

**PLANS AND SPECIFICATIONS
FOR
HIGHWAY 9 SAFETY IMPROVEMENTS
PHASE III
AUSTIN WAY**

November, 2011

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

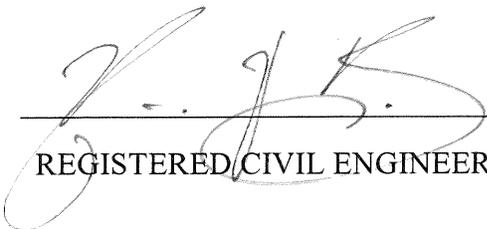

11/28/11
REGISTERED CIVIL ENGINEER



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SPECIAL PROVISIONS

SECTION 1-7. (BLANK)

SECTION 8. MATERIALS

SECTION 8-1. MISCELLANEOUS

8-1.01 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

PAVEMENT MARKERS, PERMANENT TYPE

Retroreflective With Abrasion Resistant Surface (ARS)

1. Apex, Model 921AR (4" x 4")
2. Ennis Paint, Models C88 (4" x 4"), 911 (4" x 4") and C80FH
3. Ray-O-Lite, Models "AA" ARC II (4" x 4") and ARC Round Shoulder (4" x 4")
4. 3M Series 290 (3.5" x 4")
5. 3M Series 290 PSA
6. Glowlite, Inc Model 988AR (4" x 4")

Retroreflective With Abrasion Resistant Surface (ARS)

(for recessed applications only)

1. Ennis Paint, Model 948 (2.3" x 4.7")
2. Ennis Paint, Model 944SB (2" x 4")*
3. Ray-O-Lite, Model 2002 (2" x 4.6")
4. Ray-O-Lite, Model 2004 (2" x 4")*

*For use only in 4.5 inch wide (older) recessed slots

Non-Reflective, 4-inch Round

1. Apex Universal (Ceramic)
2. Apex Universal, Models 929 (ABS) and 929PP (Polypropylene)
3. Glowlite, Inc. (Ceramic) and PP (Polypropylene)
4. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)

5. Interstate Sales, "Diamond Back" (Polypropylene)
6. Novabrite Models Cdot (White) Cdot-y (Yellow), Ceramic
7. Novabrite Models Pdot-w (White) Pdot-y (Yellow), Polypropylene
8. Three D Traffic Works TD10000 (ABS), TD10500 (Polypropylene)
9. Ray-O-Lite, Ray-O-Dot (Polypropylene)

PAVEMENT MARKERS, TEMPORARY TYPE

Temporary Markers For Long Term Day/Night Use (180 days or less)

1. Vega Molded Products "Temporary Road Marker" (3" x 4")
2. Pexco LLC, Halftrack model 25, 26 and 35

Temporary Markers For Short Term Day/Night Use (14 days or less)

(For seal coat or chip seal applications, clear protective covers are required)

1. Apex Universal, Model 932
2. Pexco LLC, Models T.O.M., T.R.P.M., and "HH" (High Heat)
3. Hi-Way Safety, Inc., Model 1280/1281
4. Glowlite, Inc., Model 932

STRIPING AND PAVEMENT MARKING MATERIAL

Permanent Traffic Striping and Pavement Marking Tape

1. Advanced Traffic Marking, Series 300 and 400
2. Brite-Line, Series 1000
3. Brite-Line, "DeltaLine XRP"
4. Swarco Industries, "Director 35" (For transverse application only)
5. Swarco Industries, "Director 60"
6. 3M, "Stamark" Series 380 and 270 ES
7. 3M, "Stamark" Series 420 (For transverse application only)

Temporary (Removable) Striping and Pavement Marking Tape (180 days or less)

1. Advanced Traffic Marking, Series 200
2. Brite-Line, "Series 100", "Deltaline TWR"
3. Garlock Rubber Technologies, Series 2000
4. P.B. Laminations, Aztec, Grade 102
5. Swarco Industries, "Director-2", "Director 2-Wet Reflective"
6. Trelleborg Industries, R140 Series
7. 3M Series 620 "CR", Series 780 and Series 710
8. 3M Series A145, Removable Black Line Mask
(Black Tape: for use only on Hot mix asphalt surfaces)
9. Advanced Traffic Marking Black "Hide-A-Line"
(Black Tape: for use only on Hot mix asphalt surfaces)
10. Brite-Line "BTR" Black Removable Tape
(Black Tape: for use only on Hot mix asphalt surfaces)
11. Trelleborg Industries, RB-140
(Black Tape: for use only on Hot mix asphalt surfaces)

Preformed Thermoplastic (Heated in place)

1. Flint Trading Inc., "Hot Tape"
2. Flint Trading Inc., "Premark Plus"
3. Flint Trading Inc., "Flametape"

Ceramic Surfacing Laminate, 6" x 6"

1. Highway Ceramics, Inc.

CLASS 1 DELINEATORS

One Piece Driveable Flexible Type, 66-inch

1. Pexco LLC, "Flexi-Guide Models 400 and 566"
2. Carsonite, Curve-Flex CFRM-400
3. Carsonite, Roadmarker CRM-375
4. FlexStake, Model 654 TM
5. GreenLine Model CGD1-66

Special Use Type, 66-inch

1. Pexco LLC, Model FG 560 (with 18-inch U-Channel base)
2. Carsonite, "Survivor" (with 18-inch U-Channel base)
3. Carsonite, Roadmarker CRM-375 (with 18-inch U-Channel base)
4. FlexStake, Model 604
5. GreenLine Model CGD (with 18-inch U-Channel base)
6. Impact Recovery Model D36, with #105 Driveable Base
7. Safe-Hit with 8-inch pavement anchor (SH248-GP1)
8. Safe-Hit with 15-inch soil anchor (SH248-GP2) and with 18-inch soil anchor (SH248-GP3)
9. Safe-Hit RT 360 Post with Soil Mount Anchor (GPS)
10. Shur-Tite Products, Shur-Flex Drivable

Surface Mount Type, 48-inch

1. Bent Manufacturing Company, Masterflex Model MFEX 180-48
2. Carsonite, "Channelizer"
3. FlexStake, Models 704, 754 TM, and EB4
4. Impact Recovery Model D48, with #101 Fixed (Surface-Mount) Base
5. Three D Traffic Works "Channelflex" ID No. 522248W
6. Flexible Marker Support, Flexistiff Model C-9484
7. Safe-Hit, SH 248 SMR

CHANNELIZERS

Surface Mount Type, 36-inch

1. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) MF-180-36 (Flat) and MFEX 180—36
2. Pexco LLC, Flexi-Guide Models FG300PE, FG300UR, and FG300EFX
3. Carsonite, "Super Duck" (Round SDR-336)
4. Carsonite, Model SDCF03601MB "Channelizer"
5. FlexStake, Models 703, 753 TM, and EB3
6. GreenLine, Model SMD-36
7. Hi-way Safety, Inc. "Channel Guide Channelizer" Model CGC36
8. Impact Recovery Model D36, with #101 Fixed (Surface-Mount) Base
9. Safe-Hit, Guide Post, Model SH236SMA and Dura-Post, Model SHL36SMA
10. Three D Traffic Works "Boomerang" 5200 Series
11. Flexible Marker Support, Flexistiff Model C-9484-36
12. Shur-Tite Products, Shur-Flex

Lane Separation System

1. Pexco LLC, "Flexi-Guide (FG) 300 Curb System"

2. Qwick Kurb, "Klemmfix Guide System"
3. Dura-Curb System
4. Tuff Curb
5. FG 300 Turnpike Curb
6. Shur-Tite Products, SHUR-Curb , Model No. SF0200

CONICAL DELINEATORS, 42-inch

(For 28-inch Traffic Cones, see Standard Specifications)

1. Bent Manufacturing Company "T-Top", TDSC Series
2. Plastic Safety Systems "Navigator-42"
3. TrafFix Devices "Grabber"
4. Three D Traffic Works "Ringtop" TD7000, ID No. 742143
5. Three D Traffic Works, TD7500
6. Work Area Protection Corp. C-42
7. Custom-Pak 4600 (Part No. 93005-0001)

OBJECT MARKERS

Type "K", 18-inch

1. Pexco LLC, Model FG318PE
2. Carsonite, Model SMD 615
3. FlexStake, Model 701 KM
4. Safe-Hit, Model SH718SMA

Type "Q" Object Markers, 24-inch

1. Bent Manufacturing "Masterflex" Model MF-360-24
2. Pexco LLC, Model FG324PE
3. Carsonite, "Channelizer"
4. FlexStake, Model 701KM
5. Safe-Hit, Models SH824SMA_WA and SH824GP3_WA
6. Three D Traffic Works ID No. 531702W and TD 5200
7. Three D Traffic Works ID No. 520896W
8. Safe-Hit, Dura-Post SHLQ-24"

CONCRETE BARRIER MARKERS AND TEMPORARY RAILING (TYPE K) REFLECTORS

Impactable Type

1. ARTUK, "FB"
2. Pexco LLC, Models PCBM-12 and PCBM-T12, PCBM 912
3. Duraflex Corp., "Flexx 2020" and "Electriflexx"
4. Hi-Way Safety, Inc., Model GMKRM100
5. Plastic Safety Systems "BAM" Models OM-BARR and OM-BWAR
6. Three D Traffic Works "Roadguide" Model TD 9300

Non-Impactable Type

1. ARTUK, JD Series
2. Plastic Safety Systems "BAM" Models OM-BITARW and OM-BITARA
3. Vega Molded Products, Models GBM and JD
4. Plastic Vacuum Forming, "Cap-It C400"

METAL BEAM GUARD RAIL POST MARKERS

(For use to the left of traffic)

1. Pexco LLC, "Mini" (3" x 10"), I-Flex
2. Creative Building Products, "Dura-Bull, Model 11201"
3. Duraflex Corp., "Railrider"
4. Plastic Vacuum Forming, "Cap-It C300"

CONCRETE BARRIER DELINEATORS, 16-inch

(For use to the right of traffic)

1. Pexco LLC, Model PCBM T-16
2. Safe-Hit, Model SH216RBM
3. Three D Traffic Works "Roadguide" Model 9400

CONCRETE BARRIER-MOUNTED MINI-DRUM (10" x 14" x 22")

1. Stinson Equipment Company "SaddleMarker"

GUARD RAILING DELINEATOR

(Place top of reflective element at 48 inches above plane of roadway)

Wood Post Type, 27-inch

1. Pexco LLC, FG 427 and FG 527
2. Carsonite, Model 427
3. FlexStake, Model 102 GR
4. GreenLine GRD 27
5. Safe-Hit, Model SH227GRD
6. Three D Traffic Works "Guardflex" TD9100
7. New Directions Mfg, NDM27
8. Shur-Tite Products, Shur-Tite Flat Mount
9. Glasforms, Hiway-Flex, GR-27-00 "(approved 9-27-10)

Barrier, Guardrail Visibility Enhancement

1. UltraGuard Safety System, Potters Industries, Inc.

Steel Post Type

1. Carsonite, Model CFGR-327

RETROREFLECTIVE SHEETING

Channelizers, Barrier Markers, and Delineators

1. Avery Dennison T-6500 Series (For rigid substrate devices only)
2. Avery Dennison WR-7100 Series
3. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
4. Reflexite, PC-1000 Metalized Polycarbonate
5. Reflexite, AC-1000 Acrylic
6. Reflexite, AP-1000 Metalized Polyester
7. Reflexite, Conformalight, AR-1000 Abrasion Resistant Coating
8. 3M, High Intensity

Traffic Cones, 4-inch and 6-inch Sleeves

1. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
2. Reflexite, Vinyl, "TR" (Semi-transparent) or "Conformalight"
3. 3M Series 3840
4. Avery Dennison S-9000C

Drums

1. Avery Dennison WR-6100
2. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
3. Reflexite, "Conformalight", "Super High Intensity" or "High Impact Drum Sheeting"
4. 3M Series 3810

Barricades: Type I, Medium-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Nippon Carbide Industries, CN8117
2. Avery Dennison, W 1100 series
3. 3M Series CW 44

Barricades: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, W-2100 Series

Vertical Clearance Signs: Structure Mounted

1. 3M Model 4061, Diamond Grade DG3, Fluorescent Yellow

Signs: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, T-2500 Series
2. Nippon Carbide Industries, Nikkalite 18000

Signs: Type III, High-Intensity (Typically Encapsulated Glass-Bead Element)

1. Avery Dennison, T-5500A and T-6500 Series
2. Nippon Carbide Industries, Nikkalite Brand Ultralite Grade II
3. 3M 3870 and 3930 Series
4. Changzhou Hua R Sheng, Series TM 1200

Signs: Type IV, High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-6500 Series
2. Nippon Carbide Industries, Crystal Grade, 94000 Series
3. Nippon Carbide Industries, Model No. 94847 Fluorescent Orange
4. 3M Series 3930 and Series 3924S

Signs: Type VI, Elastomeric (Roll-Up) High-Intensity, without Adhesive

1. Avery Dennison, WU-6014
2. Novabrite LLC, "Econobrite"
3. Reflexite "Vinyl"
4. Reflexite "SuperBright"
5. Reflexite "Marathon"
6. 3M Series RS20

Signs: Type VIII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-7500 Series
2. Avery Dennison, T-7511 Fluorescent Yellow
3. Avery Dennison, T-7513 Fluorescent Yellow Green
4. Avery Dennison, W-7514 Fluorescent Orange
5. Nippon Carbide Industries, Nikkalite Crystal Grade Series 92800

6. Nippon Carbide Industries, Nikkalite Crystal Grade Model 92847 Fluorescent Orange

Signs: Type IX, Very-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M VIP Series 3981 Diamond Grade Fluorescent Yellow
2. 3M VIP Series 3983 Diamond Grade Fluorescent Yellow/Green
3. 3M VIP Series 3990 Diamond Grade
4. Avery Dennison T-9500 Series
5. Avery Dennison, T9513, Fluorescent Yellow Green
6. Avery Dennison, W9514, Fluorescent Orange
7. Avery Dennison, T-9511 Fluorescent Yellow

Signs: Type XI, Very High Intensity (Typically Unmetallized Microprismatic Element)

1. 3M Diamond Grade, DG3, Series 4000
2. 3M Diamond Grade, DG3, Series 4081, Fluorescent Yellow
3. 3M Diamond Grade, DG3, Series 4083, Fluorescent Yellow/Green
4. 3M Diamond Grade, DG3, Series 4084, Fluorescent Orange
5. Avery Dennison, OmniCube, T-11500 Series
6. Avery Dennison, OmniCube, T-11511, Fluorescent Yellow
7. Avery Dennison, OmniCube, T-11513, Fluorescent Yellow Green
8. Avery Dennison, OmniCube, W-11514 Fluorescent Orange

SPECIALTY SIGNS

1. Reflexite "Endurance" Work Zone Sign (with Semi-Rigid Plastic Substrate)

ALTERNATIVE SIGN SUBSTRATES

Fiberglass Reinforced Plastic (FRP) and Expanded Foam PVC

1. Fiber-Brite (FRP)
2. Sequentia, "Polyplate" (FRP)
3. Inteplast Group "InteCel" (0.5 inch for Post-Mounted CZ Signs, 48-inch or less)(PVC)

Aluminum Composite, Temporary Construction Signs and Permanent Signs up to 4 foot, 7 Inches

1. Alcan Composites "Dibond Material, 80 mils"
2. Mitsubishi Chemical America, Alpolic 350
3. Bone Safety Signs, Bone Light ACM (temporary construction signs only)

SECTION 8-2. CONCRETE

8-2.01 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

STRENGTH DEVELOPMENT TIME

The time allowed to obtain the minimum required compressive strength as specified in Section 90-1.01, "Description," of the Standard Specifications will be 56 days when the Contractor chooses cementitious material that satisfies the following equation:

$$\frac{(41 \times UF) + (19 \times F) + (11 \times SL)}{TC} \geq 7.0$$

Where:

- F = Fly ash or natural pozzolan conforming to the requirements in AASHTO Designation: M 295, Class F or N, including the amount in blended cement, pounds per cubic yard. F is equivalent to either FA or FB as defined in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications
- SL = GGBFS, including the amount in blended cement, pounds per cubic yard
- UF = Silica fume, metakaolin, or UFFA, including the amount in blended cement, pounds per cubic yard
- TC = Total amount of cementitious material used, pounds per cubic yard

For concrete satisfying the equation above, the Contractor shall test for the modulus of rupture or compressive strength specified for the concrete involved, at least once every 500 cubic yards, at 28, 42, and 56 days. The Contractor shall submit test results to the Engineer and the Transportation Laboratory, Attention: Office of Concrete Materials.

SUPPLEMENTARY CEMENTITIOUS MATERIALS

The Contractor may use rice hull ash as a supplementary cementitious material (SCM) to make minor concrete. Rice hull ash shall conform to the requirements in AASHTO Designation: M 321 and the following chemical and physical requirements:

Chemical Requirements	Percent
Silicon Dioxide (SiO ₂) ^a	90 min.
Loss on ignition	5.0 max.
Total Alkalies (as Na ₂ O) equivalent	3.0 max.

Physical Requirements	Percent
Particle size distribution	
Less than 45 microns	95
Less than 10 microns	50
Strength Activity Index with portland cement ^b	
7 days	95 (minimum % of control)
28 days	110 (minimum % of control)
Expansion at 16 days when testing job materials in conformance with ASTM C 1567 ^c	0.10 max.
Surface Area when testing by nitrogen adsorption in conformance with ASTM D 5604	40.0 m ² /g min.

Notes:

^a A maximum of 1.0% of the SiO₂ may exist in crystalline form.

^b When tested in conformance with the requirements for strength activity testing of silica fume in AASHTO Designation: M 307

^c In the test mix, Type II or Type V portland cement shall be replaced with at least 12% RHA by weight.

Rice hull ash will be considered as a Type UF SCM for the purposes of calculating cementitious material requirements in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications and these special provisions.

SECTION 9. (BLANK)

SECTION 10. CONSTRUCTION DETAILS

SECTION 10-1. AUSTIN WAY IMPROVEMENTS

10-1.00 GENERAL

The project includes realignment of the intersection of Highway 9/Austin Way including installation of concrete median island on the north bound left turn lane. A new street light will also be installed at the south west corner of the intersection.

The Project will also install Type D loop detectors along Highway 9 at the intersection of Fruitvale Avenue, Quito Road, and North Santa Cruz Avenue and minor traffic signal modifications.

Project improvements includes, but is not limited to, clearing and grubbing, pavement replacement, concrete work, traffic control, solar powered fire station warning sign, pavement delineation and roadway signing.

10-1.01 SHOP PLANS

The Contractor will submit Shop Drawings as required by Section 5-1.02, "Plans and Working Drawings", of the Caltrans Standard Specifications.

A. Submittals. Submittals shall be made to the Engineer for review in the following areas of the work:

1. Project schedule detailing:
 - i. Detour/Traffic Control
 - ii. Demolition
 - iii. Grinding and paving operations
 - iv. Intersection Work
 - v. Pavement delineation
2. Traffic control plan (including pedestrian control, vehicular control, parking restrictions and building and driveway access);
3. Haul routes for delivery and disposal of materials during grinding, PCC, and AC paving operations (including identification of truck staging areas/locations for queuing during operations)
4. Construction Fencing;
5. Utility boxes, frames, and covers
6. Erosion control products;
7. Concrete and asphalt mix designs;
8. Concrete curing method;
9. Reinforcing steel;
10. Materials list of specified products;
11. Site Safety and Health Plan;
12. Certificates of OSHA Compliance;
13. Copies of all Permit Applications and Final Permits;
14. Proposed substitutions;
15. Project schedule updates;
16. Notifications;
17. Where specified elsewhere in the plans or special provisions.

Submittals shall be accompanied by all information called for by the special provisions and at a minimum shall include the manufacturer's name, catalog number and model number as applicable; grade or other identifying data as applicable; supplier's name, address, and telephone number.

Identify materials list by the technical provision section number, project name and submittal sequence number.

Make copies on bond paper only; slick-type copier paper is not acceptable.

All submittals shall be reviewed and checked by the Contractor prior to submittal to the Engineer. Contractor shall affix his signature to each submittal indicating the Contractor has reviewed, checked and approved the submittal for compliance with all the requirements of the plans and specifications.

Submit three (3) copies to the Engineer. One (1) copy will be returned to Contractor. If Contractor requires more than one (1) copy to be returned, Contractor shall submit additional copies. One reproducible copy of all submittals shall be provided to the Engineer at time of submission, in addition to the three (3) review copies.

Only those copies bearing the Engineer's review stamp shall be used at job site.

All submittals, except project schedule, shall be made within thirty (30) days after the Notice to Proceed has been issued. Project schedule shall be submitted prior to the pre-construction meeting. No payment for Mobilization will be made until product and planning submittals are complete and acceptable.

Submit items where called for by special provisions. Actual catalog sheets or clear bond paper copies from catalogs may be submitted. Wet paper copies are not acceptable. Where more than one product is shown on the catalog sheet, clearly indicate which product is being submitted.

Identify catalog data with specification section number, paragraph number, project name and submittal sequence number; apply 2"x3" sticker in upper right hand corner for slick or dark catalogs.

Shop Drawings for fabrication of components shall not be based on copies of the project contract drawings. Contractor is responsible for verifying all dimensions in the field.

Where submittals of calculations are required, calculations shall be stamped by an engineer registered in the State of California in a discipline appropriate for the calculations submitted.

B. Shop Drawings. Clearly detail all aspects of work. Identify by specification number, detail number, and project name and submittal sequence number.

1. Submit three (3) blue line copies to the Engineer for review.
2. The Engineer will review drawings, make comments, and return one (1) sets to Contractor.
3. Only those copies bearing the Engineer's review stamp shall be used at the job site.

C. Contractor Submittal Responsibilities. Review shop drawings, product data, and samples prior to submission.

The Contractor shall be responsible for confirming and correlating all quantities and dimensions.

Sign each submittal certifying that:

1. Field measurements have been determined and verified.
2. Field construction criteria have been verified.
3. Catalog numbers and similar data are correct and complete.
4. Conformance with specifications is confirmed.

Coordinate each submittal with requirements of the work and of the Contract Documents.

Notify the Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.

Begin no fabrication or work that requires submittals until return of submittals with Engineer's review comments.

If a submittal has been rejected and resubmitted and rejected again the Engineer will record time required for the third and subsequent reviews. Whether or not the Engineer accepts the submittal, Contractor shall reimburse the City for the charges resulting in evaluating submittals more than two times.

D. Review. The review of shop drawings, product data and samples will be for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents.

10-1.02 AS-BUILT DRAWINGS

The Contractor shall keep and maintain on the job site, one as-built set of Drawings. On these, the Contractor shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original Contract Documents, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated in the Contract Documents. Said as-built drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the work as actually constructed. These master as-built drawings of the Contractor's representation of as built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up to date during the progress of the work.

As-built drawings shall be accessible to the Engineer at all times during the construction period and shall be delivered to the Engineer upon completion of the Work.

Final payment will not be approved until the Contractor completed as-built drawings have been delivered to the Engineer. Completed as-built drawings may be in the form of a set of prints with carefully plotted information as directed by the Engineer.

Upon substantial completion of the Work and prior to final acceptance, the Contractor shall complete and deliver a complete set of as-built drawings to the Engineer, conforming to the Contractor's construction records. This set of drawings shall consist of corrected plans showing the reported location of the Work. The information submitted by the Contractor and

incorporated by the Engineer into the As-Built Drawings will be assumed to be reliable. Engineer will not be responsible for the accuracy of such information, nor for any errors or omissions which may appear on the As-Built Drawings as a result of the Contractor's submitted as-built drawings.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-1.04 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

The first order of work shall be to place the order for the electrical equipment. The Engineer shall be furnished a statement from the vendor that the order for the electrical equipment has been received and accepted by the vendor.

The first order of work shall be to contact Serina Oliver of Pacific Gas & Electric Company at (408) 725-2146 to coordinate the electrical service point for the street light.

The uppermost layer of new pavement shall not be placed until all underlying conduits and loop detectors have been installed.

Prior to commencement of the traffic signal functional test at any location, all items of work related to signal control shall be completed and all roadside signs, pavement delineation, and pavement markings shall be in place at that location.

Attention is directed to "Maintaining Traffic" of these special provisions and to the stage construction sheets of the plans.

The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction.

In each stage, after completion of the preceding stage, the first order of work shall be the removal of existing pavement delineation as directed by the Engineer. Pavement delineation removal shall be coordinated with new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

Before obliterating any pavement delineation (traffic stripes, pavement markings, and pavement markers) that is to be replaced on the same alignment and location, as determined by the Engineer, the pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings. Full compensation for referencing existing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

Prior to applying hot mix asphalt concrete, the Contractor shall cover all manholes, valve and monument covers, grates, or other exposed facilities located within the area of application, using a plastic or oil resistant construction paper secured to the facility being covered by tape or adhesive. The covered facilities shall be referenced by the Contractor, with a sufficient number of control points to relocate the facilities after the hot mix asphalt concrete has been placed. After completion of the hot mix asphalt concrete operation, all covers shall be removed and disposed of in a manner satisfactory to the Engineer. Full compensation for covering manholes, valve and monument covers, grates, or other exposed facilities, referencing, and removing

temporary cover shall be considered as included in the contract price paid per ton for hot mix asphalt concrete, and no additional compensation will be allowed therefor.

At the end of each working day if a difference in excess of 0.15 foot exists between the elevation of the existing pavement and the elevation of excavations within 8 feet of the traveled way, material shall be placed and compacted against the vertical cuts adjacent to the traveled way. During excavation operations, native material may be used for this purpose; however, once placing of the structural section commences, structural material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 4:1 (horizontal:vertical) or flatter to the bottom of the excavation. Treated base shall not be used for the taper. Full compensation for placing the material on a 4:1 slope, regardless of the number of times the material is required, and subsequent removing or reshaping of the material to the lines and grades shown on the plans shall be considered as included in the contract price paid for the materials involved and no additional compensation will be allowed therefor. No payment will be made for material placed in excess of that required for the structural section.

10-1.05 WATER POLLUTION CONTROL

GENERAL

Summary

Work activities must not disturb 1 or more acres of soil. Manage work activities to reduce the discharge of pollutants to surface waters, groundwater, or municipal separate storm sewer systems including the work item shown in the verified Bid Item List for Prepare Water Pollution Control Program. WPCP preparation includes obtaining WPCP approval, amending the WPCP, and monitoring and inspecting WPC practices at the job site.

Do not start work until:

1. WPCP is approved
2. WPCP review requirements have been fulfilled. If the RWQCB requires time for WPCP review, allow 30 days for the RWQCB to review the WPCP as specified under "Submittals" of these special provisions.

Definitions and Abbreviations

active and inactive areas: (1) Active areas have soil disturbing work activities occurring at least once within 14 days, and (2) Inactive areas are areas that have not been disturbed for at least 15 days.

BMPs: Best Management Practices are water pollution control practices.

construction phase: Construction phases are (1) Highway Construction including work activities for building roads and structures, (2) Plant Establishment including maintenance on vegetation installed for final stabilization, and (3) Suspension where work activities are suspended and areas are inactive.

Preparation Manual: The Department's "Storm Water Pollution Prevention Plan and Water Pollution Control Program Preparation Manual."

NPDES: National Pollutant Discharge Elimination System.

NOI: Notice of Intent.

QSD: Qualified SWPPP Developer.

QSP: Qualified SWPPP Practitioner.

RWQCB: Regional Water Quality Control Board.

SWPPP: Storm Water Pollution Prevention Plan.

SWRCB: State Water Resources Control Board.

WPC: Water Pollution Control.

WPC Manager: Water Pollution Control Manager. The WPC Manager implements water pollution control work described in the WPCP and oversees revisions and amendments to the WPCP.

WPCP: Water Pollution Control Program.

Submittals

Within 7 days after contract approval, start the following process for WPCP approval:

1. Submit 2 copies of the WPCP and allow 15 days for the Engineer's review. If revisions are required, the Engineer provides comments and specifies the date that the review stopped.
2. Change and resubmit the WPCP within 7 days of receipt of the Engineer's comments. The Engineer's review resumes when the complete WPCP is resubmitted.
3. When the Engineer approves the WPCP, submit an electronic and 3 printed copies of the approved WPCP.
4. If the RWQCB reviews the approved WPCP, the Engineer submits one copy of the approved WPCP to the RWQCB for their review and comment. RWQCBs requiring time to review WPCPs include:
5. If the Engineer requests changes to the WPCP based on RWQCB comments, amend the WPCP within 3 days.

Submit:

1. Stormwater training records including training dates and subject for employees and subcontractors. Include dates and subject for ongoing training, including tailgate meetings.
2. Employee training records:
 - 2.1. Within 5 days of WPCP approval for existing employees
 - 2.2. Within 5 days of training for new employees
 - 2.3. At least 5 days before subcontractors start work for subcontractor's employees

Submit as required:

1. BMP Status Report
2. Inspection Reports

At least 5 days before operating any construction support facility, submit:

1. A plan showing the location and quantity of WPC practices associated with the construction support facility
2. A copy of the NOI approved by the RWQCB and the WPCP approved by the RWQCB if you will be operating a batch plant or a crushing plant under the General Industrial Permit

Quality Control and Assurance

Training

Provide storm water training for:

1. Project managers
2. Supervisory personnel
3. Employees involved with WPC work

Train all employees, including subcontractor's employees, in the following subjects:

1. WPC rules and regulations
2. Implementation and maintenance for:
 - 2.1. Temporary Soil Stabilization
 - 2.2. Temporary Sediment Control
 - 2.3. Tracking Control
 - 2.4. Wind Erosion Control
 - 2.5. Material pollution prevention and control
 - 2.6. Waste management
 - 2.7. Non-storm water management
 - 2.8. Identifying and handling hazardous substances
 - 2.9. Potential dangers to humans and the environment from spills and leaks or exposure to toxic or hazardous substances

Employees must receive initial WPC training before working on the project.
Conduct weekly training meetings covering:

1. WPC BMP deficiencies and corrective actions
2. BMPs that are required for work activities during the week
3. Spill prevention and control
4. Material delivery, storage, use, and disposal
5. Waste management
6. Non-storm water management procedures

You may obtain copies of the Preparation Manual from the Publication Distribution Unit. The mailing address for the Publication Distribution Unit is:

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 WPC references are available at the Department's "Construction Storm Water and Water Pollution Control" Web site. For the Web site, go to:

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

If you operate construction support facilities, protect storm water systems or receiving waters from the discharge of potential pollutants by using WPC practices.

Construction support facilities include:

1. Staging areas
2. Storage yards for equipment and materials
3. Mobile operations

4. Batch plants for PCC and HMA
5. Crushing plants for rock and aggregate
6. Other facilities installed for your convenience such as haul roads

If you operate a batch plant to manufacture PCC, HMA, or other material; or a crushing plant to produce rock or aggregate; obtain coverage under the General Industrial Permit. You must be covered under the General Industrial Permit for batch plants and crushing plants located:

1. Outside of the job site
2. Within the job site that serve one or more contracts

Discharges from manufacturing facilities such as batch plants must comply with the general waste discharge requirements for Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, issued by the SWRCB for "Discharge of Stormwater Associated with Industrial Activities Excluding Construction Activities." For the General Industrial Permit, go to:

<http://www.waterboards.ca.gov/>

Water Pollution Control Manager

Assign one WPC Manager to implement the WPCP. You may assign a different QSP to prepare the WPCP.

The WPC Manager must comply with the Permit (Order No. 2009-0009-DWQ, NPDES No. CAS000002) for a QSP by having at least one of the following qualifications:

1. Certified Erosion, Sediment and Storm Water Inspector (CESSWI)™ registered through Enviro Cert International, Inc.
2. Certified Inspector of Sediment and Erosion Control (CISEC) registered through CISEC, Inc.
3. Qualifications described in the Permit for a QSD
4. Department approved storm water management training described in the Department's "Construction Storm Water and Water Pollution Control" Web site

At the job site, the WPC Manager must:

1. Be responsible for WPC work
2. Be the primary contact for WPC work
3. Oversee the maintenance of WPC practices
4. Oversee and enforce hazardous waste management practices
5. Have the authority to mobilize crews to make immediate repairs to WPC practices
6. Ensure that all employees have current water pollution control training
7. Implement the approved WPCP and amend the WPCP when required

WPC Manager must oversee:

1. Inspections of WPC practices identified in the WPCP
2. Inspections for visual monitoring

WATER POLLUTION CONTROL PROGRAM

WPCP work includes preparing a WPCP, obtaining WPCP approval, amending the WPCP, and reporting on WPC practices at the job site. The WPCP must comply with the Preparation Manual. The WPCP is required by the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications.

You may request, or the Engineer may order, changes to the WPC work. Changes may include the addition of new WPC practices. Additional WPC work will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

The WPCP must include WPC practices:

1. For storm water and non-stormwater from areas outside of the job site related to project work activities such as:
 - 1.1. Staging areas
 - 1.2. Storage yards
 - 1.3. Access roads
2. For activities or mobile operations related to contractor obtained NPDES permits
3. Construction support facilities

The WPCP must include a copy of permits obtained by the Department such as Fish & Game permits, US Army Corps of Engineers permits, RWQCB 401 Certifications, and RWQCB Waste Discharge Requirements for Aerially Deposited Lead Reuse.

WPCP Amendments

You must amend the WPCP when:

1. Changes in work activities could affect the discharge of pollutants
2. WPC practices are added by change order work
3. WPC practices are added at your discretion

If you amend the WPCP, follow the same process specified for WPCP approval. Retain a printed copy of the approved WPCP at the job site.

WPCP Schedule

The WPCP schedule must:

1. Describe when work activities will be performed that could cause the discharge of pollutants in storm water
2. Describe WPC practices associated with each construction phase
3. Identify soil stabilization and sediment control practices for disturbed soil areas

IMPLEMENTATION REQUIREMENTS

WPCP Implementation

Monitor the National Weather Service Forecast Office on a daily basis. For forecasts, go to:

<http://www.srh.noaa.gov/forecast>

Whenever you or the Engineer identifies a deficiency in the implementation of the approved WPCP:

1. Correct the deficiency immediately, unless the Engineer agrees to a later date for making the correction
2. Correct the deficiency before precipitation occurs

If you fail to correct the deficiency by the agreed date or before the onset of precipitation, the Department may correct the deficiency and deduct the cost of correcting the deficiency from payment.

Continue WPCP implementation during any temporary suspension of work activities.

Install WPC practices within 15 days or before predicted precipitation, whichever occurs first.

If actions for your convenience disturb 1 or more acres of soil, you must pay all costs and be responsible for all delays associated with submitting a SWPPP.

Inspection

The WPC Manager must oversee inspections for WPC practices identified in the WPCP:

1. Before a forecasted storm
2. After precipitation that causes site runoff
3. At 24-hour intervals during extended precipitation
4. On a predetermined schedule, a minimum of once a week

The WPC Manager must oversee daily inspections of:

1. Storage areas for hazardous materials and waste
2. Hazardous waste disposal and transporting activities
3. Hazardous material delivery and storage activities
4. WPC practices specified under "Construction Site Management" of these special provisions

The WPC Manager must use the Storm Water Site Inspection Report provided in the Preparation Manual.

The WPC Manager must prepare BMP status reports that include the following:

1. Location and quantity of installed WPC practices
2. Location and quantity of disturbed soil for the active or inactive areas

Within 24 hours of finishing the weekly inspection, the WPC Manager must submit:

1. Copy of the completed site inspection report
2. Copy of the BMP status report

Reporting Requirements

If the following occur, notify the Engineer within 6 hours:

1. You identify discharges into receiving waters or drainage systems causing or potentially causing pollution
2. The project receives a written notice or order from a regulatory agency

No later than 48 hours after the conclusion of a storm event resulting in a discharge, a non-stormwater discharge, or receiving the notice or order, submit:

1. Date, time, location, and nature of the activity, type of discharge and quantity, and the cause of the notice or order
2. WPC practices used before the discharge, or before receiving the notice or order
3. Description of WPC practices and corrective actions taken to manage the discharge or cause of the notice

PAYMENT

The contract lump sum price paid for prepare water pollution control program includes 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 special provisions, and as directed by the Engineer.

Payments for WPCP are made as follows:

1. After the Engineer approves the WPCP, the Department includes up to 75 percent of the bid item price in the monthly progress estimate
2. After contract acceptance, the Department pays for the remaining percentage of the bid item price

The Department does not pay for implementation of WPC practices in areas outside the highway right-of-way not specifically provided for in the drawings or in the special provisions.

The Department does not pay for WPC practices installed at your construction support facilities.

WPC practices for which there are separate bid items of work are measured and paid for as those bid items of work.

The contract lump sum price paid for water pollution control shall full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in conforming to this section as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.06 CONSTRUCTION SITE MANAGEMENT

GENERAL

Summary

This work includes preventing and controlling spills, dewatering, and managing materials, waste, and nonstormwater.

Implement effective handling, storage, usage, and disposal practices to control material pollution and manage waste and nonstormwater at the job site before they come in contact with storm drain systems and receiving waters.

The following abbreviations are used in this special provision:

DTSC: Department of Toxic Substance Control.

ELAP: Environmental Laboratory Accreditation Program.

WPC: Water Pollution Control.

Submittals

Before you start dewatering, submit a dewatering and discharge work plan under Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and "Water Pollution Control" of these special provisions. The dewatering and discharge work plan must include:

1. Title sheet and table of contents
2. Description of dewatering and discharge activities detailing locations, quantity of water, equipment, and discharge point
3. Estimated schedule for dewatering and discharge start and end dates of intermittent and continuous activities
4. Discharge alternatives, such as dust control or percolation
5. Visual monitoring procedures with inspection log

6. Copy of written approval to discharge into a sanitary sewer system at least 5 business days before starting discharge activities

Submit the following:

1. Material Safety Data Sheet at least 5 business days before material is used or stored
2. Monthly inventory records for material used or stored

Submit written approval from the local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system.

MATERIALS

Not Used

CONSTRUCTION

Spill Prevention and Control

General

Keep material or waste storage areas clean, well organized, and equipped with enough cleanup supplies for the material being stored.

Implement spill and leak prevention procedures for chemicals and hazardous substances stored on the job site. Whenever you spill or leak chemicals or hazardous substances at the job site, you are responsible for all associated cleanup costs and related liability.

Report minor, semi-significant, and significant or hazardous spills to the WPC manager. The WPC manager must notify the Engineer immediately.

As soon as it is safe, contain and clean up spills of petroleum materials and sanitary and septic waste substances listed under 40 CFR, Parts 110, 117, and 302.

Minor Spills

Minor spills consist of quantities of oil, gasoline, paint, or other materials that are small enough to be controlled by a 1st responder upon discovery of the spill.

Clean up a minor spill using the following procedures:

1. Contain the spread of the spill
2. Recover the spilled material using absorption
3. Clean the contaminated area
4. Dispose of the contaminated material and absorbents promptly and properly under "Waste Management" of these special provisions

Semi-Significant Spills

Semi-significant spills consist of spills that can be controlled by a 1st responder with help from other personnel.

Clean up a semi-significant spill immediately using the following procedures:

1. Contain the spread of the spill.
2. On paved or impervious surfaces, encircle and recover the spilled material with absorbent materials. Do not allow the spill to spread widely.
3. If the spill occurs on soil, contain the spill by constructing an earthen dike and dig up the contaminated soil for disposal.
4. If the spill occurs during precipitation, cover the spill with 10-mil plastic sheeting or other material to prevent contamination of runoff.
5. Dispose of the contaminated material promptly and properly under "Waste Management" of these special provisions.

Significant or Hazardous Spills

Significant or hazardous spills consist of spills that cannot be controlled by job site personnel.

Immediately notify qualified personnel of a significant or hazardous spill. Take the following steps:

1. Do not attempt to clean up the spill until qualified personnel have arrived
2. Notify the Engineer and follow up with a report
3. Obtain the immediate services of a spill contractor or hazardous material team
4. Notify local emergency response teams by dialing 911 and county officials by using the emergency phone numbers retained at the job site
5. Notify the California Emergency Management Agency State Warning Center at (916) 845-8911
6. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under 40 CFR 110, 119, and 302
7. Notify other agencies as appropriate, including:
 - 7.1. Fire Department
 - 7.2. Public Works Department
 - 7.3. Coast Guard
 - 7.4. Highway Patrol
 - 7.5. City Police or County Sheriff's Department
 - 7.6. Department of Toxic Substances
 - 7.7. California Division of Oil and Gas
 - 7.8. Cal/OSHA
 - 7.9. Regional Water Resources Control Board

Prevent a spill from entering stormwater runoff before and during cleanup activities. Do not bury or wash the spill with water.

Material Management

General

Minimize or eliminate discharge of material into the air, storm drain systems, and receiving waters while taking delivery of, using, or storing the following materials:

1. Hazardous chemicals, including acids, lime, glues, adhesives, paints, solvents, and curing compounds
2. Soil stabilizers and binders
3. Fertilizers
4. Detergents
5. Plaster
6. Petroleum materials, including fuel, oil, and grease
7. Asphalt and concrete components
8. Pesticides and herbicides

Employees trained in emergency spill cleanup procedures must be present during the unloading of hazardous materials or chemicals.

Use less hazardous materials if practicable.

The following activities must be performed at least 100 feet from concentrated flows of stormwater, drainage courses, and inlets if within the floodplain and at least 50 feet if outside the floodplain, unless otherwise approved by the Engineer:

1. Stockpiling materials
2. Storing pile-driving equipment and liquid waste containers
3. Washing vehicles and equipment in outside areas
4. Fueling and maintaining vehicles and equipment

Material Storage

If materials are stored:

1. Store liquids, petroleum materials, and substances listed in 40 CFR 110, 117, and 302 and place them in secondary containment facilities as specified by US DOT for storage of hazardous materials.
2. Secondary containment facilities must be impervious to the materials stored there for a minimum contact time of 72 hours.
3. Cover secondary containment facilities during non-working days and whenever precipitation is forecasted. Secondary containment facilities must be adequately ventilated.
4. Keep secondary containment facilities free of accumulated rainwater or spills. After precipitation, or in the event of spills or leaks, collect accumulated liquid and place it into drums within 24 hours. Handle the liquid as hazardous waste under "Waste Management" of these special provisions unless testing confirms that the liquid is nonhazardous.
5. Do not store incompatible materials, such as chlorine and ammonia, in the same secondary containment facility.
6. Store materials in their original containers with the original material labels maintained in legible condition. Immediately replace damaged or illegible labels.
7. Secondary containment facilities must have the capacity to contain precipitation from a 24-hour-long, 25-year storm, plus 10 percent of the aggregate volume of all containers or the entire volume of the largest container within the facility, whichever is greater.
8. Store bagged or boxed material on pallets. Protect bagged or boxed material from wind and rain during non-working days and whenever precipitation is forecasted.
9. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well organized, and equipped with cleanup supplies appropriate for the materials being stored.
10. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after precipitation and at least weekly during other times.

Stockpile Management

Minimize stockpiling of materials at the job site.

Implement water pollution control practices within 72 hours of stockpiling material or before a forecasted storm event, whichever occurs first. If stockpiles are being used, do not allow soil, sediment, or other debris to enter storm drains, open drainages, and watercourses.

Active and inactive soil stockpiles must be:

1. Covered with soil stabilization material or a temporary cover
2. Surrounded with a linear sediment barrier

Stockpiles of asphalt concrete and PCC rubble, HMA, aggregate base, or aggregate subbase must be:

1. Covered with a temporary cover
2. Surrounded with a linear sediment barrier

Stockpiles of pressure-treated wood must be:

1. Placed on pallets
2. Covered with impermeable material

Stockpiles of cold mix asphalt concrete must be:

1. Placed on an impervious surface
2. Covered with an impermeable material
3. Protected from stormwater run-on and runoff

Control wind erosion year round under Section 14-9.02, "Dust Control," of the Standard Specifications.

Repair or replace linear sediment barriers and covers as needed to keep them functioning properly. Whenever sediment accumulates to 1/3 of the linear sediment barrier height, remove the accumulated sediment.

Waste Management

Solid Waste

Do not allow litter, trash, or debris to accumulate anywhere on the job site, including storm drain grates, trash racks, and ditch lines. Pick up and remove litter, trash, and debris from the job site at least once a week. The WPC manager must monitor solid waste storage and disposal procedures on the job site.

If practicable, recycle nonhazardous job site waste and excess material. If recycling is not practicable, dispose of it under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way," of the Standard Specifications.

Furnish enough closed-lid dumpsters of sufficient size to contain the solid waste generated by work activities. When refuse reaches the fill line, empty the dumpsters. Dumpsters must be watertight. Do not wash out dumpsters at the job site. Furnish additional containers and pick up dumpsters more frequently during the demolition phase of construction.

Solid waste includes:

1. Brick
2. Mortar
3. Timber
4. Metal scraps
5. Sawdust
6. Pipe
7. Electrical cuttings
8. Nonhazardous equipment parts
9. Styrofoam and other packaging materials
10. Vegetative material and plant containers from highway planting
11. Litter and smoking material, including litter generated randomly by the public
12. Other trash and debris

Furnish and use trash receptacles in the job site yard, field trailers, and locations where workers gather for lunch and breaks.

Hazardous Waste and Contamination

If hazardous waste is, or will be, generated on the job site, the WPC manager must be thoroughly familiar with proper hazardous waste handling and emergency procedures under 40

CFR § 262.34(d)(5)(iii) and must have successfully completed training under 22 CA Code of Regs § 66265.16.

The WPC manager must:

1. Oversee and enforce hazardous waste management practices
2. Inspect all hazardous waste storage areas daily, including all temporary containment facilities and satellite collection locations
3. Oversee all hazardous waste transportation activities on the job site

Submit a copy of uniform hazardous waste manifest forms to the Engineer within 24 hours of transporting hazardous waste.

Submit receiving landfill documentation of proper disposal to the Engineer within 5 business days of hazardous waste transport from the project.

Unanticipated Discovery of Asbestos and Hazardous Substances

Upon discovery of asbestos or a hazardous substance, comply with Section 14-11.02 "Asbestos and Hazardous Substances," of the Standard Specifications.

Hazardous Waste Management Practices

Handle, store, and dispose of hazardous waste under 22 CA Code of Regs Div 4.5.

Use the following storage procedures:

1. Store hazardous waste and potentially hazardous waste separately from nonhazardous waste at the job site.
2. For hazardous waste storage, use metal containers approved by the United States Department of Transportation for the transportation and temporary storage of hazardous waste.
3. Store hazardous waste in sealed, covered containers labeled with the contents and accumulation start date under 22 CA Code of Regs, Div 4.5. Labels must comply with the provisions of 22 CA Code of Regs, Div 4.5. § 66262.31 and § 66262.32. Immediately replace damaged or illegible labels.
4. Handle hazardous waste containers such that no spillage occurs.
5. Store hazardous waste away from storm drains, watercourses, moving vehicles, and equipment.
6. Furnish containers with adequate storage volume at convenient satellite locations for hazardous waste collection. Immediately move these containers to secure temporary containment facilities when no longer needed at the collection location or when full.
7. Store hazardous waste and potentially hazardous waste in secure temporary containment enclosures having secondary containment facilities impervious to the materials stored there for a minimum contact-time of 72 hours. Temporary containment enclosures must be located away from public access. Acceptable secure enclosures include a locked chain link fenced area or a lockable shipping container located within the project limits.
8. Design and construct secondary containment facilities with a capacity to contain precipitation from a 24-hour-long, 25-year storm; and 10 percent of the aggregate volume of all containers, or the entire volume of the largest container within the facility, whichever is greater.
9. Cover secondary containment facilities during non-working days and if a storm event is predicted. Secondary containment facilities must be adequately ventilated.
10. Keep secondary containment facility free of accumulated rainwater or spills. After a storm event, or in the event of spills or leaks, collect accumulated liquid and place into drums within 24 hours. Handle these liquids as hazardous waste unless testing determines them to be nonhazardous.

11. Do not store incompatible wastes, such as chlorine and ammonia, in the same secondary containment facility.
12. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well organized, and equipped with cleanup supplies appropriate for the wastes being stored.
13. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after a storm event, and at least weekly during other times.

Do not:

1. Overfill hazardous waste containers
2. Spill hazardous waste or potentially hazardous waste
3. Mix hazardous wastes
4. Allow hazardous waste or potentially hazardous waste to accumulate on the ground

Dispose of hazardous waste within 90 days of the start of generation. Use a hazardous waste manifest and a transporter registered with the DTSC and in compliance with the CA Highway Patrol Biennial Inspection of Terminals Program to transport hazardous waste to an appropriately permitted hazardous waste management facility.

Dust Control for Hazardous Waste or Contamination

Excavation, transportation, and handling of material containing hazardous waste or contamination must result in no visible dust migration. Have a water truck or tank on the job site at all times while clearing and grubbing and performing earthwork operations in work areas containing hazardous waste or contamination.

Stockpiling of Hazardous Waste or Contamination

Do not stockpile material containing hazardous waste or contamination unless ordered. Stockpiles of material containing hazardous waste or contamination must not be placed where affected by surface run-on or run-off. Cover stockpiles with 13 mils minimum thickness of plastic sheeting or 1 foot of nonhazardous material. Do not place stockpiles in environmentally sensitive areas. Stockpiled material must not enter storm drains, inlets, or waters of the State.

Contractor-Generated Hazardous Waste

You are the generator of hazardous waste generated as a result of materials you bring to the job site. Use hazardous waste management practices if you generate waste on the job site from the following substances:

1. Petroleum materials
2. Asphalt materials
3. Concrete curing compound
4. Pesticides
5. Acids
6. Paints
7. Stains
8. Solvents
9. Wood preservatives
10. Roofing tar
11. Road flares
12. Lime
13. Glues and adhesives

14. Materials classified as hazardous waste under 22 CA Code of Regs, Div 4.5

If hazardous waste constituent concentrations are unknown, use a laboratory certified by the ELAP under the California Department Of Public Health to analyze a minimum of 4 discrete representative samples of the waste to determine whether it is a hazardous waste and to determine safe and lawful methods for storage and disposal. Perform sampling and analysis in compliance with US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) and under 22 CA Code of Regs, Div 4.5.

Use your US EPA Generator Identification Number and sign hazardous waste manifests for the hazardous waste you generate.

Identify contaminated soil resulting from spills or leaks by noticing discoloration, or differences in soil properties. Immediately notify the Engineer of spills or leaks. Clean up spills and leaks under the Engineer's direction and to the satisfaction of the Engineer. Soil with evidence of contamination must be sampled and analysis performed by a laboratory certified by ELAP.

If sampling and analysis of contaminated soil demonstrates that it is a hazardous waste, handle and dispose of the soil as hazardous waste. You are the generator of hazardous waste created as the result of spills or leaks for which you are responsible.

Prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of the following measures:

1. Berms
2. Cofferdams
3. Grout curtains
4. Freeze walls
5. Concrete seal course

If water mixes with contaminated soil and becomes contaminated, sample and analyze the water using a laboratory certified by the ELAP. If analysis results demonstrate that the water is a hazardous waste, manage and dispose of the water as hazardous waste.

Department-Generated Hazardous Waste

If the Department is the generator of hazardous waste during the work performed on this project, use hazardous waste management practices.

Labels must comply with the provisions of 22 CA Code of Regs § 66262.31 and § 66262.32. Mark labels with:

1. Date the hazardous waste is generated
2. The words "Hazardous Waste"
3. Composition and physical state of the hazardous waste (for example, asphalt grindings with thermoplastic or paint)
4. The word "Toxic"
5. Name, address, and telephone number of the Engineer
6. Contract number
7. Contractor or subcontractor name

Handle the containers such that no spillage occurs.

Hazardous Waste Transport and Disposal

Dispose of hazardous waste within California at a disposal site operating under a permit issued by the DTSC.

The Engineer will obtain the US EPA Generator Identification Number for hazardous waste disposal.

The Engineer will sign all hazardous waste manifests. Notify the Engineer 5 business days before the manifests are to be signed.

The Department will not consider you a generator of the hazardous waste and you will not be obligated for further cleanup, removal, or remedial action for such material if handled or disposed of under these specifications and the appropriate State and federal laws and regulations and county and municipal ordinances and regulations regarding hazardous waste.

Paint Waste

Clean water-based and oil-based paint from brushes or equipment within a contained area in a way that does not contaminate soil, receiving waters, or storm drain systems. Handle and dispose of the following as hazardous waste: paints, thinners, solvents, residues, and sludges that cannot be recycled or reused. When thoroughly dry, dispose of the following as solid waste: dry latex paint, paint cans, used brushes, rags, absorbent materials, and drop cloths.

Concrete Waste

Use practices to prevent the discharge of asphalt concrete, PCC, and HMA waste into storm drain systems and receiving waters.

Collect and dispose of asphalt concrete, PCC, and HMA waste generated at locations where:

1. Concrete material, including grout, is used
2. Concrete dust and debris result from demolition
3. Sawcutting, coring, grinding, grooving, or hydro-concrete demolition creates a residue or slurry
4. Concrete trucks or other concrete-coated equipment is cleaned at the job site

Sanitary and Septic Waste

Do not bury or discharge wastewater from a sanitary or septic system within the highway. A sanitary facility discharging into a sanitary sewer system must be properly connected and free from leaks. Place a portable sanitary facility at least 50 feet away from storm drains, receiving waters, and flow lines.

Comply with local health agency provisions if using an on-site disposal system.

Liquid Waste

Use practices that will prevent job-site liquid waste from entering storm drain systems and receiving waters. Liquid waste include the following:

1. Drilling slurries or fluids
2. Grease-free and oil-free wastewater and rinse water
3. Dredgings, including liquid waste from cleaning drainage systems
4. Liquid waste running off a surface, including wash or rinse water
5. Other nonstormwater liquids not covered by separate permits

Hold liquid waste in structurally sound, leak-proof containers, such as roll-off bins or portable tanks.

Liquid waste containers must be of sufficient quantity and volume to prevent overflow, spills, and leaks.

Store containers at least 50 feet from moving vehicles and equipment.

Remove and dispose of deposited solids from sediment traps unless the Engineer approves another method.

Liquid waste may require testing to determine hazardous material content before disposal.

Dispose of drilling fluids and residue.

If a location approved by the Engineer is available within the job site, fluids and residue exempt under 23 CA Code of Regs § 2511(g) may be dried by evaporation in a leak-proof container. Dispose of the remaining as solid waste.

Nonstormwater Management

Water Control and Conservation

Manage water used for work activities in a way that will prevent erosion and the discharge of pollutants into storm drain systems and receiving waters. Obtain authorization before washing anything at the job site with water that could discharge into a storm drain system or receiving waters. Report discharges immediately.

Implement water conservation practices if water is used at the job site. Inspect irrigation areas. Adjust watering schedules to prevent erosion, excess watering, or runoff. Shut off the water source to broken lines, sprinklers, or valves and repair breaks within 24 hours. Reuse water from waterline flushing for landscape irrigation if practicable. Sweep and vacuum paved areas. Do not wash paved areas with water.

Direct runoff water, including water from water line repair, from the job site to areas where it can infiltrate into the ground. Do not allow runoff water to enter storm drain systems and receiving waters. Do not allow spilled water to escape filling areas for water trucks. Direct water from off-site sources around the job site if practicable. Minimize the contact of off-site water with job site water.

Illegal Connection and Discharge Detection and Reporting

Before starting work, inspect the job site and the job site's perimeter for evidence of illicit connections, illegal discharges, and dumping. After starting work, inspect the job site and perimeter on a daily schedule for illicit connections and illegal dumping and discharges.

Whenever illegal connections, discharges, or dumping are discovered, notify the Engineer immediately. Do not take further action unless ordered. Assume that unlabeled or unidentifiable material is hazardous.

Look for the following evidence of illicit connections, illegal discharges, and dumping:

1. Debris or trash piles
2. Staining or discoloration on pavement or soils
3. Pungent odors coming from drainage systems
4. Discoloration or oily sheen on water
5. Stains and residue in ditches, channels, or drain boxes
6. Abnormal water flow during dry weather
7. Excessive sediment deposits
8. Nonstandard drainage junction structures
9. Broken concrete or other disturbances at or near junction structures

Vehicle and Equipment Cleaning

Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam. Contain and recycle or dispose of resulting waste under "Waste Management" of these special provisions, whichever is applicable. Do not use diesel to clean vehicles or equipment. Minimize the use of solvents.

Clean or wash vehicles and equipment in a structure equipped with disposal facilities. You may wash vehicles in an outside area if the area is:

1. Paved with asphalt concrete, HMA, or PCC
2. Surrounded by a containment berm
3. Equipped with a sump to collect and dispose of wash water

Use as little water as practicable whenever washing vehicles and equipment with water. Hoses must be equipped with a positive shutoff valve.

Discharge liquid from wash racks to a recycling system or to another system approved by the Engineer. Remove liquids and sediment as necessary.

Vehicle and Equipment Fueling and Maintenance

If practicable, perform maintenance on vehicles and equipment off-site.

If fueling or maintenance must be done at the job site, assign a site or sites, and obtain authorization before using them. Minimize mobile fueling and maintenance activities. Fueling and maintenance activities must be performed on level ground in areas protected from stormwater run-on and runoff.

Use containment berms or dikes around fueling and maintenance areas. Keep adequate quantities of absorbent spill-cleanup material and spill kits in the fueling or maintenance area and on fueling trucks. Dispose of spill-cleanup material and kits immediately after use under "Waste Management" of these special provisions. Use drip pans or absorbent pads during fueling or maintenance.

Do not leave fueling or maintenance areas unattended during fueling and maintenance activities. Fueling nozzles must be equipped with an automatic shutoff control. Nozzles must be equipped with vapor-recovery fueling nozzles where required by the Air Quality Management District. Secure nozzles in an upright position when not in use. Do not top off fuel tanks.

Recycle or properly dispose of used batteries and tires under "Waste Management" of these special provisions.

If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

Material and Equipment Used Over Water

Place drip pans and absorbent pads under vehicles and equipment used over water. Keep an adequate supply of spill-cleanup material with vehicles and equipment. Place drip pans or plastic sheeting under vehicles and equipment on docks, barges, or other surfaces over water whenever vehicles or equipment will be idle for more than 1 hour.

Furnish watertight curbs or toe boards on barges, platforms, docks, or other surfaces over water to contain material, debris, and tools. Secure material to prevent spills or discharge into the water due to wind.

Report discharges to receiving waters immediately upon discovery. Submit a discharge notification to the Engineer.

Structure Removal Over or Adjacent to Water

Do not allow demolished material to enter storm drain systems and receiving waters. Use covers and platforms approved by the Engineer to collect debris. Use attachments on equipment to catch debris during small demolition activities. Empty debris-catching devices daily.

Paving, Sealing, Sawcutting, Grooving, and Grinding Activities

Prevent material from entering storm drain systems and receiving waters including:

1. Cementitious material
2. Asphaltic material
3. Aggregate or screenings
4. Sawcutting, grooving, and grinding residue
5. Pavement chunks
6. Shoulder backing
7. Methacrylate

8. Sandblasting residue

Cover drainage inlets and use linear sediment barriers to protect downhill receiving waters until paving, sealing, sawcutting, grooving, and grinding activities are completed and excess material has been removed. Cover drainage inlets and manholes during the application of seal coat, tack coat, slurry seal, or fog seal.

Whenever precipitation is forecasted, limit paving, sawcutting, and grinding to places where runoff can be captured.

Do not start seal coat, tack coat, slurry seal, or fog seal activities whenever precipitation is forecasted during the application and curing period. Do not excavate material from existing roadways during precipitation.

Use a vacuum to remove slurry immediately after slurry is produced. Do not allow the slurry to run onto lanes open to traffic or off the pavement.

Collect the residue from PCC grooving and grinding activities with a vacuum attachment on the grinding machine. Do not leave the residue on the pavement or allow the residue to flow across pavement.

You may stockpile material excavated from existing roadways under "Material Management" of these special provisions if approved by the Engineer.

Do not coat asphalt trucks and equipment with substances that contain soap, foaming agents, or toxic chemicals.

Park paving equipment over drip pans or plastic sheeting with absorbent material to catch drips if the paving equipment is not in use.

Thermoplastic Striping and Pavement Markers

Do not preheat, transfer, or load thermoplastic within 50 feet of drainage inlets and receiving waters.

Do not unload, transfer, or load bituminous material for pavement markers within 50 feet of drainage inlets and receiving waters.

Collect and dispose of bituminous material from the roadway after removing markers under "Waste Management" of these special provisions.

Pile Driving

Keep spill kits and cleanup materials at pile driving locations. Park pile driving equipment over drip pans, absorbent pads, or plastic sheeting with absorbent material. Protect pile driving equipment by parking on plywood and covering with plastic whenever precipitation is forecasted.

Store pile driving equipment on level ground and protect it from stormwater run-on when not in use. Use vegetable oil instead of hydraulic fluid if practicable.

Concrete Curing

Do not overspray chemical curing compounds. Minimize the drift by spraying as close to the concrete as practicable. Do not allow runoff of curing compounds. Cover drainage inlets before applying the curing compound.

Minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture when concrete is curing.

Concrete Finishing

Collect and dispose of water and solid waste from high-pressure water blasting under "Waste Management" of these special provisions. Collect and dispose of sand and solid waste from sandblasting under "Waste Management" of these special provisions. Before sandblasting, cover drainage inlets within 50 feet of sandblasting. Minimize the drift of dust and

blast material by keeping the nozzle close to the surface of the concrete. If the character of the blast residue is unknown, test it for hazardous materials and dispose of it properly.

Inspect containment structures for concrete finishing for damage before each day of use and before forecasted precipitation. Remove liquid and solid waste from containment structures after each work shift.

Sweeping

Sweep by hand or mechanical methods, such as vacuuming. Do not use methods that use only mechanical kick brooms.

Sweep paved roads at construction entrance and exit locations and paved areas within the job site:

1. During clearing and grubbing activities
2. During earthwork activities
3. During trenching activities
4. During roadway structural-section activities
5. When vehicles are entering and leaving the job site
6. After soil-disturbing activities
7. After observing off-site tracking of material

Monitor paved areas and roadways within the project. Sweep within:

1. 1 hour whenever sediment or debris is observed during activities that require sweeping
2. 24 hours whenever sediment or debris is observed during activities that do not require sweeping

Remove collected material, including sediment, from paved shoulders, drain inlets, curbs and dikes, and other drainage areas. You may stockpile collected material at the job site under "Material Management" of these special provisions. If stockpiled, dispose of collected material at least once per week under "Waste Management" of these special provisions.

You may dispose of sediment within the job site collected during sweeping activities. Protect the disposal areas against erosion.

Keep dust to a minimum during street sweeping activities. Use water or a vacuum whenever dust generation is excessive or sediment pickup is ineffective.

Remove and dispose of trash collected during sweeping under "Waste Management" of these special provisions.

Dewatering

Dewatering consists of discharging accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities.

Perform dewatering work as specified for the work items involved, such as temporary active treatment system or dewatering and discharge.

If dewatering and discharging activities are not specified under a work item and you perform dewatering activities:

1. Conduct dewatering activities under the Department's Field Guide for Construction Site Dewatering.
2. Ensure that any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
3. Discharge the water within the project limits. If the water cannot be discharged within project limits due to site constraints or contamination, dispose of the water as directed by the Engineer.

4. Do not discharge stormwater or nonstormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Notify the Engineer immediately upon discovering any such condition.

MEASUREMENT AND PAYMENT

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in the lump sum price paid for Water Pollution Control and no additional compensation will be allowed therefor.

10-1.07 AREA FOR CONTRACTOR'S USE

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

The highway right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required work.

No State-owned parcels adjacent to the right of way are available for the exclusive use of the Contractor within the contract limits. The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials, or for other purposes.

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on State property may be arranged with the Engineer, subject to the prior demands of State maintenance forces and to other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for damage to or loss of materials or equipment located within such areas.

Areas available for the exclusive use of the Contractor are designated on the plans. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for damage to or loss of materials or equipment located within these areas.

Residence trailers will not be allowed within the highway right of way, except that one trailer will be allowed for yard security purposes.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other State-owned property which the Contractor occupies. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials or for other purposes, if sufficient area is not available to the Contractor within the contract limits, or at the sites designated on the plans outside the contract limits.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-1.08 TEMPORARY CONCRETE WASHOUT (PORTABLE)

GENERAL

Summary

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

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

Submittals

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

1. Name and location of off-site concrete waste disposal facility to receive concrete waste
2. Copy of permit issued by RWQCB for off-site commercial disposal facility
3. Copy of license for off-site commercial disposal facility
4. Copy of permit issued by state or local agency having jurisdiction over disposal facility if 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 temporary concrete washouts

MATERIALS

Portable Temporary Concrete Washout

Portable temporary concrete washout must:

1. Be a commercially available watertight container.
2. Have sufficient capacity to contain all liquid and concrete waste generated by washout activities without seepage or spills.
3. Have at least 55-gallon capacity.
4. Be labeled for the exclusive use as a concrete waste and washout facility. Stencil "Concrete Waste material" in 3-inch high letters on white background. Top of stenciling must be 12 inches from the top of the container.

Concrete Washout Sign

Concrete washout sign must comply with the provisions in Section 12-3.06B, "Portable Signs" of the Standard Specifications and:

1. Be approved by the Engineer
2. Consist of base, framework, and sign panel
3. Be made of plywood
4. Be minimum 2' x 4' in size
5. Read "Concrete Washout" with 3 inches high black letters on white background

CONSTRUCTION

Placement

Place portable temporary concrete washouts at job site:

1. Before concrete placement activities start
2. In the immediate area of 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 portable temporary concrete washout location.

Operation

Use portable temporary concrete washouts 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 portable temporary concrete washouts as needed for concrete construction work. Replace portable temporary concrete washouts when filled to capacity. Do not fill higher than 6 inches below rim.

Your WPC manager must inspect portable temporary concrete washouts:

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

Maintenance

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

Removal

Dispose of concrete waste material at a facility specifically licensed to receive solid concrete waste, liquid concrete waste, or both. When portable temporary concrete washout is full, remove and dispose of concrete waste within 2 days.

PAYMENT

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in the lump sum price paid for Water Pollution Control and no additional compensation will be allowed therefor.

10-1.09 TEMPORARY CONSTRUCTION ENTRANCE

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary construction entrance to provide temporary access.

The WPCP must describe and include the use of temporary construction entrance as a water pollution control practice for tracking control.

Temporary construction entrance must be Type 1, Type 2, or a combination.

Submittals

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for:

1. Temporary entrance fabric
2. Rock

Submit details for alternatives at least 5 business days before installation. You may propose alternatives for the following items:

1. Alternative sump
2. Alternative corrugated steel panels

If the Engineer approves, you may eliminate the sump.

MATERIALS

Temporary Entrance Fabric

Temporary entrance fabric must comply with Section 88-1.04, "Rock Slope Protection Fabric," of the Standard Specifications and be woven Type B or non-woven Type B.

Rock

Rock must be Type A or Type B.

Rock (Type A) must comply with:

1. Requirements under Section 72-2.02, "Materials," of the Standard Specifications
2. Following sizes:

Square Screen Size (inch)	Percentage Passing	Percentage Retained
6	100	0
3	0	100

Rock (Type B) must be Railway Ballast Number 25. Do not use blast furnace slag. Railway Ballast Number 25 must comply with:

1. Description in AREMA Manual for Railway Engineering.
2. Following sizes:

Nominal Size Square Opening	Percentage Passing								
	3"	2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	No. 4
2-1/2"-3/8"	100	80-100	60-85	50-70	25-50	-	5-20	0-10	0-3

3. Following properties:

Specification	Requirements
Percent material passing No. 200 sieve, max. ASTM: C 117	1.0
Bulk specific gravity, min. ASTM: C 127	2.60
Absorption, percent min. ASTM: C 127	1.0
Clay lumps and friable particles, percent max. ASTM: C 142	0.5
Degradation, percent max. ASTM: C 535	30
Soundness (Sodium Sulfate), percent max. ASTM: C 88	5.0
Flat, elongated particles, or both, percent max. ASTM: D 4791	5.0

Corrugated Steel Panels

Corrugated steel panels must:

1. Be made of steel.
2. Be pressed or shop welded
3. Have a slot or hook for connecting panels together

CONSTRUCTION

Prepare location for temporary construction entrance by:

1. Removing vegetation to ground level and clear away debris
2. Grading ground to uniform plane
3. Grading ground surface to drain
4. Removing sharp objects that may damage fabric
5. Compacting the top 1.5 feet of soil to at least 90 percent relative compaction

If temporary entrance (Type 1) is specified, use rock (Type A).

If temporary construction entrance (Type 2) is specified, use Rock (Type B) under corrugated steel panels. Use at least 6 corrugated steel panels for each entrance. Couple panels together.

Install temporary construction entrance by:

1. Positioning fabric along the length of the entrance
2. Overlapping sides and ends of fabric by at least 12 inches
3. Spreading rock over fabric in the direction of traffic
4. Covering fabric with rock within 24 hours
5. Keeping a 6 inch layer of rock over fabric to prevent damage to fabric by spreading equipment

Do not drive on fabric until rock is spread.

Unless the Engineer eliminates the sump, install a sump within 20 feet of each temporary construction entrance.

Repair fabric damaged during rock spreading by placing a new fabric over the damaged area. New fabric must be large enough to cover damaged area and provide at least 18-inch overlap on all edges.

Maintenance

Maintain temporary construction entrance to minimize generation of dust and tracking of soil and sediment onto public roads. If dust or sediment tracking increases, place additional rock unless the Engineer approves another method.

Repair temporary construction entrance if:

1. Fabric is exposed
2. Depressions in the entrance surface develop
3. Rock is displaced

Repair temporary construction entrance within 24 hours of discovering damage unless the Engineer approves a longer period.

During use of temporary construction entrance, do not allow soil, sediment, or other debris tracked onto pavement to enter storm drains, open drainage facilities, or watercourses. When material is tracked onto pavement, remove it within 24 hours unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace the temporary construction entrance, repair it at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

Removal

When the Engineer determines that temporary construction entrance is not required, remove and dispose of it under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Backfill and repair ground disturbance, including holes and depressions, caused by installation and removal of temporary construction entrance under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

No additional compensation will be made if the temporary construction entrance is relocated during the course of construction.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in the lump sum price paid for Water Pollution Control and no additional compensation will be allowed therefor.

10-1.10 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:

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

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

1. Erosion control blanket
2. Fiber rolls
3. Safety cap for metal posts
4. Silt fence fabric
5. Sediment filter bag
6. Foam barrier
7. Rigid plastic barrier
8. Gravel-filled bag fabric

If you substitute the steel wire staple with an alternative attachment device, submit a sample of the device for approval at least 5 business days before installation.

MATERIALS

Geosynthetic Fabrics

Geosynthetic fabrics for temporary drainage inlet protection must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Geosynthetic fabrics for temporary drainage inlet must comply with the specifications for water pollution control in Section 88-1.05, "Water Pollution Control," of the Standard Specifications.

Foam barrier must comply with:

Foam Barrier

Property	ASTM Designation	Specification
Grab breaking load 1-inch grip, lb, min. in each direction	D 4632	200
Apparent elongation percent, min., in each direction	D 4632	15
Water Flow Rate max. average roll value, gallons per minute/square foot	D 4491	100-150
Permittivity 1/sec., min.	D 4491	0.05
Apparent opening size max. average roll value, U.S. Standard sieve size	D 4751	40
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	D 4595	70

Sample under ASTM D 4354, Procedure C.

Test under ASTM D 4759. All properties are based on Minimum Average Roll Value (MARV).

Identify, store, and handle under ASTM D 4873.

Erosion Control Blanket

Erosion control blanket must be:

1. Described as a rolled erosion control product (RECP)
2. Classified as temporary and degradable or long-term and non-degradable
3. Machine-made mats
4. Provided in rolled strips
5. Classified by the Erosion Control Technology Council (ECTC)

Rock

Rock must comply with:

- 1. Requirements under Section 72-2.02, "Materials," of the Standard Specifications
- 2. Following sizes:

Square Screen Size (inch)	Percentage Passing	Percentage Retained
6	100	0
3	0	100

Rope

Rope for fiber rolls must be:

- 1. Biodegradable, such as sisal or manila
- 2. At least 1/4 inch in diameter

Gravel-filled Bags

Gravel-filled bags must:

- 1. Be made from fabric.
- 2. Have inside dimensions from 24 to 32 inches in length, and from 16 to 20 inches in width.
- 3. Have the opening bound to retain the gravel. The opening must be sewn with yarn, bound with wire, or secured with a closure device.
- 4. Weigh from 30 to 50 pounds when filled with gravel.

Gravel for gravel-filled bags must be:

- 1. From 3/8 to 3/4 inch in diameter
- 2. Clean and free from clay balls, organic matter, and other deleterious materials

Sediment Filter Bag

Sediment filter bag must:

- 1. Be made of fabric
- 2. Be sized to fit the catch basin or drainage inlet
- 3. Include a high-flow bypass

Sediment filter bag may include a metal frame. Sediment filter bags that do not have a metal frame and are deeper than 18 inches must:

- 1. Include lifting loops and dump straps
- 2. Include a restraint cord to keep the sides of the bag away from the walls of the catch basin

Foam Barriers

Foam barriers must:

- 1. Be filled with a urethane foam core

2. Have a geosynthetic fabric cover and flap
3. Have a triangular, circular, or square shaped cross section
4. Have a vertical height of at least 5 inches after installation
5. Have a horizontal flap of at least 8 inches in width
6. Have a length of at least 4 feet per unit
7. Have the ability to interlock separate units into a longer barrier so that water does not flow between the units
8. Be secured to:
 - 8.1. Pavement with 1-inch concrete nails with 1-inch washers and solvent-free adhesive
 - 8.2. Soil with 6-inch nails with 1-inch washers

Rigid Plastic Barriers

Rigid plastic barriers must:

1. Have an integrated filter
2. Have a formed outer jacket of perforated high density polyethylene (HDPE) or polyethylene terephthalate (PET)
3. Have a flattened tubular shaped cross section
4. Be made from virgin or recycled materials
5. Be free from biodegradable filler materials that degrade the physical or chemical characteristics of the finished filter core or outer jacket
6. Have a length of at least 4 feet per unit
7. Have the ability to interlock separate units into a longer barrier so that water does not flow between the units
8. Be secured to:
 - 8.1 Pavement with 1-inch concrete nails with 1-inch washers and solvent-free adhesive, with gravel-filled bags, or a combination
 - 8.2 Soil with 6-inch nails with 1-inch washers and wood stakes

9. Comply with the following properties:

Specification	Requirements
Grab tensile strength of outer jacket material, pounds/square inch, min. in each direction ASTM D 4632*	4000
Break strength of outer jacket, pounds/square inch ASTM D 4632*	1300
Permittivity of filter core, 1/sec., min. ASTM D 4491	0.38
Flow rate of filter core, gallons per minute per square foot, ASTM D 4491	100 min. 200 max.
Filter core aperture size, max., Average Opening Size (AOS), microns	425
Ultraviolet stability (outer jacket & filter core), percent tensile strength retained after 500 hours, min. ASTM D 4355 (xenon-arc lamp and water spray weathering method)	90

* or appropriate test method for specific polymer

If used at a curb inlet without a grate, rigid plastic barriers must:

1. Have a horizontal flap of at least 6 inches with an under-seal gasket to prevent underflows
2. Include a high-flow bypass
3. Have a vertical height of at least 7 inches after installation
4. Be sized to fit the catch basin or drainage inlet

If used at a grated catch basin without a curb inlet, rigid plastic barriers must:

1. Cover the grate by at least 2 inches on each side and have an under-seal gasket to prevent underflows
2. Include a high-flow bypass
3. Have a vertical height of at least 1.5 inches after installation
4. Be sized to fit the catch basin or drainage inlet

If used at a curb inlet with a grate, rigid plastic barriers must:

1. Have a horizontal flap that covers the grate by at least 2 inches on the 3 sides away from the curb opening and have an under-seal gasket to prevent underflows
2. Include a high-flow bypass
3. Have a vertical section that covers the curb opening by at least 5 inches after installation
4. Be sized to fit the catch basin or drainage inlet

If used as a linear sediment barrier, rigid plastic barriers:

1. Must have an installed height of at least 6 inches
2. May have a horizontal flap of at least 4 inches

Linear Sediment Barrier

Linear sediment barriers must consist of one or more of the following:

1. Gravel-filled bags
2. Rigid plastic barrier
3. Foam barrier

Flexible Sediment Barrier

Flexible sediment barriers consist of one or more of the following:

1. Rigid plastic barrier
2. Foam barrier

CONSTRUCTION

For drainage inlet protection at drainage inlets in paved areas:

1. Prevent ponded runoff from encroaching on the traveled way or overtopping the curb or dike. Use linear sediment barriers to redirect runoff and control ponding.
2. Clear the area around each drainage inlet of obstructions including rocks, clods, and debris greater than one inch in diameter before installing the drainage inlet protection.
3. Install a linear sediment barrier 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 Bag Berm

If gravel bag berm is used as a linear sediment barrier:

1. Place gravel-filled bags end-to-end to eliminate gaps
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row

If gravel bag berms are used for Type 3A and Type 3B:

1. Place gravel-filled bags end-to-end to eliminate gaps
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row
3. Arrange bags to create a spillway by removing one or more gravel-filled bags from the upper layer

If used within shoulder area, place gravel-filled bags behind temporary railing (Type K).

Fiber Rolls

If fiber rolls are used as a linear sediment barrier:

1. Place fiber rolls in a furrow.
2. Secure fiber rolls with stakes installed along the length of the fiber rolls. Stakes must be installed from 6 to 12 inches from the end of the rolls.

If fiber rolls are used as a linear sediment barrier for Type 4A, place them over the erosion control blanket.

Foam Barriers

If foam barriers are used as a linear sediment barrier:

1. Install barriers with the horizontal flap in a 3 inch deep trench and secured with nails and washers placed no more than 4 feet apart
2. Secure barriers with 2 nails at the connection points where separate units overlap
3. Place barriers without nails or stakes piercing the core

Flexible Sediment Barriers

If flexible sediment barriers are used:

1. Secure barriers to the pavement with nails and adhesive, gravel-filled bags, or a combination
2. Install barriers flush against the sides of concrete, asphalt concrete, or hot mix asphalt curbs or dikes
3. Place barriers to provide a tight joint with the curb or dike and anchored in a way that runoff cannot flow behind the barrier

If flexible sediment barriers are used for Type 4B:

1. Secure barriers to the pavement according to the angle and spacing shown on the plans
2. Place barriers to provide a tight joint with the curb or dike. Cut the cover fabric or jacket to ensure a tight fit

Rigid Sediment Barriers

If rigid sediment barriers are used at a grated catch basin without a curb inlet:

1. Place barriers using the gasket to prevent runoff from flowing under the barrier
2. Secure barriers to the pavement with nails and adhesive, gravel-filled bags, or a combination

If rigid sediment barriers are used for linear sediment barriers:

1. Install barriers in a trench. Backfill the trench with soil and compact manually
2. Place barrier with separate units overlapping at least 4 inches
3. Reinforce barriers with a wood stake at each overlap
4. Fasten barriers to the wood stakes with steel screws, 16 gauge galvanized steel wire, or with UV stabilized cable ties that are from 5 to 7 inches in length

Sediment Filter Bags

Install sediment filter bags for Type 5 by:

1. Removing the drainage inlet grate
2. Placing the sediment bag in the opening
3. Replacing the grate to secure the sediment filter bag in place

MAINTENANCE

Maintain temporary drainage inlet protection to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary drainage inlet protection as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary drainage inlet protection by removing sediment from:

1. Behind flexible sediment barriers when sediment exceeds 1 inch in depth
2. Sediment filter bags when filled or when the restraint cords are no longer visible

If rills and other evidence of concentrated runoff occur beneath the linear sediment barrier, repair or adjust the barrier.

If geosynthetic fabric becomes split, torn, or unraveled, repair or replace foam barriers.

Repair or replace sagging or slumping linear sediment barriers with additional stakes. Replace broken or split wood stakes.

Reattach foam barriers and rigid plastic barriers that become detached or dislodged from the pavement.

Repair split or torn rigid plastic barriers with 16 gauge galvanized steel wire or UV stabilized cable ties that are from 5 to 7 inches in length.

For sediment filter bags without metal frames, empty by placing one inch steel reinforcing bars through the lifting loops and then lift the filled bag from the drainage inlet. For sediment filter bags with metal frames, empty by lifting the metal frame from the drainage inlet. Rinse before replacing in the drainage inlet. When rinsing the sediment filter bags, do not allow the rinse water to enter a drain inlet or waterway.

Repair temporary drainage inlet protection within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary drainage inlet protection, repair temporary drainage inlet protection at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

When the Engineer determines that the temporary drainage inlet protection is not required, it must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary drainage inlet protection must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

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

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in the lump sum price paid for Water Pollution Control and no additional compensation will be allowed therefor.

10-1.11 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 special provisions.

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/policy_guide/road_hardware/listing.cfm?code=work_zone

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.

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.

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.

Full compensation for construction area traffic control devices is included in the contract lump sum price paid for traffic handling and no additional compensation will be allowed therefor.

10-1.12 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 special provisions.

Attention is directed to "Furnish Sign" of these special provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Type II retroreflective sheeting shall not be used on construction area sign panels. Type III, IV, VII, VIII, or IX retroreflective sheeting shall be used for stationary mounted construction area sign panels.

Unless otherwise shown on the plans or specified in these special provisions, 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 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 special provisions.

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.

Full compensation for construction area signs is included in the contract lump sum price paid for Traffic Handling and no additional compensation will be allowed therefor.

10-1.13 MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions in Sections 7-1.08, "Public Convenience," Section 7-1.09, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

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

Affected businesses and residences shall be notified a minimum one week in advance of any closures or impacts related to access. Emergency service providers, such as fire and police protection, shall be notified a minimum two weeks in advance of any closures so that alternate routes can be taken.

Full time access will be required for existing property owners.

Contractor shall also be responsible for coordination with the US Postal Service and garbage service for residents to allow unrestricted mail delivery and garbage service pick up.

The cost for furnishing all flaggers, including transporting flaggers, to provide for passage of public traffic through the work under the provisions in Sections 7-1.08, "Public Convenience," and 7-1.09, "Public Safety," of the Standard Specifications will be borne by the Contractor. The cost of providing stands or towers for use of flaggers shall be considered as part of the cost of furnishing flaggers.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefor.

Except as listed above, closure of adjacent traffic lane will not be required for grinding and grooving operations, and for installing, maintaining and removing traffic control devices.

Work that interferes with public traffic shall be limited to the hours when lane closures are allowed, except for work required under Sections 7-1.08, "Public Convenience," and Section 7-1.09, "Public Safety."

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Local authorities shall be notified at least 5 business days before work begins. The Contractor shall cooperate with local authorities to handle traffic through the work area and shall make arrangements to keep the work area clear of parked vehicles.

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

When work vehicles or equipment are parked within 6 feet of a traffic lane to perform active construction, the shoulder area shall be closed as shown on the plans.

Pedestrian access facilities shall be provided through construction areas within the right of way as shown on the plans and as specified herein

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

10-1.14 TRAFFIC HANDLING

A traffic control system shall consist of closing traffic lanes in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.

Attention is directed to State of California – Department of Transportation – Encroachment Permit 0407-NMC0272 for additional information related to traffic handling including request requirements and authorized hours for traffic control for this project.

The Contractor shall prepare traffic handling plans and submit to the Engineer at least 7 days prior to beginning any work. Contractor shall not commence any portion of the work requiring traffic handling until the plans have been approved by the Engineer.

The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing components when operated within a stationary lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on vehicles which are being used to place, maintain and remove components of a traffic control system and shall be in place before a lane closure requiring its use is completed.

The traffic cones shown to be placed transversely across closed traffic lanes and shoulders on the plans entitled "Traffic Control System for Lane Closures on Freeways and Expressways" and "Traffic Control System for Lane and Complete Closures on Freeways and Expressways" shall not be placed.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

When lane closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

The contract lump sum price paid for traffic handling includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in traffic handling, complete in place, including preparing, editing, and modifying a traffic control plan approved by the Engineer, as well as installing, maintaining, adjusting, and removing traffic control devices and construction area signs, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.15 PORTABLE CHANGEABLE MESSAGE SIGNS

GENERAL

Summary

Work includes furnishing, placing, operating, maintaining, and removing portable changeable message signs.

Comply with Section 12-3.12 "Portable Changeable Message Signs," of the Standard Specifications.

Definitions

useable shoulder area: Paved or unpaved contiguous surface adjacent to the traveled way with:

1. Sufficient weight bearing capacity to support portable changeable message sign
2. Slope not greater than 6:1 (horizontal:vertical)

Submittals

Upon request, submit a Certificate of Compliance for each portable changeable message sign under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

Comply with the manufacturer's operating instructions for portable changeable message sign.

Approaching drivers must be able to read the entire message for all phases at least twice at the posted speed limit before passing portable changeable message sign. You may use more than 1 portable changeable message sign to meet this requirement.

Only display the message shown on the plans or ordered by the Engineer or specified in these special provisions.

MATERIALS

The text of the message displayed on portable changeable message sign must not scroll, or travel horizontally or vertically across the face of the message panel.

CONSTRUCTION

Continuously repeat the entire message in no more than 2 phases of at least 3 seconds per phase.

If useable shoulder area is at least 15 feet wide, the displayed message on portable changeable message sign must be minimum 18-inch character height. If useable shoulder area is less than 15 feet wide, you may use a smaller message panel with minimum 12-inch character height to prevent encroachment in the traveled way.

Place portable changeable message sign in advance of the first warning sign for:

1. Each shoulder closure
2. Each speed reduction zone

Place portable changeable message sign as far from the traveled way as practicable where it is legible to traffic and does not encroach on the traveled way. Place portable changeable sign before or at the crest of vertical roadway curvature where it is visible to approaching traffic. Avoid placing portable changeable message sign within or immediately after horizontal roadway curvature. Where possible, place portable changeable message sign behind guardrail or temporary railing (Type K).

Except where placed behind guardrail or temporary railing (Type K) use traffic control for shoulder closure to delineate portable changeable message sign.

Remove portable changeable message sign when not in use.

MEASUREMENT AND PAYMENT

Full compensation for portable changeable message signs, including furnishing, placing, operating, modifying messages, maintaining, transporting from location to location, removing, and repairing or replacing defective or damaged portable changeable message signs is included in the contract lump sum price paid for traffic handling and no separate payment will be made therefor.

10-1.16 CHANNELIZER

Channelizers shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Channelizers shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

At the time of completion of the project, certain channelizers shall be left in place as determined by the Engineer. In addition to the contract unit price paid for channelizer (surface mounted), the cost of leaving the channelizers in place will be paid for at the contract unit price for channelizer (surface mounted) (left in place).

When no longer required for the work as determined by the Engineer, channelizers (except channelizers to be left in place) and underlying adhesive used to cement the channelizer bases to the pavement shall be removed. Removed channelizers and adhesive shall become the property of the Contractor and shall be removed from the site of work.

Full compensation for channelizers is included in the contract lump sum price paid for traffic handling and no separate payment will be made therefor.

Pedestrian access facilities shall be provided through construction areas within the right of way as shown on the plans and as specified herein

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

10-1.17 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 special provisions.

Except as otherwise provided for damaged materials in Section 15-2.04, "Salvage," of the Standard Specifications, the materials to be salvaged shall remain the property of the State, and shall be cleaned, packaged, bundled, tagged, and hauled to the District Regional Recycle Center at Caltrans Electrical Maintenance Station, 30 Rickard Street, San Francisco, CA 94134 and stockpiled.

The Contractor shall notify the Engineer and the District Regional Recycle Coordinator, telephone (415) 330-6500 a minimum of 48 hours prior to hauling salvaged material to the Recycle Center.

REMOVE PAVEMENT MARKER

Existing pavement markers, including underlying adhesive, when no longer required for traffic lane delineation as determined by the Engineer, shall be removed and disposed of.

Full compensation for removing and disposing of pavement markers and underlying adhesive shall be considered as included in the contract price paid for Clearing and Grubbing and no separate payment will be made therefor.

REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING

This work includes removing existing traffic stripe and pavement marking at the locations shown on the plans.

Submit a lead compliance plan under Section 7-1.07, "Lead Compliance Plan," of the Standard Specifications.

Waste residue from removal of thermoplastic and painted traffic stripe and pavement marking is a non-hazardous waste residue and contains lead in average concentrations less than 1000 mg/kg total lead and 5 mg/L soluble lead. This waste residue does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs and is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Full compensation for removing and disposing of pavement markers and underlying adhesive shall be considered as included in the contract price paid for Clearing and Grubbing and no separate payment will be made therefor.

REMOVE ROADSIDE SIGN

Existing roadside signs, at those locations shown on the plans to be removed, shall be removed and disposed of.

Existing roadside signs shall not be removed until replacement signs have been installed or until the existing signs are no longer required for the direction of public traffic, unless otherwise directed by the Engineer.

Full compensation for furnishing signs shall be considered as included in the contract lump sum price paid for signing and striping and no separate payment will be made therefore.

RELOCATE ROADSIDE SIGN

Existing roadside signs shall be removed and relocated to the new locations shown on the plans.

Each roadside sign shall be installed at the new location on the same day that the sign is removed from its original location.

Two holes shall be drilled in each existing post as required to provide the breakaway feature shown on the plans.

Full compensation for furnishing signs shall be considered as included in the contract lump sum price paid for signing and striping and no separate payment will be made therefore.

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.

The material removed shall be disposed of outside the highway right of way in conformance with the provisions in Section 15-2.03, "Disposal," of the Standard Specifications.

Removing base and surfacing will be measured and paid for as roadway excavation.

The contract price paid per cubic yard for remove base and surfacing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing base and surfacing, complete in place, including disposing base and surfacing, backfilling and compacting voids and regarding of the area, as shown on the plans, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.

REMOVE CONCRETE

Concrete, curb shall be removed in conformance to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Removing concrete curb will be measured by the linear foot, measured along the curb, barrier or sidewalk before removal operations.

Concrete removed shall be disposed of outside the highway 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.

Where no joint exists between concrete to be removed and concrete to remain in place, the concrete shall be cut on a neat line to a minimum depth of 0.17-foot with a power driven saw before the concrete is removed.

Where concrete has been removed outside the roadway prism, the backfilled areas shall be graded to drain and blend in with the surrounding terrain.

Concrete to be removed which has portions of the same structure both above and below ground will be considered as concrete above ground for compensation.

The contract unit price paid per linear foot for remove concrete shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing concrete curb, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.

ADJUST FRAME AND COVER

Frame and covers of existing manholes identified on the plans shall be removed, replaced and adjusted to grade in conformance with the provisions in Section 15-2.05, "Reconstruction," of the Caltrans Standard Specifications.

Adjustments of frames and covers for manholes shall be accomplished by removing the existing concrete collar around frame, installing concrete adjusting rings, raising the frame and

cover, constructing a new concrete collar and placing two inches (2") of asphalt concrete. No metal riser adjustment rings will be permitted.

The unit price paid for adjust sanitary sewer manhole shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in adjusting frame and cover to grade, complete in place, including demolition, providing concrete, rebar, asphalt concrete, coordinating with utility owners, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

10-1.18 CLEARING AND GRUBBING

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

Vegetation shall be cleared and grubbed only within the excavation and embankment slope lines.

The contract lump sum price paid for clearing and grubbing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in clearing and grubbing, complete in place, including removing existing traffic stripe and pavement marking as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.19 WATERING

Developing a water supply and applying watering shall conform to the provisions in Section 17, "Watering," of the Standard Specifications and these special provisions.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-1.20 EARTHWORK

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

When a layer of specified material is not to be placed on the basement material, the finished grading plane shall not vary more than 0.10-foot above or below the grade established by the Engineer. The requirements for obtaining a relative compaction of 95 percent, as provided in the first 2 paragraphs in Section 19-5.03, "Relative Compaction (95 Percent)," of the Standard Specifications shall not apply when a layer of specified material is not to be placed on the basement material.

Surplus excavated material not designated as hazardous waste due to aerially deposited lead shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Where a portion of the existing surfacing is to be removed, the outline of the area to be removed shall be cut on a neat line with a power-driven saw to a minimum depth of 0.17-foot before removing the surfacing. Full compensation for cutting the existing surfacing shall be considered as included in the contract price paid per cubic yard for roadway excavation and no additional compensation will be allowed therefor.

Reinforcement or metal attached to reinforced concrete rubble placed in embankments shall not protrude above the grading plane. Prior to placement within 2 feet below the grading plane of embankments, reinforcement or metal shall be trimmed to no greater than 3/4 inch from the face of reinforced concrete rubble. Full compensation for trimming reinforcement or metal shall be considered as included in the contract prices paid per cubic yard for the types of excavation

shown in the Engineer's estimate, or the contract prices paid for furnishing and placing imported borrow or embankment material, as the case may be, and no additional compensation will be allowed therefor.

The contract price paid per cubic yard for roadway excavation shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in performing roadway excavation work completely as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

10-1.21 AGGREGATE BASE

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

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.

The maximum compacted thickness of any 1 layer of aggregate base must not exceed 0.5 foot.

The contract price paid per cubic yard for aggregate base shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing aggregate base, complete in place, as shown on the plans, as specified in the contract documents and the Standard Specifications, and as directed by the Engineer.

10-1.22 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 ¾-inch grading.

CONSTRUCTION

Vertical Joints

If you perform half-width paving, at the end of each day's work the distance between the ends of adjacent surfaced lanes must not be greater than can be completed in the following day of normal paving.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to public traffic.

Widening

If widening existing pavement, construct new structural section on both sides of the existing pavement to match the elevation of the existing pavement's edge for the project's entire length before placing HMA over the existing pavement.

Conform Tapers

Place shoulder conform tapers concurrently with the adjacent lane's paving.

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.

PAYMENT

The contract price paid per ton for asphalt concrete (Type A) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing asphalt concrete, complete in place, as shown on the plans, as specified in the contract documents and the Standard Specifications, and as directed by the Engineer.

10-1.23 ROADSIDE SIGNS

Roadside signs shall be furnished and installed at the locations shown on the plans or where designated by the Engineer and in conformance with the provisions in Section 56-2, "Roadside Signs," of the Standard Specifications and these special provisions.

The Contractor shall furnish roadside sign panels in conformance with the provisions in "Furnish Sign" of these special provisions.

Wood posts shall be pressure treated after fabrication in conformance with the provisions in Section 58, "Preservative Treatment of Lumber, Timber and Piling," of the Standard Specifications and AWPAs Use Category System: UC4A, Commodity Specification A or B. The contract lump sum price paid for "Signing and Striping" shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in fabricating, furnishing and installing roadside signs, complete in place, including furnishing signs and fastening hardware as shown on the plans, as specified in the Standard Specifications and these technical provisions, and as directed by the Engineer.

10-1.24 FURNISH SIGN

Signs shall be fabricated and furnished in accordance with details shown on the plans, the Traffic Sign Specifications, and these special provisions.

Traffic Sign Specifications for California sign codes are available for review at:

<http://www.dot.ca.gov/hq/traffops/signtech/signdel/specs.htm>

Traffic Sign Specifications for signs referenced with Federal MUTCD sign codes can be found in Standard Highway Signs Book, administered by the Federal Highway Administration, which is available for review at:

http://mutcd.fhwa.dot.gov/ser-shs_millennium.htm

Information on cross-referencing California sign codes with the Federal MUTCD sign codes is available at:

<http://www.dot.ca.gov/hq/traffops/signtech/signdel/specs.htm>

Temporary or permanent signs shall be free from blemishes that may affect the serviceability and detract from the general sign color and appearance when viewing during daytime and nighttime from a distance of 25 feet. The face of each finished sign shall be

uniform, flat, smooth, and free of defects, scratches, wrinkles, gel, hard spots, streaks, extrusion marks, and air bubbles. The front, back, and edges of the sign panels shall be free of router chatter marks, burns, sharp edges, loose rivets, delaminated skins, excessive adhesive over spray and aluminum marks.

QUALITY CONTROL FOR SIGNS

The requirements of "Quality Control for Signs" in this section shall not apply to construction area signs.

No later than 14 days before sign fabrication, the Contractor shall submit a written copy of the quality control plan for signs to the Engineer for review. The Engineer will have 10 days to review the quality control plan. Sign fabrication shall not begin until the Engineer approves the Contractor's quality control plan in writing. The Contractor shall submit to the Engineer at least 3 copies of the approved quality control plan. The quality control plan shall include, but not be limited to the following requirements:

- A. Identification of the party responsible for quality control of signs,
- B. Basis of acceptance for incoming raw materials at the fabrication facility,
- C. Type, method and frequency of quality control testing at the fabrication facility,
- D. List (by manufacturer and product name) of process colors, protective overlay film, retroreflective sheeting and black non-reflective film,
- E. Recommended cleaning procedure for each product, and
- F. Method of packaging, transport and storage for signs.

No legend shall be installed at the project site. Legend shall include letters, numerals, tildes, bars, arrows, route shields, symbols, logos, borders, artwork, and miscellaneous characters. The style, font, size, and spacing of the legend shall conform to the Standard Alphabets published in the FHWA Standard Highway Signs Book. The legend shall be oriented in the same direction in accordance with the manufacturer's orientation marks found on the retroreflective sheeting.

On multiple panel signs, legend shall be placed across joints without affecting the size, shape, spacing, and appearance of the legend. Background and legend shall be wrapped around interior edges of formed panel signs as shown on plans to prevent delamination.

The following notation shall be placed on the lower right side of the back of each sign where the notation will not be blocked by the sign post or frame:

- A. PROPERTY OF STATE OF CALIFORNIA,
- B. Name of the sign manufacturer,
- C. Month and year of fabrication,
- D. Type of retroreflective sheeting, and
- E. Manufacturer's identification and lot number of retroreflective sheeting.

The above notation shall be applied directly to the aluminum sign panels in 1/4-inch upper case letters and numerals by die-stamp and applied by similar method to the fiberglass reinforced plastic signs. Painting, screening, or engraving the notation will not be allowed. The notation shall be applied without damaging the finish of the sign.

Signs with a protective overlay film shall be marked with a dot of 3/8 inch in diameter. The dot placed on white border shall be black, while the dot placed on black border shall be white. The dot shall be placed on the lower border of the sign before application of the protective overlay film and shall not be placed over the legend and bolt holes. The application method and exact location of the dot shall be determined by the manufacturer of the signs.

For sign panels that have a minor dimension of 48 inches or less, no splice will be allowed in the retroreflective sheet except for the splice produced during the manufacturing of the

retroreflective sheeting. For sign panels that have a minor dimension greater than 48 inches, only one horizontal splice will be allowed in the retroreflective sheeting.

Unless specified by the manufacturer of the retroreflective sheeting, splices in retroreflective sheeting shall overlap by a minimum of one inch. Splices shall not be placed within 2 inches from edges of the panels. Except at the horizontal borders, the splices shall overlap in the direction from top to bottom of the sign to prevent moisture penetration. The retroreflective sheeting at the overlap shall not exhibit a color difference under the incident and reflected light.

Signs exhibiting a significant color difference between daytime and nighttime shall be replaced immediately.

Repairing sign panels will not be allowed except when approved by the Engineer.

The Department will inspect signs at the Contractor's facility and delivery location, and in accordance with Section 6, "Control of Materials," of the Standard Specifications. The Engineer will inspect signs for damage and defects before and after installation.

Regardless of kind, size, type, or whether delivered by the Contractor or by a common carrier, signs shall be protected by thorough wrapping, tarping, or other methods to ensure that signs are not damaged by weather conditions and during transit. Signs shall be dry during transit and shipped on pallets, in crates, or tier racks. Padding and protective materials shall be placed between signs as appropriate. Finished sign panels shall be transported and stored by method that protects the face of signs from damage. The Contractor shall replace wet, damaged, and defective signs.

Signs shall be stored in dry environment at all times. Signs shall not rest directly on the ground or become wet during storage. Signs, whether stored indoor or outdoor, shall be free standing. In areas of high heat and humidity signs shall be stored in enclosed climate-controlled trailers or containers. Signs shall be stored indoor if duration of the storage will exceed 30 days.

Screen processed signs shall be protected, transported and stored as recommended by the manufacturer of the retroreflective sheeting.

When requested, the Contractor shall provide the Engineer test samples of signs and materials used at various stages of production. Sign samples shall be 12" x 12" in size with applied background, letter or numeral, and border strip.

The Contractor shall assume the costs and responsibilities resulting from the use of patented materials, equipment, devices, and processes for the Contractor's work.

SHEET ALUMINUM

Alloy and temper designations for sheet aluminum shall be in accordance with ASTM Designation: B 209.

The Contractor shall furnish the Engineer a Certificate of Compliance in conformance with Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the sheet aluminum.

Sheet aluminum shall be pretreated in accordance to ASTM Designation: B 449. Surface of the sheet aluminum shall be cleaned, deoxidized, and coated with a light and tightly adherent chromate conversion coating free of powdery residue. The conversion coating shall be Class 2 with a weight between 10 milligrams per square foot and 35 milligrams per square foot, and an average weight of 25 milligrams per square foot. Following the cleaning and coating process, the sheet aluminum shall be protected from exposure to grease, oils, dust, and contaminants.

Sheet aluminum shall be free of buckles, warps, dents, cockles, burrs, and defects resulting from fabrication.

Base plate for standard route marker shall be die cut.

RETROREFLECTIVE SHEETING

The Contractor shall furnish retroreflective sheeting for sign background and legend in conformance with ASTM Designation: D 4956 and "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Retroreflective sheeting shall be applied to sign panels as recommended by the retroreflective sheeting manufacturer without stretching, tearing, and damage.

Class 1, 3, or 4 adhesive backing shall be used for Type II, III, IV, VII, VIII, and IX retroreflective sheeting. Class 2 adhesive backing may also be used for Type II retroreflective sheeting. The adhesive backing shall be pressure sensitive and fungus resistant.

When the color of the retroreflective sheeting determined from instrumental testing is in dispute, the Engineer's visual test will govern.

PROCESS COLOR AND FILM

The Contractor shall furnish and apply screened process color, non-reflective opaque black film, and protective overlay film of the type, kind, and product that are approved by the manufacturer of the retroreflective sheeting.

The Contractor shall furnish the Engineer a Certificate of Compliance in accordance to Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the screened process color, non-reflective opaque black film, and protective overlay film.

The surface of the screened process color shall be flat and smooth. When the screened process colors determined from the instrumental testing in accordance to ASTM Designation: D 4956 are in dispute, the Engineer's visual test will govern.

The Contractor shall provide patterns, layouts, and set-ups necessary for the screened process.

The Contractor may use green, red, blue, and brown reverse-screened process colors for background and non-reflective opaque black film or black screened process color for legend. The coefficient of retroreflection for reverse-screened process colors on white retroreflective sheeting shall not be less than 70 percent of the coefficient of retroreflection specified in ASTM Designation: D 4956.

The screened process colors and non-reflective opaque black film shall have the same outdoor weatherability as that of the retroreflective sheeting.

After curing, screened process colors shall withstand removal when tested by applying 3M Company Scotch Brand Cellophane Tape No. 600 or equivalent tape over the color and removing with one quick motion at 90° angle.

SINGLE SHEET ALUMINUM SIGN

Single sheet aluminum signs shall be fabricated and furnished with or without frame. The Contractor shall furnish the sheet aluminum in accordance to "Sheet Aluminum" of these special provisions. Single sheet aluminum signs shall be fabricated from sheet aluminum alloy 6061-T6 or 5052-H38.

Single Sheet aluminum signs shall not have a vertical splice in the sheet aluminum. For signs with depth greater than 48 inches, one horizontal splice will be allowed in the sheet aluminum.

Framing for single sheet aluminum signs shall consist of aluminum channel or rectangular aluminum tubing. The framing shall have a length tolerance of $\pm 1/8$ inch. The face sheet shall be affixed to the frame with rivets of 3/16-inch diameter. Rivets shall be placed within the web of channels and shall not be placed less than 1/2 inch from edges of the sign panels. Rivets shall be made of aluminum alloy 5052 and shall be anodized or treated with conversion coating to prevent corrosion. The exposed portion of rivets on the face of signs shall be the same color as the background or legend where the rivets are placed.

Finished signs shall be flat within a tolerance of $\pm 1/32$ inch per linear foot when measured across the plane of the sign in all directions. The finished signs shall have an overall tolerance within $\pm 1/8$ inch of the detailed dimensions.

Aluminum channels or rectangular aluminum tubings shall be welded together with the inert gas shielded-arc welding process using E4043 aluminum electrode filler wires as shown on the plans. Width of the filler shall be equal to wall thickness of smallest welded channel or tubing.

LAMINATED PANEL SIGN

Laminated panel signs shall consist of two sheet aluminum laminated to a honeycomb core and extruded aluminum frame to produce flat and rigid panels of one-inch or 2-1/2-inch nominal thickness.

The face of laminated panel signs shall be fabricated from sheet aluminum alloy 6061-T6 or 5052-H32 of 0.063-inch thickness. The back of laminated panel signs shall be fabricated from sheet aluminum alloy 3003-H14 of 0.040-inch thickness. The Contractor shall furnish sheet aluminum as provided in "Sheet Aluminum" of these special provisions.

The core material shall be phenolic impregnated kraft paper honeycomb and fungus resistant in accordance to Military Specification MIL-D-5272. The honeycomb cell size shall be 1/2 inch. Weight of the kraft paper shall be 80 pounds and impregnated minimum 18 percent by weight.

A laminating adhesive that can produce a resilient oil and water-resistant bond shall be used to adhere the extruded aluminum frame and the honeycomb core to the sheet aluminum. Edge and interior delamination occur when a 0.010-inch thick feeler gauge of 1/2 inch in length can be inserted into a depth of more than 1/2 inch between the extruded aluminum frame and the sheet aluminum. Laminated panel sign with delamination will be rejected.

Laminated panels shall be able to resist a wind load of 33 pounds per square foot for the following simple span lengths with a bending safety factor of 1.25:

Panel Type	Nominal Panel Thickness	Simple Span Length
A	one inch	9 feet 0 inch
B	one inch	9 feet 0 inch
	2-1/2 inch	14 feet 6 inches
H	2-1/2 inch	14 feet 6 inches

The tensile strength of laminated panels shall be at least 20 pounds per square inch when tested in accordance with the following modification and with ASTM Designations: C 297 and C 481, Cycle B after aging. Instead of spraying with hot water, the specimen shall be totally immersed in 158° F hot water. When requested by the Engineer or the Transportation Laboratory, at least one test sample of 12" x 12" in size shall be taken for every 2,000 square feet of the panel production cycle or of the total factory production order, whichever occurs first.

Rivets used to secure the sheet aluminum to the perimeter frame shall be fabricated from aluminum alloy 5052 and anodized or treated with a conversion coating to prevent corrosion. Size of the aluminum rivets shall be 3/16 inch in diameter and placed at the corners of the laminated panels. Color of the exposed portion of the rivets shall be the same color as the sign background or legend on which the rivets are placed. Rivets or stainless steel screws shall be placed in holes drilled during fabrication in the perimeter frame.

On laminated multiple panel signs, a closure H-Section shall be placed in the top channel of the bottom panel. Perimeter frame of adjoining panel shall accommodate the closure H-Section in the closed position.

For signs with a depth of 5 feet 0 inch or less, the laminated panels shall be fabricated with no horizontal joints, splices or seams. For signs with a depth of greater than 5 feet 0 inch, the laminated panels may be fabricated in two panels.

The face of laminated panels shall be flat with a tolerance of $\pm 3/32$ inch per linear foot when measured across the plane of each panel in all directions. Where laminated panels adjoin, the gap between adjoining edges from one corner to the other corner shall not deviate by more than $1/32$ inch. Non-adjoining edges from one corner to the other corner shall not deviate by more than $1/8$ inch from a straight plane. The front and back sheet aluminum shall be flush with the perimeter frame. The panel edges shall be smooth.

Laminated panel signs shall be within $+1/8$ inch or $-1/2$ inch of the detailed dimensions. The difference in length between adjoining panels of multiple panel signs shall not be greater than $1/2$ inch.

Overhead laminated panel signs shall be Type A and have a nominal thickness of one inch.

For overhead laminated signs with a length of 24 feet or less, the laminated panels shall be fabricated with no vertical joints, splices or seams. For signs with a length of greater than 24 feet, the length of each adjoining panel shall be as determined by the Engineer or as shown on the plans.

The perimeter frame of Type A overhead laminated panels shall be connected by self-tapping hex head stainless steel screws. Sealant shall be placed at the corners of the perimeter frame to prevent moisture penetration. The perimeter frame of Type A panels shall consist of extruded channel edges on the vertical sides and consist of modified "H" section extrusion on the horizontal sides. The modified "H" section extrusion acts as an integral retainer track for affixing the bolts to provide blind fastening of panels to the structure support.

The Contractor shall furnish mounting hardware for overhead laminated panel signs, such as closure H-sections, clamps, bolts, nuts, and washers. The clamps shall be cast aluminum alloy with a minimum tensile strength of 25 kips per square inch. Bolt torque used for installing clamps shall not exceed 100 inch-pounds.

MEASUREMENT AND PAYMENT

Full compensation for furnishing signs (except for construction area signs) shall be considered as included in the contract lump sum price paid for signing and striping and no separate payment will be made therefore.

10-1.25 MISCELLANEOUS CONCRETE CONSTRUCTION

Concrete median and concrete curb shall conform to the provisions in Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications and these special provisions.

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 special provisions. 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 special provisions 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.

The contract price paid per linear foot for concrete curb for the various types listed shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing concrete curb, complete in place, including excavation, backfill, reinforcing steel and aggregate base, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.26 MEDIAN COBBLESTONE

Cobblestone shall be placed at locations shown on the plans and in accordance with the Standard Specifications and these special provisions.

Cobblestone shall be lodi or an equal approved by the Engineer. Cobblestones shall be clean, smooth, river-run, unfractured, tancolored rock obtained from a single source. Cobblestone shall measure between 4 inches and 8 inches in the longest dimension.

The Contractor shall submit a sample of the cobblestone for approval by the Engineer prior to placing the cobblestones in the median. See Section 5-1.39, "Submittal Requirements," for submittal requirements.

Concrete for cobblestones shall be produced from commercial quality aggregates and Portland cement and shall contain not less than 20 pounds of cement per cubic foot.

Subgrade preparation shall conform to Section 73,"Concrete Curbs and sidewalks," of the Standard Specifications.

Cobblestones shall be placed in wet concrete to approximately $2/3$ the diameter and in such a way that the stone is secured. Any stone, which is loose after the concrete is cured, shall be reset at the Contractor's expense by methods approved by the Engineer. Concrete adhering to the exposed rocks shall be removed.

The contract price paid per square foot for Cobblestone Median shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing cobblestone, complete in place, as shown on the plans, as specified in the contract documents and the Standard Specifications, and as directed by the Engineer.

10-1.27 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 special provisions.

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 $150 \text{ mcd m}^{-2} \text{ lx}^{-1}$.

At the option of the Contractor, permanent traffic striping and pavement marking tape conforming to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions may be placed instead of painted traffic stripes and pavement markings. Permanent tape, if used, shall be placed in conformance with the manufacturer's specifications.

If permanent tape is placed instead of painted traffic stripes and pavement markings, the tape will be measured and paid for by the linear foot as paint traffic stripe and by the square foot as paint pavement marking of the number of coats designated in the Engineer's Estimate.

The contract lump sum price paid for "Signing and Striping" shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing thermoplastic traffic stripes and pavement marking, including pavement markers, complete in place, as shown on the plans, as specified in the Standard Specifications and these technical provisions, and as directed by the Engineer.

10-1.28 PAVEMENT MARKERS

Pavement markers shall be placed in conformance with the provisions in Section 85, "Pavement Markers," of the Standard Specifications and these special provisions.

Attention is directed to "Traffic Control System For Lane Closure" of these special provisions regarding the use of moving lane closures during placement of pavement markers with bituminous adhesive.

The Contractor shall furnish the Engineer certificates of compliance for the pavement markers in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Retroreflective pavement markers shall be marked as abrasion resistant on the body of the markers.

Full compensation for pavement markers shall be considered as included in the contract lump sum price paid for signing and striping and no separate payment will be made therefore.

SECTION 10-2. LANDSCAPING

10-2.01 LANDSCAPE PLANTING

GENERAL

Summary

This work includes furnishing and placing topsoil, fertilizer, organic materials, providing water for irrigation and all other materials incidental to planting work.

Furnishing all plant materials (trees, shrubs, seed, ground covers, and plant labels) and water for irrigation.

Furnishing all labor, equipment and materials necessary for the installation and irrigation of plant materials according to these Specifications and Plans.

Related Work Described Elsewhere

Irrigation: Method of irrigation water delivery shall be in place prior to delivery of plants to the site

Drainlines and Utilities: Contractor shall fully acquaint himself with the existing conditions particularly in reference to underground piping. Any damage caused by the Contractor to work of other trades shall be repaired by him at no cost to the City.

Earthwork: Close coordination shall be maintained with those Contractors performing rough grading operations and installing utilities and pavement to insure proper timing of the work.

Requirements of Regulatory Agencies

Perform work in accordance with all applicable laws, codes, and regulations required by the City of Monte Sereno, Saratoga, & Los Gatos and any other authorities having jurisdiction over such work. Provide for all inspections and permits required by Federal, State, and local authorities in furnishing, transporting, and installing materials.

Certificates of inspection required by law for transportation shall accompany invoice for each shipment of plants. File copies of certificates with City's Representative after acceptance of material. Inspection by Federal or State Governments at place of growth does not preclude rejection of plants at project site.

Quality Assurance

Personnel: All planting work shall be performed by personnel familiar planting procedures under the supervision of a qualified foreman.

Codes and Standards: Nursery stock shall meet the standards of the current edition of the "Agricultural Code of California" and the "Regulations of the Director of Agriculture Pertaining to Nursery Stock" as to grading and quality. They shall be true to type and name in accordance with "Standardized Plant Names", Second Edition.

Substitutions: Substitutions of plant materials will not be permitted unless authorized in writing by City's Representative. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. Such proof shall be substantiated and submitted in writing to City's Representative at least 30 days prior to start of work under this Section. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials.

The Landscape Architect reserves the right to require the Contractor to replace at the Contractor's cost any plants which the Contractor has installed without the Landscape Architect's approval.

Plants shall be subject to inspection and approval of the Landscape Architect at place of growth or upon delivery for conformity to specifications. Such approval shall not impair the right

of inspection and rejection during progress of the work. Wherever the terms "approve", "approval" or "approved" are used herein they mean approval of the Landscape Architect in writing.

Plant Certification: All plants must meet specifications of Federal, State, and County laws requiring inspection for plant disease and insect infestations. Inspection certifications required by law shall accompany each shipment, invoice and order for stock.

Submittals

Furnish 6 copies of manufacturers' literature for the following items:

1. Organic Fertilizer
2. Organic Recycled Mulch

Provide analysis from an approved soil testing laboratory for:

1. Existing site soil
2. Imported Topsoil
3. Organic Amendment
4. Compost

Submit one (1) quart sample each of mulch and organic amendment.

All submittal data shall be forwarded in a single package to the Landscape Architect within 60 days of award of the contract.

Samples and Tests

City's Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by City's Representative. Rejected materials shall be immediately removed from the site at Contractor's expense. Cost of testing of materials not meeting specifications shall be paid by Contractor.

Selection and Tagging of Plant Material

Plants shall be subject to inspection and approval by Landscape Architect at place of growth if the Landscape Architect so chooses, and upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Submit written request for inspection of plant material at place of growth to Landscape Architect. Written request shall state the place of growth and quantity of plants to be inspected. Landscape Architect reserves right to refuse inspection at this time if, in his judgment, a sufficient quantity of plants is not available for inspection.

Job Conditions

Delivery:

1. Deliver standard products to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade mark and conformance to state law.
2. Deliver plants with identification labels.
 - 2.1 Labels should state correct name and size.
 - 2.2 Use durable, water-proof labels with water resistant ink that will remain legible for at least 60 days.
3. Protect plant materials during transport to prevent damage to rootball or desiccation of leaves.
4. Remove unacceptable plant materials immediately from job site.

Storage:

1. Contractor shall maintain the plant material properly between delivery and planting. This includes protection from animals and vandals, proper watering, and feeding if necessary.
 - 1.1 Shade plants shall be stored in the shade, and sun plants shall be stored in the sun.
 - 1.2 Timing: Under no circumstances shall any work be performed if the temperature exceeds 90 degrees or is below 40 degrees. No planting shall be done with the soil saturated with water.

Protection of Existing Plants to Remain

Do not store materials or equipment, permit burning, or operate or park equipment under the branches of any existing plant to remain except as actually required for construction in those areas.

Provide barricades, fences or other barriers as necessary at the drip line to protect existing plants to remain from damage during construction.

Notify City's Representative in any case where Contractor feels grading or other construction called for by Contract Documents may damage existing plants to remain.

If existing plants to remain are damaged during construction, Contractor shall replace such plants of the same species and size as those damaged at no cost to City. Determination of extent of damage and value of damaged plant shall rest solely with City's Representative.

MATERIALS

Soil Amendments

The following organic amendments, soil amendments, and fertilizer rates and quantities are to be used for bid basis only. Organic compost Amendment: 6 yards / 1000 sq. ft. Contractor shall arrange and pay for testing by an accredited soils laboratory of existing site soil after rough grading operations are complete, and shall amend the soils according to said laboratory's recommendations. The soils recommendations shall be considered a part of this specification.

Topsoil: Provide topsoil as required to complete landscape work. Topsoil to be furnished shall be fertile and friable, possessing characteristics of representative productive soils on the site. It shall not contain toxic substances which may be harmful to plant growth. If herbicide contamination is suspected then a radish/rye grass growth trial must be performed. Consult with Landscape Architect prior to decision to test. It shall be uniformly textured and free of all objectionable foreign materials, oil, or chemicals which may be injurious to plant growth. Natural topsoil shall possess a pH factor between 5.5 and 7.5, a sodium adsorption ratio (SAR) of less than 8, a boron concentration of the saturation extract of less than 1 ppm, and salinity of the saturation extract at 25 degrees C. of less than 4.0 millimhos per centimeter.

Obtain topsoil from naturally well- drained sites where topsoil occurs in a depth of not less than 4 inches; do not obtain from bogs or marshes. Topsoil from the project stockpile which meets the requirements is acceptable.

Imported Topsoil: Topsoil shall be tested by an approved soils laboratory for compatibility with existing on-site soils and fertility. Contractor shall submit soil laboratory's analysis and amendment recommendations. Imported topsoil shall be subject to inspection by Landscape Architect at the project site. Remove rejected topsoil immediately at Contractor's expense.

Organic Amendment:

1. Compost: Feedstock shall be no longer recognizable. Compost shall contain fairly uniform particle size, no weed sprouts. Submit a nutrient analysis and testing data from a third party or soil lab, such as the STA Seal of Testing Assurance by the US Composting Council; or OMRI, Organic Materials Review Institute. Compost shall be Super Humus Compost, available from BFI Organics: 408-945-2836, or approved equal.

Compost shall meet the following criteria:

- 1.1 Particle size: 100% passing a 1" screen or smaller
- 1.2 Salt Concentration: Must be reported; may vary but <4.0 mmhos/cm preferred. Soil should be test. <2.5 mmhos/cm preferred for soil/compost blend.
- 1.3 Feedstock Materials shall be specified and include at one or more of the following: landscape/yard trimmings, grass clippings, food scraps, and agricultural crop residues.
- 1.4 Nutrient Content: provide analysis detailing nutrient content including N-P-K; Ca; Mg; S; and Bo. Nitrogen content 1% or above preferred.
- 1.5 Trace Contaminants Metals (Lead, Mercury, Etc.) Product must meet US EPA, 40 CFR 503 regulations.
- 1.6 pH: pH shall be between 5.5 and 8.
- 1.7 Visible Contaminants: compost shall be relatively free of inert ingredients, including glass, plastic and paper, < 0.1 % by weight or volume.
- 1.8 Moisture Content shall be between 35% - 55% of dry solids.
- 1.9 Organic Matter Content: 50% - 60% by dry wt. preferred, 30-70% acceptable.
- 1.10 Carbon and Nitrogen Ratio: C:N < 20:1
- 1.11 Stability/Maturity: shall have a dark brown color and a soil-like odor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or is hot (120F) upon delivery or rewetting is not acceptable.
- 1.12 Weed seed/pathogen destruction: provide proof of process to further reduce pathogens (PFRP). For example, turned windrows must reach min. 55C for 15 days with at least 5 turnings during that period.

Fertilizer: Synthetic, quick-release fertilizers shall not be permitted. Fertilizers prohibited by OMRI are prohibited in the project. Organic fertilizers as recommended by the soils report.

Recycled TOP MULCH

Medium Decorative Recycled Mulch (2 inch grind – all product passes 2 inch screen) or approved equal. Available from: BFI Organics 408-945-2836.

Trees and Shrubs

All plant materials shall be nursery grown in accordance with the best known horticulture practices and under climatic conditions similar to those in the locality of the project. Container stock shall have grown in the containers in which delivered for at least six (6) months, but not over two years. No container plants that have cracked or broken balls of earth when taken from container shall be planted except upon special approval by Landscape Architect.

Plants shall be vigorous and shall have a normal habit of growth. Plants shall be free of damage by insects, pests, diseases or wind; burns from insecticides or fertilizer; and stunted growth due to lack of water, lack of food, diseases, or other causes. Plants shall be in conformity with the sizes shown on the drawings.

Trees: Unless otherwise specified, tree trunks shall be straight with leader intact, undamaged, and uncut. All old abrasions and cuts are acceptable only if completely callused over.

Quantities: Quantities necessary to complete the work as shown on the drawings shall be furnished.

Root Systems: All shrubs and trees shall have a normal root system. No plants with roots that have encircled themselves will be accepted. In case of any unsatisfactory root system, a total group of plants may be rejected.

Tree Stakes

Tree stake to be 3" diameter x 12' lodgepole pine with chemonite or approved equal.

Tree Tie

Tree ties to be 2'-0" corded black rubber tree tie.

Tree Spacer

Tree spacer to be 1"x4"x24" douglas fir spacer.

Water Source

Water source shall be provided by Contractor. Contractor shall provide transportation and application method of irrigation water to the site. All plants to maintain adequate level of water for peak performance.

CONSTRUCTION

Surface Conditions

Inspections by the Landscape Contractor:

1. Prior to all work in this section, verify grades and carefully inspect the installed work of all other trades. Verify that all such work is complete to the point where the installation may properly commence.
2. In the event of discrepancy, immediately notify the Landscape Architect. Do not proceed with this installation in areas of discrepancies until all such discrepancies have been fully resolved.
3. Inspect trees, shrubs and ground cover plants for injury, insect infestations, and proper pruning.
4. Landscape Contractor shall receive site graded to +0.10 ft. of finish grades shown on the Drawings. Allow for depth of soil amendments and mulch in determining the difference between finished subgrade in groundcover and shrub beds. Verify that subgrades are not compacted. Do not proceed until detrimental conditions are corrected.

Soil Preparation

The Contractor shall prepare the site for landscaping. In the areas designated for landscaping on the plans, he shall, prior to placing imported material, replacing existing topsoil, or doing any planting, clear the areas of weeds, roots, debris, rocks, and underground obstructions, and construction debris to a depth acceptable for planting. Scarify the subgrade to a 3" minimum depth prior to spreading topsoil. In areas of construction staging, material laydown and/or equipment storage, contractor shall cross-rip all planting cross to a depth of 24". Any paved areas shall not be cultivated.

Cultivation and Placement of Amendment:

1. In areas to be planted with shrubs cultivate to a depth of 12".
2. Contractor shall remove all lime treated soils from planting areas and replace with imported topsoil as required.
3. Areas within the driplines of existing trees shall be hand cultivated.
4. If rain is likely between completion of soil preparation and planting, precautions shall be taken to prevent erosion of the soil.

Shrub and Tree Soil Preparation

1. Soil Mix for Backfill of Shrubs and Trees: The following ingredients shall be tumbled to achieve a homogeneous mix:

Organic amendment	1 cubic yard
Topsoil	3 cubic yards

Shrubs and Trees

Preparation:

1. Stake out location for plants and outline of planting beds on ground and obtain the approval of Landscape Architect before digging.
2. The Contractor shall protect all utilities, vegetation, and structures during work.
3. Trees shall be located a minimum of 3' from walls, overheads, walks, headers, and other trees within the project. If conflicts arise between size of areas and plans, Contractor shall contact Landscape Architect for resolution. Failure to make such conflicts known to the Landscape Architect will result in Contractor's liability to relocate the materials.
4. Contractor to verify percolation of planting pit prior to planting. Percolation rate must be 3" per hour. If rate is not 3" per hour notify landscape architect.

Excavation:

1. Plant pits shall be dug with vertical walls. The sides and bottoms of all planting pits shall be thoroughly scarified.
2. Holes for one (1) gallon size plants: Twelve (12) inches wider than the can and six (6) inches minimum deeper.
3. Holes for (5) gallon size plants: eighteen (18) inches wider than the can or root ball, and eight (8) inches deeper than can or root ball.
4. Holes for fifteen (15) gallon size plants or larger: Twenty-four (24) inches wider than the can or root ball, and twelve (12) inches deeper than the can or root ball.

Plants in Containers:

1. Plants shall be removed carefully from their containers after the containers have been cut on two sides minimum; fifteen-gallon containers shall be opened in three places. In the case of boxed plant specimens, the wood shall be removed at the sides and at the bottom of the box.
2. After removing plant material from its container, stimulate root growth by making four or five vertical cuts 1" deep around the circumference of the root ball.
3. Do not lift or handle plants by the top, stems, or trunk at any time. All plants shall be lifted in such a manner that the root ball is supported from the underside.
4. The Contractor shall check all plants for adequate root systems. If the root system is defective, he shall remove deficient plants from the site and replace them with new ones.

Planting:

1. Center plant in pit or trench over tamped mound.
2. Face for best effect.
3. Set plant plumb and hold rigidly in position.
4. All plants shall be set in the ground so that the root ball will be 2" above the finish grade. All plants that settle below the finish grade within 30 days of acceptance of the work shall be replanted in the proper position. In case a total section of planting area settles, the Contractor shall lift the plants, import additional soil mix, re-grade, and replant, at no additional cost to the City.
5. Use soil mix only for backfill. Backfill pit with soil mix in 9" layers and water each layer thoroughly to settle soil. The filled pit shall be 2" above the surrounding grade when complete.
6. When the plant pit has been approximately one half filled, place planting tablets according to the manufacturer's schedule.
7. Apply post-planting fertilizer.
8. In shrub mass areas, mulch area between plant pits with 3" layer of mulch for weed control.

Tree Staking

Stake trees as indicated: Cut tree stake 2" below lowest branch. Drive a minimum of 4'-0" below grade and outside the edge of rootball; (2) tree ties to be nailed to tree stakes with galvanized roofing nails. Nail (1) tree tie 6" below top of stake. From the bottom of the tree nail the 2nd tree tie 1/3 of the height of the top tree tie. Tree spacer to be attached to lodgepole stakes with 4 common 8d nails, equally spaced between the tree ties.

Tying: Find the proper support height by holding the trunk in one hand and pulling the top to one side and releasing it. The lowest height at which the trunk will return to the upright position when the top is released, is the height at which to attach tree ties.

Pruning

Tree and Shrub: Pruning shall be performed as required to maintain a natural appearance, promote healthy and vigorous growth, and eliminate diseased or damaged growth.

Trees shall be pruned to thin crown and avoid wind damage, eliminate narrow V-shaped branch forks that lack strength, eliminate sucker growth, and maintain a radial branching pattern to avoid crossing branches.

Under no circumstances will stripping of lower branches ("raising-up") of young trees be permitted. Lower branches shall be retained in a "tipped back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk).

Major pruning of trees to compensate for root loss or for aesthetic reasons shall be done only with approval of the Landscape Architect.

Shrubs shall not be clipped into balled or boxed forms, unless such is required by the design and directed by the Landscape Architect.

All pruning shall be made flush to lateral branches, buds, or trunk. "Stubbing" will not be permitted.

Damage: All cuts over 1" resulting from pruning or wind breakage shall be inspected periodically for insect infestation or disease.

Clean Up

Keep all areas of work clean and neat at all times. Upon completion of planting, all cans, boxes, and other debris that is a part of the planting operation shall be removed from the site.

All pavements shall be washed off, and site shall be left in an absolutely clean condition. All planting areas shall be cultivated and weed free before final inspection. Clean-up operations shall take place throughout the course of work so that walks and drives are clean at all times.

Inspections

Notification: The Contractor shall notify the Landscape Architect a minimum of 72 hours before requiring a visit by the Landscape Architect or his duly appointed representative to the site.

Check Points: The following shall be considered check points and the Contractor shall only proceed with the work after the Landscape Architect has visited the site and determined that the work is proceeding satisfactorily.

1. Completion of placement of soil mix and fine grading, prior to sodding or seeding of lawn.
2. When plant material is placed in the configuration shown on the Drawings before planting.
3. A check visit shall be made to begin the maintenance period. At this time the Contractor shall have completed all phases of the Plans and Specifications. Any discrepancies shall be noted at that time and the Contractor shall make appropriate corrections before the acceptance of the work.
4. A conference including the City shall be held at the completion of the work, provided that all deficiencies brought out in the check visit which began the maintenance period have

been corrected by this time. The Contractor shall continue to maintain the project at his own expense until all deficiencies have been corrected, at which time the Contractor shall request the Landscape Architect to visit the site and approve the project as complete. The Landscape Architect will accept the landscape project in writing. The date of the acceptance letter shall be the first day of the guarantee period.

Should it be determined at the Final Inspection or Final Acceptance visit that any punchlist item is incomplete, any further review of the site will be terminated until all items are guaranteed, in writing, to be complete by the Contractor. The cost of additional site visits by the Landscape Architect to verify completion of work shall be paid for by the Contractor.

Maintenance

Contractor shall furnish all labor, material, equipment, water and services required to maintain the landscape in a healthy and attractive condition as well as the irrigation system for a period of three (3) months.

Maintenance shall include fertilization, watering, insect and disease control, weed control, weekly trash removal, mulching, re-staking trees, tightening of guys, resetting plants to proper grades or upright position, restoration of watering basins.

Maintenance period shall not start until all elements of construction and planting for the entire project are complete and approved. Project will not be segmented into maintenance phases, unless specifically authorized in writing by the City's authorized representative.

The Contractor shall request an inspection to begin the plant maintenance period after all planting and related work has been completed in accordance with the Contract documents. A prime requirement is that all groundcover areas be planted. If such criteria is met to the satisfaction of the Architect, a field notification will be issued to the Contractor to establish the effective beginning date of the period.

The Contractor's maintenance period will be extended if the provisions required within the plans and specifications are not filled.

Watering:

1. Water must be delivered to site by Contractor.
2. Contractor to apply optimum volume of water as necessary; in a manner that will not damage plant material with the application of water.
3. All plants shall be kept watered as often as it is necessary to keep them in optimum, vigorous growth. Watering shall be done preferably during the early morning hours.
4. Water shall be controlled so that there will be no excessive run-off, ponding, or overwatering.
5. Root Growth: Periodically the Contractor shall check the progress of the root growth within the back fill area. As the root growth increases beyond the root ball, the frequency of watering shall be reduced so that the roots are encouraged to grow to a lower soil depth. Watering then shall be less frequent, but applications shall be very slow and the Contractor shall assure himself that water does penetrate to the depth of the former plant pit.

Spraying:

1. All shrubs and trees shall be inspected at least twice a month during the growing period to determine the need for spraying to control insect damage, fungus development or any other disease that might be attacking the plants. Preventative spraying shall be done only with the approval of the Landscape Architect.
2. Operators of spray equipment shall take all reasonable precautions to protect themselves, other people and buildings from spray. The Contractor shall have all permits and licenses required for such an operation. Where applicable, dormant spray shall be applied to shrubs and trees during the winter period.
3. All equipment shall be properly washed before and after use.

4. No spraying shall take place during windy or gusty days.

Staking and Guying: Stakes and guys shall be inspected a minimum of two times a month to assure that the wires and ties are tight and no damage has occurred to the tree trunk or branches.

Weed Control:

1. Weeds shall be kept under control, either by hand or by the application of herbicides designed for use on any type of weeds invading the planting areas.
2. All equipment used for herbicides shall be properly cleaned before it is used on this project. Herbicides shall be applied at temperatures recommended by the manufacturers. Herbicides shall not be used during windy or gusty days. All possible precautions shall be taken to protect vegetation which is susceptible to damage from the particular herbicides to be used.
3. The bases of all plants shall be kept completely free of weeds. Periodically, the base of the trees and shrubs shall be cultivated in order to allow better penetration of water, but such cultivation shall be carefully done in order not to destroy surface roots.

Fertilization: Top dress all areas at 45 day intervals from time of planting with fertilizer of same composition and at same rate as at time of planting.

Litter: The Contractor shall remove promptly after pruning, trimming, and weeding or other work required under the contract, all debris generated by his performance of the work. Immediately after working in the areas of public walks, driveways or paved areas, they shall be vacuumed clean with suitable equipment. All areas covered by this contract shall be kept free of the following items: bottles, cans, paper cardboard or metallic items. Common debris and litter shall be disposed of in an appropriate manner.

Pruning: Prune as necessary to remove injured twigs and branches, dead wood, and suckers.

Guarantee and Replacement

Guarantee period shall be extended for a period of one year from the date of written acceptance.

All plants shall be guaranteed to be alive and healthy as determined by the Landscape Architect at the end of the guarantee period.

The Contractor shall replace, in accordance with the Drawings and Specifications throughout the guarantee period, any plants that die, or in opinion of the Landscape Architect, are in an unhealthy or unsightly condition, and or have lost their natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, or any other causes due to the Contractor's negligence. The Contractor shall not be held responsible for acts of vandalism occurring after the beginning of the guarantee period.

MEASUREMENT AND PAYMENT

Measurement for Box Trees, Soil Preparation and Amendment, Fine Grading, Shrubs, Groundcovers, Mulch and Irrigation water shall be measured and paid for Lump Sum for Landscaping.

The contract price paid Lump Sum for Landscaping for the following items; box trees, shrubs, groundcovers and vines of the various sizes shown on the bid schedule; and for Soil Preparation and Amendment, Fine Grading, and Mulch shall include full compensation for all labor, materials, tools, equipment, maintenance and incidentals and for doing all the work

involved in box trees, shrubs, groundcovers, vines, soil preparation, and amendment, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

SECTION 10-3. ELECTRICAL SYSTEMS

10-3.01 DESCRIPTION

Traffic signals shall conform to the provisions in Section 86, "Electrical Systems," of the Standard Specifications and these special provisions.

Traffic signal work shall be performed at the following locations:

- A. SR9/Fruitvale Ave (Location 1)
- B. SR9/Quito Rd (Location 2)
- C. SR9/Santa Cruz Ave (Location 3)

Street light work shall be performed at the following locations:

- D. SR 9 / Austin Way (Location 6)

10-3.02 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 special provisions.

The Engineer shall be furnished a cost break-down for each contract lump sum item of work described in this Section 10-3.

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.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.03 CAST-IN-DRILLED-HOLE CONCRETE PILE FOUNDATIONS

GENERAL

Summary

This work includes constructing cast-in-drilled-hole concrete pile foundations for traffic signal and lighting standards.

MATERIALS

Concrete must contain not less than 590 pounds of cementitious material per cubic yard.

CONSTRUCTION

For standards located in sidewalk areas, the pile foundation must be:

1. Placed to final sidewalk grade before the sidewalk is placed
2. Square for the top 4 inches

PAYMENT

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.04 STANDARDS, STEEL PEDESTALS, AND POSTS

Standards, steel pedestals, and posts for traffic signal and lighting standards shall conform to the provisions in Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications, "Steel Structures" of these special provisions, and the following requirements.

Steel bolts not designated on the plans as high-strength (HS) or stainless steel shall be for general applications and shall conform to the requirements in ASTM Designation: A 307.

Anchor bolts shall conform to the requirements in ASTM Designation: F 1554, Grade 36. High-strength (HS) anchor bolts shall conform to the requirements in ASTM Designation: F 1554, Grade 105.

Handhole reinforcement rings for standards, steel pedestals, and posts shall be continuous around the handholes.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.05 CONDUIT

Conduit to be installed underground shall be Type 1 or Type 3 unless otherwise specified.

The conduit in a foundation and between a foundation and the nearest pull box shall be Type 1 or Type 3.

When Type 3 conduit is placed in a trench (not in pavement or under portland cement concrete sidewalk), after the bedding material is placed and the conduit is installed, the trench shall be backfilled to not less than 4 inches above the conduit with minor concrete conforming to the provisions in Section 90-10, "Minor Concrete," of the Standard Specifications, except the concrete shall contain not less than 421 pounds of cementitious material per cubic yard. The remaining trench shall be backfilled to finished grade with backfill material.

Conduit runs shown on the plans to be located behind curbs may be installed in the street, within 3 feet of, and parallel with the face of the curb, by the trenching in pavement method in conformance with the provisions in Section 86-2.05C, "Installation," of the Standard Specifications. Pull boxes shall be located behind the curb or at the locations shown on the plans.

After conductors have been installed, the ends of conduits terminating in pull boxes, service equipment enclosures, and controller cabinets shall be sealed with an approved type of sealing compound.

At those locations where conduit is required to be installed under pavement and underground facilities designated as high priority subsurface installation under Govt Code § 4216 et seq. exist, conduit shall be placed by the trenching in pavement method in conformance with the provisions in Section 86-2.05C, "Installation," of the Standard Specifications.

At other locations where conduit is required to be installed under pavement and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the "Trenching in Pavement Method."

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.06 PULL BOXES

Grout shall not be placed in the bottom of pull boxes.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.08 CONDUCTORS, CABLES, AND WIRING

Splices shall be insulated by "Method B".

Conductors shall be wrapped around projecting end of conduit in pull boxes, as shown on the plans. Cables shall be secured to the projecting end of conduit in pull boxes to prevent pulling of cables without removing the securing device.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.04 DETECTORS

Loop detector sensor will be State-furnished in conformance with the provisions in "Materials" of these special provisions.

Loop wire shall be Type 2.

Loop detector lead-in cable shall be Type B

Slots shall be filled with elastomeric sealant or hot-melt rubberized asphalt sealant.

The depth of loop sealant above the top of the uppermost loop wire in the sawed slots shall be 2 inches, minimum.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-3.05 PAYMENT

The contract lump sum price or prices paid for signal and lighting shall include highway lighting at intersections in connection with signals only.

Other street lights on the project shall be considered as included in the contract lump sum price paid for street lights

Full compensation for hauling and stockpiling electrical materials shall be considered as included in the contract price paid for the item requiring the material to be salvaged and no additional compensation will be allowed therefor.

The contract lump sum price paid for Traffic Signal Modification and Street Lights for the various locations listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing, modifying, or removing the systems, combinations or units thereof, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

10-3.06 FIRE STATION SOLAR WARNING SIGN

Fire Station W11-8 Activated Flashing LED Sign Unit

A Description

Furnish and install 2 wirelessly controlled solar powered LED W11-8 Sign unit at the locations shown on the plans and as hereinafter provided.

B Materials

Furnish 2 solar powered and wirelessly controlled Day-Viz™ Blinkersign™ assembly. The assembly includes the following items:

1. Sign
 - a. All signs shall conform to MUTCD standards.
 - b. All sign blanks shall be .080 gauge aluminum.
 - c. Sheeting used shall be 3M DG3 diamond grade or similar prismatic sheeting, with anti graffiti overlay unless required with a lower grade of reflectivity.
 - d. All sign assemblies shall use anti-vandal fasteners to mount components to sign and sign to fixture.
 - e. All sign assemblies shall be MUTCD code 30" W11-8 fire warning signs.
2. LEDs
 - a. Each sign assembly shall consist of 8 high power 1 watt Luxeon LEDs that provide a maximum light intensity of up to 600,000 med (millicandelas) with a viewing angle of 20°.
 - b. All LEDs shall match the color of the sign red (620-625nm), amber (587.5-590), orange (612.5-617nm) or white (4500-5500k) as per section 2A.08 of the MUTCD.
 - c. Each LED shall be sealed in 7/8" diameter, heat dissipating plastic enclosure to provide resistance to weather and vibration.
 - d. All LED enclosures shall be mounted in a 1" hole and ultrasonically welded to the sign assembly to provide maximum strength and rigidity.
 - e. All LEDs shall be wired in strings to activate simultaneously as per MUTCD standards.
 - f. All wire used shall conform to military specifications, MIL-W-16878D, Type D, vinyl nylon jacket.
 - g. Wiring shall be covered and secured to the sign assembly using a 1"x3/8" aluminum extrusion to provide weather resistance and protection.
 - h. All LED connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 3 feet deep for 30 minutes. Connectors shall be Deutsch DTM series.
 - i. All LEDs shall be TAPCO #3012.
3. Control Circuit
 - a. The control circuit shall have the capability of independently flashing up to two independent outputs. The LED light output and duty cycle shall be programmable.
 - b. The flashing output shall be 50 to 60 flashes per minute with a 100 – 500 millisecond duration on time. The output shall reach the output current as programmed for the duration of the pulse.
 - c. The control circuit shall automatically adjust LED output for maximum visibility for both day and night time operations. The day and night time mode will automatically be determined by solar panel charge input.
 - d. The control circuit shall be enclosed in a plastic housing to be waterproof and housed in a NEMA rated enclosure.
 - e. All circuit connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 3 feet deep for 30 minutes. Connectors shall be Deutsch DTM series.
 - f. The control circuit shall be TAPCO #3204-00012.
4. Battery
 - a. Battery packs shall be 4.8 volt 14000mAh Nickel Metal Hydride (NiMH).

- b. All batteries shall be sealed in a plastic film to provide moisture and corrosion resistance. Battery dimensions shall be 10.5"x1.5" to be housed in 2 3/8" aluminum tube.
 - c. All batteries shall operate between the temperatures of -40°C and +80°C.
 - d. All battery connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 3 feet deep for 30 minutes. Connectors shall be Deutsch DTM series.
 - e. All batteries used shall be TAPCO #2795-3.
5. Solar Panel
- a. All solar panels shall be up to 13.5"x15" in size and provide up to 13.5 watts peak total output sized for all climate and geographical locations.
 - b. All panels shall be mounted to an aluminum plate and bracket at an angle of 45°- 60° to provide maximum output. Bracket shall be secured to a 2 3/8" aluminum tube. (NOTE: COLLECTOR MUST FACE SOUTH)
 - c. All fasteners used shall be anti-vandal.
 - d. Wire used shall conform to military specifications, MIL-W-16878D, Type D, vinyl nylon jacket.
 - e. The solar panel assembly shall be mounted directly to the back of the sign assembly and be a fully self contained onto a 2 3/8" round aluminum housing.
 - f. All solar panel connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 1 meter deep for 30 minutes. Connectors shall be Deutsch DTM series. All solar panels shall be TAPCO # 2772-2.
6. Wireless Radio
- a. Radio control shall operate on 900mhz frequency hopping spread spectrum network.
 - b. Radio shall integrate with communication of LED sign control circuit to activate sign from pushbutton input.
 - c. All radio systems shall operate from 3.6 vdc to 15vdc
 - d. Up to 1000feet line of sight communication with existing antenna.
 - e. All radios used should be #2180-00429
7. Base Station Control Unit
- a. The base station Control unit shall be made of aluminum with the ability to be wall mounted or desktop mounted
 - b. The power source shall be a 6 vdc power supply protected by fusing.
 - c. Two separate LED indicators shall be installed on the face of the unit to provide power indicators and activation status.
 - d. Activation shall be performed with an ADA compliant pushbutton mounted to the face of the station.

- e. The housing will accommodate connections for external antennas for controlling LED BlinkerSigns™.
- f. All Indoor Base stations shall be #2180-00428

C Construction

Install the Flashing LED Sign Unit in accordance to the manufacturer's specifications and instructions.

The contract lump sum price paid for Flashing Solar Warning Sign shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing flashing solar warning sign, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

SECTION 10-4. LOS GATOS-SARATOGA ROAD/LOS GATOS BLVD IMPROVEMENTS

10-4.01 GENERAL

The project includes widening of Los Gatos-Saratoga Road and Los Gatos Boulevard intersection. The project includes, but is not limited to, clearing and grubbing, pavement, retaining wall construction, concrete work, traffic signal modification, traffic control, pavement delineation and signing.

10-4.02 CONTRACT DOCUMENTS

Unless specifically noted otherwise in the plans or these special provisions, the work shall be performed in conformance with the applicable portions of the Caltrans Standard Specifications (May 2006 edition) and latest amendments, the Town of Los Gatos "Standard Details", Caltrans Standard Plans (May 2006 edition), all local, state and federal rules, regulations, laws and ordinances, the requirements of these technical provisions, the project plans, and as directed by the Engineer. Where conflicts occur, the technical provisions of these specifications shall prevail.

In case of conflicts between the Special Provisions, the Town of Los Gatos Standard Specifications and the State Standards, these Special Provisions shall govern, followed by the Town of Los Gatos Standard Specifications, then followed by the State Standards.

10-4.03 SHOP PLANS

The Contractor will submit Shop Drawings as required by Section 5-1.02, "Plans and Working Drawings", of the Caltrans Standard Specifications.

A. Submittals. Submittals shall be made to the Engineer for review in the following areas of the work:

1. Project schedule detailing:
 - vi. Detour/Traffic Control
 - vii. Demolition
 - viii. Concrete work
 - ix. Intersection Work
 - x. Pavement delineation
2. Traffic control plan (including pedestrian control, vehicular control, parking restrictions and building and driveway access);
3. Haul routes for delivery and disposal of materials during grinding, PCC, and AC paving operations (including identification of truck staging areas/locations for queuing during operations)
4. Construction Fencing;
5. Erosion control products;
6. Concrete and asphalt mix designs;
7. Concrete curing method;
8. Materials list of specified products;
9. Site Safety and Health Plan;
10. Certificates of OSHA Compliance;
11. Copies of all Permit Applications and Final Permits;
12. Proposed substitutions;
13. Project schedule updates;
14. Where specified elsewhere in the plans or special provisions.

Submittals shall be accompanied by all information called for by the special provisions and at a minimum shall include the manufacturer's name, catalog number and model number as applicable; grade or other identifying data as applicable; supplier's name, address, and telephone number.

Identify materials list by the technical provision section number, project name and submittal sequence number.

Make copies on bond paper only; slick-type copier paper is not acceptable.

All submittals shall be reviewed and checked by the Contractor prior to submittal to the Engineer. Contractor shall affix his signature to each submittal indicating the Contractor has reviewed, checked and approved the submittal for compliance with all the requirements of the plans and specifications.

Submit three (3) copies to the Engineer. One (1) copy will be returned to Contractor. If Contractor requires more than one (1) copy to be returned, Contractor shall submit additional copies. One reproducible copy of all submittals shall be provided to the Engineer at time of submission, in addition to the three (3) review copies.

Only those copies bearing the Engineer's review stamp shall be used at job site.

All submittals, except project schedule, shall be made within thirty (30) days after the Notice to Proceed has been issued. Project schedule shall be submitted prior to the pre-construction meeting. No payment for Mobilization will be made until product and planning submittals are complete and acceptable.

Submit items where called for by special provisions. Actual catalog sheets or clear bond paper copies from catalogs may be submitted. Wet paper copies are not acceptable. Where more than one product is shown on the catalog sheet, clearly indicate which product is being submitted.

Identify catalog data with specification section number, paragraph number, project name and submittal sequence number; apply 2"x3" sticker in upper right hand corner for slick or dark catalogs.

Shop Drawings for fabrication of components shall not be based on copies of the project contract drawings. Contractor is responsible for verifying all dimensions in the field.

Where submittals of calculations are required, calculations shall be stamped by an engineer registered in the State of California in a discipline appropriate for the calculations submitted.

B. Shop Drawings. Clearly detail all aspects of work. Identify by specification number, detail number, and project name and submittal sequence number.

4. Submit three (3) blue line copies to the Engineer for review.
5. The Engineer will review drawings, make comments, and return one (1) sets to Contractor.
6. Only those copies bearing the Engineer's review stamp shall be used at the job site.

C. Contractor Submittal Responsibilities. Review shop drawings, product data, and samples prior to submission.

The Contractor shall be responsible for confirming and correlating all quantities and dimensions.

Sign each submittal certifying that:

5. Field measurements have been determined and verified.
6. Field construction criteria have been verified.
7. Catalog numbers and similar data are correct and complete.
8. Conformance with specifications is confirmed.

Coordinate each submittal with requirements of the work and of the Contract Documents.

Notify the Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.

Begin no fabrication or work that requires submittals until return of submittals with Engineer's review comments.

If a submittal has been rejected and resubmitted and rejected again the Engineer will record time required for the third and subsequent reviews. Whether or not the Engineer accepts the submittal, Contractor shall reimburse the City for the charges resulting in evaluating submittals more than two times.

D. Review. The review of shop drawings, product data and samples will be for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents.

10-4.04 AS-BUILT DRAWINGS

The Contractor shall keep and maintain on the job site, one as-built set of Drawings. On these, the Contractor shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original Contract Documents, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated in the Contract Documents. Said as-built drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the work as actually constructed. These master as-built drawings of the Contractor's representation of as built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up to date during the progress of the work.

As-built drawings shall be accessible to the Engineer at all times during the construction period and shall be delivered to the Engineer upon completion of the Work.

Final payment will not be approved until the Contractor completed as-built drawings have been delivered to the Engineer. Completed as-built drawings may be in the form of a set of prints with carefully plotted information as directed by the Engineer.

Upon substantial completion of the Work and prior to final acceptance, the Contractor shall complete and deliver a complete set of as-built drawings to the Engineer, conforming to the Contractor's construction records. This set of drawings shall consist of corrected plans showing the reported location of the Work. The information submitted by the Contractor and incorporated by the Engineer into the As-Built Drawings will be assumed to be reliable. Engineer will not be responsible for the accuracy of such information, nor for any errors or omissions which may appear on the As-Built Drawings as a result of the Contractor's submitted as-built drawings.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-4.05 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Caltrans Standard Specifications and these technical provisions.

At the end of each day, Contractor shall open the streets and sidewalks to traffic and pedestrians. Open trenches shall be plated, pinned and prepared to receive vehicle traffic. A drop-off of more than 0.15-foot will not be allowed between adjacent lanes open to public traffic. Asphalt concrete for temporary tapers shall be placed to the level of the existing pavement and tapered on a slope of 1:30 (vertical:horizontal) or flatter to the level of the plate.

Asphalt concrete for temporary tapers shall be commercial quality and may be spread and compacted by any method that will produce a smooth riding surface. Temporary asphalt concrete tapers shall be completely removed, including the removal of loose material from the underlying surface, before placing the permanent surfacing. The removed material shall be disposed of outside of the project limits.

Temporary traffic control equipment shall be secured in place prior to commencing work for which the traffic control equipment is required. All temporary traffic control equipment shall be new, neat and clean in appearance. Temporary traffic control equipment that is determined to be used or unsuitable by the Engineer shall be replaced by the Contractor.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-4.06 MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions in Sections 7-1.08, "Public Convenience," Section 7-1.09, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor, if in the opinion of the Engineer, public traffic will be better served and the work expedited. These deviations shall not be adopted by the Contractor until the Engineer has approved the deviations in writing. All other modifications will be made by contract change order.

Affected property owners shall be notified a minimum of 1 week in advance of any driveway impacts related to access.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in complying with the provisions of this section shall be considered as included in the lump sum price paid for Traffic Control and no additional compensation will be allowed therefore.

10-4.07 TRAFFIC CONTROL

A traffic control system shall consist of closing traffic lanes in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.

The Contractor shall submit a Traffic Control Plan within ten (10) days after Notice to Proceed has been issued and shall not begin any work until approval of the Traffic Control Plan is given by the Engineer.

The Traffic Control Plan shall address parking, vehicular, pedestrian and bicycle traffic. Contractor is responsible for safe and legal routing of traffic through the project area.

The Contractor shall maintain at least one car width access to driveways for the duration of the project, unless otherwise approved by the Engineer.

Full traffic access shall be provided outside of construction hours. Plates shall be pinned with no wobble and have a cold mix edge. A drop-off of more than 0.15-foot will not be allowed between adjacent lanes open to public traffic. Asphalt concrete for temporary tapers shall be placed to the level of the existing pavement and tapered on a slope of 1:30 (vertical:horizontal) or flatter to the level of the plate. Plates and platforms for pedestrian traffic shall be in compliance with ADA standards.

Asphalt concrete for temporary tapers shall be commercial quality and may be spread and compacted by any method that will produce a smooth riding surface. Temporary asphalt concrete tapers shall be completely removed, including the removal of loose material from the underlying surface, before placing the permanent surfacing. The removed material shall be disposed of outside of the project limits.

Localized pavement dig-out, cold plane roadway pavement and/or wedge and conform grinding operations may be conducted concurrent with other stages shown in the plans provided the work is not conducted directly to current concrete curb and gutter and sidewalk operations.

Pedestrian traffic may be moved out into the street with proper barricades to safely separate pedestrian traffic with vehicular traffic. Access to property entrances shall be maintained at all times except during concrete pours. Wood ramps may be acceptable as a means to allow pedestrian traffic. Temporary pedestrian access shall conform to ADA standards.

Contractor shall notify all local emergency, police and medical services at least 72 hours in advance of traffic control activity. Notification shall include dates of traffic control activity and any alternative access routes. Traffic control and rerouting procedures shall be fully detailed in the Traffic Control Plan.

The contract lump sum price paid for "Traffic Handling" shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved in traffic control, complete in place, including all necessary construction area traffic control devices, temporary pedestrian (ADA compliant) access facilities, placement, removal, maintenance of traffic control devices, submittals, and revisions to submittals, as shown on the plans, as specified in these technical provisions and as directed by the Engineer and no additional compensation will be allowed therefore.

10-4.08 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Construction area signs shall be furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Caltrans Standard Specifications and these special provisions.

The term "construction area signs" shall also include temporary object markers required for the direction of traffic through and around the work during construction.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in complying with the provisions of this section shall be considered as included in the lump sum paid for "Traffic Handling" and no additional compensation will be allowed therefore.

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

Contractor employee parking shall be provided at a parking lot near the Town of Los Gatos Service Yard located at 41 Miles Avenue. Contractor's employees shall only park at this specified location.

10-4.09 AREA FOR CONTRACTOR'S USE

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

The Town right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes, which are not necessary to perform the required work.

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on Town property may be arranged with the Engineer, subject to the prior demands of Town maintenance forces and to other contract requirements. Use of the Contractor's work areas and other Town-owned property shall be at the Contractor's own risk, and the Town shall not be held liable for damage to or loss of materials or equipment located within such areas.

The Contractor shall not leave idle equipment within the contract limits. Contractor shall make arrangements to remove all equipment from the contract limits at end of each workday.

The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials or for other purposes, if sufficient area is not available to the Contractor within the contract limits, or at the sites designated on the plans outside the contract limits.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-4.10 WATER POLLUTION CONTROL

Water pollution control work shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Caltrans State Standards, the Los Gatos Town Code, and these special provisions.

Water pollution control work shall conform to the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and the "Construction Site Best Management Practices (BMPs) Manual," and addenda thereto issued up to, and including, the date of advertisement of the project, hereafter referred to respectively as the "Preparation Manual" and the "Construction Site BMP Manual" and collectively as the "Manuals." Copies of the Manuals may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone: (916) 445-3520. Copies of the Manuals may also be obtained from the Department's Internet Web Site at: <http://www.dot.ca.gov/hq/construc/stormwater.html>.

The Contractor shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations that govern the Contractor's operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

Unless arrangements for disturbance of areas outside the project limits are made by the Town and made part of the contract, it is expressly agreed that the Town assumes no responsibility whatsoever to the Contractor or property owner with respect to any arrangements made between the Contractor and property owner to allow disturbance of areas outside the project limits.

The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the requirements set forth in this section "Water Pollution Control" including, but not limited to, compliance with the applicable provisions of the Manuals and Federal, State, and local regulations. For the purposes of this paragraph, costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the Town or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

WATER POLLUTION CONTROL PROGRAM PREPARATION, APPROVAL AND UPDATES

As part of the water pollution control work, a Water Pollution Control Program, hereafter referred to as the "WPCP," is required for this contract. The WPCP shall conform to the provisions in Section 7 1.01G, "Water Pollution," of the State standards, the requirements in the Manuals, and these special provisions. The WPCP shall identify pollution sources that may adversely affect the quality of storm water discharges associated with the project and shall identify water pollution control measures, hereafter referred to as control measures, to be constructed, implemented, and maintained in order to reduce the extent feasible pollutants in storm water discharges from the construction site during construction under this contract. The WPCP shall incorporate control measures in the following categories:

- A. Soil stabilization;
- B. Sediment control;
- C. Tracking control;
- D. Wind erosion control;
- E. Non-storm water control; and
- F. Waste management and material pollution control.

Specific objectives and minimum requirements for each category of control measures are contained in the Manuals.

The Contractor shall consider the objectives and minimum requirements presented in the Manuals for each of the above categories. When minimum requirements are listed for any category, the Contractor shall incorporate into the WPCP and implement on the project, one or more of the listed minimum controls required in order to meet the pollution control objectives for the category. In addition, the Contractor shall consider other control measures presented in the Manuals and shall incorporate into the WPCP and implement on the project the control measures necessary to meet the objectives of the WPCP. The Contractor shall document the selection process in conformance with the procedure specified in the Manuals.

The special minimum requirements listed below supersede the minimum requirements listed in the Preparation Manual for the same category. When minimum requirements are listed for any category, the Contractor shall incorporate into the WPCP, and implement on the project, one or more of the listed minimum controls required in order to meet the pollution control objectives for the category. In addition, the Contractor shall consider other control measures presented in the Preparation Manual and shall incorporate into the WPCP and implement on the project the control measures necessary to meet the objectives of the WPCP. The Contractor shall document the selection process in conformance with the procedure specified in the Preparation Manual. The following special minimum requirements are established:

- CD4 Water Conservation Practices
- CD8 Paving Operations
- CD10 Material Delivery and Storage
- CD11 Material Use
- CD12 Spill Prevention and Control
- CD13 Solid Waste Management
- CD14 Hazardous Waste Management
- CD16 Concrete Waste Management
- CD22 Scheduling
- CD40 Storm Drain Inlet Protection
- CD44 Illicit Discharge/Illegal Dumping Reporting

The following contract items of work shall be incorporated into the WPCP as critical temporary control measures: Dust Control and Street Sweeping.

The Contractor shall consider other control measures to supplement these critical temporary control measures when necessary to meet the pollution control objectives of the WPCP.

The WPCP shall include, but not be limited to, the following items as described in the Preparation Manual:

- Project description and Contractor's certification;

Project information;
Pollution sources, control measures, and water pollution control drawings; and
Amendments, if any.

The Contractor shall amend the WPCP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems or when deemed necessary by the Engineer. The WPCP shall be amended if the WPCP has not achieved the objective of reducing pollutants in storm water discharges. Favorably reviewed amendments shall be dated and attached to the on-site WPCP document.

The Contractor shall keep a copy of the WPCP, together with updates, revisions and amendments at the project site.

IMPLEMENTATION

The Contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting, and maintaining the control measures included in the WPCP and any amendments thereto and for removing and disposing of temporary control measures. Unless otherwise directed by the Engineer or specified in these special provisions, the Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8.04, "Temporary Suspension of Work," of the General Provisions. Requirements for installation, construction, inspection, maintenance, removal, and disposal of control measures are specified in the Manuals and these technical provisions.

Soil stabilization practices and sediment control measures, including minimum requirements, shall be provided throughout the rainy season, defined as between October 15 and March 15.

Implementation of soil stabilization practices and sediment control measures for soil-disturbed areas on the project site shall be completed, except as provided for below, not later than 20 days prior to the beginning of the rainy season or upon start of applicable construction activities for projects which begin either during or within 20 days of the rainy season.

The Contractor shall implement, year-round and throughout the duration of the project, control measures included in the WPCP for tracking control, wind erosion control, non-storm water control, and waste management and material pollution control. The Engineer may order the suspension of construction operations, which create water pollution if the Contractor fails to conform to the provisions in this section "Water Pollution Control" as determined by the Engineer.

MAINTENANCE

To ensure the proper implementation and functioning of control measures, the Contractor shall regularly inspect and maintain the construction site for the control measures identified in the WPCP. The Contractor shall identify corrective actions and time needed to address any deficient measures or reinstate any measures that have been discontinued.

The construction site inspection checklist provided in the Preparation Manual shall be used to ensure that the necessary measures are being properly implemented, and to ensure that the control measures are functioning adequately. One copy of each site inspection record shall be submitted to the Engineer.

During the rainy season, inspections of the construction site shall be conducted by the

Contractor to identify deficient measures, as follows:

- A. Prior to a forecast storm;
- B. After all precipitation that causes runoff capable of carrying sediment from the construction site;
- C. At 24-hour intervals during extended precipitation events; and
- D. Routinely, at a minimum of once every 2 weeks.

If the Contractor or the Engineer identifies a deficiency in the deployment or functioning of an identified control measure, the deficiency shall be corrected immediately. The deficiency may be corrected at a later date and time if requested by the Contractor and approved by the Engineer in writing, but not later than the onset of subsequent precipitation events. The correction of deficiencies shall be at no additional cost..

The contract lump sum price paid for prepare water pollution control program includes 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 special provisions, and as directed by the Engineer.

The contract lump sum price paid for "Water Pollution Control" shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved in water pollution control, complete in place, as shown on the plans, as specified in these technical provisions and as directed by the Engineer and no additional compensation will be allowed therefore.

10-4.11 EARTHWORK

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Caltrans Standard Specifications and these special provisions.

This technical provision pertains to all earthwork related to the site including, but not limited to, rough grading, stripping, excavation, backfill and compaction. This work will be observed and tested by the Town in accordance with Section 11-2.01K, "Quality Control," of these technical provisions. The Contractor shall notify the Engineer at least four working days prior to commencement of any work.

If the Contractor should fail to meet the requirements of these technical provisions, he shall make the necessary adjustments at his own cost until a satisfactory product is achieved, as determined by the Engineer. The Engineer shall give written approval upon satisfactory completion of the earthwork. No deviation from these technical provisions shall be made except upon written approval from the Engineer.

The Town will pay for one set of compaction tests per lift. The Contractor shall bear the costs for re-testing any failed test and all additional tests required to demonstrate compliance with these technical provisions.

- A. Backfilling of Excavations.** Imported soils may be placed on the crushed rock or at the bottom of the excavation on uncontaminated native soil. This fill shall be moisture conditioned as necessary and compacted to a minimum relative dry density of 90% as determined by ASTM Test Designation #D1557-91. The upper eight inches of subgrade in all pavement areas and all aggregate subbase and aggregate

base shall be compacted to a relative dry density of 95%. Soil moisture content at the time of compaction shall be 1 to 3% above the optimum moisture content of the soil. All area to receive fill shall be approved by the Engineer prior to the placement of any material.

Bedding material for trenches shall conform to the plans and shall be compacted to a relative dry density of 90%. Above the level of the bedding material, Contractor shall backfill the trench with structural backfill material as shown on the plans and in conformance with Section 19-3.06, "Structural Backfill," of the Caltrans Standard Specifications. The material shall be free of vegetation, stones or lumps exceeding 3 inches in greatest dimension, and other unsatisfactory material. The backfill material shall be approved by the Engineer prior to its placement.

B. Fill Material. The source of material to be used for fill will be tested and approved by the Engineer prior to the commencement of work. Samples of any proposed imported fill planned for use on this project shall be submitted to the Engineer for appropriate testing and approval no less than 4 working days prior to the anticipated jobsite delivery. Fill material shall:

1. be free of organics, debris and other deleterious materials;
2. be granular in nature, well graded, and contain sufficient binder to allow utility trenches to stand open;
3. be free of rocks in excess of 2 inches in size;
4. have a Plasticity Index between 4 and 12;
5. have a minimum Sand Equivalent of 20, and;
6. have a minimum Resistance "R" Value of 50 and be non-expansive.

C. Placement, Spreading and Compaction. The placement and spreading of fill materials and its processing will not be permitted without the prior approval of the Engineer. The fill shall be placed in 6 inch lifts (compacted layers), moisture conditioned as required so that the moisture content at the time of compaction is 1 to 3% above the optimum moisture content of the soil. Each lift shall be compacted to the required minimum relative dry density. Field density test will be made by the Town to ensure proper compaction. Field density test will be performed in accordance with ASTM D2922. The number of test and their location shall be at the sole discretion of the Engineer.

Backfill material and excavation operation shall conform to the provisions in this section, as shown in the plans and be completed as directed by the Engineer.

D. Seasonal Limits. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rains, fill operations shall not resume until field density test taken by the Town indicate that the moisture content and density of the fill meet the specified requirements.

In the event that any unusual conditions, not covered in these technical provisions are encountered during grading operations, the Engineer shall be immediately notified for direction.

The cost of all shoring, including temporary, shall be included in the contract prices paid for the various contract items of work in which shoring is involved and not additional compensation will be allowed therefore.

The contract price paid per cubic yard for roadway excavation shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in performing roadway excavation work completely as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

10-4.12 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Caltrans Standard Specifications and these special provisions.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-4.13 AGGREGATE BASE

Aggregate base shall be Class 2 and shall conform to the provisions in Section 26, "Aggregate Bases," of the Caltrans Standard Specifications and these special provisions.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-4.14 ASPHALT CONCRETE

Asphalt concrete shall be Type A and shall conform to the provisions in Section 39, "Asphalt Concrete," of the Caltrans Standard Specifications and these special provisions.

The grade of asphalt binder to be mixed with aggregate for Type A asphalt concrete shall be Grade PG 64-10.

The aggregate for asphalt concrete (Type A) must comply with the ½-inch and ¾-inch grading.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to public traffic.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-4.15 REINFORCEMENT

Reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Caltrans Standard Specifications and these special provisions.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

10-4.16 EXISTING FACILITIES

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

Except as otherwise provided for damaged materials in Section 15 2.04, "Salvage," of the Standard Specifications, the materials to be salvaged shall remain the property of the Town, and shall be cleaned, packaged, bundled, tagged, and hauled to the Town Service Yard at 41 Miles Avenue and stockpiled.

The Contractor shall notify the Engineer a minimum of 48 hours prior to hauling salvaged material to the Town Service Yard.

Full compensation for conforming to the requirements of this section is included in the prices paid for the various items of work shown on the bid form and no additional compensation will be made therefore.

REMOVE CONCRETE

Remove concrete sidewalk, curb ramp and concrete curb and gutter shall conform to the provision of Section 15-3," Removing Concrete," of the Caltrans Standard Specifications and these technical provisions.

Work shall consist of removal of Portland cement concrete (PCC) sidewalk, curb ramps, curb and concrete curb and gutter including but not limited to reinforcement and aggregate base beneath the existing concrete pavement.

Concrete removed shall be disposed of outside the highway 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.

Removing concrete curb and concrete curb and gutter, will be measured by the linear foot, measured along the curb or sidewalk before removal operations.

Removing concrete sidewalk and curb ramp will be measured by the square foot.

Full compensation for the removal of curb ramps and the curbs at the back of curb ramps shall be considered as included in the contract square foot price paid for remove sidewalk and no additional compensation will be allowed therefore.

The contract price paid per linear foot for remove concrete curb and remove concrete curb and gutter, regardless of depth or type of curb, includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing curb, complete in place, including sawcutting, excavation, backfill, and removing and disposing of materials including aggregate base and reinforcement, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per square foot for remove concrete sidewalk and curb ramp, includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals,

and for doing all the work involved in removing concrete sidewalk, complete in place, including curb ramp, sawcutting, excavation, backfill, and removing and disposing of materials including aggregate base and reinforcement, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-4.17 CLEARING AND GRUBBING

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

Dust control shall conform to the provisions in Section 11-2.01G, "Dust Control," of the Caltrans of these technical provisions.

Contractor shall contact the Engineer four working days prior to the commencement of any clearing and grubbing activities.

Work shall consist of clearing and grubbing items including, but not limited to, trees, shrubs and existing irrigation lines as shown on the plans. Clear and grub vegetation only as necessary for the successful completion of the project. Vegetable growth from clearing and grubbing operations shall be removed and be disposed of outside the limits of work. Contractor shall completely remove stumps, debris and other obstructions to at least 12" below grade. All removed material shall be disposed of outside the limits of work.

The contract lump sum price paid for "Clearing and Grubbing" shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved in clearing and grubbing, complete in place, as shown on the plans, as specified in these technical provisions and as directed by the Engineer and no additional compensation will be allowed therefore.

10-4.18 ASPHALT CONCRETE (TYPE A)

Contractor shall construct asphalt concrete (Type A) as shown on the plans. Contractor shall construct asphalt concrete roadway pavement, asphalt concrete overlay or asphalt concrete driveway, including but not limited to, placement and compaction of asphalt concrete, pavement reinforcing fabric, compacting, applying tack coat, prime coat and paint binder.

Asphalt concrete (Type A) shall conform to Section 39, "Asphalt Concrete," of the Caltrans Standard Specifications and Section 10-4.14, "Asphalt Concrete," of these technical provisions. Asphalt concrete shall be produced from commercial quality asphalt and aggregates.

The asphalt concrete shall conform to the following requirements:

1. Asphalt concrete shall be produced at a central mixing plant located in Santa Clara County.
2. When asphalt concrete or asphalt concrete base is stored, the materials shall be stored only in silos.
3. Prior to the addition of asphalt, aggregate shall conform to a maximum loss of 35% at 500 revolutions (max) during the LA Rattler Test. AC and aggregate submittals, as required in Section 10-4.03, "Shop Plans," of these technical provisions shall confirm this maximum loss.
4. Recycled aggregate shall not be used.
5. Aggregate for asphalt concrete (Type A) used in the surface course (top 2" of AC section) shall conform to ½-inch maximum, medium gradation as shown in the

plans and as specified in Section 39-2.02, "Aggregate," of the Caltrans Standard Specifications.

6. Aggregate for asphalt concrete (Type A) used in the base course (below 2" AC section) shall conform to ¾ -inch maximum, medium gradation as shown in the plans and as specified in Section 39-2.02, "Aggregate," of the Caltrans Standard Specifications.
7. Aggregate for asphalt concrete (Type A) used in the AC Overlay (top 2" of AC section) shall conform to ½-inch maximum, medium gradation as shown in the plans and as specified in Section 39-2.02, "Aggregate," of the Caltrans Standard Specifications.
8. The amount of asphalt binder to be mixed with the aggregate shall be between 4 percent and 7 percent, by weight, of the dry aggregate as determined by the Engineer.
9. Spreading and compacting shall be performed by methods that will produce an asphalt concrete surfacing of uniform smoothness, texture and density.
10. Asphalt concrete shall be spread in one operation with a self-propelled spreader ready for compaction without further shaping.
11. Compaction shall be performed with a tandem roller weighing not less than 10 tons. Two rollers (min) shall be on site during paving operations.
12. The finished surface shall meet the straight edge requirements of Section 39-6.03, "Compacting," of the Caltrans Standard Specifications.

Asphalt concrete shall be compacted to a minimum 92% using the "Improved Rice Method for Determining Theoretical Maximum Specific Gravity of Asphalt Paving Mixtures" as determined by American Society of Testing Materials (ASTM) D2041. Finished asphalt concrete pavements, which do not conform to the specified theoretical maximum specific gravity requirements, will be paid for using the following pay factors:

In-Place Theoretical Maximum Specific Gravity Compaction	Pay Factor
92% or greater	100%
90-91.9%	20% Reduction in unit price
89.9% or less	50% Reduction in unit price

The surface, when compacted, shall be smooth, dense, well bonded, and of uniform texture and appearance. The compacted surface course of asphalt concrete shall be free from ruts, humps, depressions or irregularities. When a straightedge 12 feet long is laid on the finished surface and parallel with the centerline of the road or driveway, the surface shall not vary more than 0.02 foot from the lower edge of the straightedge. The transverse slope of the finished surface shall be uniform to a degree such that no depressions greater than 0.02 foot are present when tested with a straightedge 12 feet long laid in a direction transverse to the center line and extending from edge to edge of a 10 foot pass.

When the total compacted thickness of asphalt concrete is shown on the plans to be less than 0.25-foot, asphalt concrete (surface course) shall be spread and compacted in one layer.

Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete shall be eliminated by rolling or other means. The use of any equipment that leaves ridges, indentations or other objectionable marks in the asphalt concrete shall be discontinued. Asphalt concrete pavement shall include the application of paint binder.

In addition to the requirement in Section 39-5.01, "Spreading Equipment," of the Caltrans Standard Specifications, asphalt-paving equipment shall be equipped with automatic screed controls and a sensing device or devices. When placing asphalt concrete, the automatic controls shall control the longitudinal grade and transverse slope of the screed. Grade and slope references shall be furnished, installed and maintained by the Contractor. Ski devices shall be a minimum length of at least 30 feet with a rigid one-piece unit whereby the entire length activates the sensor.

When placing contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to grade of the previously placed mat and will reproduce the grade in the new mat within a 0.01-foot tolerance.

The area to which paint binder has been applied shall be closed to public traffic. All possible care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction.

Prior to spreading asphalt concrete, a paint binder of asphaltic emulsion, in accordance with Section 92, "Asphalts," Section 93, "Liquid Asphalts," and Section 94, "Asphaltic Emulsions," of the Caltrans Standard Specifications, shall be furnished and applied uniformly to contact surfaces of all cold pavement joints, horizontal and vertical surfaces to receive asphalt concrete surfacing and to other surfaces designated by the Engineer.

Asphalt concrete shall be spread and compacted by methods that will produce an asphalt concrete surfacing true to grade and cross-section, of uniform smoothness and texture, compacted firmly and free from depressions, humps or irregularities. When the total compacted thickness of asphalt concrete is shown on the plans to be less than 0.25-foot, asphalt concrete shall be spread and compacted in one layer.

The asphaltic emulsion paint binder shall be SS-1 using penetration grade 100-200 paving asphalt in accordance with Section 39-4.02, "Prime Coat and Paint Binder (Tack Coat)," of the Caltrans Standard Specifications.

The grade of asphalt binder to be mixed with aggregate for Type A asphalt concrete shall be Grade PG 64-10.

Aggregate base for asphalt concrete pavement shall conform to Section 23-1.02A, "Class 2 Aggregate Base," of the Caltrans Standard Specifications and Section 10-4.13, "Aggregate Base," of these technical provisions. $\frac{3}{4}$ " Class 2 Aggregate Base material shall be compacted to a minimum relative dry density of 95% as determined by ASTM Test Designation D1557-78.

The contract price paid per ton for Asphalt Concrete (Type A) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the constructing asphalt concrete (Type A), regardless of surface or base course requirements, complete in place, including placement and compaction of asphalt concrete, applying prime coat, asphalt dike, tack coat and paint binder, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

When there is a contract item for place asphalt concrete dike by the linear foot, quantities of dikes will be paid for at the contract price per ton for asphalt concrete and also at the contract price per linear foot for place asphalt concrete dike. Full compensation for any necessary excavation, backfill and preparation of the area shall be considered as included in the contract

price paid per linear foot for place asphalt concrete dike and no additional compensation will be allowed therefor.

10-4.19 AGGREGATE BASE

Aggregate base shall conform to Section 26, "Aggregate Bases," of the Caltrans Standard Specifications and these special provisions.

Aggregate base shall be Class 2.

The contract price paid per cubic yard for aggregate base shall include full compensation for furnishing all labor, materials (or processing selected materials), tools, equipment, and incidentals, and for doing all the work involved in hauling and constructing aggregate base, complete in place, as shown on the plans, and as specified in these special provisions, and as directed by the Engineer.

Full compensation for aggregate base placed beneath the various types listed for concrete curb, ramps and concrete curb and gutter shall be considered as included in the contract price per linear foot for the various types listed for concrete curb, concrete curb and gutter and concrete sidewalk and no additional compensation will be allowed therefore.

10-4.20 MISCELLANEOUS CONCRETE CONSTRUCTION

Curbs, gutters sidewalks, curb ramps and driveways, shall conform to the provisions in Section 73, "Concrete Curbs and Sidewalks," of the Caltrans Standard Specifications and these technical provisions.

All concrete shall be Class "A" conforming to Section 73, "Concrete Curbs and Sidewalks," of the Caltrans Standard Specifications and Section 10-4.12, "Portland Cement Concrete," of these technical provisions. Concrete for curbs, gutters, sidewalks, driveways and curb ramps shall contain one (1) pound (min.) lamp black per cubic yard.

Rebar shall conform to the provisions in Section 52, "Reinforcement," of the Caltrans Standard Specifications.

All sidewalks shall be reinforced with two (2) No. 4 rebar reinforcing steel placed longitudinally along the entire length of the new concrete section and dowels embedded four (4) inches into the existing sidewalk on both ends and extending eight (8) inches minimum into new concrete. Expansion joints shall also be doweled as described.

Curbs and gutters shall be constructed to Town standards on a minimum of 4-inches of compacted Class II aggregate base. The finished curb shall immediately be sprayed with a transparent curing compound. Curb shall be covered by waterproof paper or plastic membrane in the event of rain or unsuitable weather. Curing time shall be a minimum of 72 hours. Exposed surfaces shall be a light broom finish. Finished work shall not vary more than 1/8-inch in grade and ¼-inch in alignment from Town Standard detail.

Sidewalk shall be a minimum of 4-inches thick constructed on 4-inches of compacted Class II aggregate base. Full expansion joints shall be placed to match those placed in adjacent curb and gutter, with maximum spacing of 20 feet. Sidewalk shall be at least 6-inches thick behind residential driveways. The finished sidewalk shall be sprayed with a transparent curing

compound covered by waterproof paper or plastic sheeting in the event of rain or other inclement weather. Curing time shall be a minimum of 72 hours.

Expansion joints are required every 20 feet. Both expansion joints and score marks shall be provided as directed by the Engineer to match existing.

Concrete shall be cured using the curing compound method with a pigmented type curing compound.

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 special provisions. 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 Caltrans 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 special provisions 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.

Contractor shall establish and maintain the required lines and grades, including cross-slope during construction operations. All concrete shall slope to drain with no ponding of water.

Contractor shall apply a rough-textured broom finish with strokes perpendicular to direction of travel along walks. Trowel finish shall be smooth, parallel to longest surface direction.

Existing utility boxes shall be re-set to the line and grade of the finished sidewalk, driveway and/or curb ramps unless specifically noted otherwise or as directed by the Engineer.

Contractor shall notify the Engineer 48 hours prior to placing concrete. Contractor shall not place any concrete prior to Engineer's approval of forms and steel placement.

Concrete curb ramps, including concrete vertical curbs, wings, detectable warning surface and tactile warning band shall be measured and paid for as concrete sidewalk.

Concrete curb and gutter transitions shall be measured and paid for as concrete curb and gutter.

The contract price paid per linear foot for concrete curb and gutter listed in the bid form shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the curbs, complete in place, including excavation, backfill, reinforcing steel and aggregate base, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per square foot for concrete sidewalk shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing concrete sidewalk, complete in place, including formwork, joints, tie-in, reinforcement, excavation, backfill and aggregate base, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price unit price per curb ramp shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing concrete curb ramp, complete in place, including formwork, joints, tie-in, reinforcement, excavation, backfill and aggregate base, as shown on the plans, as specified in the Standard Specifications and these special provisions, 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 unit price paid for curb ramp and no separate payment will be made therefore.

10-4.21 KEYSTONE RETAINING WALL

Keystone concrete retaining wall shall be constructed in conformance with the details, lines, grades, dimensions shown on the plans, the provisions in Section 51, "Concrete Structures," of the Caltrans Standard Specifications and these technical provisions.

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Caltrans Standard Specifications and these special provisions.

Contractor shall submit a Manufacturer's certification, prior to start of work, that the retaining wall system components meet the requirements of this specifications.

MATERIALS

Keystone Units

Keystone units shall conform to the following architectural requirements:

1. Face color - concrete gray, unless otherwise specified by the Engineer.
2. Face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of the Engineer.
3. Bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
4. Exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.

Keystone units shall conform to the following constructability requirements:

1. Vertical setback: 1/8" ± per course (near vertical);
2. Alignment and grid positioning mechanism: fiberglass pins, two per unit minimum;
3. Horizontal gap between erected units shall be ≤ 1/2 inch.

Base Leveling Pad

Material shall consist of a compacted crushed stone base or non-reinforced concrete as shown on the construction drawings.

Spreading and compacting base must conform to Section 26-I.04, "Spreading," and Section 26-I.05, "Compacting," of the Caltrans Standard Specifications.

Unit Drainage Fill

Unit drainage fill shall consist of ¾-inch crushed rock or stone. Drainage fill shall be placed within the cores of, between, and behind the units as indicated on the plans. Not less than one cubic foot of drainage fill shall be used for each square foot of wall face unless otherwise specified and as directed by the engineer.

Drainage Pipe

Drainage pipe shall be 4" perforated PVC pipe manufacture in accordance with ASTM D-3034. Pipe shall be wrapped with geotextile filter fabric (if required).

Geotextile Filter Fabric

When required, Geotextile filter fabric shall be polypropylene, polyester, or combined polyester and polypropylene.

Fill Material

Fill material shall conform to the provisions in Section 19, "Earthwork," of the Caltrans Standard Specifications and these special provisions.

Delivery, Storage and Handling

Contractor shall check all materials upon delivery to ensure for proper type, grad, and colors have been received. Contractor shall be responsible for protecting all materials from damage due to jobsite conditions. Damaged materials shall be removed from the jobsite and not be incorporated into the work.

CONSTRUCTION

Contractor shall excavate the lines and grades and construct Keystone retaining wall as shown on the construction drawings.

Leveling pad material shall be placed to a minimum thickness of 6 inches and extend laterally a minimum 6" in front and behind the Keystone wall unit.

First course of Keystone units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions to ensure that all units are in full contact with the base and properly seated. Front of units shall be seated side-by-side and no gaps shall be left between adjacent units.

Prior to placement of unit drainage fill and backfill, and compaction, maximum stacked vertical height of units shall not exceed two courses.

Backfill material shall be placed and compacted in lifts not to exceed 6 inches where hand compact is used, or 8-10 inches where heavy compaction equipment is used. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the Keystone concrete

unit. Contractor shall be responsible for keeping runoff from adjacent areas away from the wall unit at all times.

Cap units shall be glued to underlying units with an all weather adhesive recommended by the manufacturer.

Quantities of Keystone Retaining Wall (Concrete) to be paid for will be determined by the square foot from actual measurements of the completed retaining wall, the measurements to be made parallel to the ground slope along the line of completed runs of retaining wall.

The contract price paid per square foot for Keystone Retaining Wall (Concrete) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing Keystone retaining wall (concrete), complete in place, including clearing the line of the retaining wall and disposing of the resulting material, excavating high points in the existing ground, excavating and backfilling holes, disposing of surplus excavated material, furnishing and compacting base material, as shown on the plans, as specified in the Caltrans Standard Specifications and these technical provisions, and as directed by the Engineer.

10-4.22 ROADSIDE SIGN

Roadside signs shall be furnished and installed at the locations shown on the plans or where designated by the Engineer and in conformance with the provisions in Section 56-2, "Roadside Signs," of the Standard Specifications, Town of Los Gatos Standards and these special provisions.

The Contractor shall furnish roadside sign panels in conformance with the provisions in "Furnish Sign" of these technical provisions.

The contract lump sum price paid for "Signing and Striping" shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in fabricating, furnishing and installing roadside signs, complete in place, including furnishing signs and fastening hardware as shown on the plans, as specified in the Standard Specifications and these technical provisions, and as directed by the Engineer.

10-4.23 FURNISH SIGN

Signs shall be fabricated and furnished in accordance with details shown on the plans, the Traffic Sign Specifications, and these special provisions.

Traffic Sign Specifications for California sign codes are available for review at:
<http://www.dot.ca.gov/hq/traffops/signtech/signdel/specs.htm>

Traffic Sign Specifications for signs referenced with Federal MUTCD sign codes can be found in Standard Highway Signs Book, administered by the Federal Highway Administration, which is available for review at:
http://mutcd.fhwa.dot.gov/ser-shs_millennium.htm

Information on cross-referencing California sign codes with the Federal MUTCD sign codes is available at:
<http://www.dot.ca.gov/hq/traffops/signtech/signdel/specs.htm>

Temporary or permanent signs shall be free from blemishes that may affect the serviceability and detract from the general sign color and appearance when viewing during daytime and nighttime from a distance of 25 feet. The face of each finished sign shall be uniform, flat, smooth, and free of defects, scratches, wrinkles, gel, hard spots, streaks, extrusion marks, and air bubbles. The front, back, and edges of the sign panels shall be free of router chatter marks, burns, sharp edges, loose rivets, delaminated skins, excessive adhesive over spray and aluminum marks.

QUALITY CONTROL FOR SIGNS

The requirements of "Quality Control for Signs" in this section shall not apply to construction area signs.

No later than 14 days before sign fabrication, the Contractor shall submit a written copy of the quality control plan for signs to the Engineer for review. The Engineer will have 10 days to review the quality control plan. Sign fabrication shall not begin until the Engineer approves the Contractor's quality control plan in writing. The Contractor shall submit to the Engineer at least 3 copies of the approved quality control plan. The quality control plan shall include, but not be limited to the following requirements:

- A. Identification of the party responsible for quality control of signs,
- B. Basis of acceptance for incoming raw materials at the fabrication facility,
- C. Type, method and frequency of quality control testing at the fabrication facility,
- D. List (by manufacturer and product name) of process colors, protective overlay film, retroreflective sheeting and black non-reflective film,
- E. Recommended cleaning procedure for each product, and
- F. Method of packaging, transport and storage for signs.

No legend shall be installed at the project site. Legend shall include letters, numerals, tildes, bars, arrows, route shields, symbols, logos, borders, artwork, and miscellaneous characters. The style, font, size, and spacing of the legend shall conform to the Standard Alphabets published in the FHWA Standard Highway Signs Book. The legend shall be oriented in the same direction in accordance with the manufacturer's orientation marks found on the retroreflective sheeting.

On multiple panel signs, legend shall be placed across joints without affecting the size, shape, spacing, and appearance of the legend. Background and legend shall be wrapped around interior edges of formed panel signs as shown on plans to prevent delamination.

The following notation shall be placed on the lower right side of the back of each sign where the notation will not be blocked by the sign post or frame:

- A. PROPERTY OF TOWN OF LOS GATOS,
- B. Name of the sign manufacturer,
- C. Month and year of fabrication,
- D. Type of retroreflective sheeting, and
- E. Manufacturer's identification and lot number of retroreflective sheeting.

The above notation shall be applied directly to the aluminum sign panels in 1/4-inch upper case letters and numerals by die-stamp and applied by similar method to the fiberglass reinforced plastic signs. Painting, screening, or engraving the notation will not be allowed. The notation shall be applied without damaging the finish of the sign.

Signs with a protective overlay film shall be marked with a dot of 3/8 inch in diameter. The dot placed on white border shall be black, while the dot placed on black border shall be white. The dot shall be placed on the lower border of the sign before application of the protective overlay film and shall not be placed over the legend and bolt holes. The application method and exact location of the dot shall be determined by the manufacturer of the signs.

For sign panels that have a minor dimension of 48 inches or less, no splice will be allowed in the retroreflective sheet except for the splice produced during the manufacturing of the retroreflective sheeting. For sign panels that have a minor dimension greater than 48 inches, only one horizontal splice will be allowed in the retroreflective sheeting.

Unless specified by the manufacturer of the retroreflective sheeting, splices in retroreflective sheeting shall overlap by a minimum of one inch. Splices shall not be placed within 2 inches from edges of the panels. Except at the horizontal borders, the splices shall overlap in the direction from top to bottom of the sign to prevent moisture penetration. The retroreflective sheeting at the overlap shall not exhibit a color difference under the incident and reflected light.

Signs exhibiting a significant color difference between daytime and nighttime shall be replaced immediately.

Repairing sign panels will not be allowed except when approved by the Engineer.

The Town will inspect signs at the Contractor's facility and delivery location, and in accordance with Section 6, "Control of Materials," of the Standard Specifications. The Engineer will inspect signs for damage and defects before and after installation.

Regardless of kind, size, type, or whether delivered by the Contractor or by a common carrier, signs shall be protected by thorough wrapping, taping, or other methods to ensure that signs are not damaged by weather conditions and during transit. Signs shall be dry during transit and shipped on pallets, in crates, or tier racks. Padding and protective materials shall be placed between signs as appropriate. Finished sign panels shall be transported and stored by method that protects the face of signs from damage. The Contractor shall replace wet, damaged, and defective signs.

Signs shall be stored in dry environment at all times. Signs shall not rest directly on the ground or become wet during storage. Signs, whether stored indoor or outdoor, shall be free standing. In areas of high heat and humidity signs shall be stored in enclosed climate-controlled trailers or containers. Signs shall be stored indoor if duration of the storage will exceed 30 days.

Screen processed signs shall be protected, transported and stored as recommended by the manufacturer of the retroreflective sheeting.

When requested, the Contractor shall provide the Engineer test samples of signs and materials used at various stages of production. Sign samples shall be 12" x 12" in size with applied background, letter or numeral, and border strip.

The Contractor shall assume the costs and responsibilities resulting from the use of patented materials, equipment, devices, and processes for the Contractor's work.

SHEET ALUMINUM

Alloy and temper designations for sheet aluminum shall be in accordance with ASTM Designation: B 209.

The Contractor shall furnish the Engineer a Certificate of Compliance in conformance with Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the sheet aluminum.

Sheet aluminum shall be pretreated in accordance to ASTM Designation: B 449. Surface of the sheet aluminum shall be cleaned, deoxidized, and coated with a light and tightly adherent chromate conversion coating free of powdery residue. The conversion coating shall be Class 2

with a weight between 10 milligrams per square foot and 35 milligrams per square foot, and an average weight of 25 milligrams per square foot. Following the cleaning and coating process, the sheet aluminum shall be protected from exposure to grease, oils, dust, and contaminants.

Sheet aluminum shall be free of buckles, warps, dents, cockles, burrs, and defects resulting from fabrication.

Base plate for standard route marker shall be die cut.

RETROREFLECTIVE SHEETING

The Contractor shall furnish retroreflective sheeting for sign background and legend in conformance with ASTM Designation: D 4956 and "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Retroreflective sheeting shall be applied to sign panels as recommended by the retroreflective sheeting manufacturer without stretching, tearing, and damage.

Class 1, 3, or 4 adhesive backing shall be used for Type II, III, IV, VII, VIII, and IX retroreflective sheeting. Class 2 adhesive backing may also be used for Type II retroreflective sheeting. The adhesive backing shall be pressure sensitive and fungus resistant.

When the color of the retroreflective sheeting determined from instrumental testing is in dispute, the Engineer's visual test will govern.

PROCESS COLOR AND FILM

The Contractor shall furnish and apply screened process color, non-reflective opaque black film, and protective overlay film of the type, kind, and product that are approved by the manufacturer of the retroreflective sheeting.

The Contractor shall furnish the Engineer a Certificate of Compliance in accordance to Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the screened process color, non-reflective opaque black film, and protective overlay film.

The surface of the screened process color shall be flat and smooth. When the screened process colors determined from the instrumental testing in accordance to ASTM Designation: D 4956 are in dispute, the Engineer's visual test will govern.

The Contractor shall provide patterns, layouts, and set-ups necessary for the screened process.

The Contractor may use green, red, blue, and brown reverse-screened process colors for background and non-reflective opaque black film or black screened process color for legend. The coefficient of retroreflection for reverse-screened process colors on white retroreflective sheeting shall not be less than 70 percent of the coefficient of retroreflection specified in ASTM Designation: D 4956.

The screened process colors and non-reflective opaque black film shall have the same outdoor weatherability as that of the retroreflective sheeting.

After curing, screened process colors shall withstand removal when tested by applying 3M Company Scotch Brand Cellophane Tape No. 600 or equivalent tape over the color and removing with one quick motion at 90° angle.

SINGLE SHEET ALUMINUM SIGN

Single sheet aluminum signs shall be fabricated and furnished with or without frame. The Contractor shall furnish the sheet aluminum in accordance to "Sheet Aluminum" of these special provisions. Single sheet aluminum signs shall be fabricated from sheet aluminum alloy 6061-T6 or 5052-H38.

Single Sheet aluminum signs shall not have a vertical splice in the sheet aluminum. For signs with depth greater than 48 inches, one horizontal splice will be allowed in the sheet aluminum.

Framing for single sheet aluminum signs shall consist of aluminum channel or rectangular aluminum tubing. The framing shall have a length tolerance of $\pm 1/8$ inch. The face sheet shall be affixed to the frame with rivets of 3/16-inch diameter. Rivets shall be placed within the web of channels and shall not be placed less than 1/2 inch from edges of the sign panels. Rivets shall be made of aluminum alloy 5052 and shall be anodized or treated with conversion coating to prevent corrosion. The exposed portion of rivets on the face of signs shall be the same color as the background or legend where the rivets are placed.

Finished signs shall be flat within a tolerance of $\pm 1/32$ inch per linear foot when measured across the plane of the sign in all directions. The finished signs shall have an overall tolerance within $\pm 1/8$ inch of the detailed dimensions.

Aluminum channels or rectangular aluminum tubings shall be welded together with the inert gas shielded-arc welding process using E4043 aluminum electrode filler wires as shown on the plans. Width of the filler shall be equal to wall thickness of smallest welded channel or tubing.

Full compensation for furnishing signs shall be considered as included in the contract lump sum price paid for signing and striping and no separate payment will be made therefore.

10-4.24 PAVEMENT DELINEATION

All traffic stripes (pavement delineation) and pavement markers shall be thermoplastic and conform to the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Caltrans Standard Specifications and these technical provisions.

Pavement markers shall be placed in conformance with the provisions in Section 85, "Pavement Markers," of the Caltrans Standard Specifications and these technical provisions.

Thermoplastic material shall conform to the requirements of State Specification No. 8010-21C-19. Thermoplastic material for traffic stripes shall be applied at a minimum rate of 0.20-lb/ft. The minimum application rate is based on a solid stripe of 4 inches in width.

Thermoplastic traffic stripes and pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

Attention is directed to Section 10-4.06, "Maintaining Traffic," of these technical provisions regarding traffic control during placement of stripes, markings and pavement markers with bituminous adhesive.

The contract lump sum price paid for "Signing and Striping" shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing thermoplastic traffic stripes and pavement marking, including pavement markers, complete in place, as shown on the plans, as specified in the Standard Specifications and these technical provisions, and as directed by the Engineer.

10-4.25 SIGNALS, LIGHTING AND ELECTRIC SYSTEM

GENERAL

Signals, lighting and electrical work shall conform to the provisions of Section 86, "Signals, Lighting and Electrical Systems," of the State of California Department of Transportation SSS

(henceforth referred to as "SSS"), the State of California Department of Transportation SSP (henceforth referred to "SSP" and these Town Specifications.

Traffic Signal work shall be performed at the following locations:

Saratoga-Los Gatos Rd/Los Gatos Blvd
Saratoga-Los Gatos Rd/Alberto Wy

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

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

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.

Town Standard Equipment

Unless specified otherwise, the following standard equipment shall be used for the Town:

1. ITERIS Edge 2 Video Detection system.

Conduit

Conduits shall be installed using directional boring or open trench as determined by Contractor and approved by Engineer. The top of the installed conduit shall be a minimum of 18 inches below finished grade.

All conduits shall be Schedule 80 polyvinyl chloride conduit unless otherwise specified. End bells shall be installed on all PVC conduits ends. Ground bushings shall be installed for all metallic conduits.

Contractor shall not use 90-degree elbows. Only large radius 45-degree elbows shall be allowed.

Interconnect cable conduit terminations into pull boxes shall be gradually swept to the elevation where conduit enters through the side of a pull box. These conduit sweeps shall have a minimum 3-foot radius and 45-degree radius.

All conduits shall have a pull tape and a bare #8 AWG (minimum) copper wire for grounding and tracing of conduits.

All conduits placed in utility joint trenches shall be inspected and approved by the respective utility (PG&E, SBC, Verizon, Comcast) prior to backfill. The Contractor shall coordinate all such inspections with each Utility Company.

All conduits shall be sealed with Duct-Seal after wires are installed to prevent moisture and rodents from entering the conduits.

Conduits shall be installed either parallel to or perpendicular to the curb, unless otherwise approved by the Engineer prior to placement. Conduit at an oblique angle to the curb will not be permitted.

Communication conduit (for fiber optic cable) – The sum of horizontal and vertical conduit bends in new conduit between pull boxes and/or splice vaults shall not exceed 180 degrees. Conduit terminations into pull boxes and splice vaults shall be gradually swept to the elevation where conduit enters through the side of a pull box or splice vault. These conduit sweeps shall have a minimum 3-foot radius and 45-degree radius.

Pull Boxes

The identification “LOS GATOS” shall be engraved, welded or cast on the top face of all covers and followed by one of the following applicable markings:

1. “TRAFFIC SIGNAL” (for pull boxes containing traffic signal circuits with or without street lighting circuits).

Pull boxes shall be No. 5 or larger unless otherwise indicated on the plans. Pull boxes for signal interconnect shall be No. 6 or larger unless otherwise indicated on the plans. Pull boxes for fiber-optic cabling system shall have the following minimum inside dimensions, unless specified otherwise in the contract documents: 48-inch long by 30-inch wide by 14-inch high. In addition, it shall be provided with one pull box extension. Pull box extension shall be in 12-inch high increment. A locking lid shall be provided.

Excess conduit for all conduit ends shall be cut back to provide stub ends of 1-inch minimum to 2-inch maximum.

Bottom of pull boxes shall be grouted over clean crushed rock sump (12 inches minimum). All pull boxes shall have a 2-inch drain hole in center bottom and grouted with smooth surface sloped toward drain hole.

Conductors

Identification stripe color shall be permanently impregnated the conductor insulating jacket.

No. 10 or smaller traffic signal conductors shall be solid copper with either:

- Type USE insulation with a minimum thickness of 1 mm (40 mils), or
- Type THW insulation with a minimum thickness of 1 mm (40 mils).

Identification Labeling

Identification shall be by T&B Ty-Rap Cable Ties No. TY553M, fastened to the conductors/cables in such a manner that they will not move along the conductors/cables. The flags on the Ty-Rap shall be marked with a Ty-Rap marking pen No. WT 163 M-1 (Black), or approved equal. All phase conductors shall be labeled by phase designation in the pull boxes nearest their termination, and in the controller cabinet. Detector cables shall be labeled by channel designation in the pull boxes nearest their termination, and in the controller cabinet. Detector cables shall be also labeled by phase designation in the controller cabinet nearest their termination at the detector amplifiers.

Bonding and Grounding

Bonding and grounding shall conform to the provisions of Section 86-2.10, "Bonding and Grounding," of the SSS and the following.

All metallic electrical equipment including, but not limited to, poles, metal conduit, service pedestals, controller cabinets, anchor bolts, foundation reinforcement, and metallic cable sheaths shall be tied to ground electrical potential and shall be interconnected by means of copper conductors and clamps to form a single, grounded and electrically bonded system. Grounding of the electrical system shall be accomplished by means of approved 5/8-inch x 10-foot copper-clad steel or 3/4-inch x 10-foot galvanized steel ground rods installed in all cabinet foundations and in all pull boxes that contain conduits with equipment ground conductors as shown on the project plans. Ground rods shall extend above the finished cabinet foundation or grouted pull box bottom sufficiently to attach a ground clamp and #8 AWG bare copper equipment ground conductor.

Traffic Signal Video Detection

Traffic signal video detection shall conform to the provisions in Sections 86, "Signals, Lighting and Electrical System" of the Caltrans Standard Specifications and these technical provisions.

Contractor shall furnish and install new "Iteris" video detection camera (or approved equal) on luminaire arm or pole. Contractor shall furnish and install new Belden 8281 camera cables and camera cable by Carolprene Part No. 01342.

Removing, Reinstalling or Salvaging Electrical Equipment

Removing and/or salvaging of equipment shall conform to the provisions of Section 86-7.01, "Removing Electrical Equipment," of the SSS and the following.

All salvaged equipment shall be delivered to the Town of Los Gatos Service Center at 41 Miles Avenue. The Contractor shall contact the Town of Los Gatos Department of Parks and Public Works at (408) 395-2859, forty-eight (48) hours in advance to arrange for acceptance of salvaged equipment.

The contract lump sum price paid for Traffic Signal Modification for the various locations listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing, modifying, or removing the systems, combinations or units thereof, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

CALTRANS 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)

CURBS, DRIVEWAYS, DIKES, CURB RAMPS AND ACCESSIBLE PARKING

RSP A87A Curbs and Driveways

RSP A88A Curb Ramp Details

DRAINAGE INLETS, PIPE INLETS AND GRATES

D73 Drainage Inlets

D77B Bicycle Proof Grate Details

ROADSIDE SIGNS

RS1 Roadside Signs, Typical Installation Details No. 1

RS2 Roadside Signs – Wood Post, Typical Installation Details No. 2

RS4 Roadside Signs, Typical Installation Details No. 4

ELECTRICAL SYSTEMS – SYMBOLS AND ABBREVIATIONS

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

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

RSP ES-1C Electrical Systems (Symbols and Abbreviations)

ELECTRICAL SYSTEMS – PULL BOX DETAILS

ES-8 Electrical Systems (Pull Box Details)

ELECTRICAL SYSTEMS – ISOFOOTCANDLE DIAGRAMS AND FOUNDATION DETAILS

ELECTRICAL SYSTEMS – SPLICING, WIRING DETAILS AND FUSE RATINGS

ES-13A Electrical Systems (Splicing Details)

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