and Materials: As specified in individual sections.
 - D. Operation and Maintenance Data: As specified in Section 01730.
 - E. Operation and Maintenance Data: Provide four complete sets of the following data. Data shall be on 8½-inch by 11-inch sheets or manufacturers' standard catalogs, suitable for side binding. Include the following as applicable:
 - 1. Replacement parts list
 - 2. Wiring diagrams
 - 3. Manufacturers' model numbers
 - 4. Name, address, and telephone number of local representative
 - 5. Basic operational features
 - 6. Schedule of maintenance work
 - 7. Lubricants
 - 8. Emergency procedures
 - 9. Starting, operating, and shut-down procedures
 - 10. Seasonal shut-down procedures
 - 11. Cleaning agents and methods
 - 12. Color and texture designations.
 - F. Operating Tools: As specified in the individual sections.
 - G. Special Tools: One set of special tools required to operate, adjust, dismantle, or repair equipment. Special tools are those not normally found in possession of mechanics or maintenance personnel.
- 3.5 SUBSTANTIAL COMPLETION AND FINAL INSPECTION: Submit written certification that project, or designated portion of project, is substantially complete, and request in writing a final inspection. The City will make an inspection within 10 days of receipt of request.
- A. When the City determines that the work is substantially complete, he will prepare a list of deficiencies to be corrected before final acceptance and issue a Letter of Substantial Completion.
 - B. If the City determines that the work is not substantially complete, he will immediately notify Contractor in writing, stating reasons. After completing work, Contractor shall resubmit certification and request a new final inspection.
- 3.6 ACCEPTANCE OF THE WORK: After all deficiencies have been corrected, a Letter of Acceptance will be issued.
- 3.7 POST-CONSTRUCTION INSPECTION: Before expiration of warranty period, the City will inspect the project and notify Contractor in writing of all deficiencies.

END OF SECTION 01700

SECTION 03500

DUST CONTROL

Dust control shall conform to the provisions in Section 10, "Dust Control," of the Standard Specifications and these special provisions.

SECTION 03750

STREET SWEEPING

Street sweeping shall be conducted where sediment is tracked from the job site onto paved roads, as described in the approved Storm Water Pollution Prevention Plan (SWPPP) in accordance with "Water Pollution Control" of these special provisions, and as directed by the Engineer.

Street sweeping shall be one of the water pollution control practices for sediment control. The SWPPP shall include the use of street sweeping. Street sweeping shall be performed in accordance with Section 4, SC-7 in the Construction Site Best Management Practices Manual of the Caltrans Storm Water Quality Handbooks.

The number of street sweepers shall be as designated in the approved SWPPP. The Contractor shall maintain at least one sweeper on the job site at all times during the period that sweeping work is required. Sweepers shall be self-loading, motorized, and shall have spray nozzles. Sweepers may include a vacuum apparatus.

Street sweeping shall start at the beginning of clearing and grubbing and shall continue until completion of the project, or as directed by the Engineer. Street sweeping shall be performed immediately after soil disturbing activities occur or offsite tracking of material is observed. Street sweeping shall be performed so that dust is minimized. If dust generation is excessive or sediment pickup is ineffective as determined by the Engineer, the use of water or a vacuum will be required.

At the option of the Contractor, collected material may be temporarily stockpiled in accordance with the approved SWPPP. Collected material shall be disposed of at least once per week.

Material collected during street sweeping operations shall be disposed of in conformance with Section 7-1.13, "Disposal of Material Outside The Highway Right Of Way," of the Standard Specifications.

MEASUREMENT AND PAYMENT (SHALL BE PAID AS PART OF MOBOLIZATION ITEM #1)

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TABLE OF CONTENTS

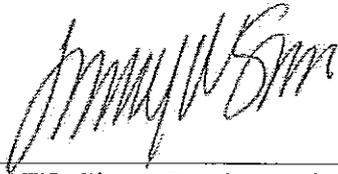
TS-1 MOBILIZATION AND DEMOBILIZATION.....	1
TS-2 WATER POLLUTION CONTROL	1
TS-3 TEMPORARY CONCRETE WASHOUT BIN	5
TS-4 TEMPORARY DRAINAGE INLET PROTECTION.....	6
TS-5 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES.....	9
TS-6 CONSTRUCTION AREA SIGNS	10
TS-7 MAINTAINING TRAFFIC.....	11
TS-8 BARRICADE	12
TS-9 EXISTING HIGHWAY FACILITIES	12
1) PRESERVATION OF PROPERTY.....	12
2) MODIFY INLET.....	13
3) RELOCATE AND RESET MONUMENTS TO GRADE.....	13
4) REMOVE DRAINAGE FACILITY	14
5) REMOVE ASPHALT CONCRETE DIKE.....	14
6) REMOVE BASE AND SURFACING.....	14
7) REMOVE CONCRETE	15
8) SAWCUT AND CONFORM.....	15
TS-10 CLEARING AND GRUBBING.....	15
TS-11 FINISHING ROADWAY.....	16
TS-12 AGGREGATE BASE.....	16
TS-13 HOT MIX ASPHALT.....	16
TS-14 CONTROLLED DENSITY FILL	17
TS-15 REINFORCED CONCRETE PIPE	17
TS-16 MISCELLANEOUS CONCRETE CONSTRUCTION	19
TS-17 CONCRETE INLET.....	20
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TS-19 TRAFFIC SIGNAL	21
TS-20 STANDARD PLANS LIST.....	27

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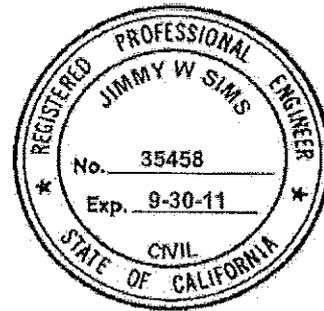
**The special provisions contained herein have been prepared by or
under the direction of the following Registered Persons**

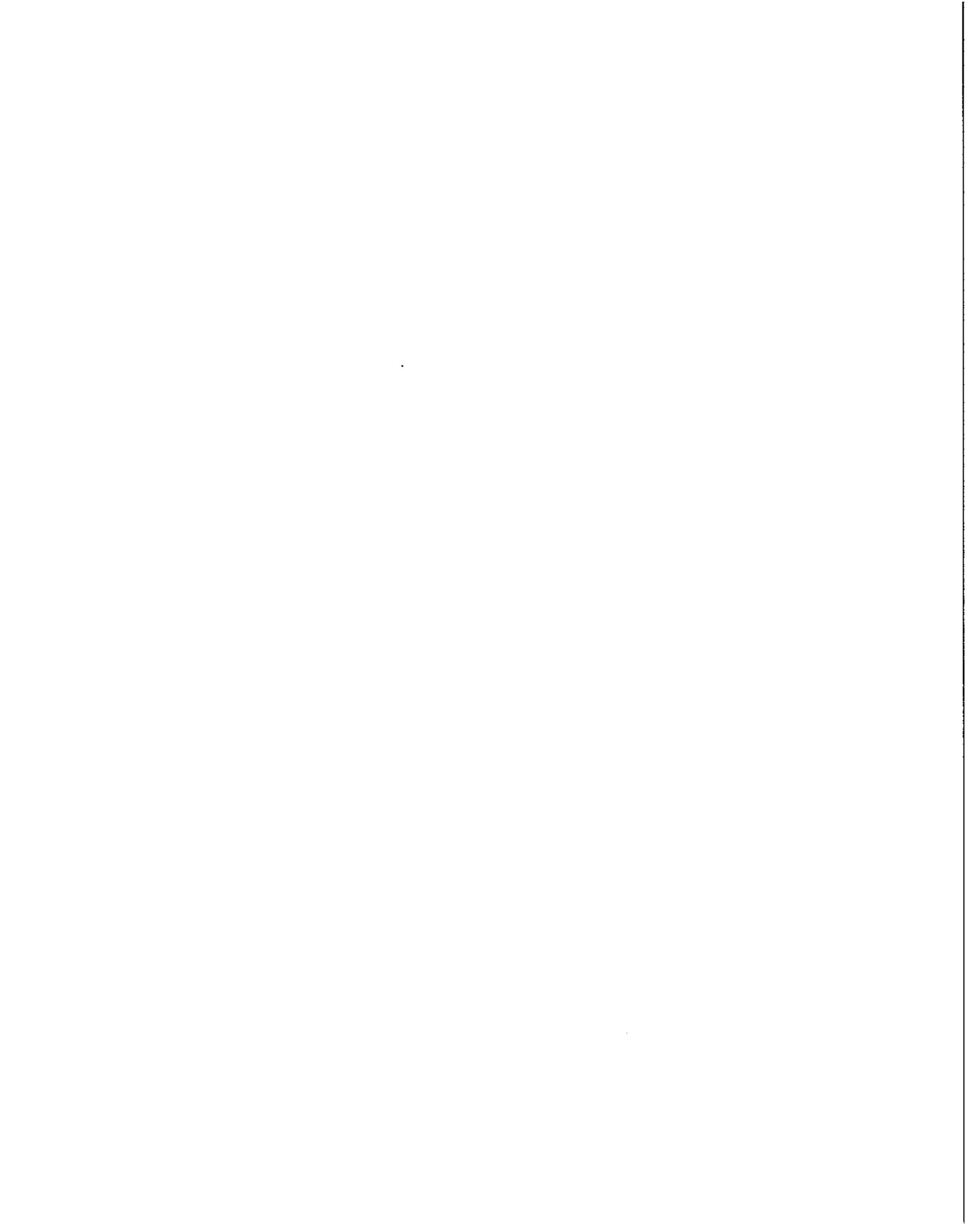
APPROVAL DATE: 04/08/2010

CIVIL



Jimmy W. Sims, Registered Civil Engineer
Mark Thomas & Company, Inc.





**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

TECHNICAL SPECIFICATIONS

TS-1 MOBILIZATION AND DEMOBILIZATION

Mobilization and demobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications and these Technical Specifications.

After completion of the contract items of work, except the warranty, the amount, if any, of the contract item price for mobilization in excess of 10 percent of the original contract amount will be included for payment in the proposed interim estimate in conformance with the provisions in "Interim Estimate and Claims" of these Technical Specifications.

MEASUREMENT AND PAYMENT

The contract lump sum price paid for mobilization shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all the work involved in mobilization and demobilization, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-2 WATER POLLUTION CONTROL

GENERAL

Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, and these Technical Specifications.

The Contractor shall perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Bidders is dated. This manual is referred to as the "Preparation Manual." Copies of the Preparation Manual may be obtained from:

State of California
Department of Transportation
Publication Distribution Unit
1900 Royal Oaks Drive
Sacramento, California 95815
Telephone: (916) 445-3520

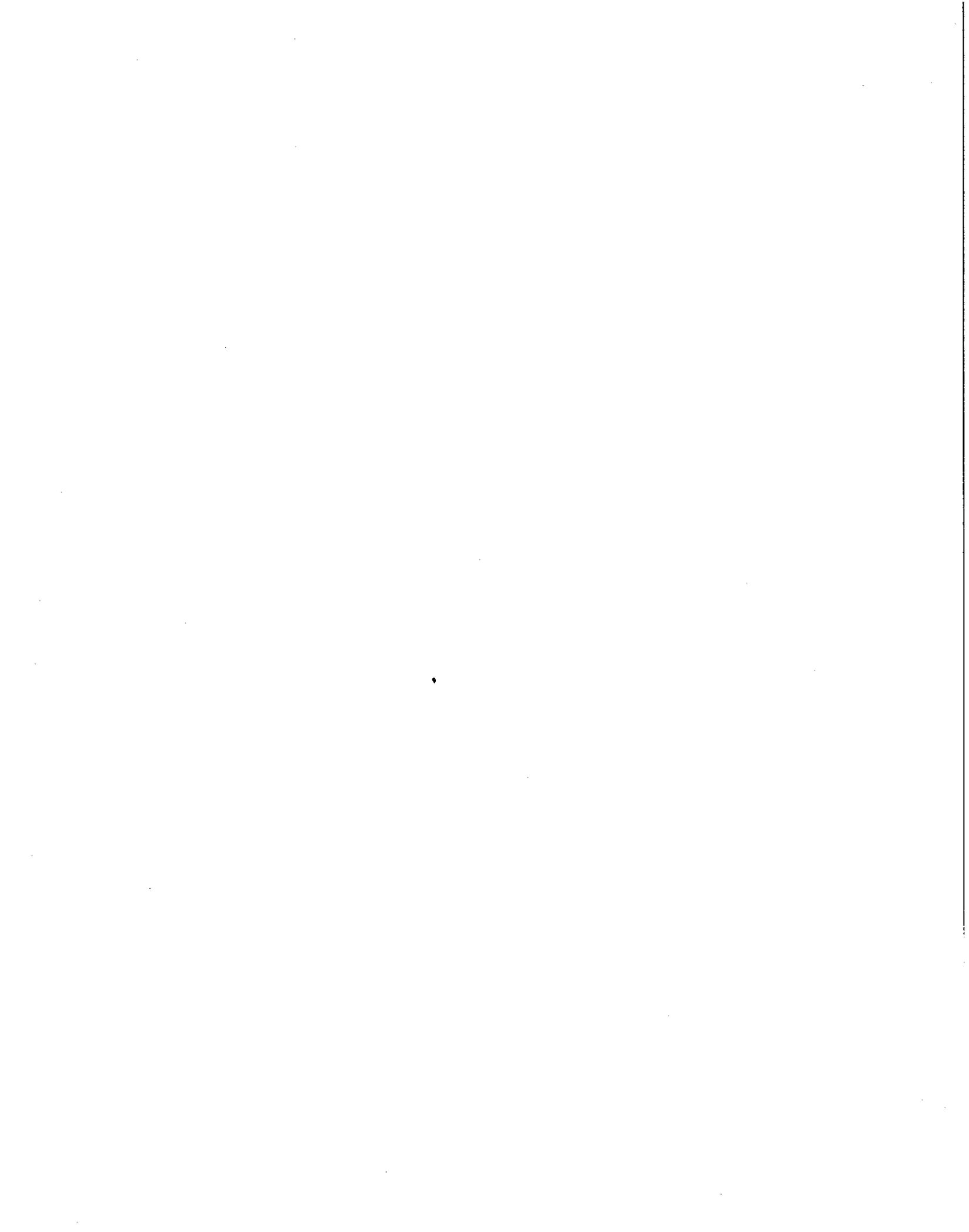
The Preparation Manual and other references for performing water pollution control work are available from the Department's Construction Storm Water and Water Pollution Control web site at:

<http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm>

Before the start of job site activities, the Contractor shall provide training for project managers, supervisory personnel, and employees involved with water pollution control work. The training shall include:

- A. Rules and regulations
- B. Implementation and maintenance for:
 - 1. Temporary Sediment Control

The Contractor shall designate in writing a Water Pollution Control Manager (WPCM). The Contractor shall submit a statement of qualifications describing the training, work history, and expertise of the proposed WPCM. The qualifications shall include either:



**ACCESSIBLE INTERSECTION UPGRADES
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- A. A minimum of 24 hours of Department approved storm water management training described at Department's Construction Storm Water and Water Pollution Control web site.
- B. Certification as a Certified Professional in Erosion and Sediment Control (CPESC).

The WPCM shall be:

- A. Responsible for water pollution control work.
- B. The primary contact for water pollution control work.
- C. Have authority to mobilize crews to make immediate repairs to water pollution control practices.

The Contractor may designate one manager to prepare the WPCP and a different manager to implement the plan. The WPCP preparer shall meet the training requirements for the WPCM.

WATER POLLUTION CONTROL PROGRAM

The Contractor shall submit a Water Pollution Control Program (WPCP) to the Engineer for approval. The WPCP shall conform to the requirements in the Preparation Manual and these Technical Specifications.

The WPCP shall include a schedule that:

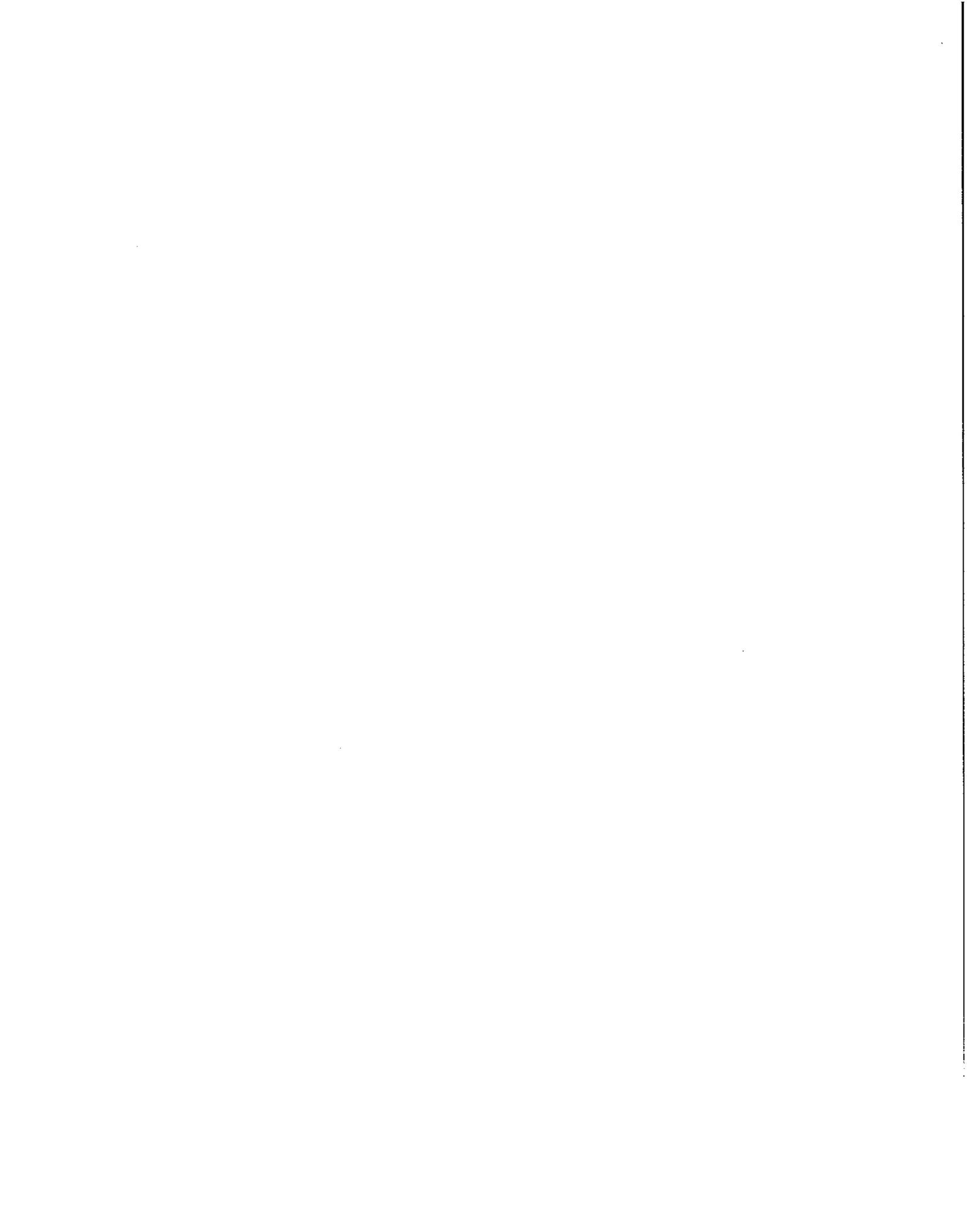
- A. Describes when work activities that could cause water pollution will be performed.
- B. Identifies soil stabilization and sediment control practices for disturbed soil area.
- C. Includes dates when these practices will be 25, 50, and 100 percent complete.
- D. Shows 100 percent completion of these practices before the rainy season.

The WPCP shall include the following temporary water pollution control practices and their associated contract items of work as shown on the plans or specified in these Technical Specifications:

- A. Temporary Sediment Control
 - 1. Temporary Drainage Inlet Protection
- B. Non-Storm Water Management
 - 1. Temporary Concrete Washout Bin

Within 7 days after contract approval, the Contractor shall submit 2 copies of the WPCP to the Engineer. The Contractor shall allow 15 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. The Contractor shall revise and resubmit the WPCP within 7 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete WPCP is resubmitted. When the Engineer approves the WPCP, the Contractor shall submit 3 copies of the approved WPCP to the Engineer. The Contractor may proceed with construction activities if the Engineer conditionally approves the WPCP while minor revisions are being completed.

The Contractor shall not perform work that may cause water pollution until the WPCP has been approved by the Engineer. The Engineer's review and approval shall not waive any contract requirements and shall not relieve the Contractor from complying with Federal, State and local laws, regulations, and requirements.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

If there is a change in construction schedule or activities, the Contractor shall prepare an amendment to the WPCP to identify additional or revised water pollution control practices. The Contractor shall submit the amendment to the Engineer for review within a time agreed to by the Engineer not to exceed the number of days specified for the initial submittal of the WPCP. The Engineer will review the amendment within the same time allotted for the review of the initial submittal of the WPCP.

The Contractor shall keep a copy of the approved WPCP at the job site. The WPCP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Engineer.

IMPLEMENTATION REQUIREMENTS

The Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications.

If the Contractor or the Engineer identifies a deficiency in the implementation of the approved WPCP, the deficiency shall be corrected immediately, unless an agreed date for correction is approved in writing by the Engineer. The deficiency shall be corrected before the onset of precipitation. If the Contractor fails to correct the deficiency by the agreed date or before the onset of precipitation, the City may correct the deficiency and deduct the cost of correcting deficiencies from payments.

Year-Round

The Contractor shall monitor the National Weather Service weather forecast on a daily basis during the contract. The Contractor may use an alternative weather forecasting service if approved by the Engineer. Appropriate water pollution control practices shall be in place before precipitation.

Rainy Season

Soil stabilization and sediment control practices conforming to these Technical Specifications shall be in place during the rainy season between October 15 and April 15.

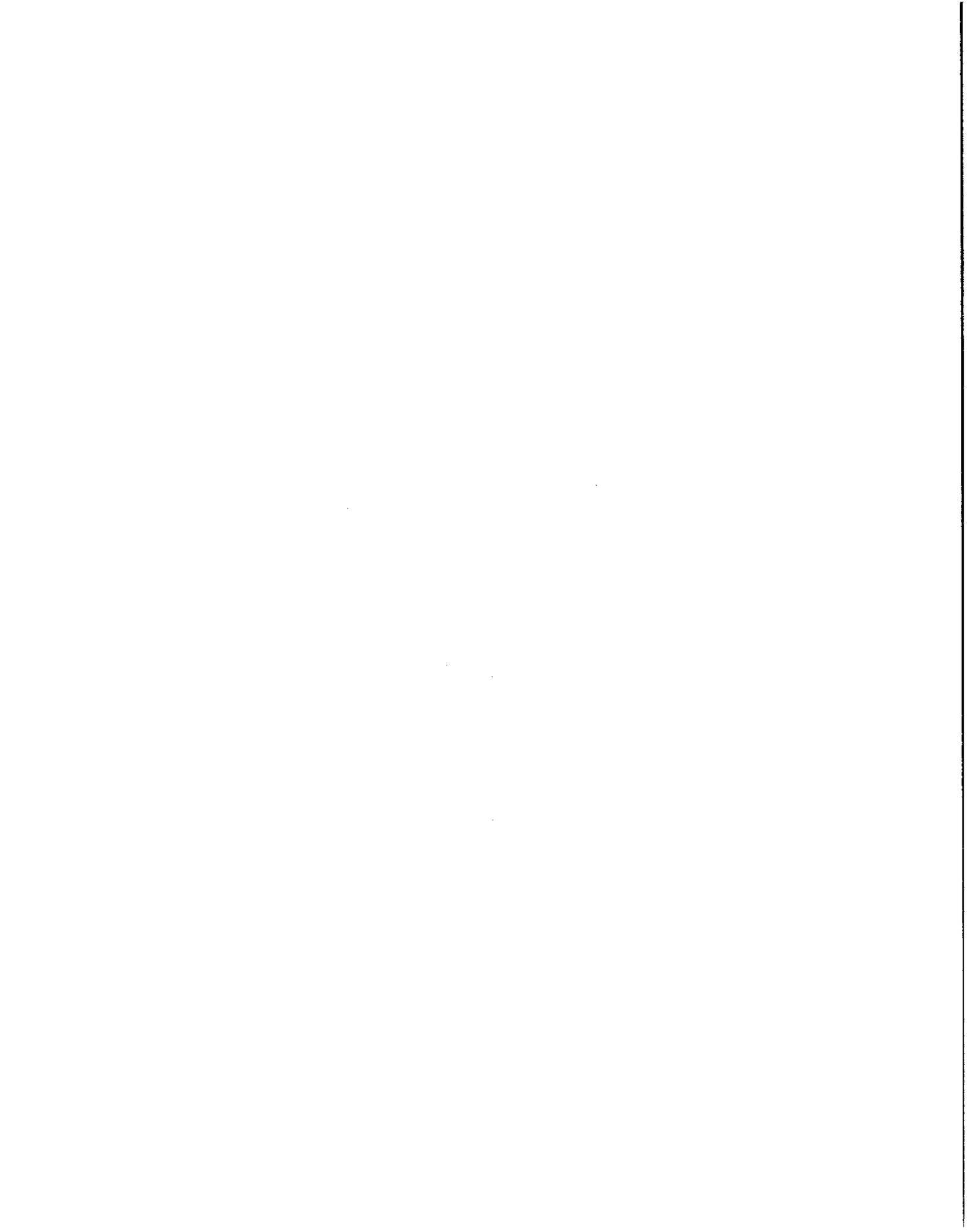
INSPECTION AND MAINTENANCE

The WPCM shall inspect the water pollution control practices identified in the WPCP as follows:

- A. Before a forecasted storm,
- B. After precipitation that causes site runoff,
- C. At 24-hour intervals during extended precipitation,
- D. On a predetermined schedule, a minimum of once every 2 weeks outside of the defined rainy season, and

The WPCM shall oversee the maintenance of the water pollution control practices.

The WPCM shall use the Storm Water Quality Construction Site Inspection Checklist provided in the Preparation Manual or an alternative inspection checklist provided by the Engineer. A copy of the completed site inspection checklist shall be submitted to the Engineer within 24 hours of finishing the inspection.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

REPORTING REQUIREMENTS

If the Contractor identifies discharges into surface waters or drainage systems causing or potentially causing pollution or if the project receives a written notice or order from a regulatory agency, the Contractor shall immediately inform the Engineer. The Contractor shall submit a written report to the Engineer within 7 days of the discharge, notice, or order. The report shall include the following information:

- A. The date, time, location, and nature of the operation, type of discharge and quantity, and the cause of the notice or order.
- B. The water pollution control practices used before the discharge, or before receiving the notice or order.
- C. The date of placement and type of additional or altered water pollution control practices placed after the discharge or after receiving the notice or order.
- D. A maintenance schedule for affected water pollution control practices.

MEASUREMENT AND PAYMENT

During each estimate period the Contractor fails to conform to the provisions in this section, "Water Pollution Control," or fails to implement the water pollution control practices shown on the plans or specified elsewhere in these Technical Specifications as items of work, the City will withhold 25 percent of the progress payment.

Withholds for failure to perform water pollution control work will be in addition to all other withholds provided for in the contract. The City will return performance-failure withholds in the progress payment following the correction for noncompliance.

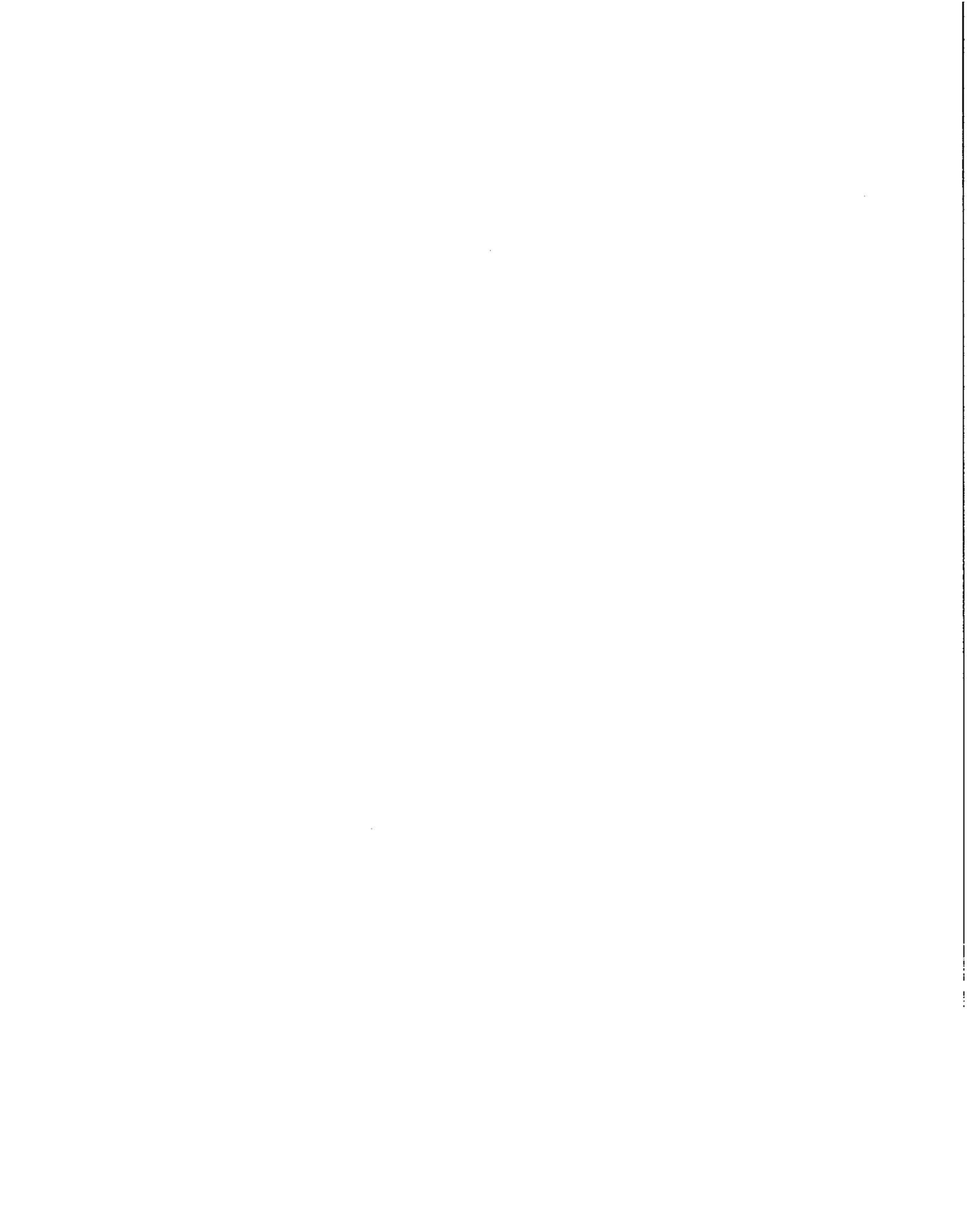
The contract lump sum price paid for prepare water pollution control program shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing, obtaining approval of, and amending the WPCP and inspecting water pollution control practices as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

Payments for prepare water pollution control program will be made as follows:

- A. After the WPCP has been approved by the Engineer, up to 75 percent of the contract item price for prepare water pollution control program will be included in the monthly progress estimate.
- B. After acceptance of the contract in conformance with the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, payment for the remaining percentage of the contract item price for prepare water pollution control program will be made in conformance with the provisions in Section 9-1.08B, "Payment Before Final Estimate."

Implementation of water pollution control practices in areas outside the highway right of way not specifically provided for in the WPCP or in these Technical Specifications will not be paid for.

Water pollution control practices for which there are separate contract items of work will be measured and paid for as those contract items of work.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

TS-3 TEMPORARY CONCRETE WASHOUT BIN

GENERAL

Summary

This work includes removal and disposal of concrete waste by furnishing, maintaining, and removing temporary concrete washout bins.

The WPCP must describe and include the use of temporary concrete washout bins as a water pollution control practice for waste management and materials pollution control.

Submittals

At least 5 business days before concrete operations start, submit:

1. Location of the washout bins
2. Name and location of the off-site concrete waste disposal facility to receive concrete waste
3. Copy of the permit issued by RWQCB for the off-site commercial disposal facility
4. Copy of the license for the off-site commercial disposal facility
5. Copy of the permit issued by the state or local agency having jurisdiction over the disposal facility if the disposal site is located outside of the State of California

Quality Control and Assurance

Retain and submit records of disposed concrete waste including:

1. Weight tickets
2. Delivery and removal of concrete washout bins

MATERIALS

Concrete Washout Bin

Concrete washout bin must:

1. Be a commercially available watertight container
2. Have sufficient capacity to contain all liquid and concrete waste generated by washout operations without seepage or spills
3. Be not less than 5 cubic yards of capacity
4. Be a roll-off bin and may include folding steel ramps
5. Be labeled for the exclusive use as a concrete waste and washout facility

Concrete Washout Sign

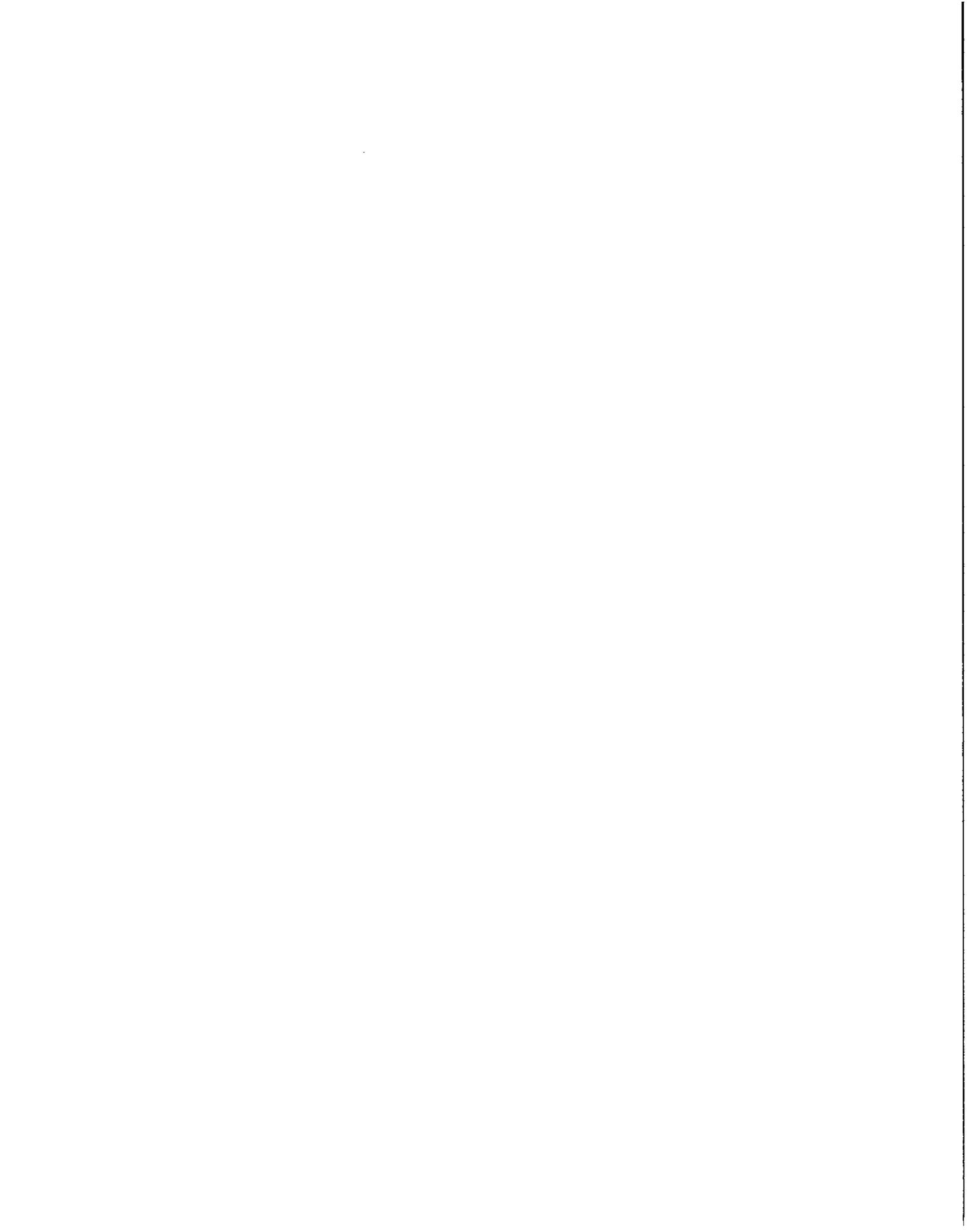
Concrete washout sign must:

1. Comply with the provisions in Section 12-3.06B, "Portable Signs" of the Standard Specifications
2. Be approved by the Engineer
3. Consist of a base, framework, and a sign panel
4. Be made out of plywood
5. Be a minimum size of 2 feet by 4 feet
6. Read "Concrete Washout" with black letters, 3 inches high, on a white background

CONSTRUCTION

Placement

Place concrete washout bins at the job site:



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

1. Before concrete placement activities begin
2. In the immediate area of the concrete work as approved by the Engineer
3. No closer than 50 feet from storm drain inlets, open drainage facilities, ESAs, or watercourses
4. Away from construction traffic or public access areas

Install a concrete washout sign adjacent to each temporary concrete washout bin location.

Operation

Use concrete washout bins for:

1. Washout from concrete delivery trucks
2. Slurries containing Portland cement concrete or hot mix asphalt from sawcutting, coring, grinding, grooving, and hydro-concrete demolition
3. Concrete waste from mortar mixing stations

Relocate concrete washout bins as needed for concrete construction work.

Replace concrete washout bins when filled to capacity. Do not fill higher than 6 inches below rim.

Your WPCM must inspect concrete washout bins:

1. Daily if concrete work occurs daily
2. Weekly if concrete work does not occur daily

Maintenance

When relocating or transporting a concrete washout bin within the project site, secure the concrete washout bin to prevent spilling of concrete waste material. If any spilled material is observed, remove the spilled material and place it into the concrete washout bin.

Removal

Dispose of concrete waste material at a facility specifically licensed to receive solid concrete waste, liquid concrete waste, or both. Remove and dispose of concrete waste within 2 days of the concrete washout bin becoming filled to capacity.

MEASUREMENT AND PAYMENT

Full compensation for providing temporary concrete washout bin used on the project shall be considered as included in the lump sum price paid for prepare water pollution control program and no additional compensation will be allowed therefor.

TS-4 TEMPORARY DRAINAGE INLET PROTECTION

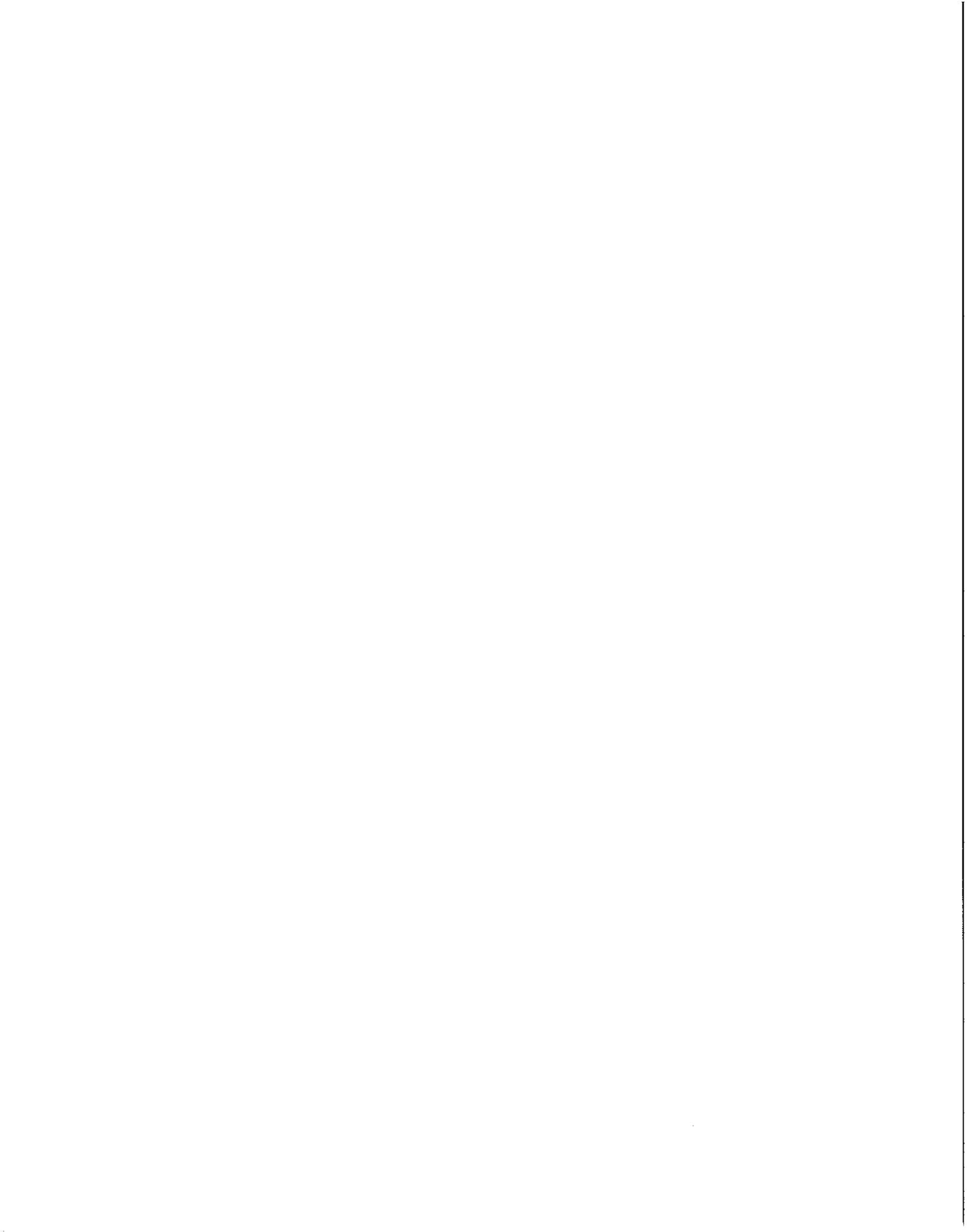
GENERAL

Summary

This work includes constructing, maintaining, and removing temporary drainage inlet protection. Drainage inlet protection settles and filters sediment before stormwater runoff discharges into storm drainage systems.

The WPCP must describe and include the use of temporary drainage inlet protection as a water pollution control practice for sediment control.

Provide temporary drainage inlet protection to meet the changing conditions around the drainage inlet. Temporary drainage inlet protection must be:



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

1. Appropriate type to meet the conditions around the drainage inlet

MATERIALS

Gravel-filled Bags

Gravel-filled bag fabric shall be nonwoven polypropylene geotextile or polymer material and shall conform to the following requirements:

Specification	Requirements
Weight per unit area, ounces per square yard, minimum ASTM Designation: D 5261	8.0
Grab tensile strength (one inch grip), pounds, minimum ASTM Designation: D 4632*	200
Ultraviolet stability, percent tensile strength retained after 500 hours minimum ASTM Designation: D 4355, xenon arc lamp method	70

* or appropriate test method for specific polymer

Gravel-filled bags shall be between 24 inches and 32 inches in length, and between 16 inches and 20 inches in width.

Yarn used for binding gravel bags shall be as recommended by the manufacturer or bag supplier and shall be of a contrasting color.

Gravel shall be between 3/8 inch and 3/4 inch in diameter, and shall be clean and free from clay balls, organic matter, and other deleterious materials. The opening of gravel-filled bags shall be secured to prevent gravel from escaping. Gravel-filled bags shall be between 30 pounds and 50 pounds in weight.

INSTALLATION

Temporary drainage inlet protection shall be installed at drainage inlets in paved and unpaved areas as follows:

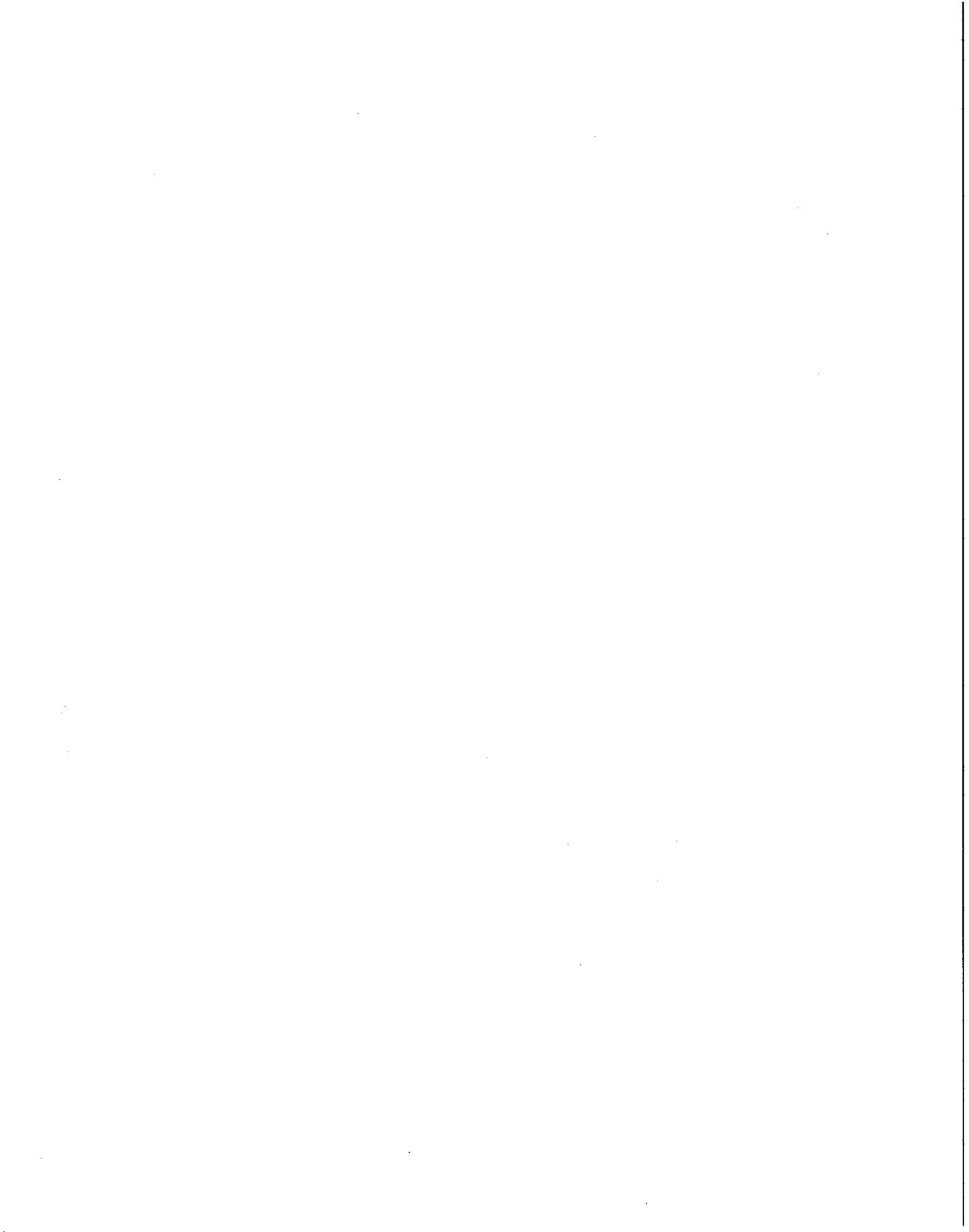
- A. Temporary drainage inlet protection shall be installed such that ponded runoff does not encroach on the traveled way or overtop the curb or dike. Gravel-filled bags shall be placed to control ponding and prevent runoff from overtopping the curb or dike.
- B. The bedding area for the temporary drainage inlet protection shall be cleared of obstructions including rocks, clods, and debris greater than one inch in diameter before installation.
- C. A temporary linear sediment barrier shall be installed up-slope of the existing drainage inlet and parallel with the curb, dike, or flow line to prevent sediment from entering the drainage inlet.

Gravel-filled Bags

Gravel-filled bags shall be stacked to form a gravel bag barrier. The gravel-filled bags shall be placed so that the bags are tightly abutted and overlap the joints in adjacent rows. A spillway shall be created by removing one or more gravel-filled bags from the upper layer of the gravel bag barrier.

Sediment Filter Bags

Sediment filter bags shall be installed by removing the drainage inlet grate, placing the sediment bag in the opening, and replacing the grate to secure the sediment filter bag in place.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

MAINTENANCE

Temporary drainage inlet protection shall be maintained to provide sediment holding capacity and to reduce runoff velocities. Temporary drainage inlet protection shall be repaired or replaced immediately after the damage occurs.

Sediment deposits, trash, and debris shall be removed from temporary drainage inlet protection as needed or when directed by the Engineer. Removed sediment shall be deposited within the project limits so that the sediment is not subject to erosion by wind or by water. Trash and debris shall be removed and disposed of in accordance with the provisions in Section 7-08, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

At locations where rills and other evidence of concentrated runoff have occurred beneath the drainage inlet protection, the protection shall be adjusted to prevent another occurrence.

Sediment in excess of 2 inches above the surface of the erosion control blanket or geotextile fabric shall be removed.

Sediment shall be removed from the sediment trap when the volume has been reduced by approximately one-half.

Sediment deposits shall be removed when the deposit is $\frac{1}{3}$ the height of the gravel bag barrier or one half the height of the spillway; whichever is less.

Gravel-filled bags shall be replaced when the bag material ruptures or when the binding fails.

Sediment filter bags shall be emptied when the restraint cords are no longer visible. Sediment filter bags shall be emptied by placing one inch steel reinforcing bars through the lifting loops. The bag shall be emptied of its contents and rinsed before replacement in the drainage inlet.

REMOVAL

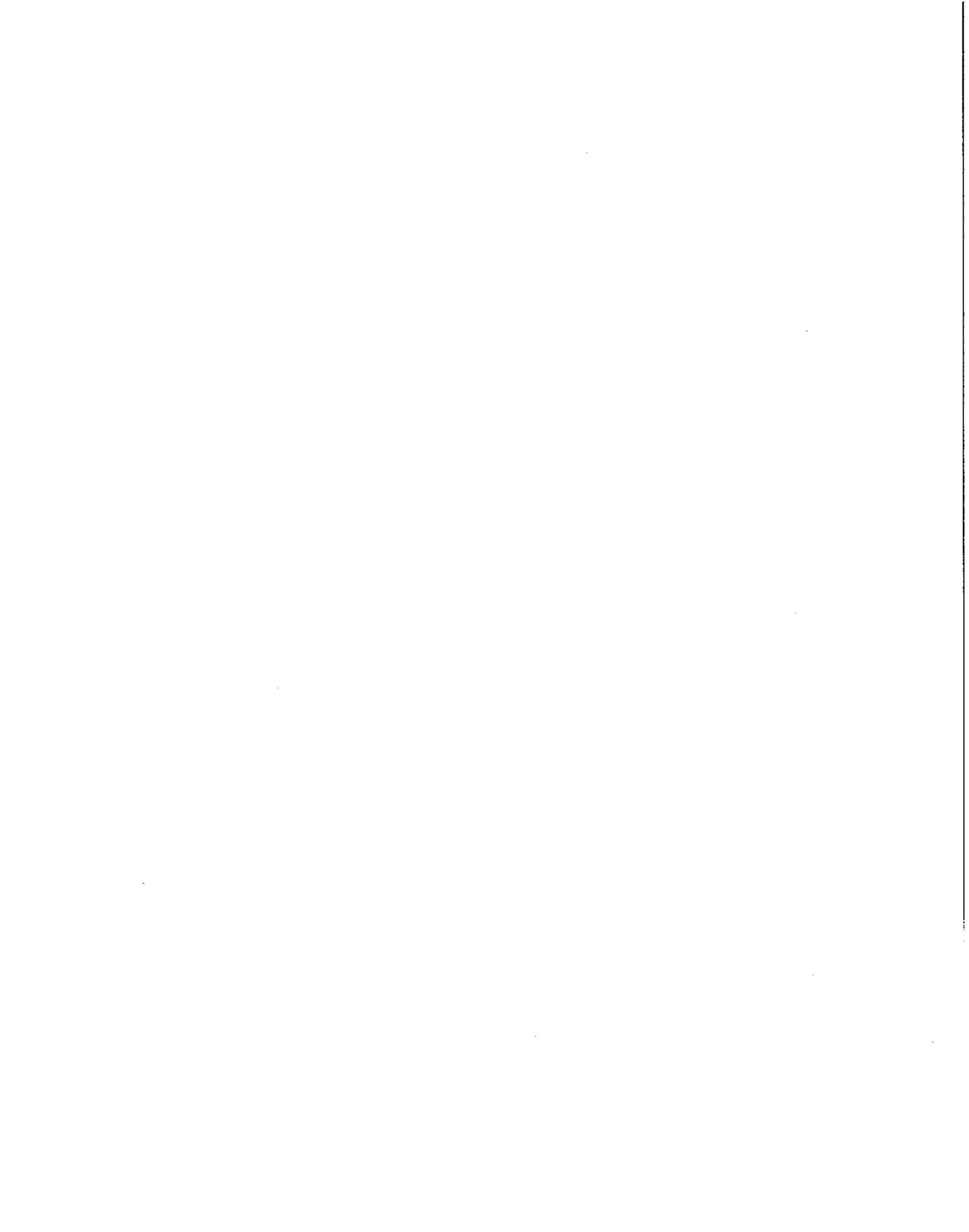
When the temporary drainage inlet protection is no longer required the protection materials shall be removed and disposed of in accordance with the provisions in Section 7-08, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Holes, depressions, or other ground disturbance caused by the removal of the temporary drainage inlet protection shall be backfilled and repaired in accordance with the provisions in Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Quantities of temporary drainage inlet protection will be determined from actual count in place. The protection will be measured one time only and no additional measurement will be recognized.

The contract unit price paid per each for temporary drainage inlet protection shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary drainage inlet protection, complete in place, including maintenance, removal of materials, including cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

No additional compensation will be made if the temporary drainage inlet protection changes during the course of construction.

TS-5 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Flagging, signs, and temporary traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these Technical Specifications.

Category 1 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices. These devices shall be certified as crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 temporary traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers.

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 temporary traffic control devices at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use. Self-certification shall be provided by the manufacturer or Contractor and shall include the following:

- A. Date,
- B. Federal Aid number (if applicable),
- C. Contract number, district, county, route and post mile of project limits,
- D. Company name of certifying vendor, street address, city, state and zip code,
- E. Printed name, signature and title of certifying person; and
- F. Category 1 temporary traffic control devices that will be used on the project.

The Contractor may obtain a standard form for self-certification from the Engineer.

Category 2 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices that are not expected to produce significant vehicular velocity change, but may cause potential harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Category 2 temporary traffic control devices shall be on the Federal Highway Administration's (FHWA) list of Acceptable Crashworthy Category 2 Hardware for Work Zones. This list is maintained by FHWA and can be located at:

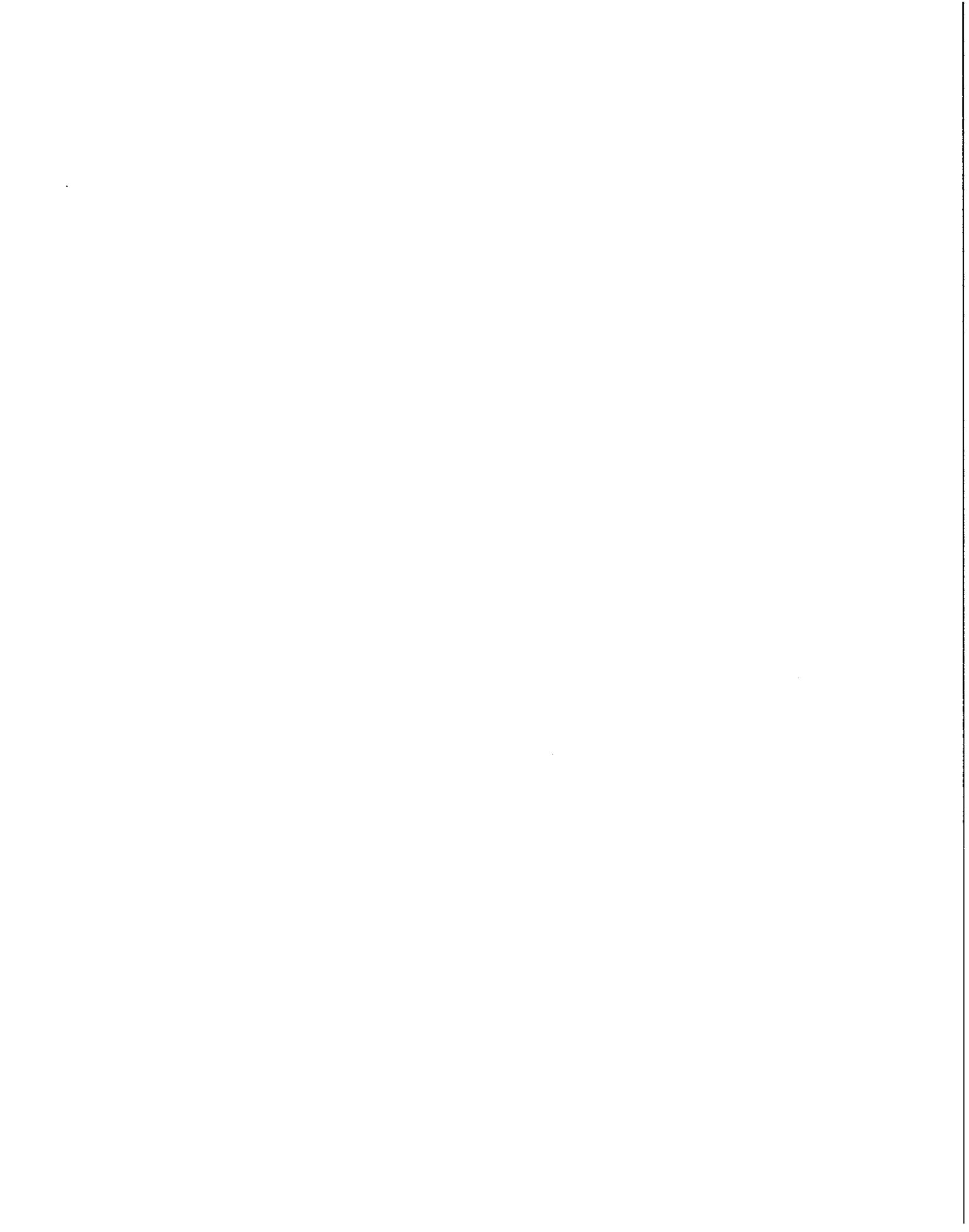
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/listing.cfm?code=workzone

The Department also maintains this list at:

<http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf>

Category 2 temporary traffic control devices that have not received FHWA acceptance shall not be used. Category 2 temporary traffic control devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer. The label shall be readable and permanently affixed by the manufacturer. Category 2 temporary traffic control devices without a label shall not be used.

If requested by the Engineer, the Contractor shall provide a written list of Category 2 temporary traffic control devices to be used on the project at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

Category 3 temporary traffic control devices consist of temporary traffic-handling equipment and devices that weigh 100 pounds or more and are expected to produce significant vehicular velocity change to impacting vehicles. Temporary traffic-handling equipment and devices include crash cushions, truck-mounted attenuators, temporary railing, temporary barrier, and end treatments for temporary railing and barrier.

Type III barricades may be used as sign supports if the barricades have been successfully crash tested, meeting the NCHRP Report 350 criteria, as one unit with a construction area sign attached.

Category 3 temporary traffic control devices shall be shown on the plans or on the Department's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

Category 3 temporary traffic control devices that are not shown on the plans or not listed on the Department's Highway Safety Features list shall not be used.

MEASUREMENT AND PAYMENT

Full compensation for providing self-certification for crashworthiness of Category 1 temporary traffic control devices and for providing a list of Category 2 temporary traffic control devices used on the project shall be considered as included in the prices paid for the various items of work requiring the use of the Category 1 or Category 2 temporary traffic control devices and no additional compensation will be allowed therefor.

TS-6 CONSTRUCTION AREA SIGNS

Construction area signs for temporary traffic control shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these Technical Specifications.

Unless otherwise shown on the plans or specified in these Technical Specifications, the color of construction area warning and guide signs shall have black legend and border on orange background, except W10-1 or W47(CA) (Highway-Rail Grade Crossing Advance Warning) sign shall have black legend and border on yellow background.

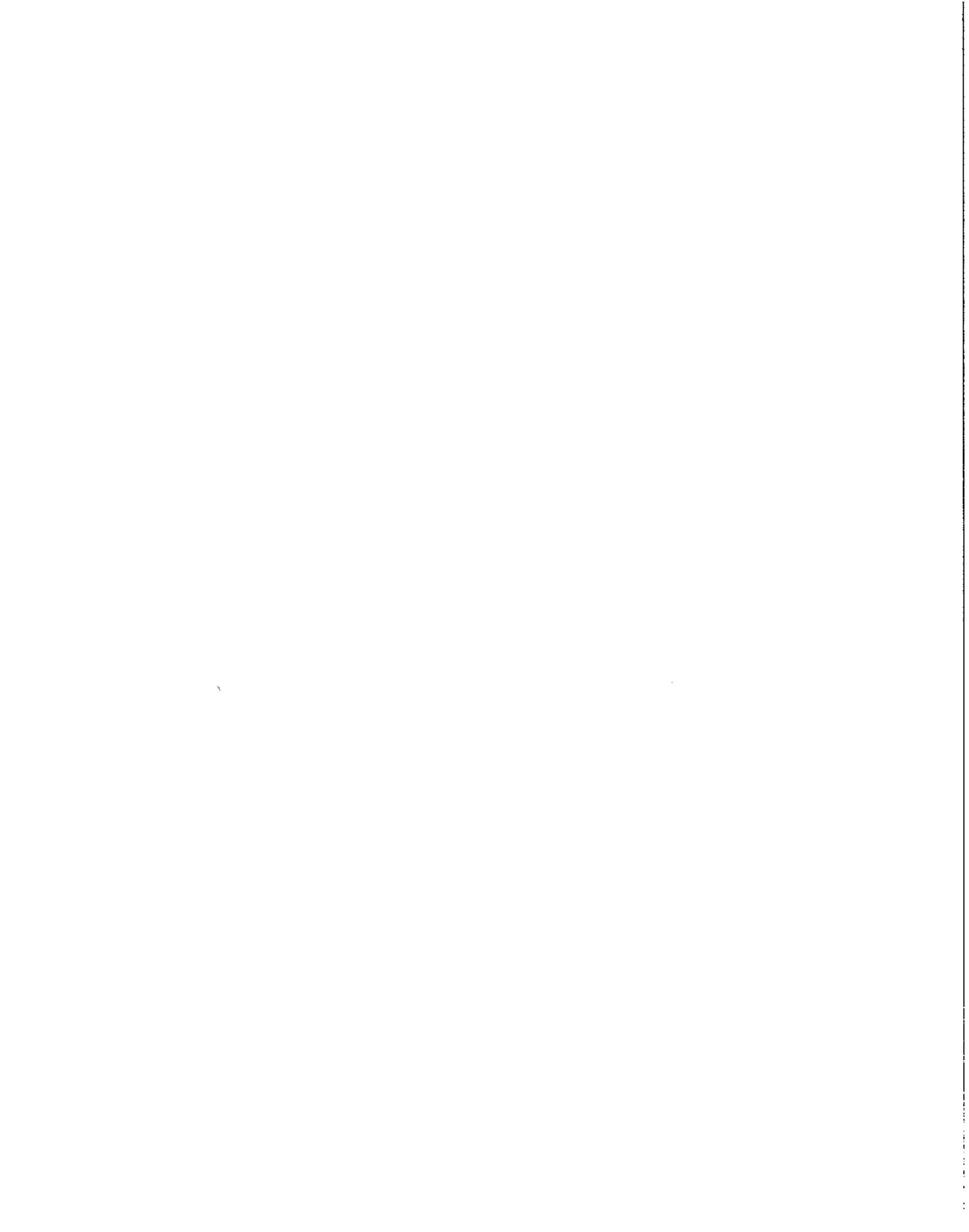
Orange background on construction area signs shall be fluorescent orange.

Repair to construction area sign panels will not be allowed, except when approved by the Engineer. At nighttime under vehicular headlight illumination, sign panels that exhibit irregular luminance, shadowing or dark blotches shall be immediately replaced at the Contractor's expense.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 business days, but not more than 14 days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert	811

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

utility facilities in the area of the proposed post holes. The post hole diameter, if backfilled with Portland cement concrete, shall be at least 4 inches greater than the longer dimension of the post cross section.

Construction area signs placed within 15 feet from the edge of the travel way shall be mounted on stationary mounted sign supports as specified in "Construction Area Traffic Control Devices" of these Technical Specifications.

The Contractor shall maintain accurate information on construction area signs. Signs that are no longer required shall be immediately covered or removed. Signs that convey inaccurate information shall be immediately replaced or the information shall be corrected. Covers shall be replaced when they no longer cover the signs properly. The Contractor shall immediately restore to the original position and location any sign that is displaced or overturned, from any cause, during the progress of work.

MEASUREMENT AND PAYMENT

The contract lump sum price paid for construction area signs shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all the work involved in construction area signs including furnishing, erecting, maintaining, removing and disposing of signs as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-7 MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions in Section 7-1.08, "Public Convenience," Section 7-1.08, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these Technical Specifications.

Construction shall only occur between the hours of 9:00am to 4:00pm and as directed by the Engineer.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders, including any section closed to public traffic.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, within a single traffic control system.

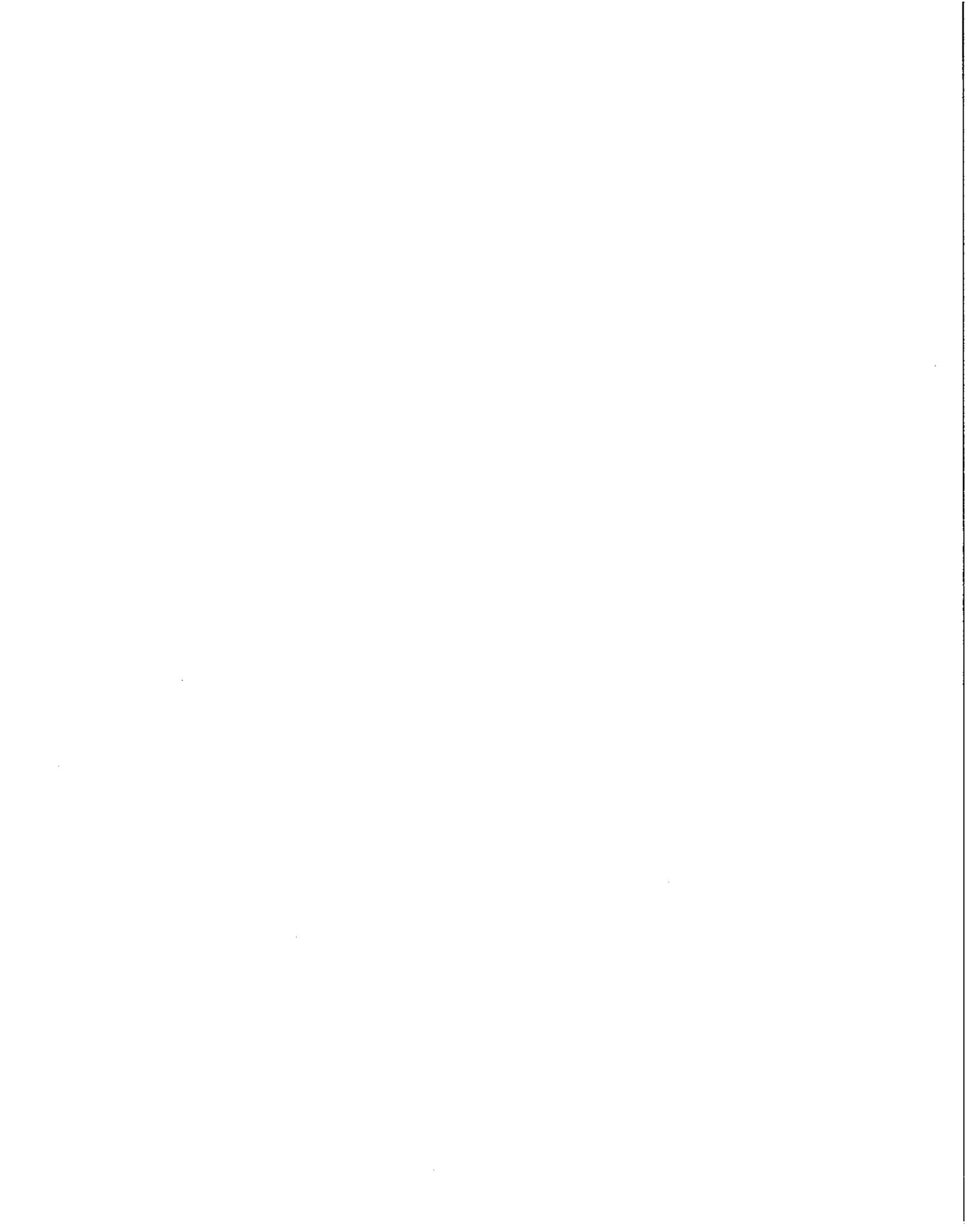
Pedestrian access facilities shall be provided through construction areas within the right of way as shown on the plans and as specified herein. Pedestrian walkways shall be surfaced with hot mix asphalt, Portland cement concrete or timber. The surface shall be skid resistant and free of irregularities. Hand railings shall be provided on each side of pedestrian walkways as necessary to protect pedestrian traffic from hazards due to construction operations or adjacent vehicular traffic.

At least one walkway shall be available at all times. If the Contractor's operations require the closure of one walkway, then another walkway shall be provided nearby, off the traveled roadway.

Railings shall be constructed of wood, S4S, and shall be painted white. Railings and walkways shall be maintained in good condition. Walkways shall be kept clear of obstructions.

MEASUREMENT AND PAYMENT

Full compensation for providing pedestrian facilities shall be considered as included in the lump sum price paid for maintain traffic and no additional compensation will be allowed therefor.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

The contract lump sum price paid for maintain traffic shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all the work involved in maintain traffic as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-8 BARRICADE

Barricades shall be furnished, placed and maintained at the locations shown on the plans, specified in the Standard Specifications or in these Technical Specifications or where designated by the Engineer. Barricades shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these Technical Specifications.

Construction area sign and marker panels conforming to the provisions in Section 12-3.06, "Construction Area Signs," of the Standard Specifications shall be installed on barricades in a manner determined by the Engineer at the locations shown on the plans.

Sign panels for construction area signs and marker panels installed on barricades shall conform to the provisions in Section 12-3.06A, "Stationary Mounted Signs," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing, installing, maintaining, and removing construction area signs and marker panels on barricades shall be considered as included in the contract unit price paid for the type of barricade involved and no separate payment will be made therefor.

Full compensation for providing type III barricades used on the project shall be considered as included in the lump sum price paid for maintain traffic and no additional compensation will be allowed therefor.

TS-9 EXISTING HIGHWAY FACILITIES

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these Technical Specifications.

1) PRESERVATION OF PROPERTY

Attention is directed to Section 7-1.11, "Preservation of Property," of the Standard Specifications and these Technical Specifications.

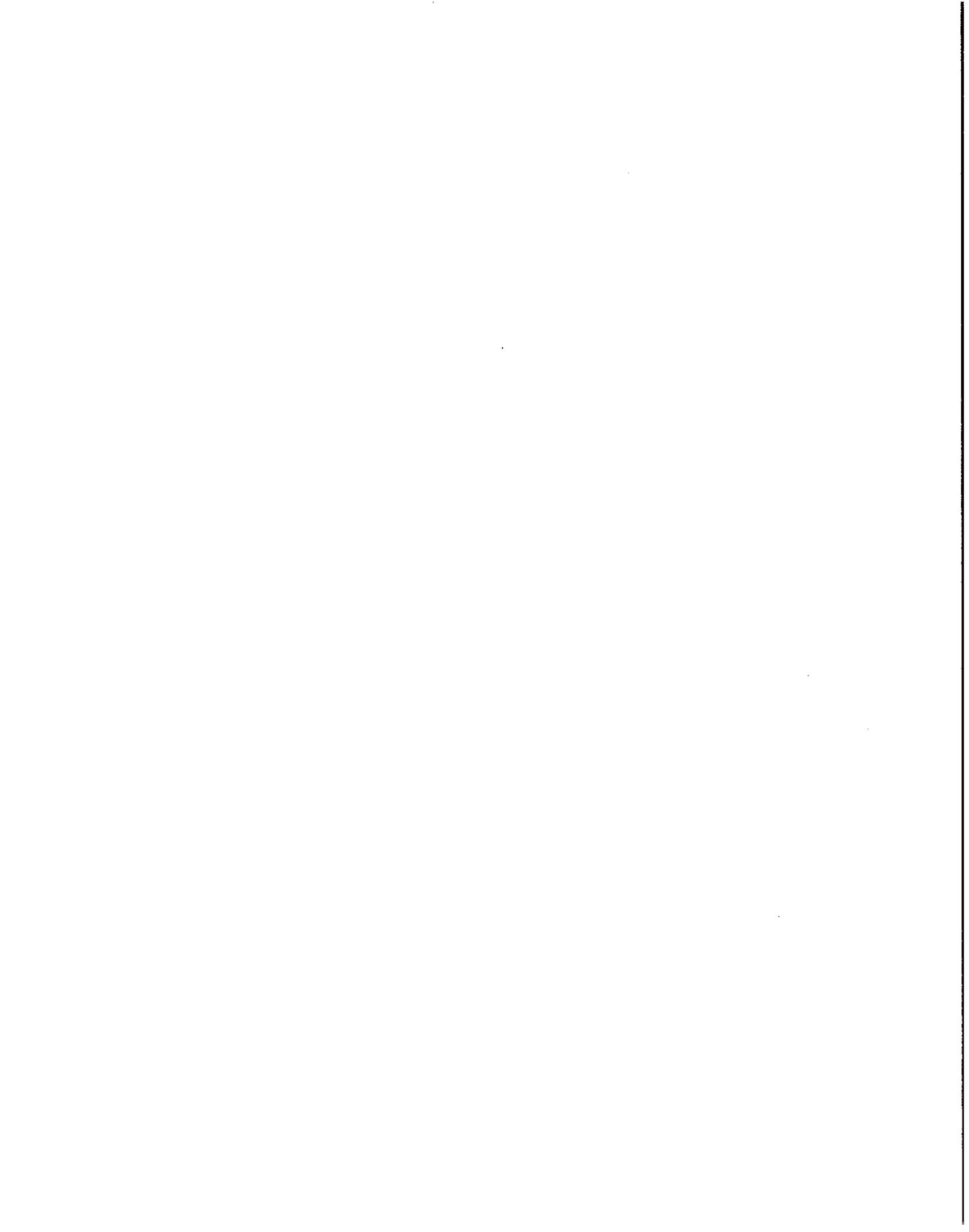
Oak Tree Preservation

All earthwork performed within the dripline of the Oak Tree at Location 5, intersection of Saratoga Sunnyvale Road and Cox Avenue shall be done by hand as directed by the Engineer.

Contractor shall contact City if root with a diameter of 2-inches or greater is encountered during excavation. Do not remove root(s) 2-inches or greater in diameter which are located in the base layer. If roots with a diameter of 2-inches or greater is encountered in the base layer Contractor shall place 0.75-inch thick neoprene layer over root to allow for future growth, and as directed by the City.

Payment

Full compensation for providing and installing neoprene material used on the project shall be considered as included in the prices paid for the various minor concrete items and no additional compensation will be allowed therefor.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

2) MODIFY INLET

The existing drainage inlet, shown on the plans to be modified, shall be modified as shown on the plans and details.

Concrete shall be minor concrete conforming to the provisions in Section 90-10, "Minor Concrete," of the Standard Specifications. The concrete shall contain not less than 590 pounds of cementitious material per cubic yard.

Damage to existing concrete, which is to remain in place, shall be repaired by the Contractor to a condition equal to that existing prior to the beginning of removal operations. The repair of existing concrete damaged by the Contractor's operations shall be at the Contractor's expense.

Existing reinforcement that is to be incorporated in the new work shall be protected from damage and shall be thoroughly cleaned of adhering material before being embedded in the new concrete.

Payment

The quantity of modifying inlets will be determined as units from actual count.

The contract unit price paid for modify inlet shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in modifying inlets, including removing portions of inlets, rounding bottoms of inlets, bar reinforcing steel, and structure excavation and structure backfill, as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

3) RELOCATE AND RESET MONUMENTS TO GRADE

Existing monuments shall be relocated and reset to grade in accordance with the provisions in Section 7-1.11, "Preservation of Property," of the Standard Specifications.

Relocation of monuments shall include brass disks in sidewalk. The top of the monument cover shall be adequately protected from the concrete during paving operations by means of plywood covers, or by other methods approved by the Engineer. All excess paving material shall be removed prior to acceptance.

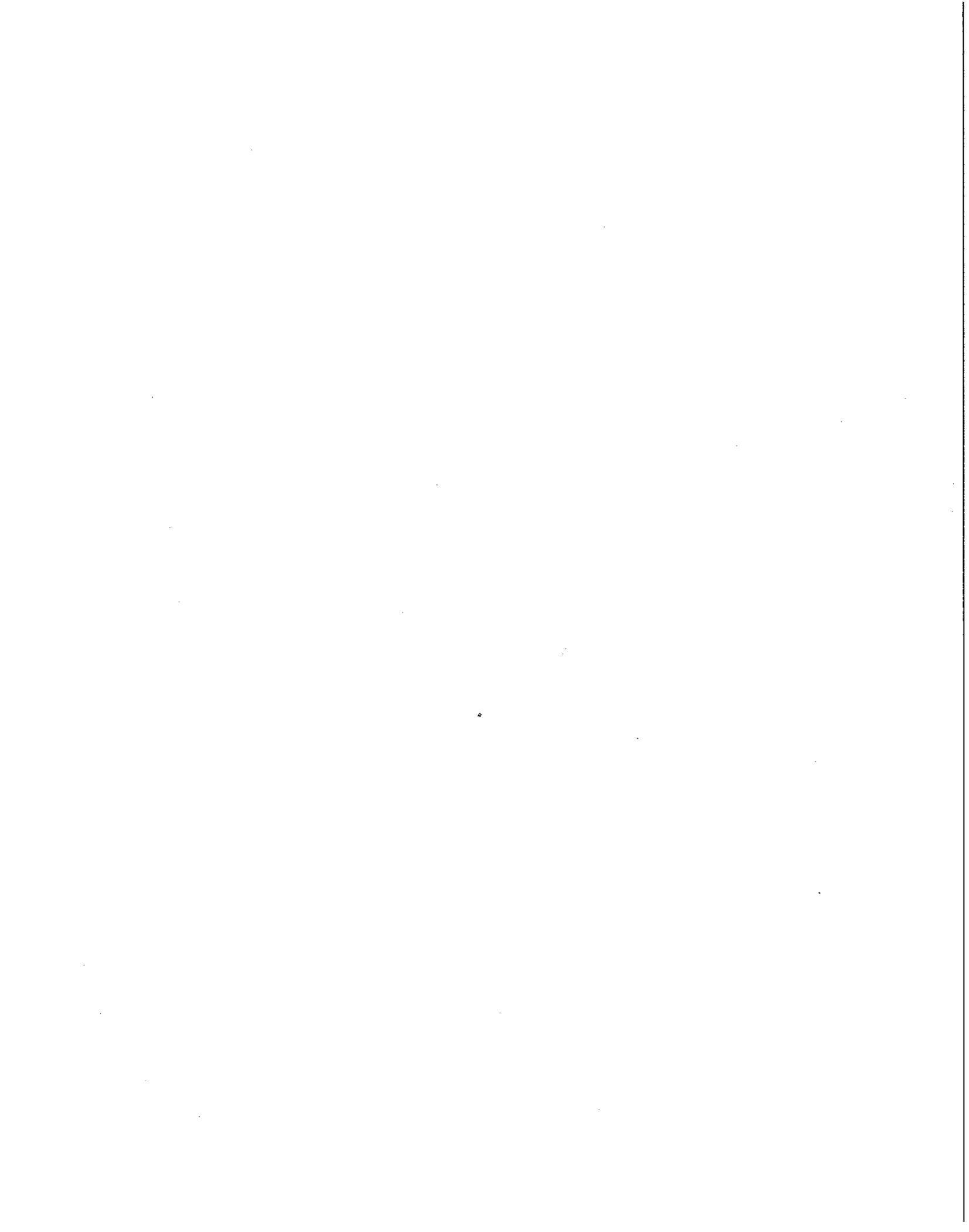
The Contractor shall be responsible for resetting benchmarks as shown on the plans. Resetting benchmark shall include disposal of existing benchmark and installation of new benchmark.

All monuments (including benchmarks) within the project site shall be preserved as required by Federal, State and local regulations. Relocated, damaged, or destroyed monuments shall be replaced by a California licensed Land Surveyor hired by the Contractor. The method and procedures of tying out monuments shall depend upon the character of the monument itself. This may involve coordination with the National Geodetic Survey Division for replacement of vertical benchmarks and/or the recording of a Corner Record with the County Surveyor of Santa Clara County.

The Contractor shall be responsible for preserving all benchmarks, reference points, and construction stakes in the area. The Contractor will be billed for any cost the City might incur in replacing any such benchmarks, reference points, or construction stakes which are destroyed as a result of the Contractor's activities.

MEASUREMENT AND PAYMENT

The quantity of relocate and reset monument to grade will be determined as units from actual count.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

The contract unit price paid per each for relocate and reset monument to grade shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including new brass disk, embedded with necessary text, and for doing all the work involved in relocating and resetting monument, complete in place, as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

4) REMOVE DRAINAGE FACILITY

Existing inlets where shown on the plans to be removed, shall be completely removed and disposed of.

Payment

The quantity of removing inlets will be determined as units from actual count.

The contract unit price paid for remove inlet shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing inlet, including removal and disposal of inlet, as specified in the Standard Specifications and these Technical Specifications and as directed by the Engineer.

5) REMOVE ASPHALT CONCRETE DIKE

Existing asphalt concrete dike, where shown on the plans to be removed, shall be removed.

Prior to removing the dike, the outside edge of the asphalt concrete to remain in place shall be cut on a neat line to a minimum depth of 0.17-foot.

The dike shall be removed in such a manner that the surfacing which is to remain in place is not damaged.

The dike shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13 of the Standard Specifications.

Payment

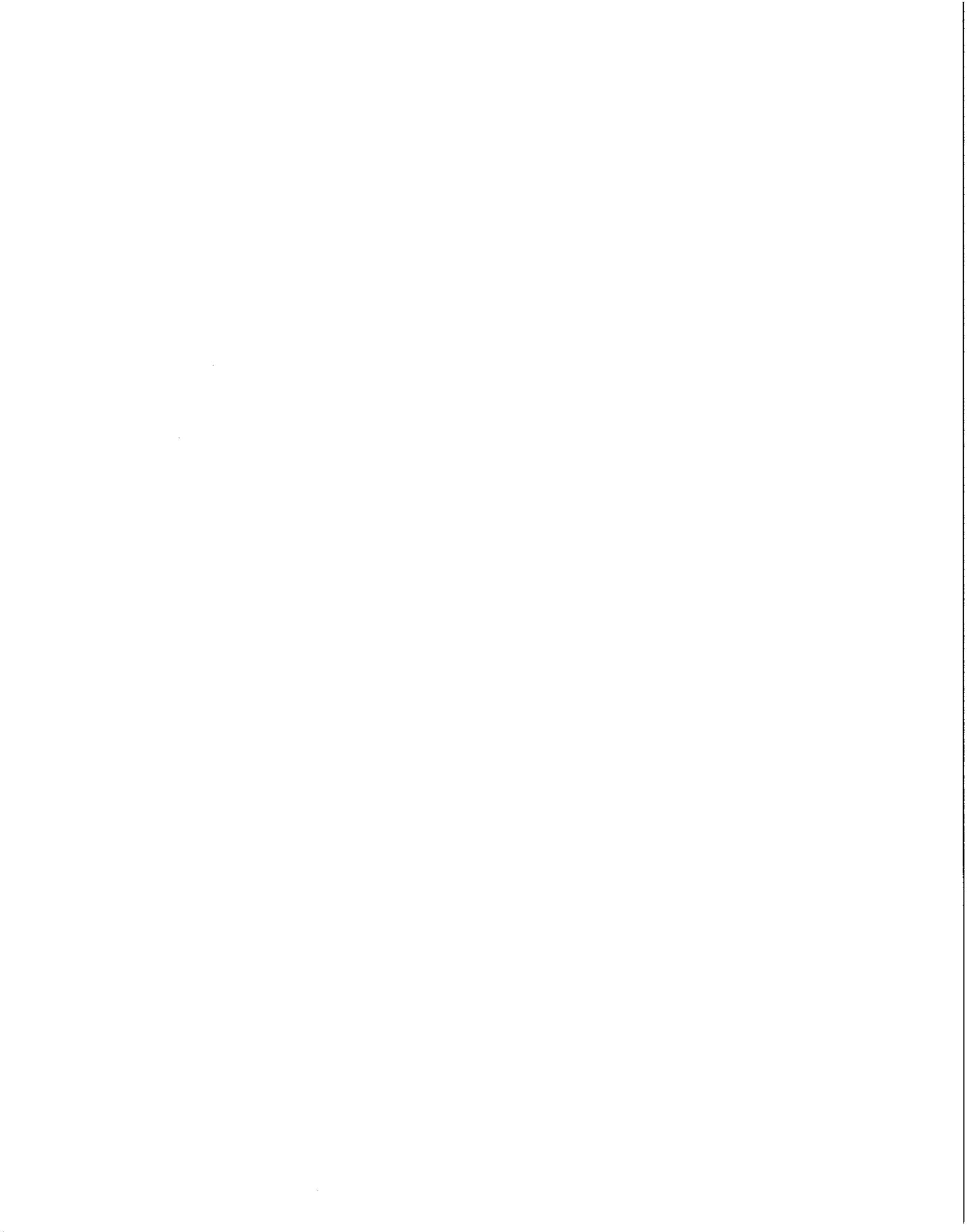
The contract price paid per lineal foot for remove asphalt concrete dike shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing asphalt concrete dike, including removal and disposal of asphalt concrete, as specified in the Standard Specifications and these Technical Specifications and as directed by the Engineer.

6) REMOVE BASE AND SURFACING

Existing base and bituminous surfacing shown on the plans to be removed, shall be removed to a depth of at least 6 inches below the grade of the existing surfacing. Resulting holes and depressions shall be backfilled with earthy material selected from excavation to the lines and grade established by the Engineer.

Payment

Removing base and surfacing will be measured by the cubic yard in the same manner specified for roadway excavation in conformance with the provisions in Section 19, "Earthwork," of the Standard Specifications and will be paid for at the contract price per cubic yard for remove base and surfacing.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

7) REMOVE CONCRETE

Concrete, where shown on the plans to be removed, shall be removed.

Removing concrete (curb and gutter) will be measured by the linear foot, before removal operations.

Removing concrete sidewalk and concrete curb ramp will be measured by the square foot, before removal operations.

Concrete removed shall be disposed of outside the City right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Payment

The contract price paid per lineal foot for remove concrete (curb and gutter) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing concrete including removing and disposal of concrete, as specified in the Standard Specifications and these Technical Specifications and as directed by the Engineer.

The contract price paid per square foot for remove concrete (sidewalk) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing sidewalk including removing and disposal of concrete, as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

The contract price paid per lineal foot for remove concrete (curb ramp) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing concrete curb ramp including removing and disposal of concrete, as specified in the Standard Specifications and these Technical Specifications and as directed by the Engineer.

8) SAWCUT AND CONFORM

Existing pavement shall be neatly sawcut at all conforms and shall be cut at a right angle to the pavement surface. When sawcutting on existing concrete sidewalk, curb or gutter, sawcut shall occur at nearest score joint. The final cut must result in a neat and uniform surface. Do not damage the remaining surface.

Conforms from newly constructed surfaces shall match existing grade and elevation. The completed surface must not vary more than 0.01 foot when measured along the conform line.

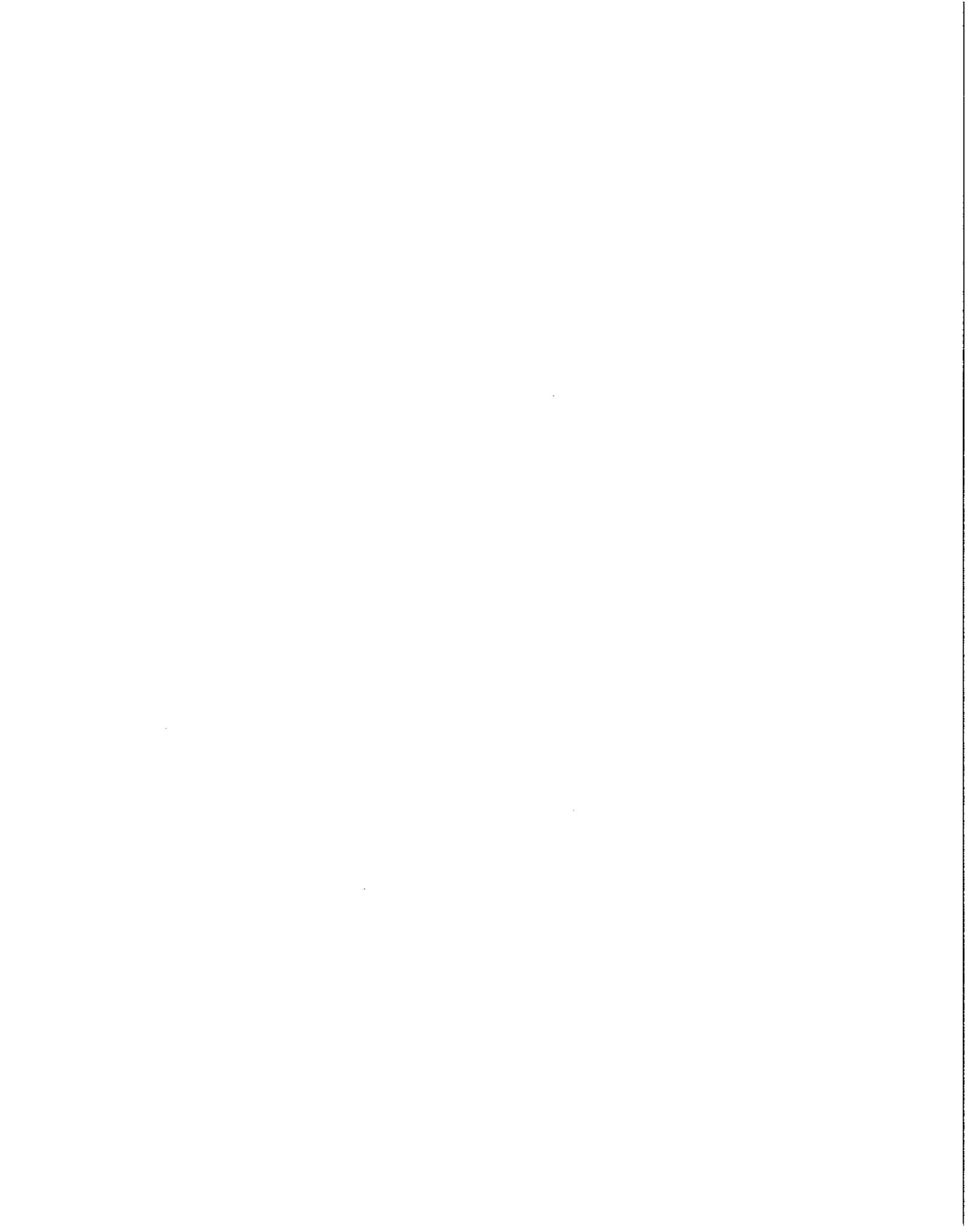
Payment

The contract lump sum price paid for sawcut and conform shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in sawcutting and conforming to existing pavement, as specified in the Standard Specifications and these Technical Specifications and as directed by the Engineer.

TS-10 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these Technical Specifications.

Nothing herein shall be construed as relieving the Contractor of the Contractor's responsibility for final cleanup of the highway and local streets as provided in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

MEASUREMENT AND PAYMENT

The contract lump sum price paid for clearing and grubbing shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in clearing and grubbing, as shown on the plan, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer, including removal and disposal of all the resulting material, and no additional compensation will be allowed therefor.

TS-11 FINISHING ROADWAY

Finishing roadway shall conform to the provisions in Section 22, "Finishing Roadway," of the Standard Specifications.

PAYMENT

Full compensation for finishing roadway shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

TS-12 AGGREGATE BASE

Aggregate base must comply with Section 26, "Aggregate Bases," of the Standard Specifications and these Technical Specifications.

Aggregate base must be Class 2.

Do not store reclaimed asphalt concrete or aggregate base with reclaimed asphalt concrete within 100 feet measured horizontally of any culvert, watercourse, or bridge.

MEASUREMENT AND PAYMENT

Full compensation for providing class 2 aggregate base used on the project shall be considered as included in the prices paid for various minor concrete items and no additional compensation will be allowed therefor.

TS-13 HOT MIX ASPHALT

GENERAL

Summary

This work includes producing and placing hot mix asphalt (HMA) Type A using the Standard process.

Comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications.

MATERIALS

Asphalt Binder

The grade of asphalt binder mixed with aggregate for HMA Type A must be PG 64-10.

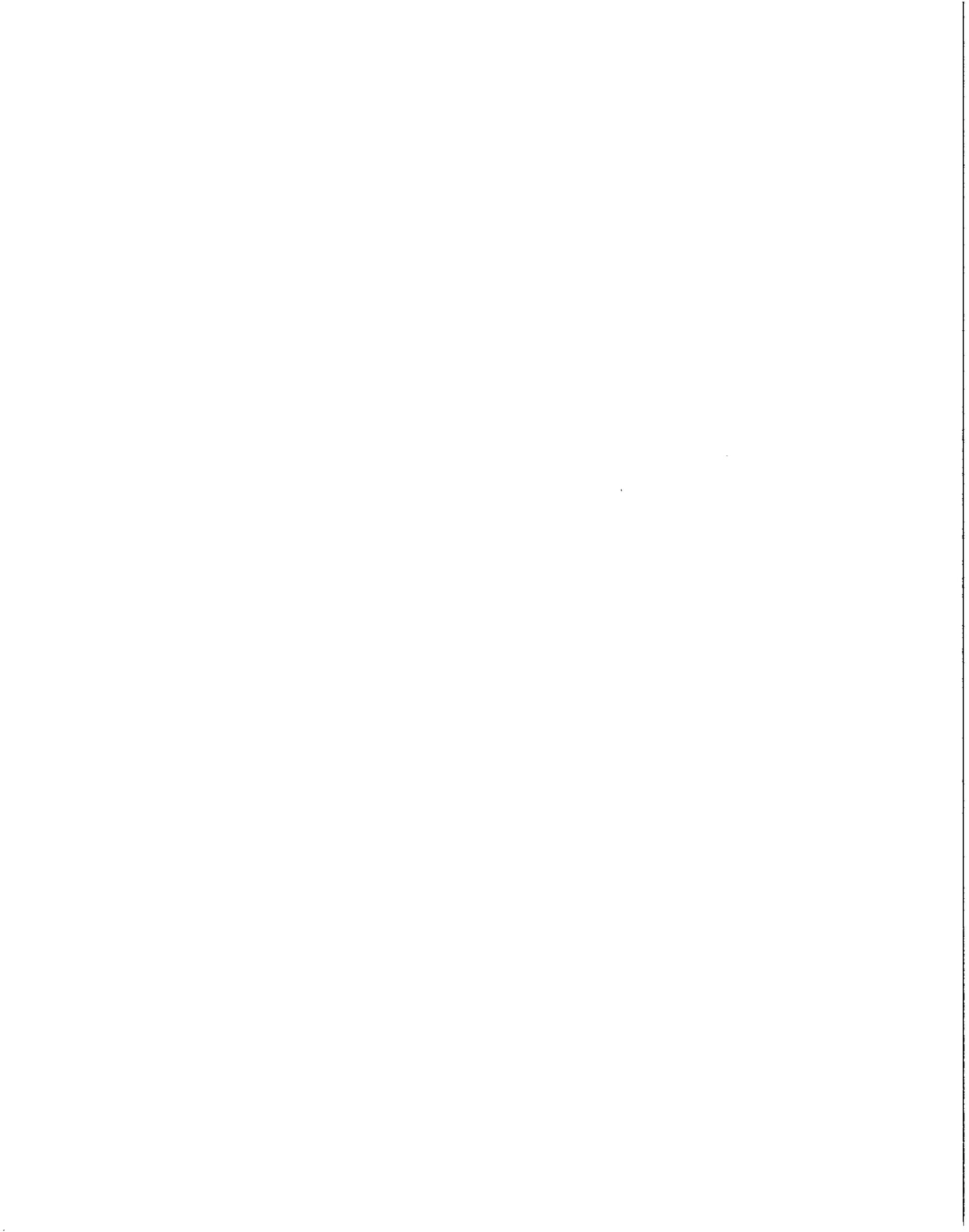
Aggregate

The aggregate for HMA Type A must comply with the ½ inch maximum coarse grading.

CONSTRUCTION

Conform Tapers

Place additional HMA along the pavement's edge to conform to road connections and private drives. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

MEASUREMENT AND PAYMENT

The contract price paid per ton for hot mix asphalt (type A) shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all the work involved in installing hot mix asphalt (type A), complete in place, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-14 CONTROLLED DENSITY FILL

Controlled Density Fill (CDF) shall be used as a backfill material if less than two feet of pipe cover is available.

REQUIREMENTS

Hand excavatable, non-structural controlled density fill shall produce unconfined compressive 28 day strengths from 50 psi to a maximum of 150 psi. Controlled density fill that is to be hand excavatable and shall contain aggregate no larger than 3/8" top size nor shall the 3/8" aggregate comprise more than 40% of the total aggregate content.

MATERIALS

Cement shall meet the standards as set forth in ASTM C-150, Type II Cement.

Ash shall meet the standards as set forth in ASTM C-618, for Class F Pozzolans. The fly ash shall not inhibit the entrainment of air.

Air entraining agent shall meet the standards as set for in ASTM C-260, Aggregates need not meet the standards as set for in ASTM C-33. Any aggregates which produce performance characteristics of the Controlled Density Fill considered for any given project, will be accepted for consideration, except as follows. The amount of material passing a #200 sieve shall not exceed 12%, and no plastic fines shall be present.

MIX PROPORTIONS

Controlled Density Fill shall be a mixture of cement, Class F pozzolan, sand and sometimes coarse aggregate, air entraining agent and water, batched by a ready mixed concrete plant and delivered to the jobsite by means of transit mixing trucks.

The actual mix proportions shall be determined by the producer of the controlled density fill to meet jobsite conditions, minimum or maximum strengths, and unit weight. Entrained air content shall be a minimum of 80%. The actual entrained air content shall be established for each particular job with the materials and aggregates to be used to meet the placing and unit weight requirements. Entrained air content may be as high as 20% for fluidity requirements.

MEASUREMENT AND PAYMENT

Full compensation for providing controlled density fill used on the project shall be considered as included in the price paid per linear foot for 18" reinforced concrete pipe and no additional compensation will be allowed therefor.

TS-15 REINFORCED CONCRETE PIPE

Reinforced concrete pipe shall conform to the provisions in Section 65, "Reinforced Concrete Pipe," of the Standard Specifications, and these Technical Specifications.

**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

GENERAL

Where embankment will not be placed over the top of the pipe, a relative compaction of not less than 85 percent shall be required below the pipe spring line for pipe installed using Method 1 backfill in trench, as shown on Standard Plan A62D. Where the pipe is to be placed under the traveled way, a relative compaction of not less than 90 percent shall be required unless the minimum distance between the top of the pipe and the pavement surface is the greater of 4 feet or one half of the outside diameter of the pipe.

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

MATERIALS

The concrete for reinforced concrete pipe shall contain not less than 470 pounds of cementitious material per cubic yard and have a water-cementitious material ratio that does not exceed 0.40 by weight. Supplementary cementitious material is optional. Reinforcement shall have a minimum cover of 3/4 inch.

Special reinforced concrete pipe, having concrete cover over the steel reinforcement greater than the cover specified in AASHTO Designation: M 170, shall conform to the provisions in Section 65-1.02, "Materials," and Section 65-1.02A, "Circular Reinforced Concrete Pipe," of the Standard Specifications, except the width of crack produced by the D-load test specified in AASHTO Designation: M 170 shall be the width determined by the following formula:

$$b = \frac{t - 3/8d}{t - 3/8d - C} \times 0.01 \text{ inch}$$

Where:

- b = Width of crack to be produced in lieu of the 0.01-inch crack specified in AASHTO Designation: M 170
- t = Wall thickness of pipe, inches
- d = Effective depth of the section to be tested, feet
- C = Concrete cover over steel reinforcement in excess of cover specified in AASHTO Designation: M 170

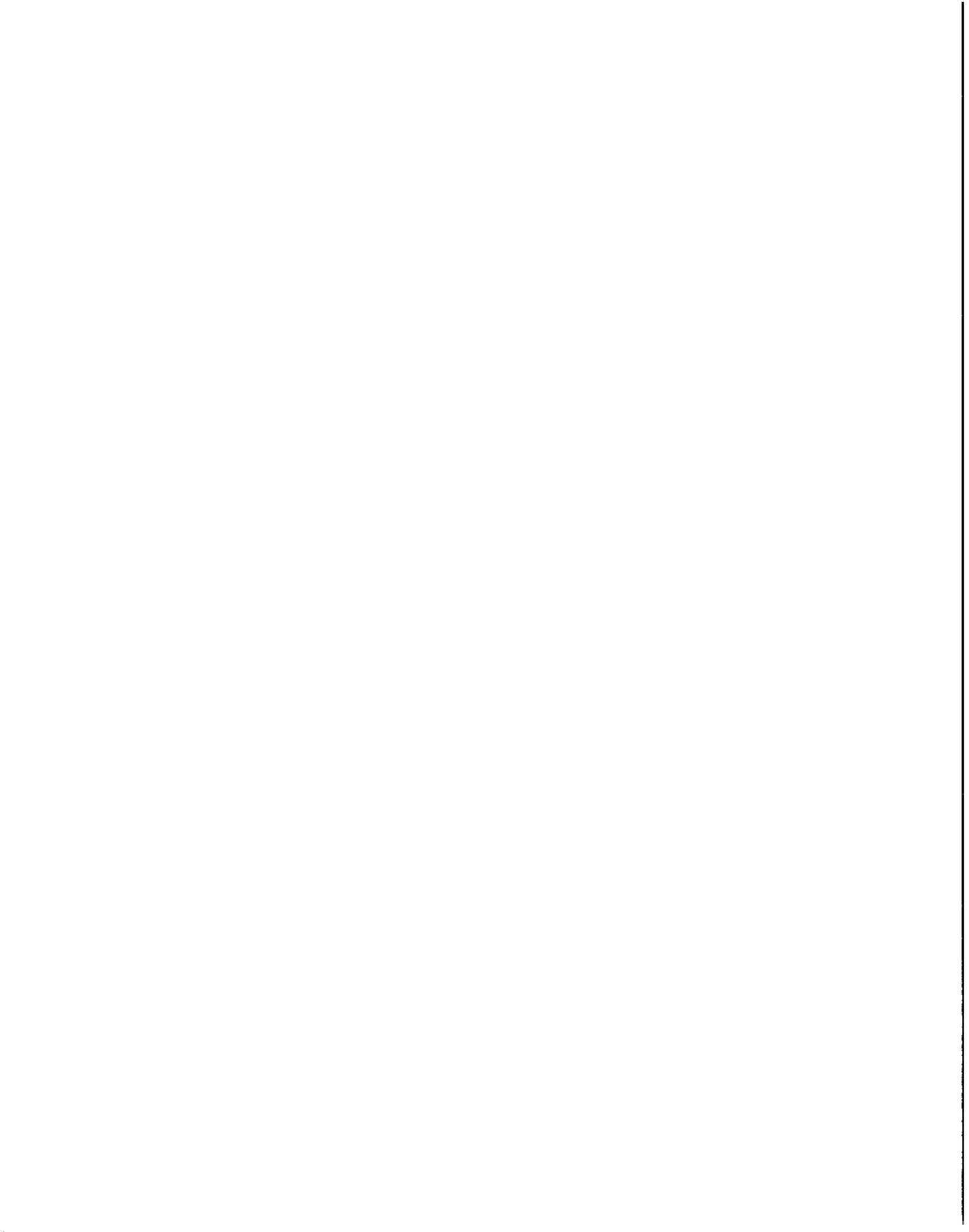
Reinforced concrete pipe that is to be hydrostatically tested shall be strength tested by the 3-edge bearing method to a maximum D-load of 10 percent greater than the 0.01-inch cracking D-load specified in AASHTO Designation: M 170 or to the actual D-load required to produce a 0.01-inch crack, whichever is the lesser.

Special oval shaped reinforced concrete pipe, having concrete cover over the steel reinforcement greater than the cover specified in AASHTO Designation: M 207, shall conform to the provisions in Section 65-1.02, "Materials," and Section 65-1.02B, "Oval Shaped Reinforced Concrete Pipe," of the Standard Specifications, except the width of crack produced by the D-load test specified in AASHTO Designation: M 207 shall be the width determined by the following formula:

$$b = \frac{t - 3/8d}{t - 3/8d - C} \times 0.01 \text{ inch}$$

Where:

- b = Width of crack to be produced in lieu of the 0.01-inch crack specified in AASHTO Designation: M 207



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

- t = Wall thickness of pipe, inches
- d = Effective depth of the section to be tested, feet
- C = Concrete cover over steel reinforcement in excess of cover specified in AASHTO Designation: M 207

Oval shaped reinforced concrete pipe that is to be hydrostatically tested shall be strength tested by the 3-edge bearing method to a maximum D-load of 10 percent greater than the 0.01-inch cracking D-load specified in AASHTO Designation: M 207 or to the actual D-load required to produce a 0.01-inch crack, whichever is the lesser.

MEASUREMENT AND PAYMENT

The City does not pay any additional cost for use of optional supplementary cementitious material.

The City does not pay any additional cost for excess concrete cover over steel reinforcement.

The contract price paid per lineal foot for 18" reinforced concrete pipe shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in installing 18" reinforced concrete pipe complete in place, including trenching and backfill as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-16 MISCELLANEOUS CONCRETE CONSTRUCTION

Miscellaneous concrete construction shall conform to the provisions in Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications, and these Technical Specifications.

Contractor shall add one (1) pint of lamp black per cubic yard of miscellaneous concrete mix or as directed by the Engineer.

Curb ramp detectable warning surface shall consist of raised truncated domes constructed or installed on curb ramps in conformance with the details shown on the plans and these Technical Specifications. At the option of the Contractor, the detectable warning surface shall be prefabricated, cast-in-place, or stamped into the surface of the curb ramp. The color of the detectable warning surface shall be yellow conforming to Federal Standard 595B, Color No. 33538.

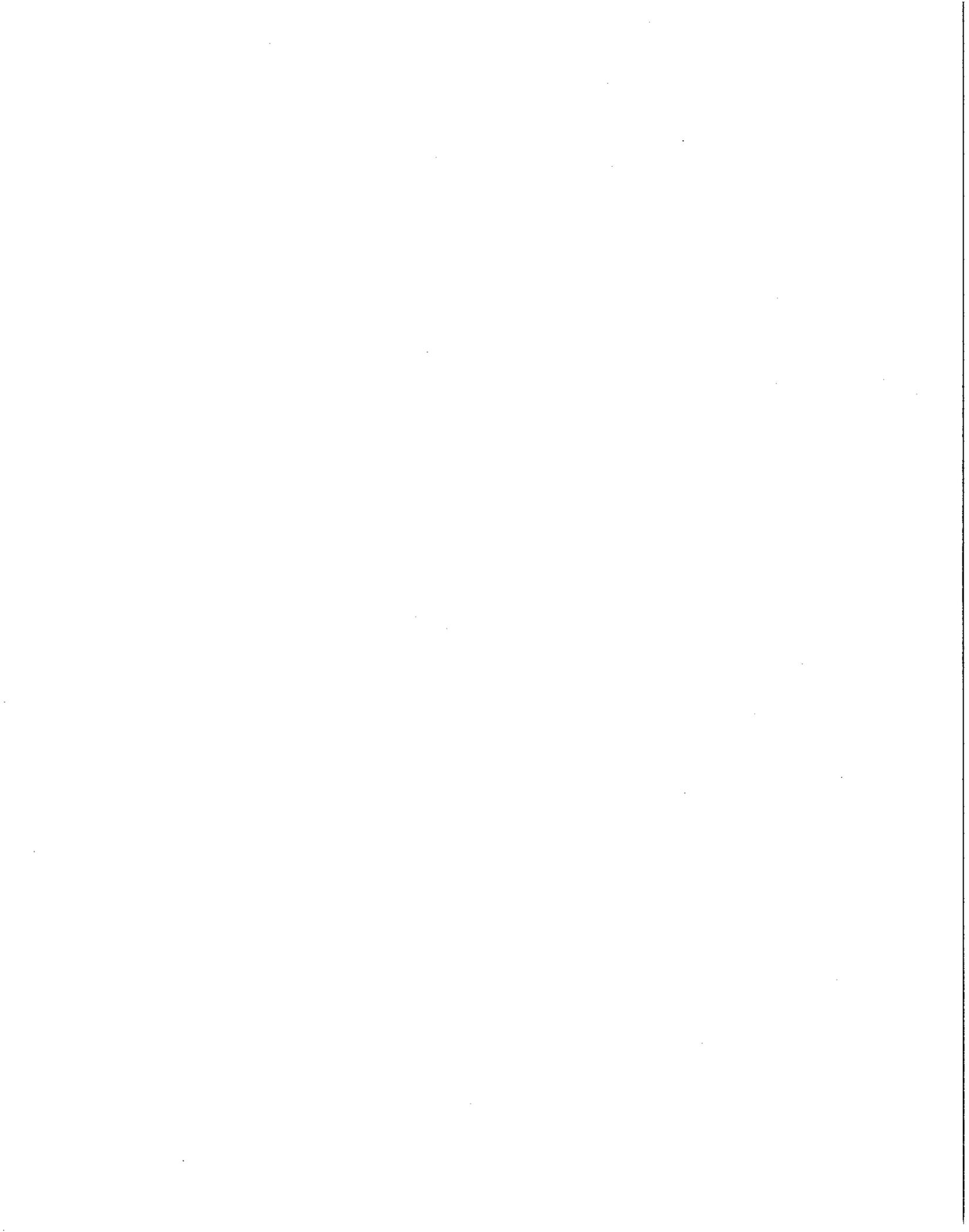
Prefabricated detectable warning surface shall be in conformance with the requirements established by the Department of General Services, Division of State Architect and be attached in conformance with the manufacturer's recommendations.

Cast-in-place and stamped detectable warning surfaces shall be painted in conformance with the provisions in Section 59-6, "Painting Concrete," of the Standard Specifications.

The finished surfaces of the detectable warning surface shall be free from blemishes.

Prior to constructing the cast-in-place or stamping the detectable warning surface, the Contractor shall demonstrate the ability to produce a detectable warning surface conforming to the details shown on the plans and these Technical Specifications by constructing a 24" x 24" test panel.

The manufacturer shall provide a written 5-year warranty for prefabricated detectable warning surfaces, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period shall begin upon acceptance of the contract.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

MEASUREMENT AND PAYMENT

The contract price paid per lineal foot for minor concrete (curb) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (curb) complete in place, including concrete and excavation as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

The contract price paid per lineal foot for minor concrete (curb and gutter) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (curb and gutter) complete in place, including concrete and excavation as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

The contract price paid per square foot for minor concrete (valley gutter) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (valley gutter) complete in place, including concrete and excavation as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

The contract price paid per square foot for minor concrete (sidewalk) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (sidewalk) complete in place, including concrete and excavation as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

The contract price paid per square foot for minor concrete (driveway) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (driveway) complete in place, including concrete and excavation as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

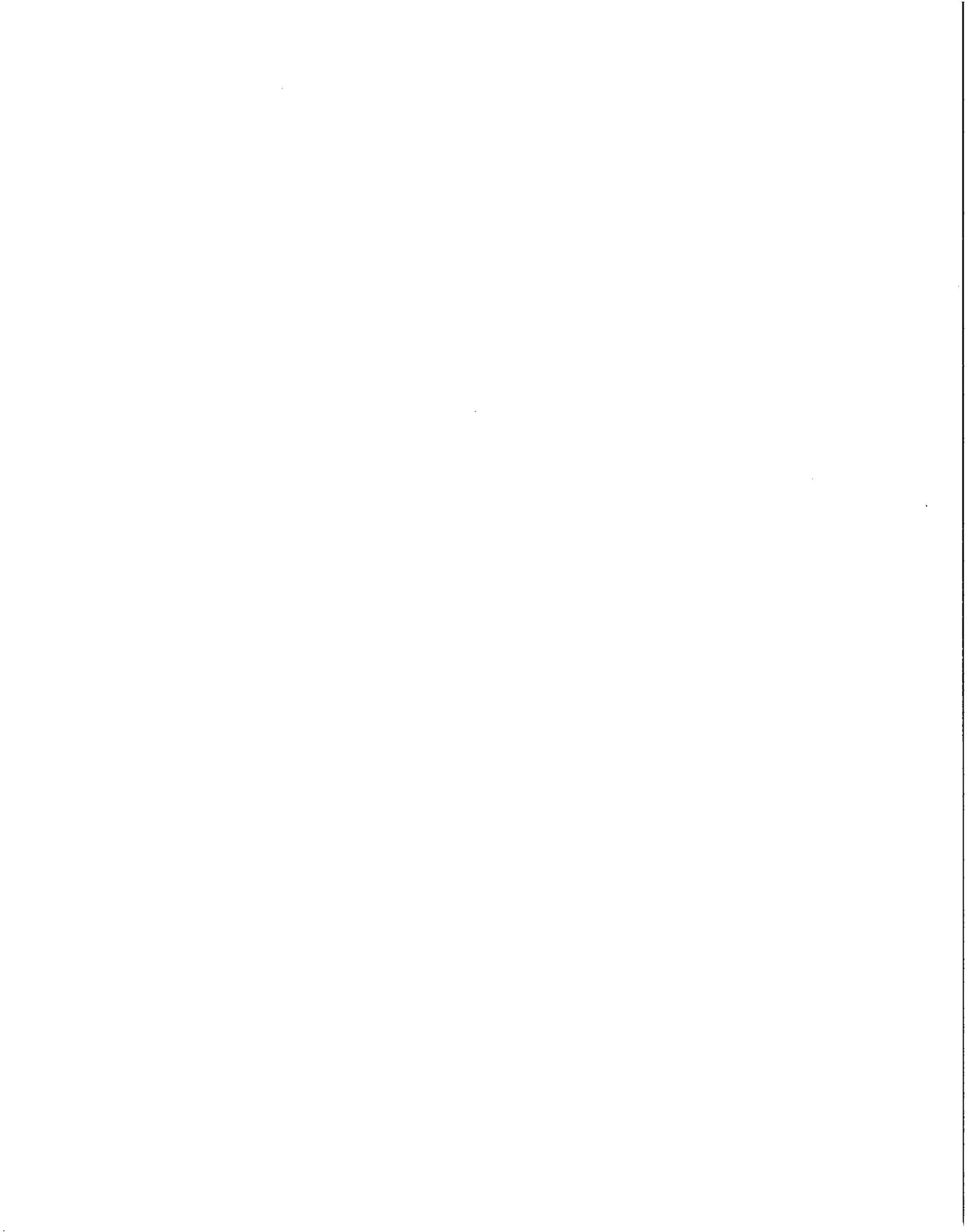
Full compensation for constructing or furnishing and installing curb ramp detectable warning surfaces shall be considered as included in the contract price paid per cubic yard for minor concrete (curb ramp) and no separate payment will be made therefor.

The contract price paid per square foot for minor concrete (curb ramp) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (curb ramp) complete in place, including concrete and excavation as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

The contract price paid per square foot for minor concrete (median island) shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing minor concrete (median island) complete in place, including concrete as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-17 CONCRETE INLET

Concrete inlet shall conform to the provisions in sheet "D73," of the Standard Plans, the Standard Specifications and these Technical Specifications.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

MEASUREMENT AND PAYMENT

The contract unit price paid for concrete inlet shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in constructing concrete inlet complete in place, as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-18 PAINT TRAFFIC STRIPE AND PAVEMENT MARKING

Painted traffic stripes (traffic lines) and pavement markings shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these Technical Specifications.

Traffic stripe and pavement marking paint shall conform to the requirements in State Specification No. PTWB-01.

The color of the painted traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6628-01.

Retroreflectivity of the paint traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6359-99. White painted traffic stripes and pavement markings shall have a minimum initial retroreflectivity of $250 \text{ mcd m}^{-2} \text{ lx}^{-1}$. Yellow painted traffic stripes and pavement markings shall have a minimum initial retroreflectivity of $150 \text{ mcd m}^{-2} \text{ lx}^{-1}$.

If pavement is replaced where there is existing thermoplastic material, the replacement of that traffic stripe shall match existing.

MEASUREMENT AND PAYMENT

The contract price paid per square foot for pavement marking shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in installing pavement marking complete in place as shown on the plans, as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

TS-19 TRAFFIC SIGNAL

DESCRIPTION

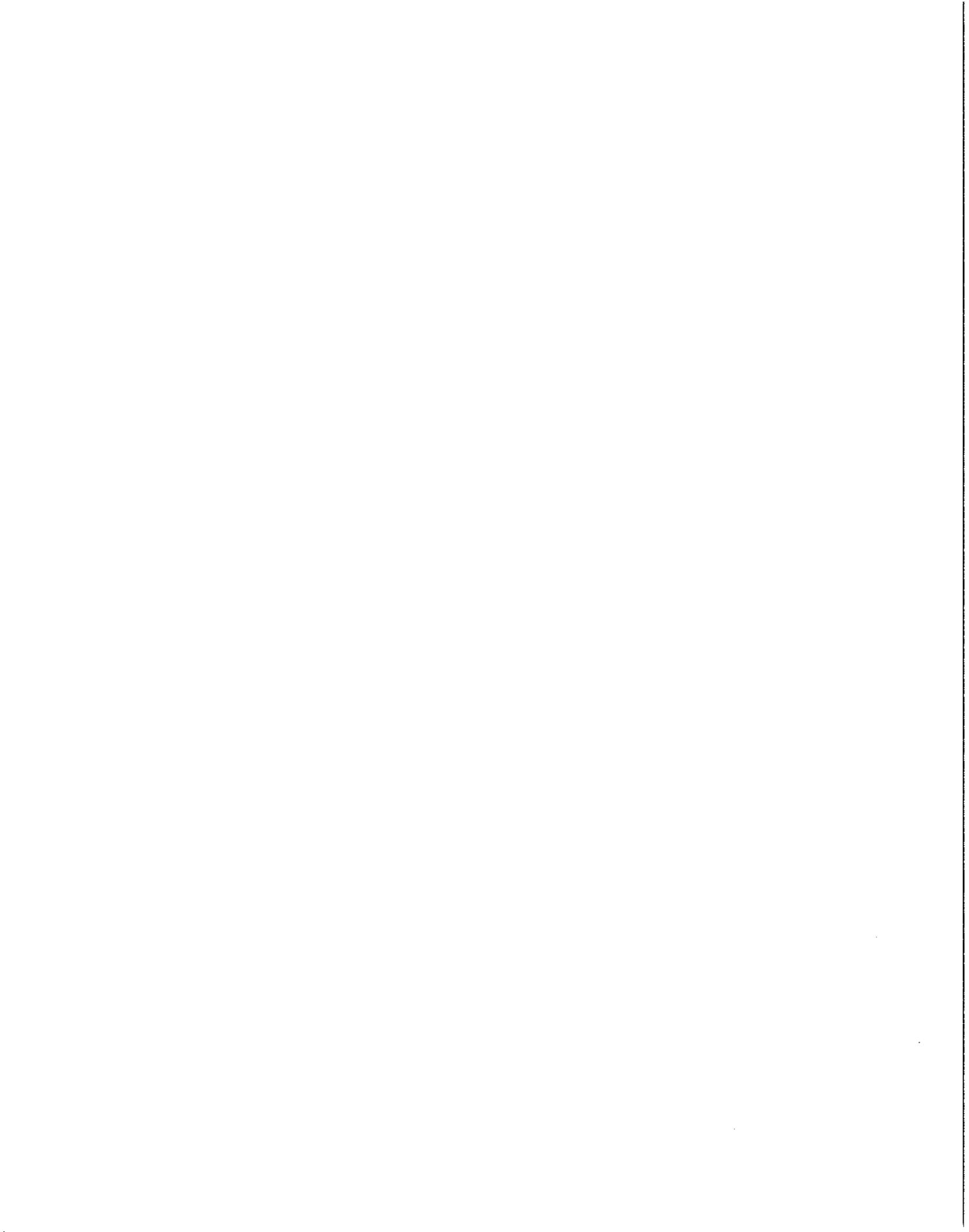
Traffic signal modifications are to be performed at the following locations:

- Location 1: Saratoga Sunnyvale Road / Reid Lane
- Location 2: Saratoga Sunnyvale Road / Herriman Avenue
- Location 3: Saratoga Sunnyvale Road / Blauer Drive
- Location 4: Saratoga Sunnyvale Road / Pierce Road
- Location 5: Saratoga Sunnyvale Road / Cox Avenue
- Location 6: Saratoga Sunnyvale Road / Seagull Way

COST BREAK-DOWN

Cost break-downs shall conform to the provisions in Section 86-1.03, "Cost Break-Down," of the Standard Specifications and these Technical Specifications.

The Engineer shall be furnished a cost break-down for each contract lump sum item of work described in this section.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

The cost break-down shall be submitted to the Engineer for approval within 15 days after the contract has been approved. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

FOUNDATIONS

Sleeve nuts shall be used on Type 1-B standards.

Foundations for Type I-B standards shall conform to the details on State Standard Plan ES-6A, "Anchor Bolts With Sleeve Nuts", except that the bottom of the base plate shall be flush with the finished grade.

All anchor bolts shall be grounded and bonded to poles/standards/pedestals.

STANDARDS AND STEEL POLES

The sign mounting hardware, as shown on Detail U of State Standard Plan ES-6T, shall be installed at the locations shown on the plans.

All traffic signal mast arms shall include 1 inch signal ports @ 5 foot intervals.

All unused signal ports shall be plugged with square head pipe plugs.

All standards, poles, and mast arms shall be decorative poles with a fluted shaft, clam shell base, powder-coated black, with twin acorn-style lighting fixtures mounted to the top of the shaft spaced 28 inches apart at 24 feet to the center of the light measured from the sidewalk.

All standards, poles, and mast arms shall comply with CALTRANS specifications for wind loading, case loading, strength, and mast arm taper lengths.

PULL BOXES

Grout shall not be placed in bottom of pull boxes.

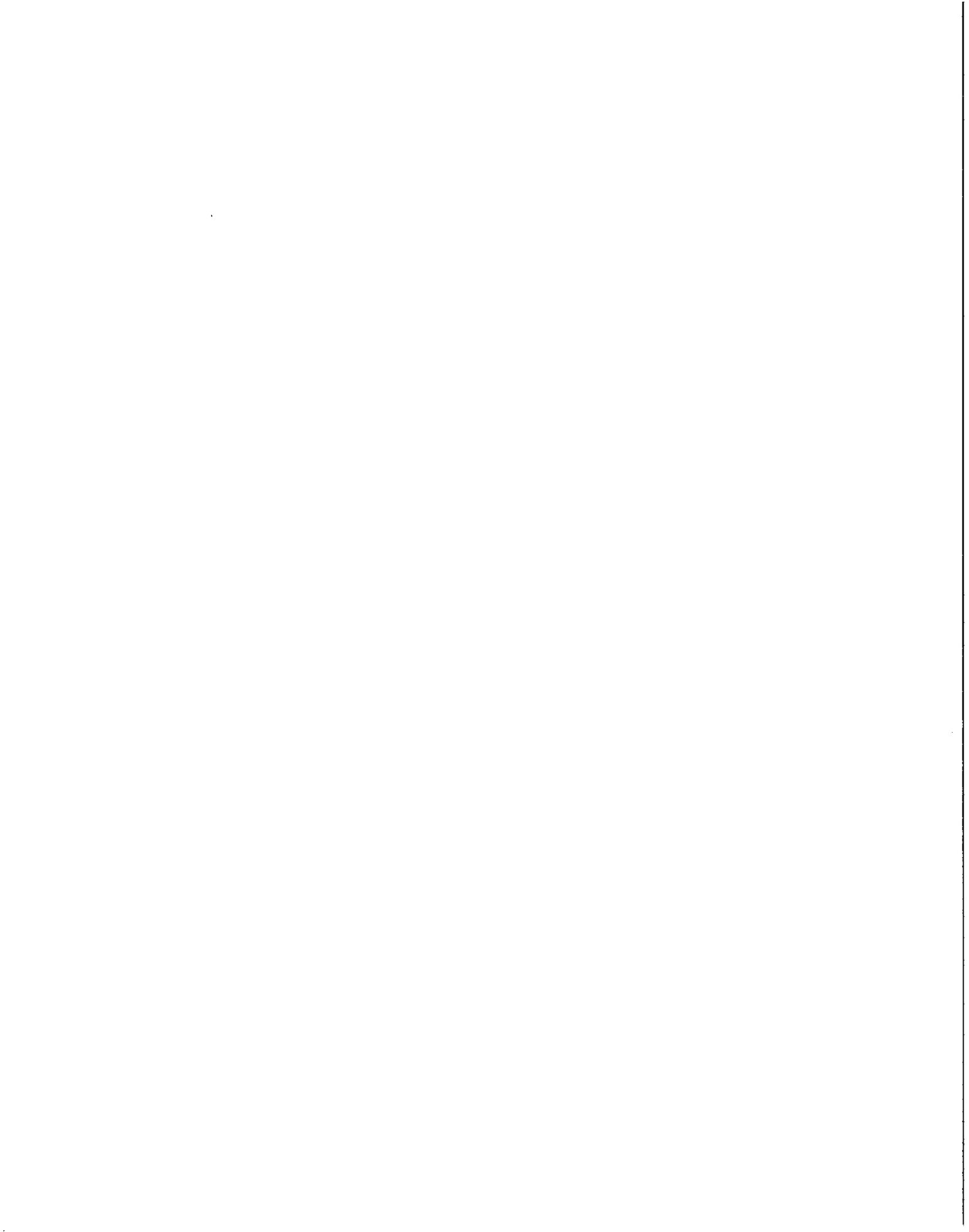
Where the sump of an existing pull box is disturbed by the Contractor's operations, the sump shall be reconstructed.

No. 3-1/2 pull boxes shall not be used. Contractor shall use a minimum of No. 5 or larger pull boxes unless otherwise indicated on plans.

All traffic signal pullbox lids shall be labeled "Traffic Signal". Traffic signal pullboxes with fiber optic or communications cables shall have the pullbox lids labeled "Communications" with hold down bolts and be either a N36 or N48 Electrical Box with a 10" or 12" concrete pullbox extension as indicated on the plans. N36 pullbox lids shall be Fibrelite lids.

CONDUIT

All conduits to be installed across traffic lanes shall be installed using directional boring or open trench as determined by the Engineer. The Engineer shall determine clearance depths for utility crossings prior to conduit installation. The Contractor shall be responsible for pot-holing to verify size, locations and depths of conflicting utility lines. Pull boxes shall be located behind the curb or as directed by the Engineer.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

Conduits shall be located at a minimum of 30" below finished grade in all areas. All conduits shall have a pull tape installed, and a continuous bare No. 6 copper wire for grounding and tracing of conduits.

All conduits shall be sealed with Duct-Seal after wires are installed to prevent moisture and rodents from entering the conduits. All conduit ends within pullboxes shall have bell ends installed.

All conduits entering concrete foundations shall be galvanized rigid steel covered with pipe wrap. PVC conduits under roadways shall be Schedule 80. All other shall be Schedule 40.

WIRE AND WIRING

Signal cable shall not be used. Conductors shall be installed as shown in the Conductor Schedule on the plans.

All conductors shall be spliced in pullboxes using method described in the latest Caltrans Standard Specifications. Wiring for traffic signal indications or equipment shall not be daisy-chained.

All conductors shall be labeled and identified in each and every pullbox. A minimum of 6 feet (3 feet up and 3 feet down) of service loop shall be provided in each pullbox.

SIGNAL HEAD MOUNTINGS

Adjustable Astro-Brac vehicle signal mounting hardware with terminal compartments, or equivalent, shall be provided for mast arm signal heads as noted on the plans.

Mast arm signals and mast arms shall include signal ports @ 5 foot intervals and flexible metal conduit between ports and signal heads. Contractor shall install enough flexible metal so that each signal head can be adjusted/moved 4 feet left or right of each signal port.

All unused signal ports shall be sealed with a square head pipe plug.

All signal mounting assemblies including pipe fittings, post-top slip fittings, and terminal compartments shall be cast bronze.

All signal mountings shall be powder-coated black.

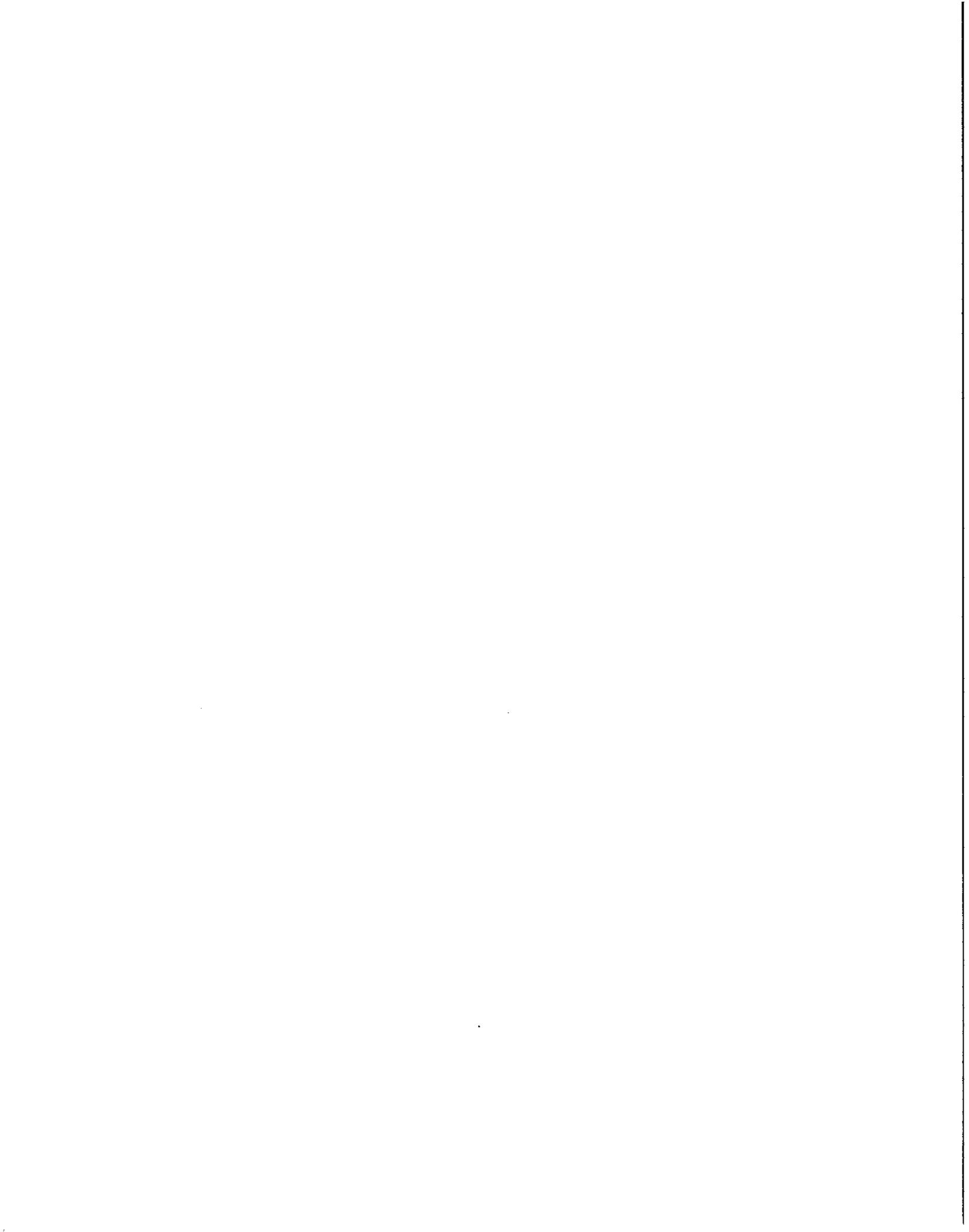
PEDESTRIAN SIGNALS

The Contractor shall supply and install Type A pedestrian signals. The pedestrian signal housing, framework, door and z-crate shall be powder coated black.

All pedestrian signals shall be furnished with a combination Portland Orange "Up-Raised Hand", and Lunar White "Walking Man" LED's. All pedestrian indication symbols shall be completely filled in, outlined indications shall not be allowed. LED Pedestrian indications shall also have a Portland Orange "Countdown Indication" showing the remaining Walk/Don't Walk time. Unit shall have uniform appearance symbols that exceed ITE PTCSI-2 requirements.

The Countdown Pedestrian Signal shall be user configurable through dipswitches allowing the user to deactivate the countdown operation or activate countdown of Walk+Don't Walk time, countdown of Walk time and then Don't Walk time and countdown of Don't Walk time only.

Countdown display shall feature 2-row 9" high countdown digits that are MUTCD compliant for crosswalks over 100 feet. Countdown shall be fully preemption compatible, and revert to its previous



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

timing immediately following a preemption call. Display shall have memory feature to allow countdown timing to be stored internally, even when power is off for extended time. Unit shall automatically adjust to traffic signal controller pedestrian interval changes. Unit shall be sealed for moisture resistance, lens shall be textured to reduce glare, and quick connect terminals and spade adapters shall be provided. Units shall be ENERGY STAR qualified.

Typical wattage at 25°C shall be 5 watts for countdown display, 8 watts for hand display, and 6 watts for person display. The minimum luminance shall be 1400cd/m² for countdown and hand display and 2200cd/m² for person display. Unit shall operate within the voltage range of 80VAC to 135VAC with 120VAC nominal. Power factor shall be greater than 0.9 and total harmonic distortion shall be less than 20%. Turn on/turn off time for hand/person shall be 75msec maximum and operating temperature range shall be -40°C to +74°C. Unit shall meet FCC Title 47, Subpart B, Section 15 Regulations for electrical noise. Unit shall conform to MIL-STD-810F for blowing rain, MIL-STD-883, Test Method 2007 for mechanical vibration, MIL-STD-883, Test Method 1010 for temperature cycling requirements. The Luminance uniformity and color uniformity shall exceed ITE PTCSI-2 LED Pedestrian Signal Specification requirements. Transient suppression shall exceed ITE PTCSI-2 LED Pedestrian Signal Specification and meet the following standards: NEMA TS-2 Sec 2.1.6 and 2.1.8, IEC 1000-4-5, 3KV, 2ohm source impedance, and ANSSI/IEEE C62, 41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave. Units shall be EPACT 2005 compliant. All units shall be traceable by serial number for warranty and manufacturing date purposes. All supplied LED pedestrian signal units shall be manufactured within 6 months of installation date.

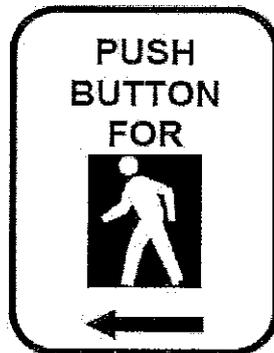
Pedestrian LED signal shall be Dialight 430-6479-001X or approved equal.

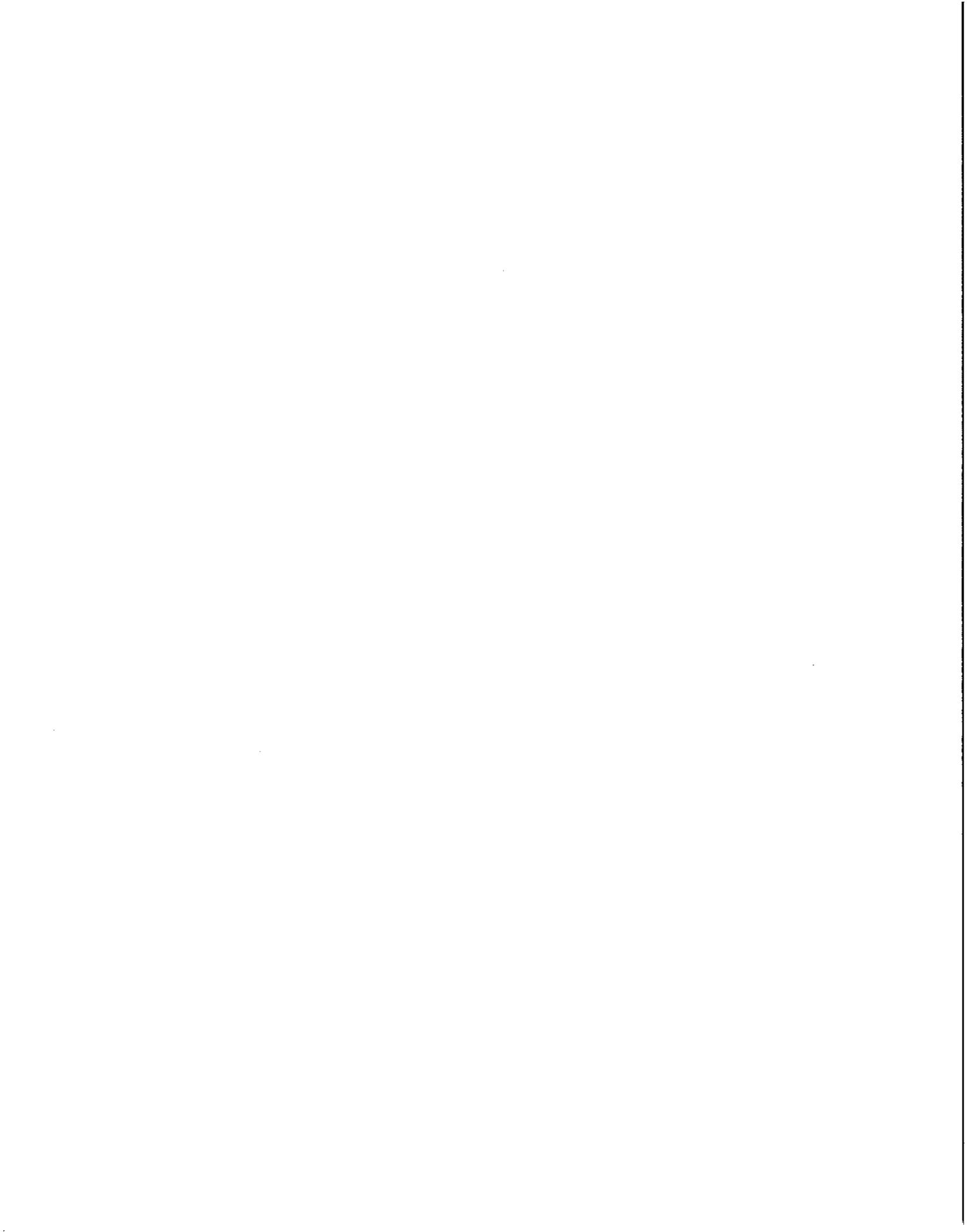
Type SP-1-T mountings shown on the State Standard Plan ES-3B shall have a lower mounting bracket attached to the pedestrian signal housing in the same manner as the SP-2-T mounting.

The Contractor shall ensure that the pedestrian signal frameworks provided will have enough clearance from the shaft of the traffic signal pole to allow proper aiming and access to the pedestrian signal for maintenance.

PEDESTRIAN PUSH BUTTONS

Pedestrian push buttons shall have LED indication and internal speaker integrated with the button to indicate activation of pushbutton. Pushbuttons shall be Polara Navigator Accessible Pedestrian Stations or approved equal. Pedestrian push button signs shall be the international type (5" x 7.5") with markings that are in accordance with CA MUTCD R10-4b (See below figure for reference). The sign shall have Braille showing the street name of the crossing. Pedestrian push buttons shall be mounted 36" above the adjacent pavement. Pedestrian pushbutton assembly and housing shall be powder-coated black from factory





**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

Example of crossing to left

All pedestrian push button plates shall be secured to the pedestrian pushbutton assembly with 8-32 x 3/8" button head torx tamperproof stainless steel screws.

All 2" ADA pedestrian pushbuttons shall be secured to the pedestrian pushbutton assembly with 8-32 x 1" or other appropriate length button head torx tamperproof stainless steel screws.

The Contractor shall provide two (2) torx tamperproof keys to the City.

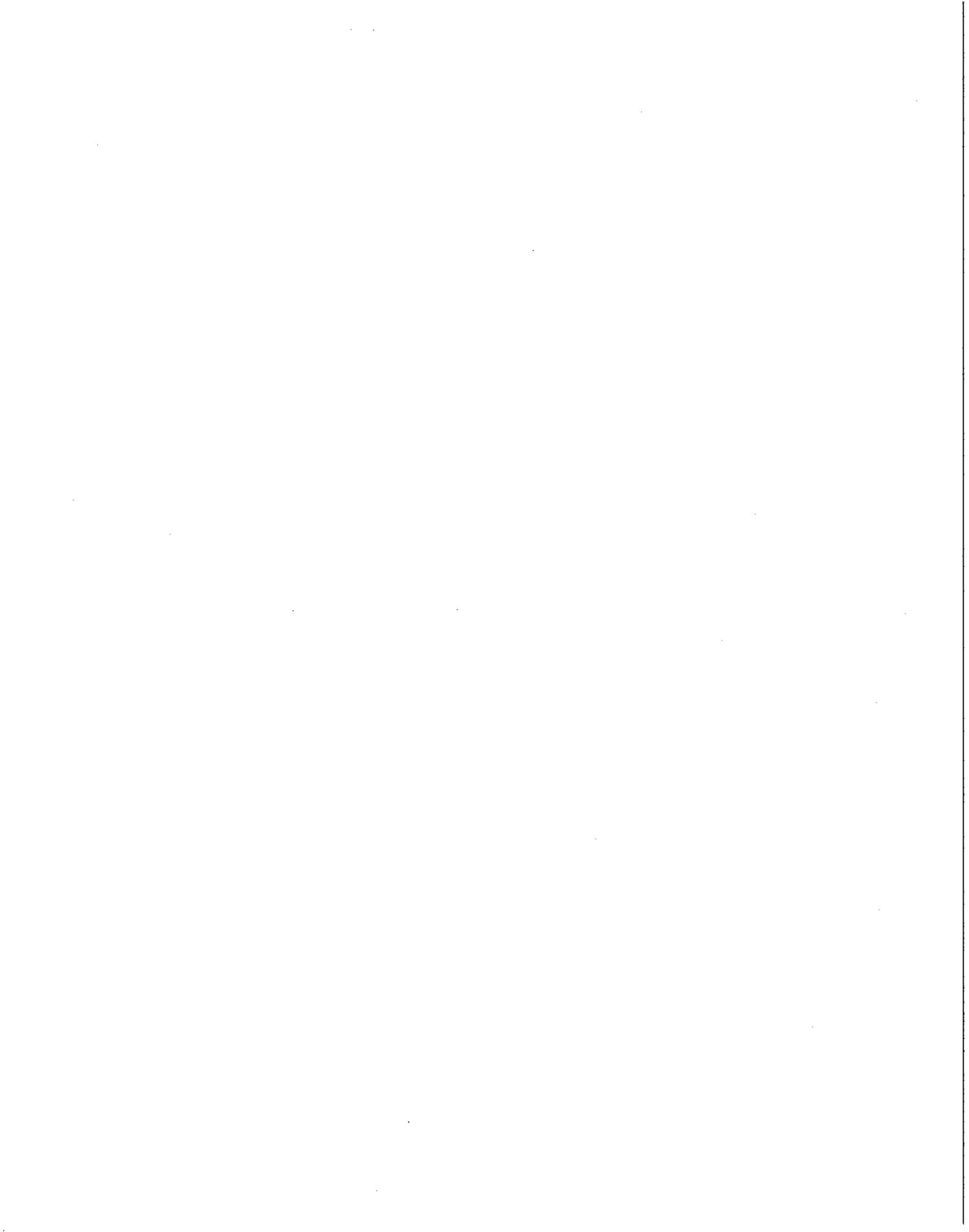
The Audible-Tactile Pedestrian Signal System shall consist of all electronic control equipment, mounting hardware, push buttons and sign, which is designed to provide both a push button with a raised vibrating tactile arrow on the button, along with a variety of audible sounds for different pedestrian signal functions.

The Push Button Station provides information and cues via both a vibrating arrow button and audible sounds making the intersection accessible for all pedestrian.

System shall support from 2-12 push button stations per intersection (maximum of 3 push buttons per phase) controlled by a single base unit located in the traffic control cabinet.

Push Button Stations shall be able to provide the following audible features:

1. 3 locate tone sound choices
2. A Pre-walk information message (as a custom feature with extended push)
3. A "Wait" message that plays once the button is activated until the walk cycle goes into effect. This message must have the field selectable option of OFF or playing every 4, 6, 8 or 10 seconds.
4. 5 walk sound choices (field selectable)
5. 3 Ped-clearance sound choices including audible countdown (field selectable)
6. Direction of travel message (as a standard feature with extended push)
7. Multiple language capability, selectable by user (as a custom feature).
8. Emergency preemption message in conjunction with a preemption system (selectable feature).
9. All audible sounds shall emanate from push button station.
10. Custom message IC must reside in the Push Button Station or in control unit located in the control cabinet for easy change and/or maintenance.
11. "Walk", "Don't Walk" and "Pedestrian Clearance" audible feature must have independent settable minimum and maximum volume limits.
12. All sounds must automatically adjust to ambient noise levels over a 60 dB range.
13. All sounds for all push button stations must be synchronized.
14. System must be able to provide audible countdown during ped clearance phase.
15. Push button stations must require only two wires coming from the traffic control cabinet for each phase / crosswalk.
16. Push button shall be ADA and MUTCD compliant.
17. Each push button station must have a 2" cast aluminum button with an aluminum tactile raised directional arrow on the button.
18. The arrow on the push button shall be able to be changed to one of four directions.
19. The arrow/button shall vibrate during the walk period, following a button push.
20. Push button station frame shall be made of cast aluminum with mounting holes to hold a 5"x7 3/4" or larger pedestrian sign.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

21. All Push Button volumes and optional features shall be programmed at the push button using Infrared device with password security
22. Push Button shall have the option to mute sounds on all crosswalks except activated crosswalk (selectable feature).
23. Each Push button Station shall have a unique ID for self test and failsafe capabilities.

ELECTRICAL

All LED signal and pedestrian modules shall operate over the temperature range of -40°C (-40°F) to +74°C (+165°F). Power factor shall be 90% or greater, at nominal rated voltage, at 25°C, after 60 minutes of operation. Total harmonic distortion (THD) shall be less than 20% at rated voltage, at 25°C.

Maximum turn on/turn off time shall be 75msec.

All LED traffic signal modules shall be in compliance with FCC Title 47, Subpart B, Section 15 Regulations for electrical noise.

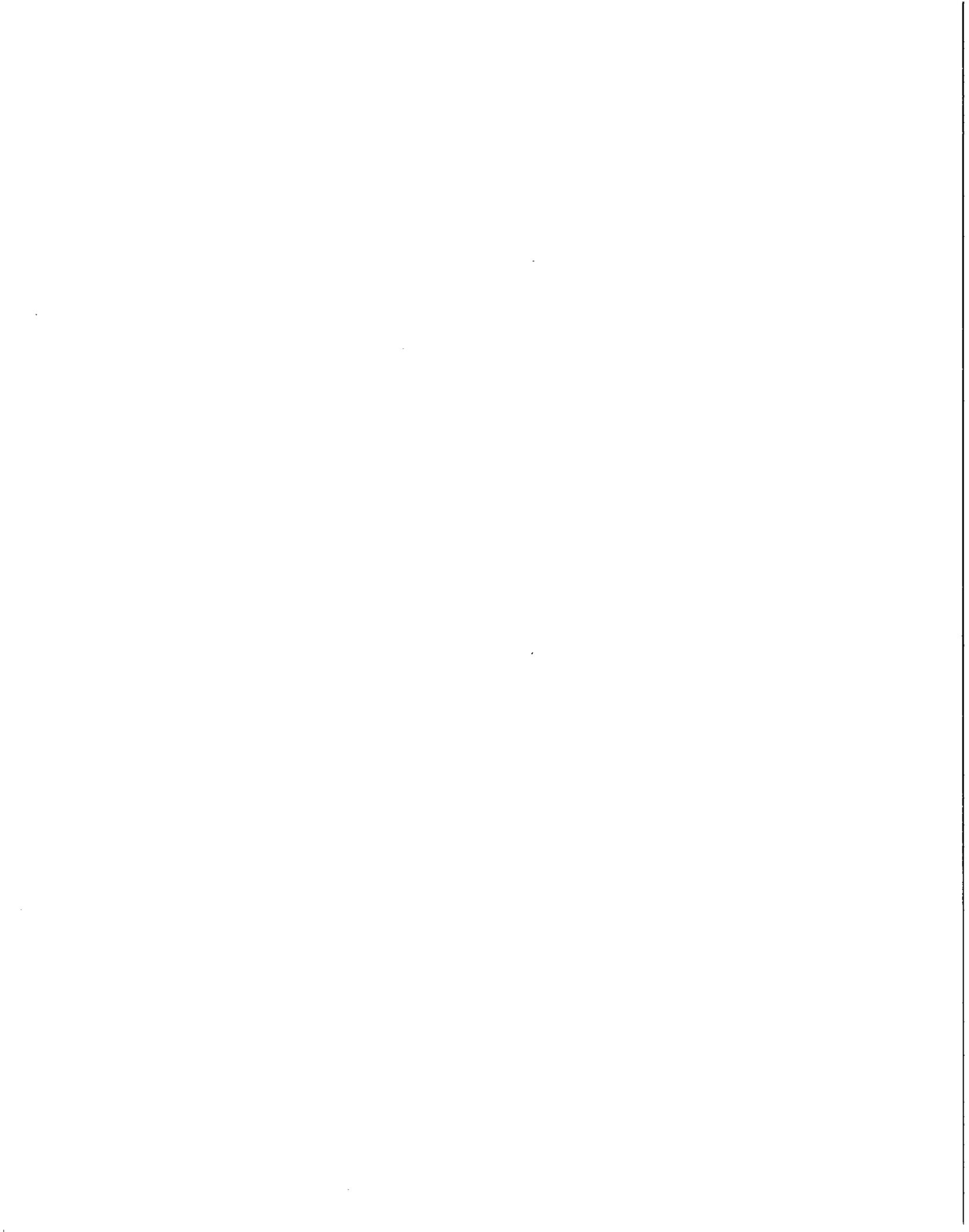
The LED signal modules shall be connected directly to line voltage, 120 Volts AC nominal, and shall be able to operate over the voltage range of 80 VAC to 135 VAC.

The LED Pedestrian signal shall consume no more than 5 watts for countdown display, 8 watts for hand display, and 6 watts for person display at 120VAC at 25°C. The minimum luminance shall be 1400cd/m² for countdown and hand display and 2200cd/m² for person display. Unit shall conform to MIL-STD-810F for blowing rain, MIL-STD-883, Test Method 2007 for mechanical vibration, MIL-STD-883, Test Method 1010 for temperature cycling requirements. The Luminance uniformity and color uniformity shall exceed ITE PTCSI-2 LED Pedestrian Signal Specification requirements. Transient suppression shall exceed ITE PTCSI-2 LED Pedestrian Signal Specification and meet the following standards: NEMA TS-2 Sec 2.1.6 and 2.1.8, IEC 1000-4-5, 3KV, 2ohm source impedance, and ANSSI/IEEE C62, 41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave.

(1) LumiLeds is a trademark of LumiLeds Corporation.

PAYMENT

The contract lump sum price paid per each of the six (6) locations for signal modification shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the various electrical items, complete in place, as shown on the plans, as specified in the Standard Specifications and these Technical Specifications.



**ACCESSIBLE INTERSECTION UPGRADES
PHASE 1: SARATOGA SUNNYVALE ROAD**

TS-20 STANDARD PLANS LIST

The Standard Plan sheets applicable to this contract include, but are not limited to, those indicated below. Applicable Revised Standard Plans (RSP) and New Standard Plans (NSP) indicated below are included in the project plans as Standard Plan sheets.

ACRONYMS, ABBREVIATIONS AND SYMBOLS

A10A	Acronyms and Abbreviations (Sheet 1 of 2)
A10B	Acronyms and Abbreviations (Sheet 2 of 2)
A10C	Symbols (Sheet 1 of 2)
A10D	Symbols (Sheet 2 of 2)

SURVEY MONUMENTS

RSP A74	Survey Monuments
	CURBS, DRIVEWAYS, DIKES, CURB RAMPS AND ACCESSIBLE PARKING
RSP A87A	Curbs and Driveways
A87B	Asphalt Concrete Dikes
RSP A88A	Curb Ramp Details

DRAINAGE INLETS, PIPE INLETS AND GRATES

D73	Drainage Inlets
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TEMPORARY WATER POLLUTION CONTROL

NSP T61	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
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ELECTRICAL SYSTEMS – SYMBOLS AND ABBREVIATIONS

RSP ES-1A	Electrical Systems (Symbols and Abbreviations)
RSP ES-1B	Electrical Systems (Symbols and Abbreviations)

ELECTRICAL SYSTEMS – CONTROLLER CABINETS

ES-3B	Electrical Systems (Controller Cabinet Details)
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ELECTRICAL SYSTEMS – LIGHTING STANDARDS

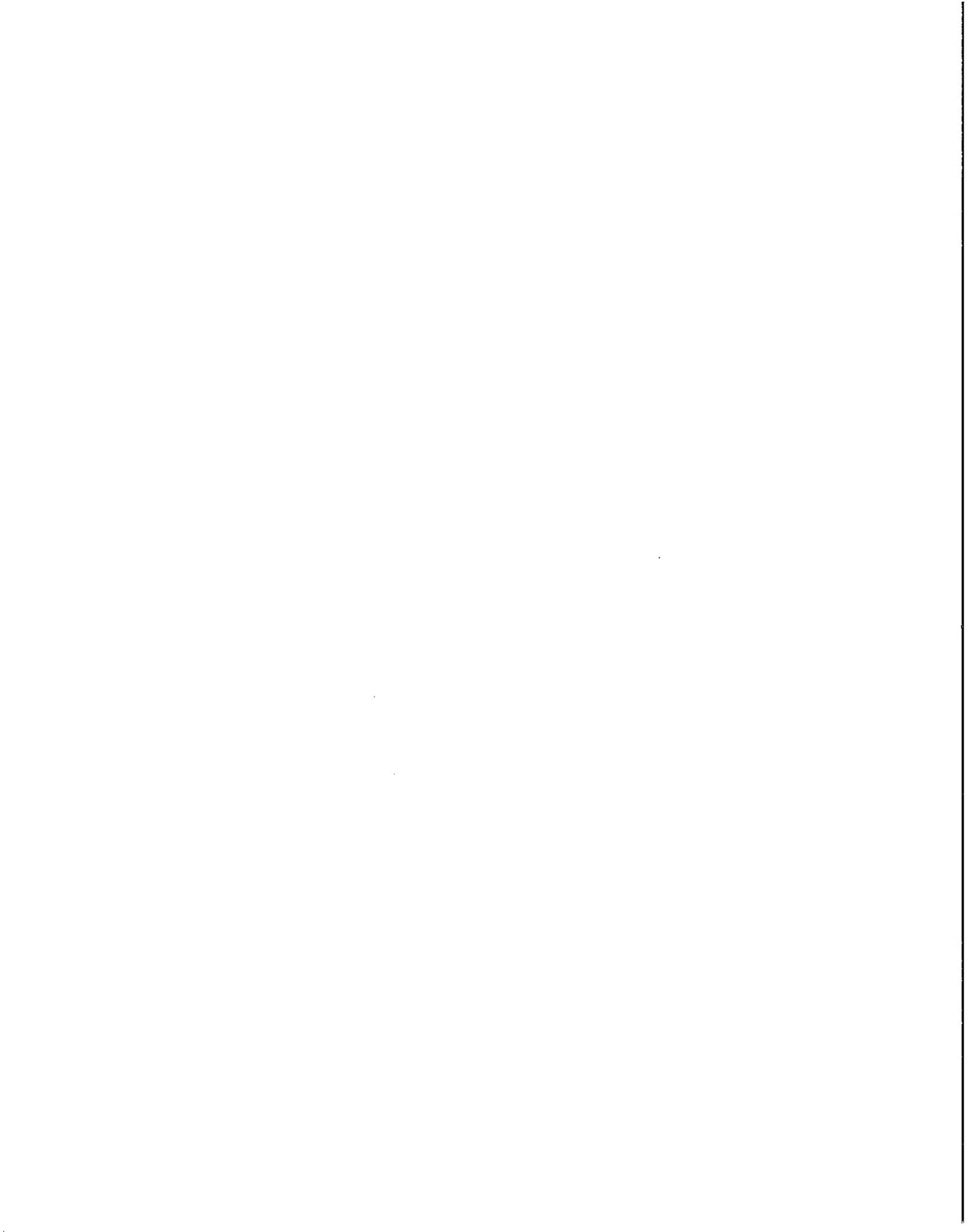
RSP ES-6A	Electrical Systems (Lighting Standard, Types 15 and 21)
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ELECTRICAL SYSTEMS – PULL BOX DETAILS

ES-8	Electrical Systems (Pull Box Details)
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**ELECTRICAL SYSTEMS – SPLICING, WIRING DETAILS AND FUSE
RATINGS**

ES-13A	Electrical Systems (Splicing Details)
ES-13B	Electrical Systems (Wiring Details and Fuse Ratings)



CITY OF SARATOGA

GENERAL CONSTRUCTION SPECIFICATIONS

1. Construction work and operations shall conform to the prevailing State of California Standard Specifications 2006, supplemented by special provisions required by the City of Saratoga Engineer's Office. The performance and completion of all work must be to the satisfaction of the City Engineer.
2. Construction details shall be in accordance with provision of the current City of Saratoga Standard Details as appropriate. In the event of conflict, the matter shall be resolved by the City Engineer.
3. Contractor shall provide adequate dust control as required by the City Engineer.
4. Accurate verification as to size, location and depth of existing underground conduits or facilities shall be the individual contractors responsibility Plan locations are approximate and for general information only. Contractors shall contact utility companies for exact locations of utilities.
5. Concrete used for structural purposes shall be Class "A" (6 sack per c.y.) as specified in the State Standard Specifications. Concrete placed must develop a minimum strength factor of 2200 p.s.i. in a seven day period and 3000 p.s.i. in 28 days.
6. Portland Cement Concrete (P.C.C.) shall conform to Section 90 of the State of California Standard Specifications, May 2006 and shall be designated by class as follows:
 7. Class A- 6 sack mix with a minimum compressive strength of 3000 p.s.i. at 28 days
 8. Class B- 5 sack mix with a minimum compressive strength of 2500 p.s.i. at 28 days
9. All exposed concrete such as used in sidewalks, curb and gutters, etc., shall contain 1 pint of lampblack per cubic yard.
10. Asphalt concrete (A.C.) shall be Type B conforming to Section 39 of the State of California Standard Specifications, May 2006. Aggregate for asphaltic concrete shall be ½" maximum medium grade or as specifically approved by the City Engineer. Cross sections of A.C 4" or greater in thickness shall be placed in multiple lifts of not more than 4" thickness. ½" median, class B, Prime oil, SC70 Seal oil, SS1H.

11. Reinforced concrete pipe (R.C.P.) for storm drains shall conform to American Society for testing and Materials (A.S.T.M.) C76 and shall be Class II, III or Class IV as specified.
12. Street pavements shall be designed on the basis of the R-Value, Traffic Index method, as shown in the State of California, Division of Highway Planning Manual, Part 7. Minimum standard pavement sections are shown on Street Standard Drawings, No's. 16 to 21. These minimum standards may be used only where the design method does not require a thicker structural section.
13. Curb drop inlets on streets with a slope greater than 6% shall be designed for each particular location. Inlets on streets with a slope of 6% or less shall use the standard design shown on sheet 7 of the street standard drawings.
14. Weakened plane joints may be formed or saw cut but in any case must be to 1/3 of depth of the depth of the concrete section. Formed joints may be accomplished by inspection of a thin (1/4" or less in thickness) sheet of steel, plastic or other suitable material to the proper depth in work able concrete. This wedge should not be removed until the concrete has "set". The concrete on both sides of this wedge shall be finished with a 1/4" radius edge.
15. Encroachment permits: Encroachment permits shall be secured from the Santa Clara County Flood Control and Water District in cases where needed. Encroachment permits shall be secured from Caltrans where needed.
16. Contractors or the Developer must notify the Public Works Department before beginning any of the activities listed below. Failure to do so may provide cause for rejection of the work done and the necessity for either; 1.) removing and redoing the work; 2.) special testing such as coring, etc. 3.) a long- term performance bond or 4.) all or any of the above. The critical stages include:
 - a. Commencement of work
 - b. Beginning cut or fill
 - c. Completion of excavation and/or subgrade
 - d. Placement of aggregate base rock
 - e. Application of prime coat or track coat
 - f. Placement of Portland cement concrete in any structure
 - g. Placement of asphalt concrete or other roadway material
 - h. Completion of any drainage structure
 - i. Backfill of any trench
 - j. Placement of any structure or roadway over a backfill trench
 - k. Completion of a project
17. The city requires a minimum of 24 hours advance notice for general inspection, 48 hours for asphalt concrete construction.

18. The Contractor and/or his authorized representative must submit written request for final inspection and acceptance. Such requests shall be directed to the City of Saratoga Engineering Dept., 13777 Fruitvale Avenue, Saratoga.
19. Routes used by construction traffic to be approved by City Engineer.
20. Field Engineer: Contractors or their engineer shall designate or provide a Field Engineer to act as a liaison with the contractors, subcontract and the City with regard to construction activities. Name(s) and phone number(s) of the individual(s) designated as Field Engineer shall be provided to the City and to all contractors and subcontractors working on the job. All questions as to the meaning and intent of the plans should be taken to the Field Engineer.

Construction work and operations shall conform to the prevailing State of California Standard Specifications 2006, supplemented by special provisions required by the City of Saratoga Engineer's Office. The performance and completion of all work must be to the satisfaction of the City Engineer.

**END OF SECTION: CITY OF SARATOGA DETAILS GENERAL
CONSTRUCTION SPECIFICATIONS**

