

SPECIAL PROVISIONS SECTION SP-20**EARTHWORK AND ROADWAY EXCAVATION**

(BID ITEM NO. 15)

The provisions of Section 3, "Earthwork", of the Technical Provisions of the Standard Specifications are modified as follows:

SP20-01 GENERAL

All excavation in this Contract is considered unclassified excavation. The quantity of excavation calculated includes all materials to be removed, of all kinds, except for the items specified to be removed and paid as separate Bid Items, such as storm drain structures and surface features.

SP20-02 MEDIAN PLANTER EXCAVATION

Excavation consists of saw-cutting, removing, and disposing of the existing asphalt concrete pavement, concrete flatwork or pavement, cement-treated base, base rock, rock, soil, and any other subgrade or sub-base materials encountered when excavating to the required depths to install median planters and other existing or newly created (along sidewalk & curb ramps) planting areas as shown on the Plans, described in these Special Provisions, and directed by the Engineer.

To provide reference information regarding the existing pavement and subgrade materials and thicknesses for Contractor's convenience, cores were obtained from three random locations within the Project limits where landscaped median islands are shown to be constructed. The cores indicate an approximately sixteen (16)- inch total structural section consisting of asphalt concrete with underlying cement-treated base, see plans for core locations and depths.

SP20-03 MEASUREMENT AND PAYMENT

There is no separate measurement or payment for earthwork involved with pipes, drainage structures, foundations, curb and gutter, pathways, walkways, and driveways. All excavation and backfill necessary to construct these items, except as specifically provided for in other sections of these Special Provisions, shall be considered as included in the Contract Prices paid for the various items of work.

The Contract Price per cubic yard for "**Median Planter Excavation**" shall include full compensation for all labor, materials, tools, equipment, and incidentals to do all the work involved in sawcutting; excavating, removing, loading, hauling, and disposal of asphalt concrete or concrete pavement, cement-treated base, subgrade, and sub-base materials of all kind within existing, new, and median planter area; as shown on the Plans, specified in these Special Provisions, and as directed by the Engineer; and no additional compensation shall be allowed therefor. The quantity shown on the Bid Schedule shall be a "Final Pay Quantity" in accordance with the provisions of Section 9-6 of the General Provisions.

SPECIAL PROVISIONS SECTION SP-21 – NOT USED

SPECIAL PROVISIONS SECTION SP-22

ASPHALT CONCRETE

(BID ITEM NO. 27, 28)

The provisions of Section 9, “Asphalt Concrete,” of the Technical Provisions of the Standard Specifications shall apply in its entirety except as modified or supplemented herein.

SP22-01 GENERAL

Asphalt concrete shall be Type A HMA, 1/2-inch maximum size aggregate (MSA).

Work consists of installing asphalt concrete inlay and overlays in multiple courses to modify roadway grades where shown on the plans, and conform paving adjacent to curbs, gutters, curb ramps, and crosswalks. Asphalt concrete conform paving limits are approximate. The Engineer will paint actual conform lines prior to the start of conform paving work.

SP22-02 PAYMENT

The contract unit price paid per square foot for “**Asphalt Concrete Overlay**” shall be considered as full compensation for furnishing all labor, materials, tools, equipment, and incidentals to complete the necessary work, including, but not limited to- cleaning existing pavement; sawcutting conform joints where needed; furnishing, transporting, placing, spreading and compacting asphalt concrete; tack coat binder; constructing, maintaining, removing, and disposing of temporary asphalt concrete ramps; any necessary corrective abrasive grinding or fog coat; and all other work as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer; and no additional compensation shall be allowed therefor.

The contract unit prices paid per square foot for “**AC Conform Paving**” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all work involved including but not limited to- subgrade preparation, cleaning, tack coat, furnishing, placing, spreading, and compacting the asphalt concrete to the specified depth, and all other work as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be allowed therefor. There is no adjustment in the Contract quantity or price paid for actual asphalt concrete depth installed exceeding details shown on the Plans.

The square foot quantities to be paid shall be measured for the paved area irrespective of the thickness or number of the asphalt concrete lifts.

SPECIAL PROVISIONS SECTION SP-23 – NOT USED**SPECIAL PROVISIONS SECTION SP-24****CONCRETE CONSTRUCTION**
(BID ITEM NO. 25, 29 THROUGH 38)

The provisions of Section 17, “Concrete Construction”, of the Technical Provisions of the Standard Specifications shall apply in their entirety except as modified or supplemented herein.

SP24-01 GENERAL

Work includes installation of curbs of various design, curb and gutter, sidewalk, driveways, curb ramps, remove and replace grout at pole bases within new sidewalk and curb ramps, concrete channel, drain inlets and connections, concrete subgrade and backfill, foundations and slabs, and other miscellaneous concrete as required to construct facilities as shown on the Plans, in accordance with these Special Provisions, and as directed by the Engineer. Where shown, intended, or directed to be required, Contract Work to install concrete shall include the grading, preparation, placement and compaction of aggregate base subgrade, and dowelling for connection to existing facilities.

SP24-02 CONCRETE REQUIREMENTS

Concrete subgrade underlying brick paver crosswalks shall be Class 590-A-3250, maximum three (3)-inch slump. Concrete used for trench backfill shall be Class 200-E-500, maximum slump four (4) inches. Unless specifically indicated otherwise, concrete for all other Contract Items shall be Class 564-C-3250, maximum four (4)-inch slump.

Concrete work shall not be backfilled within seventy-two (72) hours of placement, unless otherwise directed by the Engineer.

SP24-03 VARIOUS INSTALLATIONS

1. Inlets- Contractor may use pre-cast storm drain inlets at his own risk. No additional payment shall be made for modifications to the pre-cast structures due to any and all grade changes, storm drain alignment modifications, or any other reason. All new inlets shall have a City-provided stencil stating “No Dumping – Drains to Creek” affixed to the curb or other logical nearby location.

All new inlets shall include a 3”-diameter PVC sleeve through the back of the structure to allow for future connection by others. The sleeve shall be a minimum of 6” long and capped at the exposed end.

Connections of storm drain pipes to existing drain inlets shall use a concrete collar with rebar and a mastic seal.

2. Curbs and/or Gutters- Where applicable, the void between the back of new curbs or curb ramp and the surrounding terrain shall be filled with select fill materials to the top of the curb and sloped at a maximum of 3:1 to conform with the existing terrain. The select fill material shall

be compacted to 90% relative compaction. Select fill material shall be material obtained from excavation within Project limits that is free of organic material and free of rocks larger than 1½ inches in the greatest dimension.

The County Standard Plans for curb and gutter is hereby modified to require a maximum slope of the gutter pan to be 5 percent (a maximum batter of 7/8" instead of 1 ¼") and as shown or modified on the plans.

Dowels, #4 x 18 inches long shall be installed at the connection between new and existing facilities. The dowels shall be in drilled holes, grouted, and spaced in conformance with the details shown on the Plans and these Special Provisions. All dowels shall have a minimum 1 ½" concrete cover.

3. Extruded Curb - Concrete median curb shall conform to Sections 73-1.03D and 73-2.03C of the State Specifications.
4. RegROUT Pole Base To Grade - Contractor shall remove existing grout at the base of the streetlight pole, traffic signal pole, or pedestrian signal pole and replace to match the new grades at sidewalk and curb ramps as needed and as directed by the Engineer.
5. Curb Ramps shall conform to the State Standard Plans referenced and as shown by details on the Plans.

The color of detectable warning surfaces shall be onyx black. Contractor shall submit a six (6)-inch square sample of the product to be provided, along with the manufacturer's product data and "cut-sheets" for review and approval prior to ordering. The detectable warning surface shall conform to:

- a. Americans with Disabilities Act (ADA) Title III Regulations, 28 CFR Part 36 "ADA Standards For Accessible Design," Appendix A, Section 4.29 for "Detectable Warnings."
- b. Division of the State Architect - Access Compliance (DSA-AC) approved detectable warning products as provided in the California Code of Regulations (CCR) Title 24, Part 2, Section 205 definition of "Detectable Warning."

City may accept products from ADA solutions (800-372-0519), Answer Industries (909-230-4064), and Armor-Tile (916-844-4132).

SP24-04 MEASUREMENT AND PAYMENT

The Contract Prices paid per linear foot for "Concrete Curb and Gutter," "Concrete Median Curb," "Concrete Curb," and the Contract Price paid per square foot for "Concrete Sidewalk," "Concrete Driveway," "Concrete Curb Ramp," and "Concrete Channel (2' wide)," and the contract price paid per each for "RegROUT Pole Base to Grade" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work including but not limited to- sawcutting; excavating; grading; installing compacted subgrade, forms, dowels and reinforcement steel; removing and replacing grout at pole bases; placing and finishing

concrete; installing detectable warning surfaces on curb ramps; backfilling behind curbs; and all other work necessary to construct the facility complete in place as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer; and no additional compensation shall be allowed therefor.

“Concrete Curb Ramp” shall be measured as the area whose limits are within the grooved borders of the ramp approaches, up to and including any adjacent retaining curbs at variable heights (where applicable), and the detectable surfaces.

“Concrete Channel (2’ wide)” shall be measured to include the border curbs installed monolithically. There shall be no separate payment for this curb.

The Contract Price paid per each for **“Install Type A Inlet”** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals for doing all work including, but not limited to- sawcutting; excavation; loading, off-hauling, and disposal of spoils; dewatering; grading and installing compacted aggregate base subgrade; forming for and placing concrete structure including weep holes; installing steel reinforcements, dowels, frames, and grates; connecting existing lateral line(s); installing, sleeves; providing steel plates and protection of excavation; and all other work necessary to construct the facility complete in place as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be allowed therefor.

Payment for constructing concrete aprons, including the attached curb, for inlets shall be considered included in the Contract Price for the inlets, and no additional compensation shall be allowed therefor.

Full compensation for constructing all other concrete backfill, foundations, footings, subgrades, and slabs used in the construction of the various items of Work shown in the Contract Documents, which do not have a separate Pay Item specified for said concrete in the Contract, shall be considered as included in the Contract Prices paid for those items of Work requiring said concrete, and no additional compensation shall be allowed therefor.

SPECIAL PROVISIONS SECTION SP-25

STORM DRAINS

(BID ITEM NO. 22 THROUGH 24)

The provisions of Section 18, "Storm Drains", of the Technical Provisions of the Standard Specifications shall apply in their entirety except as modified or supplemented herein.

SP25-01 GENERAL

Storm drain alignment and grade may be adjusted in the field by the Engineer to provide required clearances from existing utilities.

SP25-02 PIPE AND CLEAN-OUT

Prior to work requiring installation of RCP and SDR pipe and clean-out, Contractor shall submit product data information, including a cut-sheet for the pipe and clean-out component to be furnished for review and approval by the Engineer.

SP25-03 MEASUREMENT AND PAYMENT

The Contract Prices paid per linear foot for "4" SDR 35 Pipe and Cleanout," "12" Class III RCP," and "15" Class V RCP" shall be considered as full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to perform all work, including but not limited to: potholing; sawcutting; removal of existing pipe; excavation; loading, off-hauling, and disposal of spoils; dewatering; grading and installing pipe bedding; furnishing and installing RCP and SDR pipes, joints, gaskets, and fittings; concrete collar; drain rock; backfill and compaction; coordination of utility work; connection to existing drain box; temporary asphalt concrete trench paving; surface restoration; and all other work as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer; and no additional compensation shall be allowed therefor.

SPECIAL PROVISIONS SECTION SP-26**PAVEMENT STRIPING, MARKERS AND DELINEATION**

(BID ITEM NO. 16, 39 THROUGH 47)

The provisions of Section 15, "Pavement Striping, Markers, and Delineation", of the Technical Provisions of the Standard Specifications shall apply in their entirety except as modified or supplemented herein.

SP26-01 GENERAL

Painting of median noses shall conform to Section 15-7, "Curb Painting," of the Technical Provisions. Object markers for median noses shall conform to the latest edition of the Traffic Manual published by the State of California Department of Transportation. Contractor shall submit a cut-sheet for the object marker for review and approval by the Engineer prior to installation.

Temporary delineation, where required by the Contract Documents or as directed by the Engineer, shall be furnished and installed in accordance with Section 6-12.7, "Temporary Traffic Striping and Pavement Markings," of the General Provisions.

SP26-02 MEASUREMENT AND PAYMENT

Traffic stripes will be measured by the linear foot along the line of the traffic stripe without deductions for the gaps, shown on the State Standard Plans. Deductions will be made for gaps at cross streets and driveways.

Measurement for legends and markings shall be per the areas shown on Caltrans Standard Plans, or actual unit installed, whichever is less.

The Contract Prices paid per linear foot for various Paint and Thermoplastic Stripes, Markings, Markers and Striping details shown on the Bid Schedule shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in placing paint and thermoplastic stripes, markings, details, and pavement markers, including any necessary cleaning and preparing of surfaces to receive striping or markers; layout ("cat tracks"); and all other work as shown on the Plans, as specified in the Standard Specifications, and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be allowed therefor.

In addition to the above, the Contract Price per linear foot paid for "**Painted Median Island Nose with Reflectors and Marker**" shall be considered to include furnishing and installation of the two-way reflective pavement markers on top of the painted curb and the object marker as detailed on the Project Plans.

The contract lump sum price paid for "**Remove Existing Stripes, Markings, and Markers**" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing existing and conflicting thermoplastic striping and pavement markings, including buttons, and removal of all materials as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be allowed therefor.

There shall be no separate payment for furnishing and installing temporary delineation as required by the Contract Documents or directed by the Engineer. It shall be considered to be included in the compensation for various Contract Items requiring temporary delineation.

SPECIAL PROVISIONS SECTION SP-27
LIGHTING AND ELECTRICAL SYSTEMS
(BID ITEM NO. 51 THROUGH 57)

SP27-01 GENERAL

The work shall consist of:

1. Install City-furnished street light assemblies in new center medians on Mt. Diablo Boulevard from First Street to Brown Avenue.
2. Modify existing electrical service cabinet at the southwest corner of the intersection of Mt. Diablo Boulevard and Second Street to accommodate new lighting circuit(s).
3. Trench and install all conduits and conductors as necessary to support new electrical installations and modifications as required by the Contract Documents and as directed by the Engineer.
4. Replace damaged traffic signal loops.

All work shall conform to the provisions in Section 86, "Electrical Systems," of the State Standard Specifications, except as modified or supplemented herein.

SP27-02 SUBMITTALS

Contractor shall provide technical submittals, shop drawings and/or samples, including supporting catalogue cut-sheets, manufacturer's literature, sketches or drawings, calculations, and other pertinent data, for all electrical equipment including, but not limited to conduits, conductors, pull boxes, push buttons, and miscellaneous electrical components to be used in the Contract Work. The submittals/shop drawings shall include sufficient detail to enable the City to review the information and determine that the contractor clearly understands the requirements of the Contract Documents. These submittals shall be approved by the City prior to any equipment deliveries to the City. Any equipment that is delivered to the City and subsequently rejected shall be removed at the Contractor's expense.

1. Submittal List
 - a. The Contractor shall provide a complete list of submittals required by the State Standard Specifications and these Special Provisions prior to commencing work.
2. Proposed Products List & Purchase Order
 - a. Within fourteen (14) calendar days after the date of the Notice of Award of the Contract, the Contractor shall submit a complete list of electrical materials to be incorporated into the project, stating the Special Provision section, the vendor's name, the manufacturers name if different from the vendor's, trade name, and model number or code for each product.
 - b. At the same time, the Contractor shall submit a copy of all purchase orders for any equipment and materials not readily available "off the shelf" and requiring special order. The Contractor shall also submit copies of all correspondence with equipment and materials suppliers concerning availability, delivery dates, anticipated delays (if any),

and shipment notices within five (5) days of each correspondence. References to cost may be omitted. Consideration for recommending time extensions for materials and equipment delivery delays shall not be made unless the above provisions are met.

3. Product Data

- a. The Contractor shall submit a minimum of three (3) copies of each submittal. Copies shall be marked to identify applicable products, models, options, and other data. Submit product source, specifications, gradations, certifications, bulletins and literature sufficient to demonstrate compliance with the Contract documents. When samples are required, two (2) copies of each sample shall be submitted.

Before each submittal, Contractor shall have determined and verified all catalog numbers, materials, quantities, dimensions, specified performance criteria, installation requirements, and similar data; and reviewed and coordinated each shop drawing, sample, or other submittal with each other, and with the requirements of the Contract Documents.

At the time of each submission, the Contractor shall give the City specific written notice of each variation that the samples or other submittals may have from the requirements of the Contract Documents and, in addition, shall cause a specific notation of each such variation to be made for each shop drawing, sample, and other submittal.

Review of shop drawings, samples or other submittals by the City or any party acting on the City's behalf shall not relieve the Contractor from the responsibility for any variation from the requirements of the Contract Documents; unless the Contractor has in writing called the Engineer's attention to that variation at the time of submission as required, and the Contractor has received written acknowledgement of each such variation incorporated into or accompanying the approval of each shop drawing, sample, or other submittal. No review by the City or parties acting on behalf of the City shall relieve the Contractor from responsibility for errors or omissions in the shop drawing, sample, or other submittal.

The City will endeavor to have the samples or other submittals reviewed and returned to the Contractor, with a written indication of approval or the reason for rejection, not later than 14 calendar days after the date of submission to the City.

The Contractor shall make all corrections necessary to the submittals that are required by the City at no cost to the City and the Contractor shall resubmit the required number of corrected copies. The Contractor shall indicate in writing on each resubmittal any revisions other than, or in addition to, the corrections required in the previous submittals.

Where a submittal is required by the Contract Documents, any related work performed prior to the review, approval, and return to the Contractor of the pertinent submittal shall be at the sole risk, expense, and responsibility of the Contractor.

Submittals, in any part, in any form, or in any stage of review prior to approval shall not constitute Contract Documents or parts thereof.

SP27-03 MAINTAINING EXISTING ELECTRICAL SYSTEMS

Work shall conform to the provisions of Section 86-1.06, "Maintaining Existing and Temporary Electrical Systems", of the State Standard Specifications.

Contractor shall coordinate his operations such that all existing street lights shall be fully functional and in continuous operation during the hours of darkness. Traffic signals shall remain fully functional at all times, except when Contractor implements a traffic control plan approved in advance by the Engineer.

SP27-04 SCHEDULING OF WORK

The first sentence in the first paragraph of Sec. 86-1.07, "Scheduling of Work", of the State Standard Specifications is deleted.

SP27-05 LOCATING ITEMS OF WORK

The Contractor shall be responsible for locating and marking the positions of all light poles, pull boxes, cabinets, and other equipment. The Engineer may assist the Contractor in locating the above items. All locations shall be approved by the Engineer before any work is performed.

SP27-06 EXCAVATING AND BACKFILLING

The excavations required for the installation of conduit, foundations, and other appurtenances shall be performed in such a manner as to avoid any unnecessary damage to streets, sidewalks, landscaping, and other improvements, as directed by the Engineer.

SP27-07 REMOVING AND REPLACING IMPROVEMENTS

Any improvements such as sidewalks, curbs, gutters, concrete and asphalt concrete pavement, subgrade, lawns and plants, and irrigation systems that are removed, broken, or damaged by the Contractor's operations shall be replaced or reconstructed in kind at Contractor's sole expense to their original conditions or better.

SP27-08 STREET LIGHT FOUNDATIONS

Foundations shall conform to the provisions in Section 86-2.03, "Foundations," of the State Standard Specifications and these Special Provisions. Portland cement concrete shall conform to Section SP-24, "Concrete Construction," of these Special Provisions. Attention is directed to Section 51-2, "Joints," of the State Standard Specifications regarding bonding, cold joints and construction preparations for same.

Exposed foundation anchor bolts shall be properly protected with either barricades or traffic cones until the standards are erected.

Standard foundations as detailed on the Plans shall be used, except where required by site conditions or the Engineer directs the use of spread footings. Poles will be furnished with four ¾" diameter x 30" fully hot-dip galvanized L-type anchor bolts, each to be installed with a 3" projection. Contractor shall make necessary modifications to anchor bolts where the spread footing is installed. Contractor shall provide the ¾" diameter x 36" fully hot-dip galvanized L-type anchor bolts that are required for the standard foundation where is used.

SP27-09 CITY-FURNISHED STREET LIGHT ASSEMBLIES

Street light pole and luminaire assemblies shall be furnished by the City to be installed by Contractor. Contractor's attention is directed to Section 5-11 of the General Provisions, except that materials will be delivered to the job site at no charge to Contractor. Contractor shall coordinate with Ray Snider

with Independent Electric Supply at 209-221-6260 and the Engineer to arrange for delivery and acceptance of the materials at the job site. Contractor shall be responsible for any costs arising from his failure to perform said coordination, including costs associated with re-scheduling a delivery, additional handling, storage, and transportation charges incurred by City. Street light assembly is expected to be ready for delivery near end of December, 2013. Anchor bolts will be available prior to this date, contractor to coordinate.

Street light assemblies to be installed include a 25-foot pole with dual luminaire fixtures activated by photocell, four banner arms up to 30 inches long attached to the pole body, and a "split base" style pole base with 20A, 125 V GFCI duplex receptacle attached. Contractor shall provide flexible conduit for the receptacle wires and make the final connection. All equipment will be furnished pre-painted. Contractor shall observe the existing street light assemblies, installed in place, in the planter medians on Mt. Diablo Boulevard west of First Street, adjacent to the Project location, to familiarize himself with the product to be furnished by City and installed by Contractor. Cut sheet of the Street light assembly is included in Appendix "F" for reference.

SP27-10 CONDUIT

Conduit runs are shown diagrammatically on the Plans. Conduits to be installed in areas of new median, curb, gutter, curb ramp and/or sidewalk shall be placed below and prior to construction of the new improvements. Conduits in between median islands shall be placed in a joint trench with irrigation lines as shown on the plans and specified in these Special Provisions.

Conduit that is installed underground shall be rigid, nonmetallic type, Schedule 40. The conduit in a foundation and between a foundation and the nearest pull box shall be the rigid metallic type. All conduits shall have a ¼" pull rope installed in them. All conduit joints shall be glued. The ends of conduits in pull boxes shall have a bell bushing and shall be a minimum of 4 inches above surface of rock and a minimum of 6 inches below the top of the pull box.

Conduit installed to a PG&E service point location(s) shall be 2 inches in size.

After conductors have been installed, the ends of conduit terminating in pull boxes and controller cabinets shall be sealed with a UL approved plug or duct seal.

When a standard coupling cannot be used for coupling metal type conduit, a UL listed threaded union coupling, as specified in the third paragraph in Section 86-2.05C, "Installation", of the State Standard Specifications, or a concrete tight split coupling or concrete tight set screw coupling shall be used.

SP 27-11 TRENCHING IN EXISTING PAVEMENT

1. Trenching Method

Trenching for installation of conduits and sleeves shall be done per details shown on plans. Saw cut and replace pavement four (4) feet beyond each edge of excavation. Replace the entire width including the trench with asphalt concrete, minimum 6 inches thick. Asphalt concrete for trench restoration shall be as specified in SP-22 of these Special Provisions, and constructed similarly to a failed area repair in accordance to Section 5 of the Technical Provisions.

Provisions of Section 6-11, "General Safety" of the General Provisions shall apply.

Prior to the trenching operation, the Contractor shall identify the location of the existing loop detectors and loop detector homeruns. Should the trench cross an existing loop detector or loop detector homerun, the Contractor shall hand dig the trench to insure the loop detector or homerun is not damaged. If a loop detector or homerun is damaged as a result of Contractor's operations, the Contractor shall notify the Engineer immediately and replace the loop detector, at Contractor's expense, within 24 hours.

Trenched pavement shall be permanently restored within 5 calendar days of the installation of the backfill. After the 5 days period, the Engineer shall have the sole discretion to order the work to be done by others, and deduct the cost of said work from Contract Payments due to the Contractor.

2. Directional Drilling Method

At the option of the Contractor, conduits and sleeves can be installed by the directional drilling method at no extra cost to the City.

Work shall conform to Section 24 of the Technical Provisions. The minimum depth of cover for all conduits and sleeves shall be 24", except in the vicinity of entering or leaving a pull box or a cabinet, unless otherwise directed by the Engineer.

SP27-12 PULL BOXES

Pull boxes shall be furnished and installed by the contractor per section 86-2.06, "Pull Boxes," of the State Standard Specifications. Pull boxes shall be No. 5.

Grout in the bottom of pull boxes will not be required. Pull box sumps shall be constructed from 1-1/2 inch minimum clean, washed river run rock. All pull boxes shall be concrete, unless permitted otherwise by the Engineer. Lids shall be marked "TRAFFIC SIGNAL", "SERVICE", or "STREET LIGHTING," as applicable.

SP27-13 CONDUCTORS AND WIRING

The Contractor shall provide to the Engineer a Certificate of compliance from the Manufacturer in accordance with the provisions of Section 6-3.05E, "Certificates of Compliance", of the State Standard Specifications for all the conductors and cables furnished for the project.

Conductors shall not be pulled into conduits until the pull boxes have been set to grade, rock sumps have been installed, and conduits have been bonded and grounded. All pull boxes shall be inspected and approved prior to pulling any conductors. Conductors shall not be pulled into conduits unless the Engineer is present to observe the operation. The ends of all unused cables shall be sealed.

Conductors at new pull box(es) intercepting existing conduit(s) shall be re-pulled. Contractor shall reconnect to achieve a fully operational street lighting or traffic signal system.

At least 6 feet of slack shall be provided in the pull box nearest each street lighting or signal standard for those conductors terminating at that standard; and 3 feet of slack shall be provided in each conductor in all other pull boxes.

Straight splices in signal neutral and multiple lighting conductors shall be insulated in conformance with Method B, tap splices in signal neutral and multiple lighting conductors shall be Type C, and conductors shall be spliced by the use of C-shaped compression connectors; as shown on State Standard Plan ES-13.

Conductors shall be labeled. Identification bands shall be constructed from a nylon cable tie with a .35" by .75" label flag attached. The marking pen shall be one recommended by the manufacturer of the cable tie or it shall be an indelible marking pen compatible with writing on the nylon material. No other method of labeling shall be acceptable. All phase conductors shall be labeled in the pull box nearest their termination. Phase conductors shall be labeled with phase designation. Lighting conductors shall be labeled as appropriate.

SP27-14 DETECTOR LOOPS

Loop detectors shall be pre-formed, suitable for high temperature installation. The loop detectors shall withstand hot tar being poured directly over the loop (4500 F).

Residue resulting from slot cutting operations shall not be permitted to flow across shoulders or lanes occupied by public traffic and shall be removed from the pavement surface.

For a 2-loop series installation, the front loop closest to the limit line or crosswalk shall be located one foot from the line. The remaining loop shall be spaced ten feet from the back of the first loop unless otherwise noted on the Plans.

The front loop closest to the limit line or crosswalk shall be a circular loop with a wire pattern as shown in "Type E Loop Configuration" as shown on ES-5B of the State Standard Plans.

The Contractor shall splice loops to the existing detector lead-in cable (DLC), unless otherwise shown on the plans. The loops identified as a count loop shall be spliced to a separate DLC to the controller cabinet. Where shown on the plans, contractor shall install a new detector handhole box (G5 box) with a 2" stub to the existing box.

In the presence of the Engineer, the Contractor shall test the detectors with a motor-driven cycle (as defined in the California Vehicle Code) that is licensed for street use by the Department of Motor Vehicles of the State of California. The unladen weight of the vehicle shall not exceed 220 pounds and the engine displacement shall not exceed 100 cubic centimeters. Special features, components or vehicles designed to activate the detector shall not be permitted for the test. The Contractor shall provide an operator who shall drive the vehicle through the detection area of the detector loops at not less than 3 miles per hour or more than 7 miles per hour. The detector shall provide an indication in response to this test.

Any detector loops installed by Contractor and found to be defective or damaged shall be replaced and retested. The cost of retesting and replacement of defective loops shall be born solely by the Contractor.

SP27-15 TESTING

Electrical systems shall be tested for proper function for five consecutive days prior to acceptance by the Engineer. Failure within the five days shall require a new five-day functional test period.

Any damage to new equipment installed as part of a modified facility prior to or during the "five-day functional test" shall be repaired by the Contractor at the Contractor's expense. The "five-day functional test" will begin on the day the system is completed and/or put into operation. The Contractor is responsible for the maintenance of all installed or relocated system until the Final Acceptance by the City Council.

In the event that the Contractor is unable to respond to a problem that develops during the functional test, or that for any reason he is unable to correct the problem in a timely fashion as determined by the City, the City may have its own maintenance personnel work on the problem. Any such work performed by the City shall not invalidate the guarantee and warranty required by Contract, and shall be at the Contractor's expense.

SP27-16 SERVICE

The Contractor shall modify the existing service cabinet at intersection of Mt. Diablo Boulevard and Second Street to accommodate the new lighting circuit(s), including any required modification to the PG&E service feed.

The Contractor shall coordinate with PG&E well in advance of the project for service interruption as required for connection of new street lights to the existing service. The Contractor shall furnish and install all materials and equipment necessary to complete the electrical connections between the terminating point of PG&E service and the Project electrical system, as shown on the Plans and as required to provide the intended function and service.

SP27-17 MEASUREMENT AND PAYMENT

The contract unit price paid per each for **"Install City-Furnished Street Light Assemblies"** shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work to install a functional street lighting system as shown on the Plans, as specified in these Special Provisions, the State Standard Plans and Specifications, and as directed by the Engineer, including but not be limited to- coordinating to receive, off load, store, and protect the City-furnished materials; excavation; removing, off-hauling, and disposal of spoils; preparing subgrade; installing standard or spread foundation; installing street light assembly; provide and install flexible conduit for the GFIC receptacle; making all electrical connections; touch-up painting; repair and restoration of existing pavement and surface conditions; and performing functional tests, and no additional payment shall be allowed therefor.

The contract unit price paid per each for **"Pull Boxes"** shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in installing new pull boxes as shown on the Plans, as specified in these Special Provisions, the State Standard Plans and Specifications, and as directed by the Engineer, including but not be limited to- excavation; removal,

off-haul, and disposal of spoils; furnishing and installing boxes with rock sumps; and repair and restoration of surface conditions, and no additional payment shall be allowed therefor.

The contract unit prices paid per each for “**Detector Loops**” of various types listed on the Bid Schedule shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in installing the traffic signal detector loops, including but not be limited to- sawcutting; furnishing and installing new loop wires; splicing to existing lead-in cables; sealing; furnishing and installing new G5 detector handhole box and stub to existing box, relocating/replacing detector handholes, and testing; and no additional compensation shall be allowed therefor.

The Contract Price paid per linear foot for “**Electrical Conduits and Conductors (Joint Trench with Irrigation Sleeve),**” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in installing electric conduits and conductors in a joint trench with irrigation pipes, conduits, and sleeves as shown on the Plans, as specified in these Special Provisions, the State Standard Plans and Specifications ,and as directed by the Engineer, and shall include but not be limited to-potholing for utilities, sawcutting; excavation; removal, off-haul, and disposal of spoils; trenching; boring; installation of all types of backfill materials; repair and restoration of existing pavement and surface conditions; splicing of conductors; coordination and all required work to complete all electrical connections to both existing and newly constructed facilities; making all the tests; and no additional payment shall be allowed therefor. Measurement shall be made by the actual linear feet of joint trench regardless of the number of conduits, pipes, or conductors installed.

The Contract Price paid per linear foot for “**Electric Conduits and Conductors (Not in Joint Trench)**” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in installing electrical conduits and conductors that are not in a joint trench, as shown on the Plans, as specified in these Special Provisions, the State Standard Plans and Specifications ,and as directed by the Engineer, including but not be limited to- potholing for utilities; sawcutting; excavation; removal, off-haul, and disposal of spoils; trenching; boring; installation of all backfill; repair and restoration of existing pavement and surface conditions; splicing of conductors; coordination and all required work to complete all electrical connections to both existing and newly constructed facilities; and no additional payment shall be allowed therefor. Measurement shall be made by the actual linear feet of conduit trench, regardless of the number of conduits, and conductors installed.