SPECIAL PROVISIONS

FOR

Transportation Management Center Equipment Upgrade

Federal Project No.: CML-5008 (191)

City of Stockton Project No.: WT 21010

Prepared for
City of Stockton

Dated March 6, 2024

CITY PROJECT NO. WT21010

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

Joy Bhattacharya, PE, PTOE

REGISTERED CIVIL ENGINEER

TABLE OF CONTENTS

Contents

DIVISION I GENERAL PROVISIONS 1
SECTION 1 - SPECIFICATIONS AND PLANS 1
1-1.01 Specifications 1
1-1.02 Plans 1
1-1.03 Terms and Definitions 1
SECTION 2 – BIDDING AND BID PROTESTS 2
SECTION 3 – CONTRACT AWARD AND EXECUTION 3
SECTION 4 – SCOPE OF WORK 3
4-1.01 Differing Site Conditions (23 CFR 635.109) 4
4-1.02 Changes and Extra Work 4
SECTION 5 – CONTROL OF WORK 4
5-1.01 Contract Components 4
5-1.02 Subcontracting 4
5-1.03 Disadvantaged Business Enterprises (DBE) 4
5-1.04 Coordination With Other Entities 5
5-1.05 Submittals 6
5-1.06 Job Site Appearance 7
5-1.07 Staging Area 8
5-1.08 Construction Staking 8
5-1.09 Increased or Decreased Quantities 8
5-1.10 Stop Notice Withholds 9
5-1.11 Rights in Land 9
5-1.12 As-Built/Record Drawings 9
5-1.13 Notice of Potential Claim 10
5-1.14 Records 10
5-1.15 Noncompliant and Unauthorized Work 11
5-1.16 Property and Facility Preservation 11
5-1.17 Pre-Construction Survey 11
5-1.18 Cooperation 13
SECTION 6 – CONTROL OF MATERIALS 15
6-1-01 BLANK 15
6-1-02 Furnished Materials 15
6-1-03 BLANK 15
6-1.04 Buy America Requirements 15
6-1.05 Quality Assurance Program 16
6-1.06 Testing 16
6-1.07 Pre-qualified and Tested Signing and Delineation Material 17
SECTION 7 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC ..18
7-1.01 General 18
7-1.02 Maintaining Public Convenience and Safety 18
7-1.03 Trench Safety 18
7-1.04 Public Convenience 18
7-1.05 Public Safety 19

7-1.06 Indemnification and Insurance 20
7-1.07 Federal Laws for Federally–Aid Contracts (Form 1273) 20
SECTION 8 – PROSECUTION AND PROGRESS 20
8-1.01 Time of Completion 20
8-1.02 Liquidated Damages 21
8-1.03 Progress Schedule 21
8-1.04 Federal Lobbying Restrictions 23
8-1.05 Pre-Construction Meeting 23
8-1.06 Post-Construction Meeting 24
SECTION 9 – PAYMENT 24
9-1.01 Schedule of Values 24
9-1.02 Description of Work 24
9-1.03 Quantities 35
9-1.04 Unsatisfactory Progress 37
9-1.05 Mobilization 38
DIVISION II GENERAL CONSTRUCTION 38
SECTION 10 – GENERAL CONSTRUCTION 38
10-1.01 Order of Work 38
10-1.02 Alternative Equipment 40
10-1.03 Inspections 41
10-1.04 Obstructions 41
10-1.05 System Outage Request, City of Stockton Facilities 42
10-1.06 Directional Boring 43
10-1.07 Sheeting and Shoring 47
10-1.08 Surface Restoration 47
SECTION 12 – TEMPORARY TRAFFIC CONTROL 48
12-1.01 Maintaining Traffic 48
12-1.02 Traffic Control System for Lane Closure 51
12-1.03 Not Used 52
12-1.04 Not Used 52
12-1.05 Construction Area and Informational Signs 52
12-1.06 Maintaining Existing and Temporary Electrical Systems 53
12-1.07 Barricades and Channelizers 53
SECTION 13 – WATER POLLUTION CONTROL 54
SECTION 14 – ENVIRONMENTAL STEWARDSHIP 54
14-1.01 Construction Site Waste Materials Management 54
14-1.02 Air Pollution Control 56
14-1.03 Dust Control, Apply Water, Site Maintenance, and Cleanup 56
14-1.04 Sound Control Requirements 57
14-1.05 Supplied Biologist will be done by others 58
14-1.06 Cultural Resources 59
14-1.07 Soil Management Plan 59
SECTION 15 – EXISTING FACILITIES 59
15-1.01 Existing Facilities 59
SECTION 16 – BLANK 61
DIVISION III EARTHWORK AND LANDSCAPE 61
SECTION 17 – EARTHWORK AND LANDSCAPE 61

17-1.01 Clearing and Grubbing 61
SECTION 18 – BLANK 62
SECTION 19 – EARTHWORK 62
19-1.01 Roadway Excavation 62
19-1.02 Trench Excavation and Backfill 63
19-1.03 Not Used 65
SECTION 20 – LANDSCAPE 65
20-1.01 Planting and Irrigation 65
20-1.02 Not Used 67
SECTION 21 – BLANK 67
DIVISION IV SUBBASES AND BASES - BLANK 67
DIVISION V SURFACINGS AND PAVEMENTS - BLANK 67
DIVISION VI STRUCTURES - BLANK 67
DIVISION VII DRAINAGE FACILITIES - BLANK 67
DIVISION VIII – MISCELLANEOUS CONSTRUCTION 67
SECTION 73 – BLANK 67
SECTION 75 – MISCELLANEOUS METALS 67
75-1 Miscellaneous Iron and Steel 67
SECTION 77– LOCAL STRUCTURE 68
77-1 Transportation Management Center (TMC) Equipment Upgrade 68
77-1.01 Scope 68
77-1.02 Regulations and Code 68
77-1.03 Certificate of Compliance, Warranties, Guarantees and Instruction Sheets 68
77-1.04 Description 69
77-1.05 Materials General 69
77-1.06 Equipment List and Drawings 69
77-2 Traffic Signal System 69
77-2.01 Description 69
77-2.02 Traffic Signal Controller 70
77-2.03 Traffic Signal Controller Firmware/Software 70
77-2.04 Managed Ethernet Switch 71
77-2.05 Small Form-Factor Pluggables (SFP) Modules 73
77-2.06 Network Management Software 74
77-2.07 KITS Software 74
77-3 Fiber Optic System 74
77-3.01 Not Used 74
77-3.02 Not Used 74
77-3.03 Not Used 74
77-3.04 Fiber Optic Conduit 74
77-3.05 Fiber Optic Cable 75
77-3.06 Reassignment of Fiber Optic Cables 82
77-3.07 Removal of Existing Fiber Optic Cables 82
77-3.08 Not Used 82
77-3.09 Fiber Patch Cords 82
77-3.10 Patch Panels 83
77-3.11 Not Used 83
77-3.12 Not Used 83

77-4 New Traffic Management Center (TMC) 83
77-4.01 Video Wall 83
77-4.02 Wall Mounted Screen 84
77-4.03 Cabinet with Countertop 85
77-4.04 Portable Cabinet with Wheels 85
77-4.05 Workstation Desk 85
77-4.06 Workstation Chair 85
77-4.07 Digital Clock 85
77-4.08 Electric Receptacles – 15 AMP/120V 85
77-4.09 CAT5E or CAT6 Cables 86
77-4.10 HDMI Cables 86
77-4.11 RG6 Coax Cables 86
77-4.12 Workstation Assembly 86
77-4.13 Surge Protector UPS 2200VA 87
77-4.14 Door Stopper 87
77-4.15 Network IP Ethernet Switch 87
77-4.16 Video Wall Controller and Software 87
77-4.17 Firewall/Router 96
77-5 Old TMC Server Room, Old TMC Room, and IDF Closet 97
77-5.01 Remove and Salvage Existing Equipment/Furniture 97
77-5.02 Rack 97
77-5.03 Cable Ladder 97
77-5.04 Cable Tray Extension 97
77-5.05 Cable/Wire Manager 97
77-5.06 Electric Receptacle 98
77-5.07 Managed Ethernet Switch 98
77-5.08 CAT6 Patch Panel 98
77-5.09 Rack Mount Fiber Housing and Patch Panels 98
77-5.10 Rack Mount Power Splitter with Surge Protector 98
77-5.11 UPS Controller with Battery Banks 98
DIVISION IX TRAFFIC CONTROL DEVICES - BLANK 99
DIVISION X ELECTRICAL WORK - BLANK 99
DIVISION XI MATERIALS 99
SECTION 90 – CONCRETE 99
90-1.01 Minor Concrete 99

DIVISION I GENERAL PROVISIONS

SECTION 1 - SPECIFICATIONS AND PLANS

1-1.01 Specifications

The work described herein shall be done in accordance with the current City of Stockton, Department of Public Works Standard Specifications and Plans, and the latest Editions of the State of California, Department of Transportation Standard Specifications and Standard Plans, California MUTCD, as referenced therein, and in accordance with the following Special Provisions. To the extent the California Department of Transportation Standard Specifications implement the STATE CONTRACT ACT, (or certain provisions of the Public Contracts code which are inapplicable to charter cities) they shall not be applicable.

In case of conflict or discrepancy between any of the Contract Documents, the order of documents listed below shall be the order of precedence, with the first item listed having the highest precedence.

1. Contract Change Order (changes last in time are first in precedence)
2. Addenda to Contract Agreement
3. Contract Agreement
4. Permits
5. Notice Inviting Bids and Instructions to Bidders
6. Addendums and Letters of Clarification
7. Special Provisions
8. Project Plans
9. City of Stockton Standard Specifications
10. City of Stockton Standard Drawings
11. Caltrans Standard Specifications
12. Caltrans Standard Plans

Should it appear that the work to be done or any of the matters relative thereto are not sufficiently detailed or explained in these specifications, the special provisions, or the plans, the contractor shall apply to the Engineer in writing for such further explanations as may be necessary and shall conform to them as part of the contract. In the event of any doubt or question arising respecting the true meaning of these specifications, the special provisions or the plans, reference shall be made to the Engineer, whose decision thereon shall be final.

1-1.02 Plans

The bidder's attention is directed to the provisions in Section 1-1.03 “Definitions”, of the Standard Specifications and Section 1-1.07 “Definitions”, of the Caltrans Specifications.

1-1.03 Terms and Definitions

Wherever in the Standard Specifications, Special Provisions, Notice to Contractors, Proposal, Contract, or other contract documents the following terms are used, the intent and meaning shall be interpreted as follows:

City or Owner -	City of Stockton
Director -	Director of Public Works, City of Stockton
Standard Specifications -	Current City of Stockton, Standard Plans and Specifications, inclusive of all current revisions, and amendments, unless otherwise stated.
Caltrans Specifications -	State of California, Department of Transportation, Current Standard Plans and Specifications, inclusive of all current revisions, and amendments, unless otherwise stated.
Laboratory -	City of Stockton Department of Public Works Laboratory or consultant's laboratory
Department -	Department of Public Works, City of Stockton
Engineer -	City Engineer, City of Stockton, acting either directly or through properly authorized Engineer agents and consultants
California MUTCD	Latest edition of California Manual on Uniform Traffic Control Devices (MUTCD), and any amendments and revisions thereto.
Working Day	defined as any eight-hour day, except as follows: Saturday, Sunday, and City recognized holidays.

SECTION 2 – BIDDING AND BID PROTESTS

Refer to the Instructions to Bidders and Section 2, “Bidding” of the Standard Specification.

In case of Bid protests, attention is directed to the provisions in Section 2-1.51, “Bid Protests” of the Standard Specifications. The party filing the protest must have submitted a bid for the work. A subcontractor of a bidder may not submit a bid protest.

A copy of bid protests are to be sent to the following address:

Attention: Dennis Yep
City of Stockton
Public Works Department
22 E. Weber Avenue, Room 301
Stockton, CA 95202

SECTION 3 – CONTRACT AWARD AND EXECUTION

The bidder's attention is directed to the provisions in Section 3, "Contract Award and Execution," of the Standard Specifications and these Special Provisions.

Bidders and subcontractors are required to be available the day of bid opening to answer questions.

The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed.

If the City awards the Contract, the award is made to the lowest responsible bidder within 90 days after the day of the bid opening.

SECTION 4 – SCOPE OF WORK

Attention is directed to the provisions in Section 4, “Scope of Work” of the Caltrans Specifications, Standard Specification, and these Special Provisions.

At no time shall construction begin without receiving notice that the contract has been approved by the City Attorney or an authorized representative. The Contractor shall follow the sequence of construction and progress of work as specified in Section 10-1.01, "Order of Work", of these Special Provisions.

The Contractor shall diligently prosecute all work items to completion.

Full compensation for any additional costs occasioned by compliance with the provisions in this section shall be considered as included in the prices paid for the various contract items of work, and no additional work compensation will be allowed therefore.

Bidders will be required to carefully examine these special provisions and attachments to judge for themselves as to the nature of the work to be done and the general conditions relative thereto and the submission of a proposal hereunder shall be considered prima-facie evidence that the bidder has made the necessary investigation and is satisfied with respect to the conditions to be encountered, the character, quantity and quality of the work performed. For work to be completed, contractors are advised to visit and review the job site prior to the submission of their bid. Bids not presented on the City forms shall be cause for considering the bid as non-responsive.

Bidders must be thoroughly competent and capable of satisfactorily performing the work covered by the proposal, and when requested shall furnish such statements relative to previous experience on similar work, the plan or procedure proposed, and the organization and the equipment available for the contemplated work, and any other as may be deemed necessary by the City Engineer in determining such competence and capability.

It shall be understood that the Contractor shall be required to perform and complete the proposed work in a thorough and diligent manner, and to furnish and provide in connection therewith all necessary labor, tools, implements, equipment, materials and

supplies. The Contractor is responsible to take all necessary precautions and use best practices in the industry to perform all work require completing the project.

4-1.01 Differing Site Conditions (23 CFR 635.109)

Attention is directed to the provisions in Section 4-1.06, "Differing Site Conditions," of the Caltrans Specifications and the Standard Specifications. Contractor shall notify the Engineer if he/she finds physical conditions differing materially from contract documents.

4-1.02 Changes and Extra Work

Attention is directed to the provisions in Section 4-1.05A “Changes and Extra Work” of the Standard Specifications and these Special Provisions.

SECTION 5 – CONTROL OF WORK

Attention is directed to the Instruction to Bidders, provisions in Section 5 “Control Work” of the Caltrans Specifications, Standard Specification and these special provisions.

5-1.01 Contract Components

Attention is directed to the provisions in Section 5-1.02,”Contract Components" of the Standard Specifications. If a discrepancy found or confusion arises, submit a Request for Information (RFI).

5-1.02 Subcontracting

The contractor shall **physically attach** the FHWA Form 1273 (revised May 1, 2012, which is included in Instructions to Bidders) to all contracts, subcontracts, and lower tier subcontracts.

Attention is directed to the provisions in Section 5-1.13A, "Subcontracting," of the Standard Specifications, and Caltrans Specifications.

Pursuant to the provisions of Section 1777.1 of the Labor Code, the Labor Commissioner publishes and distributes a list of contractors ineligible to perform work as a subcontractor on a public works project. This list of debarred contractors is available from the Department of Industrial Relations web site at: http://www.dir.ca.gov/DLSE/Debar.html

5-1.03 Disadvantaged Business Enterprises (DBE)

Attention is directed to the provisions in Section 5-1.13B, "Disadvantaged Business Enterprises" of the Caltrans Specifications and these Special Provisions. Refer to the DBE Instructions to Bidders and Federal Aid Contract Bidders Checklist for form submittal timeline. Also refer to DBE Instructions to Bidders for this project, listed on the City of Stockton’s website on the Bid Flash webpage: http://www.stocktongov.com/services/business/bidflash/default.html.

If a DBE is decertified before completing its work, the DBE must notify you in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify you in writing of the certification date. On work completion, complete a Disadvantaged Business Enterprises (DBE) Certification Status Change form.

Submit the form within 30 days of Contract acceptance.

Upon work completion, complete a *Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors* form CEM-2402(F) (Exhibit 17-F). Submit it within 90 days from the date of Contract acceptance. The City withholds $10,000 until a satisfactory form is submitted. The City releases the withhold upon submission of the completed form.

The contractor shall not terminate or substitute a listed DBE for convenience and perform the work with his own forces or obtain materials from other sources without authorization from the City. The City has established a project-specific DBE Goal of 21%.

5-1.04 Coordination With Other Entities

5-1.04A Permits

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work. The Environmental Quality Act (Public Resources Code, Sections 21000 to 21176, inclusive) may be applicable to permits, licenses and other authorizations which the Contractor must obtain from local agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of those statutes in obtaining the permits, licenses and other authorizations and they shall be obtained in sufficient time to prevent delays to the work. In the event that the City has obtained permits, licenses or other authorizations, applicable to the work, in conformance with the requirements in the Environmental Quality Act, the Contractor shall comply with the provisions of those permits, licenses and other authorizations. The following is a non-inclusive list of the required permits and/or licenses:

- Contractor's License. At a minimum the Contractor shall possess at the time of bid and maintain throughout the duration of the contract, a valid California Class A, Class B or C-10 Contractor License.
- Business License. Contractor shall possess prior to the execution of the contract and maintain throughout the duration of the contract, a valid City of Stockton business license.
- City of Stockton Encroachment Permit (No Fee)
- City of Stockton Building Permit (No Fee)
- Stockton Municipal Utilities Department Right-of-Entry Permit (Contractor pays)
- State's Water Resources Control Board Stormwater Construction General Permit (Contractor pays)
  - Storm Water Pollution Prevention Plan
  - Notice of Intent (NOI)
  - Notice of Termination (NOT)
- Caltrans Encroachment Permit (If Applicable)

5-1.05 Submittals

The following is a list of anticipated submittals for the project. The list is provided to aid the Contractor in determining the scope of work, but is not intended to be all inclusive and additional submittals may be required:

1) Baseline Progress Schedule (Critical Path Method)
2) Storm water Pollution Prevention Plan
3) Approved Notice of Intent from State Water Resources Control Board
4) Funding Sign(s) Installed
5) Pre-construction survey
6) Temporary Traffic Control (includes Pedestrian Detour Plan)
7) Contractor Safety Plan
8) Portland Cement Concrete Mix Design (if applicable)
9) Staging Agreement with private property owners (if applicable)
10) City of Stockton Encroachment Permit (No Fee)
11) City's Construction and Demolition Debris Recycling Report
12) List of submittals
13) Product submittals
14) Lead Compliance Plan (If Applicable)
15) A Schedule of Values
16) Product Warranties

The Contractor shall transmit each submittal to the Engineer for review and approval with the submittal form approved by the Engineer. Submittals shall be sequentially numbered on the submittal form. Resubmittals shall be identified with the original number and a sequential resubmittal suffix letter. The original submittal shall be numbered X. The first resubmittal shall be numbered X-a and so on. Identify on the form the date of the submittal, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and/or special provision number, as appropriate. The Contractor shall sign the form certifying that review, approval, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and contract documents. Any incomplete submittals will be returned for resubmittal.

Schedule submittals to expedite the Project, and deliver to Engineer at the Engineer's office, see Section 10-1.01, "Order of Work," of these Special Provisions.

For each submittal for review, allow 15 calendar days excluding delivery time to and from the Contractor.

Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

When revised for resubmission, identify all changes made since previous submission.

Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

Submittals not requested either in the Contract Documents or in writing from the Engineer will not be recognized or processed.

Within 10 calendar days after Notice of Award submit a complete list of all submittals to be submitted and the dates when they will be submitted. **All submittals shall be submitted within 30 calendar days from the date the Notice of Award; otherwise project working days will commence, with or without issuance of the Notice to Proceed**.

Wherever called for in the Contract Documents, or where required by the Engineer, the Contractor shall furnish to the Engineer for review, 1 set, plus one reproducible copy, of each shop drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, list, graphs, catalog sheets, data sheets, and similar items. Whenever the Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of California, unless otherwise directed.

Normally, a separate submittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multi-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the Engineer.

Except as may otherwise be indicated herein, the Engineer will return prints of each submittal to the Contractor with their comments noted on the submittal. The Contractor shall make complete and acceptable submittals to the Engineer by the second submission of a submittal item. The City reserves the right to withhold monies due to the Contractor to cover additional costs of the Engineer's review beyond the second submittal.

If a submittal is returned to the Contractor marked "NO EXCEPTIONS TAKEN", formal revision and resubmission of said submittal will not be required.

If a submittal is returned to the Contractor marked "MAKE CORRECTIONS NOTED", formal revision and resubmission of said submittal will not be required.

5-1.06 Job Site Appearance

Attention is directed to Section 4-1.13 "Cleanup" of the Caltrans Specifications, Section 5-1.31 "Job Site Appearance" of the Standard Specifications, and these Special Provisions.

The Contractor shall maintain a neat appearance to the work.

Broken concrete and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. Contractor shall pay to the City of Stockton the sum of Two

Hundred Fifty Dollars ($250) for every calendar day where debris has remained on the job site overnight.

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

5-1.07 Staging Area

Attention is directed to Section 5-1.36E, "Use of Private property," of the Standard Specification and these Special Provisions. The street right-of-way shall be used only for activities 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 material storage or other purposes that are not necessary to perform the required work.

5-1.08 Construction Staking

Section 5-1.26, "Construction Surveys", of the Standard Specifications is deleted, and replaced with the following:

1. The Contractor shall be responsible for all construction survey stakes necessary to construct the project in accordance to the lines, grades, sections, stage construction/traffic handling, and traffic signalization, pavement delineation plan described in the plans and specifications.

2. Contractor shall be responsible referencing all existing monumentation within the limits of the project prior to removal of any existing monuments. Monument referencing shall be reviewed and approved by the engineer prior to commencing of the work.

3. The Contractor shall employ a Land Surveyor registered in the State of California or an appropriately registered Civil Engineer to perform such survey work. All stakes and marks set by the Contractor's Land Surveyor or Civil Engineer shall be carefully preserved by the Contractor. In case such stakes and marks are destroyed or damaged, they will be promptly replaced, at the direction of the Engineer at no additional cost to the City. Copies of all field notes and cut sheets shall be provided to the City at no additional cost to the City.

4. The Contractor shall be responsible for completing “Acknowledgement of Monument Preservation” forms prior to the start of construction and after construction is completed. Both forms can be found at the end of these specifications.

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

5-1.09 Increased or Decreased Quantities

The City reserves the right to make such alterations, deviations, additions to, or omissions

from the plans and specifications, including the right to increase or decrease the quantity of any item or portion of the work or to omit any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable and to require such extra work as may be determined by the Engineer to be required for the proper completion or construction of the whole work contemplated, without adjustment in the unit price as bid.

Attention is directed to Section 4-1.02, “Changes and Extra Work,” of these Special Provisions. Any such changes will be set forth in a contract change order, which will specify the work to be done in connection with the change made, adjustment of contract time, if any, and the basis of compensation for such work. A contract change order will not become effective until approved by the City Manager and / or City Council.

5-1.10 Stop Notice Withholds

Section 9-1.16E(4) “Stop Notice Withholds” of the Caltrans Specifications is amended to read as follows:

> "The City of Stockton, by and through the Department of Public Works, may at its option and at any time retain out of any amounts due the Contractor, sums sufficient to cover claims, filed pursuant to Section 3179 et seq. of the Code of Civil Procedures."

5-1.11 Rights in Land

All work, equipment parking, or any other activity associated with the project shall be confined to the project limits within the street rights-of-way. The Contractor's use of any other property exclusively in connection with this project shall be by a written agreement between the property owner and the Contractor. A certified copy of any such agreement shall be furnished to the Engineer prior to the use of such property by the Contractor.

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

5-1.12 As-Built/Record Drawings

The Contractor shall maintain a complete set of drawings on-site for the purpose of keeping up to date all field modifications. This plan set shall be available for review by the project Inspector and the Engineer. These plans shall be provided to the Inspector after the completion of construction at the Post-Construction Meeting and prior to the final payment. All revisions, modifications, and/or changes shall be marked clearly. Notes and dimensions shall be in red and be clear and legible. These plans will be used by the Engineer to mark up the original plan sheets with the revisions made during construction.

A list shall be maintained of any trees removed during the course of construction by the Contractor or his Subcontractor, identifying the location, size, and species (common name). This list shall be submitted at the Post-Construction Meeting.

Full compensation for furnishing the As-Built/Record Drawings shall be considered included in the prices paid for the various bid items of work, and no additional compensation will be considered therefore.

5-1.13 Notice of Potential Claim

The Contractor shall not be entitled to the payment of any additional compensation for any cause, or for the happening of any event, thing, or occurrence, including any act or failure to act, by the Engineer, unless he has given the Engineer due written notice of potential claim as hereinafter specified. However, compliance with this section shall not be a prerequisite for matters within the scope of the protest provisions under “Changes” or “Time of Completion” or within the notice provisions in “Liquidated Damages”. The written notice of potential claim shall set forth the items and reasons which the Contractor believes to be eligible for additional compensation, the description of work, the nature of the additional costs and the total amount of the potential claim. If based on an act or failure to act by the Engineer, written notice for potential claim must be given to the Engineer prior to the Contractor commencing work. In all other cases, written notice for potential claims must be given to the Engineer within 15 days after the happening of the event, thing or occurrence giving rise to the potential claim.

It is the intention of this Section that potential differences between the parties of this Contract be brought to the attention of the Engineer at the earliest possible time so that appropriate action may be taken and settlement may be reached. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any act or failure to act by the Engineer or any event, thing or occurrence for which no written notice of potential claim was filed.

5-1.14 Records

The Contractor shall maintain cost accounting records for the contract pertaining to, and in such a manner as to provide a clear distinction between, the following 6 categories of costs of work during the life of the contract:

A. Direct costs of contract item work.
B. Direct costs of changes in character in conformance with Sections 4-1.05B and 9-1.15, "Work-Character Changes," of the Caltrans Specifications.
C. Direct costs of extra work in conformance with Section 4-1.02, "Changes and Extra Work," of these Special Provisions.
D. Direct costs of work not required by the contract and performed for others.
E. Direct costs of work performed under a notice of potential claim in conformance with the provisions in Section 5-1.43, "Potential Claims and Dispute Resolution," of the Caltrans Specifications.
F. Indirect costs of overhead.

Cost accounting records shall include the information specified for daily extra work reports in Section 5-1.27, "Records," of the Caltrans Specifications. The requirements for furnishing the Engineer completed daily extra work reports shall only apply to work paid for on a force account basis.

The cost accounting records for the contract shall be maintained separately from other contracts, during the life of the contract, and for a period of not less than 3 years after the date of acceptance of the contract. If the Contractor intends to file claims against the Department, the Contractor shall keep the cost accounting records specified above until

complete resolution of all claims has been reached.

5-1.15 Noncompliant and Unauthorized Work

Attention is directed to Section 5-1.30, "Noncompliant and Unauthorized Work," of Caltrans Specifications.

5-1.16 Property and Facility Preservation

Attention is directed to Section 5-1.36, "Property and Facility Preservation," of Caltrans Specifications and these Special Provisions. Due care shall be exercised to avoid injury to existing highway improvements or facilities, utility facilities, adjacent property, and roadside trees shrubs and other plants that are not to be removed. Roadside trees, shrubs and other plants that are not to be removed, and pole lines, fences, signs, markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and water lines, all highway facilities and any other improvements or facilities within or adjacent to the highway shall be protected from injury or damage, and if ordered by the Engineer, the Contractor shall provide and install suitable safeguards, approved by the Engineer, to protect the objects from injury or damage. If the objects are injured or damaged by reason of the Contractor's operations, the objects shall be replaced or restored at the Contractor's expense.

The facilities shall be replaced or restored to a condition as good as when the Contractor entered upon the work, or as good as required by the specifications accompanying the contract, if any of the objects are a part of the work being performed under the contract. The Engineer may make or cause to be made those temporary repairs that are necessary to restore to service any damaged highway facility. The cost of the repairs shall be borne by the Contractor and may be deducted from any moneys due or to become due to the Contractor under the contract. The fact that any underground facility is not shown upon the plans shall not relieve the Contractor of the responsibility under this Section of these Special Provisions. It shall be the Contractor's responsibility, pursuant thereto, to ascertain the location of those underground improvements or facilities which may be subject to damage by reason of the Contractor's operations.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in protecting or repairing property as specified in this Section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

5-1.17 Pre-Construction Survey

Attention is directed to Section 5-1.36D, “Survey Monuments” of the Caltrans Specifications and these Special Provisions. The Contractor shall perform a pre-construction survey of all existing structures, pavements, and other aboveground facilities within the project limits prior to beginning any work, noting their condition by means of photographs and video tapes supplemented by written documentation, where applicable.

Color photographs shall be taken with a digital camera at locations that are appropriate to show pre-existing conditions. Each photograph shall show the date and time the photograph was taken and clearly labeled showing the location, viewing direction, and any special features noted. Digital files of each photograph and a copy of videotapes shall

be submitted to the Engineer.

Preserving and Perpetuating Survey Monuments

The contractor shall exercise due caution and shall carefully preserve bench marks, control points, reference points and all survey monuments, and shall bear all expenses for replacement and/or error caused by his/her unnecessary loss or disturbance. The contractor shall consult with a licensed land surveyor or civil engineer licensed to practice land surveying in California prior to beginning construction to ensure that any preconstruction corner records, as required by the State of California Professional Land Surveyor' ACT have been filed with the County Surveyor, pursuant to Section 8771(a-f) of the California Business and Profession Code.

Action by:	Action:
Contractor's Land Surveyor	1. Identifies existing survey monuments. 2. Lists all existing survey monuments. 3. Ties out / performs construction staking of survey monuments. 4. Indicates survey monuments on construction plans.
	5. Files all pre-construction Corner Records or Records of Survey with San Joaquin County. The Corner Records or Record of Survey will show monuments within the area of construction reasonably subject to removal or disturbance not shown on a recent record document (recent record document is a filed survey map or corner record document completed with acceptable modern survey methods that includes survey ties from monuments within the construction area to monuments outside of the construction area). 6. Submits copies of pre-construction Corner Records or Records of Survey filed with San Joaquin County to City Engineer/Project Manager
Contractor	7. Preserves/perpetuates all survey monumentation during construction, including, but not limited to, those listed. 8. Restores survey monuments disturbed by construction.
Contractor's Land Surveyor,	9. Files all post-construction Corner Records and Records of Survey with San Joaquin County for all monuments disturbed during construction 10. Submits copies of Corner Records or Records of Survey filed with San Joaquin County to City Engineer/Project Manager.

Monuments set shall be sufficient in number and durability and efficiently placed so as not to be readily disturbed, to assure, together with monuments already existing, the perpetuation or facile reestablishment of any point or line of the survey.

When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or registered civil engineer prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, reconstructed, maintained, resurfaced, or relocated, and a corner record or record of survey of the references shall be filed with the county surveyor. They shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set to perpetuate their location if any monument could be destroyed, damaged, covered, or otherwise obliterated, and a corner record or record of survey filed with the county surveyor prior to the recording of a certificate of completion for the project. Sufficient controlling monuments shall be retained or replaced in their original positions to enable property, right-of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area. It shall be the responsibility of the governmental agency or others performing construction work to provide for the monumentation required by this section. It shall be the duty of every land surveyor or civil engineer to cooperate with the governmental agency in matters of maps, field notes, and other pertinent records. Monuments set to mark the limiting lines of highways, roads, streets or right-of-way or easement lines shall not be deemed adequate for this purpose unless specifically noted on the corner record or record of survey of the improvement works with direct ties in bearing or azimuth and distance between these and other monuments of record.

The decision to file either the required corner record or a record of survey pursuant to subdivision shall be at the election of the licensed land surveyor or registered civil engineer submitting the document.

Full compensation for pre-construction survey shall be included in the contract price for the various items of work involved, and no additional compensation will be allowed therefore.

5-1.18 Cooperation

Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to those limits, the Contractor shall cooperate with all the other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces. When 2 or more contractors are employed on related or adjacent work, or obtain materials from the same material source, as provided in Section 6, "Control of Materials" of the Caltrans Specifications, each shall conduct their operations in such a manner as not to cause any unnecessary delay or hindrance to the other. Each contractor shall be responsible to the other for all damage to work, to persons or property caused to the other by their operations, and for loss caused the other due to unnecessary delays or failure to finish the work within the time specified for completion.

The Contractor shall protect from damage any utility facilities that are to remain in place, be installed, relocated, adjusted, or otherwise rearranged.
The Contractor should note that the following utility companies and other agencies maintain facilities within the project area and may have forces in the project area or adjacent thereto:

- PG&E
- AT&T and other phone companies
- City of Stockton Municipal Utilities Department
- Comcast Cable Company
- California Water Service Company
- City of Stockton IT Department
- City of Stockton Police Department
- Tribe Representatives
- City Hall Renovation Project

The Contractor shall verify the horizontal and vertical locations of all existing utilities prior to start of construction. The Contractor shall be responsible for the repair and replacement of these or any other facilities damaged during construction. A minimum of forty-eight (48) hours or two (2) working days prior to beginning construction, the Contractor shall notify Underground Services Alert (USA), telephone (800) 227-2600, to have existing facilities marked in the field.

Installation and/or relocation of the aforementioned utilities and other agencies' facilities will require coordination with the Contractor's operations. The Contractor shall make necessary arrangements with the utility company and other agencies through the Engineer, and shall submit a schedule of work, verified by a representative of the utility company or other agency, to the Engineer. The Contractor shall notify the Engineer in writing one (1) month and again one (1) week prior to preparing the site for the utility relocation work or work to be done by other agencies.

The Contractor shall take care to avoid working in any area of the project, which may conflict with the work underway by the utility companies. The Contractor's construction schedule shall be prepared to avoid utility work.

The Contractor shall cooperate completely with all utility companies having facilities within the project area.

Attention is directed to the possible existence of underground facilities not known to the City or in a location different from that which is shown on the plans or in these Special Provisions. The Contractor shall take steps to ascertain the exact location of all underground facilities prior to doing work that may damage such facilities or interfere with their service.

Payment for complying with this Special Provision shall be included in the various items of work, and no additional compensation will be allowed therefore.

SECTION 6 – CONTROL OF MATERIALS

Attention is directed to the provisions in Section 6, "Control of Materials," of the Standard Specifications, and these Special Provisions.

6-1-01 BLANK

6-1-02 Furnished Materials

The following list identifies City Furnished Materials for this project for field equipment:

1. Virtual servers for Network Management and KITS to be provided by City for central management system
2. Cisco 9606 and 9300 Series Ethernet Switches

6-1-03 BLANK

6-1.04 Buy America Requirements

6-1.04A General

Buy America requirements do not apply to the following:

1. Tools and construction equipment used in performing the work
2. Temporary work that is not incorporated into the finished project

6-1.04B Crumb Rubber (Pub Res Code § 42703(d))

Furnish crumb rubber with a certificate of compliance. Crumb rubber must be:

1. Produced in the United States
2. Derived from waste tires taken from vehicles owned and operated in the United States

6-1.04C Steel and Iron Materials

Steel and iron materials must be melted and manufactured in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials
2. If the total combined cost of the materials produced outside the United States does not exceed the greater of 0.1 percent of the total bid or $2,500, the material may be used if authorized

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured.

All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

6-1.04D Manufactured Products

Iron and steel used in precast concrete manufactured products must meet the

requirements of section 6- 1.04C regardless of the amount used.
Iron and steel used in other manufactured products must meet the requirements of section 6-1.04C if the weight of steel and iron components constitute 90 percent or more of the total weight of the manufactured product.

6-1.04E Construction Materials
Buy America requirements apply to the following construction materials unless otherwise specified:

1. Non-ferrous metals
2. Plastic and polymer-based products such as:
2.1. Polyvinylchloride
2.2. Composite building materials
2.3. Polymers used in fiber optic cables
3. Glass
4. Lumber
5. Drywall

Where one or more of these construction materials have been combined by a manufacturer with other materials through a manufacturing process, Buy America requirements do not apply unless otherwise specified.

Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer's certificate of compliance must identify, where the construction material was manufactured and attest specifically to Buy America compliance.

All manufacturing processes for these materials must occur in the United States.

6-1.05 Quality Assurance Program
Refer to Instruction to Bidders.

6-1.06 Testing
Testing of materials and work shall conform to the provisions in Section 6, "Control of Materials" of the Caltrans Specifications and these special provisions. Whenever the provisions of Section 6 of the Caltrans Standard Specifications refer to tests or testing, it shall mean tests to assure the quality and to determine the acceptability of the materials and work. Contractor's attention is directed to the City's Quality Assurance Program in Instructions to Bidder Package.

Contractor to conduct and provide compaction and material testing. Testing includes and not limited to compaction testing and material testing. A relative compaction of 95% is expected on AC overlay, roadway sub grade and sidewalk areas.

Compaction testing will be required for subsoil, AB, and hot mix asphalt. For AB, sieve analysis, cleanness value, and R value may be provided by the vendor if the source is consistent.

For Asphalt Concrete, certificate of compliance, one sieve analysis, and one oil content test per day is required from supplier.

For concrete, certificate of compliance for Curb Gutter/Sidewalk, driveway, and ADA ramp or ASTM C39 compaction test, 4 cylinders per day, with a required 28 day strength of 3,000 psi is required.

The Engineer will deduct the costs for testing of materials and work found to be unacceptable, as determined by the tests performed by the Department and the costs for testing of material sources identified by the Contractor which are not used for the work, from moneys due or to become due to the Contractor. The amount deducted will be determined by the engineer.

Full compensation for performing the work in these specifications shall be included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

6-1.07 Pre-qualified and Tested Signing and Delineation Material

The California Department of Transportation maintains the list of Prequalified and Tested signing and delineation materials and products. Approval of pre-qualified and tested products and materials shall not preclude the Engineer from sampling and testing any of the signing and delineation materials or products at any time.

None of the listed signing and delineation materials and products shall be used in the work unless such material or product is listed on the California Department of Transportation's List of Approved Traffic Products. A Certificate of Compliance shall be furnished as specified in Section 6, "Control of Materials", of the Caltrans Specifications for signing and delineation materials and products. Said certificate shall also certify that the signing and delineation material or product conforms to the pre-qualified testing and approval of the California Department of Transportation, Division of Traffic Operations, and was manufactured in accordance with the approved quality control program.

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 will be considered for addition to said approved pre-qualified and tested list if the manufacturer of the material or product submits to the Division of Traffic Operations of the California Department of Transportation a sample of the material or product. The sample shall be sufficient to permit performance of all required tests. Approval of such materials or products will be dependent upon a determination as to compliance with the Specifications and any test the California Department of Transportation may elect to perform. The list of approved pre-qualified and tested signing and delineation materials and products can be found at the California Department of Transportation Web Site:

Caltrans Pre-Qualified and Tested Signing & Delineation Materials and Products

SECTION 7 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

7-1.01 General

Attention is directed to Section 7 “Legal Relations and Responsibility to the Public” of the Caltrans Specifications, Standard Specifications, and these Special Provisions.

7-1.02 Maintaining Public Convenience and Safety

Attention is directed to Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", and Section 12, "Temporary Traffic Control", of the Caltrans Specifications. Attention is also directed to Part 6 of the California MUTCD and Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", of Standard Specifications, and Section 12-1.01, “Maintaining Traffic” of these Special Provisions. Nothing in these Special Provisions shall be construed as relieving the Contractor from his responsibility as provided in said sections and Part 6 of the California MUTCD.

7-1.03 Trench Safety

Attention is directed to Sections 7-1.02K(6)(b), "Excavation Safety” of the Standard Specifications and these Special Provisions.

If required, the Contractor shall furnish all labor, equipment, and materials required to design, construct, and remove all shoring, lagging, cribbing, piling, and/or other types of support for the wall of any open excavation required for the construction of this project.

In making excavations for the project, the Contractor shall be fully responsible for providing and installing adequate sheeting, shoring, and bracing, as may be necessary as a precaution against slides or cave-ins and to fully protect all existing improvements of any kind from damage.

The Contractor shall be solely responsible for any damages which may result from his failure to provide adequate shoring to support the excavations under any or all of the conditions of loading which may exist or which may arise during the construction project. Nothing herein shall be deemed to allow the use of shoring, sloping, or protective system less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

Full compensation for conforming to the provisions in this section shall be included in the prices paid for various bid items, and no additional compensation will be made therefore.

7-1.04 Public Convenience

Contractor's attention is directed to the Section 12-1.01 “Maintaining Traffic” of these Special Provisions, Section 7-1.03 “Public Convenience” of the Standard Specifications, and these Special Provisions.

The Contractor shall notify San Joaquin Regional Transit District (SJRTD) a minimum of five (5) working days prior to beginning work. The Contractor shall coordinate with SJRTD if any bus stops and bus routes are affected.

The Contractor shall inform the City Fire Department, City Police Department, City Public

Works Department, Municipal Utilities Department (MUD), and all affected utilities no later than three (3) working days before work is to begin.

The Contractor shall provide the City with the name and telephone number (business, home and mobile) of three (3) representatives available at all times during the duration of the contract. Said names and telephone numbers shall be provided to the City of Stockton Public Works, Fire, and Police Departments.

The Contractor shall circulate printed form letters, approved by the Engineer, explaining the project to be done and the length of time inconvenience will be caused by the project and deliver same to the residents and businesses to be affected at least three (3) working days before work is to commence on their street. In addition, the Contractor shall provide temporary "No Parking" signs posted three (3) working days in advance of the work. Such signs shall be placed no further than fifty (50) feet apart. The additional "No Parking" signs shall be removed upon completion of the work and the opening of the street to traffic. It shall be the Contractor's responsibility to remove any vehicles obstructing his operations.

Full compensation for conforming to the provisions in this section shall be included in the prices paid for various bid items, and no additional compensation will be made therefore.

7-1.05 Public Safety

Contractor's attention is directed to the Section 12-1.01 “Maintaining Traffic” of these Special Provisions, Section 7-1.04 “Public Safety” of the Standard Specifications, and these Special Provisions. Nothing in the specifications voids the contractor’s public safety responsibilities.

All safety devices, their maintenance, and use shall conform to the latest requirements of OSHA and shall conform to the applicable provisions of the Part 6 "Temporary Traffic Control"**,** of the **California MUTCD**. It shall be the complete responsibility of the Contractor to protect persons from injury and to avoid property damage. Adequate barricades, construction signs, flashers, and other such safety devices, as required, shall be placed and maintained during the progress of the construction work, until the project is completed. Whenever required, flaggers shall be provided to control traffic.

The Contractor shall provide for the proper routing of vehicles and pedestrian traffic in a manner that will hold congestion and delay of such traffic to practicable minimum by furnishing, installing, and maintaining all necessary temporary signs, barricades, and other devices and facilities, as approved by the City Traffic Engineer. As the work progresses, the Contractor shall relocate, subject to the City Traffic Engineer's approval, such devices and facilities as necessary to maintain proper routing. The Contractor shall notify the City Traffic Engineer a minimum of three (3) working days prior to the relocation of any traffic control devices.

When work is not in progress on a trench or other excavation that requires closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Full compensation for furnishing, installing, moving, and removing of all necessary traffic control devices including, but not limited to, signing, striping, barricades, and flagging shall be included in the bid item for "Traffic Control", as shown on the bid schedule, and no additional compensation will be allowed therefor.

7-1.06 Indemnification and Insurance

Attention is directed to Section 7-1.05 “Indemnification” and Section 7-1.06, “Insurance” of the Standard Specifications, and Instruction to Bidders for this project.

Indemnification and Insurance shall conform to an Exhibit, which is attached to this project bid package and incorporated by this reference.

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

7-1.07 Federal Laws for Federally–Aid Contracts (Form 1273)

Attention is directed to Section 7-1.11 “Federal Laws for Federally-Aid Contracts” of the Caltrans Specifications, and Instruction to Bidders for this project.

Prime contractors and any lower-tier subcontractors with subcontracts in excess of $10,000 must complete form FHWA-1391 report for work performed during **the last PAY PERIOD of July.** Prime contractors are subject to a progress pay deduction (minimum amount of $1,000) for failure to submit form FHWA-1391s, including failure to submit form FHWA-1391s for applicable subcontractors, or if the report they submit are unsigned, illegal, or incomplete.

7-1.08 Not Used

SECTION 8 – PROSECUTION AND PROGRESS

Attention is directed to the provisions in Section 8 of the Standard Specifications, and these Special Provisions.

8-1.01 Time of Completion

Attention is directed to the provisions in Sections 8-1.05A, "Time", and 8-1.07, “Delay” of the Standard Specifications, and these Special Provisions.

The contract for the performance of the work and the furnishing of materials shall be executed within ten (10) days after the approval thereof by the City Attorney. The City will issue the Notice to Proceed following execution of the contract.

Submittals shall be delivered to the Engineer within thirty (30) calendar days of execution of contract. Contract shall not start any work on the job site until the Engineer approves the submittals. Refer to section 5-1.05, “Submittals” of these Special Provisions. The Contractor shall only enter the jobsite prior to approval of the above submittals for purposes of measuring field dimensions and locating utilities.

The Contractor shall diligently prosecute the contract work to completion within <u>ninety (90)</u> working days. The days to finish the punch list, provided by the City, are included in the Original Working Days.

Notice to Proceed will not be issued until all complete submittals have been reviewed at least once. Correction indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the contract requirements. The Engineer's review of Contractor Shop Drawing submittals shall not relieve the contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to error in Contractor submittals. The Contractor shall be responsible for the dimension and the design of adequate connections and details.

Prior to Notice to Proceed, the Contractor shall indicate in writing when all the traffic signal hardware and equipment, which makes the traffic signal and communication system operational, will be delivered to the project site. Based on the indicated delivery date, the date to commence the work will be issued by the City. If by any unforeseen action, the established delivery date cannot be made, the Contractor shall provide the City with a letter from the manufacturer indicating the reason why the delivery date cannot be met. The letter shall also indicate the revised delivery date. The City reserves the right to either accept the reason or to reject it. A letter from vendor is not acceptable.

Should the Contractor choose to work on a Saturday, Sunday, or on a holiday recognized by the labor unions, the Contractor shall reimburse the City of Stockton the actual cost of engineering, inspection, testing, superintendent, and/or other overhead expenses, which are directly chargeable to the contract. Should such work be undertaken at the request of the City, reimbursement will not be required.

8-1.02 Liquidated Damages

Attention is directed to the provisions in Section 8-1.10, "Liquidated Damages", of the Caltrans Specifications, Standard Specifications, and these Special Provisions.

The Contractor shall pay liquidated damages to the City of Stockton in the amount of $5,200 (fifty-two hundred dollars) per day for each and every calendar day that the work, with the exception of the maintenance period, remains incomplete after the expiration of the contract working days specified in these Special Provisions.

Full compensation for any costs required to comply with the provisions in this section shall be considered to be included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

8-1.03 Progress Schedule

GENERAL

Summary

Comply with Section 8-1.02, "Schedule," of the Caltrans Specifications, except you must:

1. Use computer software to prepare the schedule

2. Furnish compatible software for the Engineer's exclusive possession and use

The Contractor is responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.

Definitions

contract completion date: The current extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer as specified in Section 8-1.05, "Time," of the Caltrans Specifications.

data date: The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."

float: The difference between the earliest and latest allowable start or finish times for an activity.

milestone: An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.

near critical path: A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.

time-scaled network diagram: A graphic depiction of a Critical Path Method (CPM) schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

total float: The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

Submittals

General Requirements

Submit to the Engineer baseline, monthly updated, and final updated schedules, each consistent in all respects with the time and order of work requirements of the contract. Perform work in the sequence indicated on the current accepted schedule.

Each schedule must show:

1. Calculations using critical path method to determine controlling activities.
2. Duration activities less than 20 working days.
3. Each required constraint. Constraints other than those required by the special provisions may be included only if authorized.

The Engineer's review and acceptance of schedules does not waive any contract requirements and does not relieve the Contractor of any obligation or responsibility for submitting complete and accurate information. Correct rejected schedules and resubmit them within 7 days of notification by the Engineer, at which time a new review period of 7 days will begin.

Errors or omissions on schedules do not relieve the Contractor from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Engineer, either you or the Engineer discovers that any aspect of the

schedule has an error or omission, the Contractor must correct it on the next updated schedule.

Baseline Schedule

Submit to the Engineer a baseline schedule within 20 days of approval of the contract. Allow 20 days for the Engineer's review after the baseline schedule and all support data are submitted. Beginning the week the baseline schedule is first submitted, meet with the Engineer weekly to discuss and resolve schedule issues until the baseline schedule is accepted. The baseline schedule must include the entire scope of work and must show how the Contractor is plans to complete all work contemplated. Multiple critical paths and near-critical paths must be kept to a minimum. A total of not more than 50 percent of the baseline schedule activities must be critical or near critical, unless otherwise authorized by the Engineer. The baseline schedule must not extend beyond the number of working days originally provided in these special provisions.

Updated Schedule

Submit an updated schedule and meet with the Engineer to review contract progress on or before the 1st day of each month, beginning one month after the baseline schedule is accepted. Allow 15 days for the Engineer's review after the updated schedule and all support data are submitted, except that the review period will not start until any previous month's required schedule is accepted. Updated schedules that are not accepted or rejected within the review period are considered accepted by the Engineer.
The updated schedule must show:

1. Data date of the 21st day of the month or other date established by the Engineer
2. Changes from approved revised schedules

Final Updated Schedule

Submit a final updated schedule with actual start and finish dates for the activities within 30 days after completion of contract work. Provide a written certificate with this submittal signed by the Contractor’s project manager or an officer of the company stating, "To my knowledge and belief, the enclosed final updated schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the authority to sign the certificate to a responsible manager.

8-1.04 Federal Lobbying Restrictions

Refer to Instructions to Bidders.

8-1.05 Pre-Construction Meeting

The City of Stockton Public Works Department will schedule a pre-construction meeting with the Contractor following award of the contract and prior to commencing work (Contact 209-937-8411). The City will issue the Notice to Proceed following execution of the Contract. This meeting will be held in the City of Stockton, Public Works Department.

8-1.06 Post-Construction Meeting

The Contractor shall attend a post-construction meeting that will be arranged by the Public Works Department (Contact 209-937-8411) after completion of work and prior to acceptance and final payment. The project Design Engineer and the project Inspector will also attend this meeting. The purpose of the meeting will be to discuss the project and any related issues that can help improve future Public Works construction projects. This meeting will be held in the City of Stockton, Public Works Department.

SECTION 9 – PAYMENT

All measurements and payments for this work shall conform to all applicable provisions on Section 9, “Measurement and Payment” of the Standard Specifications, Instructions to Bidders, and these special provisions.

No partial payment will be made for any materials that are furnished on hand, but not yet installed or incorporated in the work. The work to be performed consists of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, unless specifically excepted, necessary, or required to install traffic signal equipment, install single mode fiber, and install equipment in Transportation Management Center and IT Server/Storage room, as further delineated on the plans and described in these Special Provisions.

All other work as may be necessary as indicated on the plans, in the specifications, and as required by the Engineer.

Upon completion of all of the work included herein, including approved contract change orders as appropriate, the Contractor may request that the Engineer file a Notice of Completion for the purposes of relief of maintenance and release of retention.

All materials designated to be removed shall become the property of the Contractor, unless otherwise noted, and shall be disposed in accordance with local, State, and Federal laws and ordinances.

Full compensation for disposal of materials and performing the work in these Special Provisions shall be included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

9-1.01 Schedule of Values

Submit a schedule of values within 15 days after Contract approval. Value schedules for each lump sum bid item shall be prepared and submitted to the Engineer as set forth in Section 9-1, "Lump Sum Contracts", of the Standard Specifications and Section 9-1.16B, “Schedule of Values,” of the Caltrans Specifications. Unless otherwise approved by the Engineer, materials on hand, but not incorporated into the work, shall not be included for measurement or for purposes of payment.

9-1.02 Description of Work

The work to be performed consists of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, unless specifically excepted,

necessary, or required to install required to install traffic signal equipment, install single mode fiber, and install equipment in Transportation Management Center and IT Server/Storage room, as further delineated on the plans and described in these Special Provisions.

The work in Base Bid shall include, but not be limited to, the following:

1. Mobilization (Base Bid Item No. 1)
    a. All costs connected with mobilization of Contractor's operations as described in these special provisions paid as lumpsum.

2. Traffic Control (Base Bid Item No. 2)
    a. Includes all labor, materials to provide in accordance with Section 12, "Temporary Traffic Control" of the Caltrans Specifications. Includes designing, furnishing, installing and maintaining traffic control as indicated on the plans and described in these Special Provisions. Also includes flagging costs, materials (including signs, cones, two (2) project information signs, portable delineators, portable changeable message signs, flashing arrows, and barricades and all other items shown on the traffic handling plans for which there is not a contract item in the estimate), tools, equipment, and incidentals (including overhead lighting, cellular phones and radios), and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer, including, but not limited to, temporary pavement markings (paint), temporary markers, temporary traffic striping (paint), and channelizers (surface mounted).Temporary Fence (Type CI-6). By linear foot and in the same manner specified for chain link fence (Type BW or WM, wood or metal posts) in Section 80, of the Caltrans Specifications, including maintaining, removing and disposing of it and performing the work as indicated on the plans and described in these Special Provisions.

3. Traffic Signal
    a. **General:** Includes providing all labor, materials, tools equipment, and incidentals to upgrade, traffic signal controllers and controller firmware, and replace unmanaged switches as indicated on the plans and described in these Special Provisions.
    b. **Furnish and Install New Traffic Signal Controller with Firmware/Software (Base Bid Item No. 3):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing a traffic signal controller with firmware/software, field installation as specified in these Special Provisions, and on the plans will be considered as included in the unit contract price paid for each "Furnish and New Install Traffic Signal Controller with Firmware/Software". This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

c. **Furnish and Install Firmware/Software in Existing M60 Controller (Base Bid Item No. 4):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing a traffic signal controller firmware/software, field installation, and trainings as specified in these Special Provisions, and on the plans will be considered as included in the unit contract price paid for each “Furnish and Install Firmware/Software in Existing M60 Controller”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

d. **Furnish and Install Managed Ethernet Switch and Power Supply (Base Bid Item No. 5):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing managed ethernet switch and power converter as specified in these Special Provisions, and on the plans will be considered as included in the unit contract price paid for each “Furnish and Install Managed Ethernet Switch and Power Supply”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

e. **Furnish and Install SFP Modules (SFP-22A and SFP 22B) (Base Bid Item No. 6):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing SFP modules as specified in these Special Provisions, and on the plans will be considered as included in the unit contract price paid for each “Furnish and Install SFP Modules (SFP-22A and SFP 22B)”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

f. **Furnish, Install and Configure Network Management Software in City-Furnished Virtual Server (Base Bid Item No. 7):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in configuring network management software as specified in these Special Provisions, and on the plans will be considered as included in the lumpsum price paid for each “Furnish, Install and Configure Network Management Software in City-Furnished Virtual Server”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

g. **Furnish and Install KITS Software in City-Furnished Server (Base Bid Item No. 8):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved to installing KITS software at City-negotiated price as specified in these Special Provisions, and on the plans will be considered as included in the contract lumpsum price paid for “Furnish and Install KITS Software”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

4. Fiber Optic System

a. **General:** Includes providing all labor, materials, tools equipment, and incidentals to provide backbone fiber and fiber connections between Old City Hall, Stewart Eberhardt Building (SEB), and new City Hall buildings

as indicated on the plans and described in these Special Provisions.

b. **Furnish and Install new 3" Conduit with Muletape and Flexible Innerduct (Base Bid Item No. 9):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing 3" conduit with tracer wire and flexible innerduct as specified in these Special Provisions, and on the plans will be considered as included in the contract price paid in linear foot for "Furnish and Install new 3" Conduit with Muletape and Flexible Innerduct" and no additional compensation will be allowed therefor.

c. **Furnish and Install 4,000' 48-Strand SMFO Cable (Base Bid Item No. 10):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing two (2) 48-strand SMFO cable between the SEB and new City Hall buildings as specified in these Special Provisions, and on the plans will be considered as included in the contract price paid in linear foot for "Furnish and Install 4,000' 48-Strand SMFO Cable". This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

d. **Furnish and Install 1,800' 288-Strand SMFO Cable (Base Bid Item No. 11):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing two (2) 288-strand SMFO cables between City Manhole #1 and SEB as specified in these Special Provisions, and on the plans will be considered as included in the contract price paid in linear foot for "Furnish and Install 1,800' 288-Strand SMFO Cable". This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

e. **Furnish and Install Innerduct Tubes With J-Hook Supports and Rods for Ceiling Mounting (Base Bid Item No. 12):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing innerduct tubes with J-Hook supports and rods for ceiling mounting as specified in these Special Provisions, and on the plans will be considered as included in the contract price paid in linear foot for "Furnish and Install Innerduct Tubes With J-Hook Supports and Rods for Ceiling Mounting" including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

f. **Remove and Salvage 240-Strand MMFO Cable (Base Bid Item No. 13):** Payment for removing and salvaging existing fiber optic cable (FOC) shall be at the contract bid item price paid per linear foot "Remove and Salvage 240-Strand MMFO cable" including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

g. **Identify up to 12 Live Strands on the 240-Strand MMFO and Relocate them to Existing 72-Strand SMFO between Old City Hall and SEB prior to removal of 240 Strands (Base Bid Item No. 14):** Payment for identifying live strands on the 240-Strand MMFO and

relocating them to existing 72 strand SMFO between Old City Hall and SEB IT's IDF closet prior to removal of 240 Strands shall be at the contract bid item price paid per each under Bid Item No. 14 including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

h. **Furnish and Install Fiber Patch Cords (Various Configurations) (Base Bid Item No. 15):** Payment for furnishing and installing Fiber Patch Cords listed in Section 77-3.09 shall be as contract lumpsum price under bid item for "Furnish and Install Fiber Patch Cords (Various Configurations)" including full compensation for furnishing all labor, material, tools, mounting accessories, cables, equipment, and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, and testing and no additional compensation will be allowed therefor.

5. Traffic Management Center (New City Hall Building 2)
   a. **General:** Includes providing all labor, materials, tools equipment, and incidentals furnishing and installing video wall, wall displays, workstations, furniture, and data connections from TMC room to traffic server room as indicated on the plans and described in these Special Provisions.
   b. **Furnish and Install TMC Video Wall (Base Bid Item No.16):** Payment for furnishing and installing new LCD Video Display Monitor and mounting hardware shall be considered in the unit contract price paid for each bid item "Furnish and Install TMC Video Wall" including full compensation for furnishing all labor, material, tools, equipment and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.
   c. **Furnish and Install Wall-Mounted Additional 65" Screen (Base Bid Item No. 17):** Payment for furnishing and installing new wall mounted screen and mounting hardware shall be considered in the unit contract price paid for each bid item "Furnish and Install Wall Mounted Additional 65" Screen" including full compensation for furnishing all labor, material, tools, equipment and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.
   d. **Furnish and Install Cabinet with Countertop (Base Bid Item No. 18):** Payment for furnishing and installing cabinet with countertop shall be considered in the unit contract price paid for each bid item "Furnish and Install Cabinet with Countertop" including full compensation for furnishing all labor, material, tools, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
   e. **Furnish and Install Portable Cabinet with Wheels (Base Bid Item No. 19):** Payment for furnishing and installing potable cabinet shall be considered in the unit contract price paid for each bid item "Furnish and Install Portable Cabinet with Wheels" including full compensation for

furnishing all labor, material, tools, equipment, accessories and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

f. **Furnish and Install Ergonomic Workstation Desk and Accessories Complete (Base Bid Item No. 20):** Payment for furnishing and installing workstation desk shall be considered in the unit contract price paid for each bid item “Furnish and Install Ergonomic Workstation Desk and Accessories Complete” including full compensation for furnishing all labor, material, tools, equipment, accessories and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

g. **Furnish and Install Ergonomic Chair Assembly Complete (Base Bid Item No. 21):** Payment for furnishing and installing workstation chair shall be considered in the unit contract price paid for each bid item “Furnish and Install Ergonomic Workstation Chair Assembly Complete” including full compensation for furnishing all labor, material, tools, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

h. **Furnish and Install Workstations with Mouse, Keyboard and Windows Operating System (Base Bid Item No. 22):** Payment for furnishing and installing new Workstations shall be considered in the unit contract price paid for each bid item “Furnish and Install Workstations with mouse, joystick, and Keyboard and Windows Operating System” including full compensation for furnishing all labor, material, tools, equipment and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

i. **Furnish and Install 3’ X 6’ Table (Base Bid Item No. 23):** Payment for furnishing and installing workstation desk shall be considered in the unit contract price paid for each bid item “Furnish and Install 3’ X 6’ Table” including full compensation for furnishing all labor, material, tools, equipment, accessories and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

j. **Furnish and Install Digital Clock (Base Bid Item No. 24):** Payment for furnishing and installing digital Ethernet clock —including all equipment complete shall be considered in the unit contract price paid for each bid item “Furnish and Install Digital Clock” including full compensation for furnishing all labor, material, tools, equipment, and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

k. **Furnish and Install 15Amp/120V Duplex Receptacles (Base Bid Item No. 25):** Payment for furnishing and installing electric receptacle shall be considered in the unit contract price paid for each bid item ‘Furnish and Install 15 AMP/120V Duplex Receptacles” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

l. **Furnish and Install CAT6 cable through conduit, walls, and cable**

trays from TMC server room to TMC workstation, videowalls, and Screen (Base Bid Item No. 26): Payment for furnishing and installing indoor/plenum CAT5E or CAT6 cable shall be at the contract bid item paid for each bid item “Furnish and Install Cat6 Cable through conduit, walls, and cable trays from TMC workstations to video walls, and screens” including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work, termination panels, labels on cables, and no additional compensation will be allowed therefor.

m. **Furnish and Install HDMI cable through conduit, walls, and cable trays from TMC workstations to videowalls, and Screens (Base Bid Item No. 27):** Payment for furnishing and installing electric receptacle shall be considered in the unit contract price paid for each bid item “Furnish and Install HDMI Cables through conduit, walls, and cable trays from TMC workstation to City IT room” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work, termination panels, labels on cables, and no additional compensation will be allowed therefor.

n. **Furnish and Install RG6 Coax cable through conduit, walls, and cable trays from TMC server room to the 65” screen (Base Bid Item No. 28):** Payment for furnishing and installing electric receptacle shall be considered in the unit contract price paid for each bid item “Furnish and Install RG6 Coax Cables through conduit, walls, can cable trays from TMC server room to the 65” screen’ including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work, termination panels, labels on cables, and no additional compensation will be allowed therefor.

o. **Furnish and Install CAT6 cable through conduit, walls, and cable trays from TMC workstation to City IT Room (Base Bid Item No. 29):** Payment for furnishing and installing indoor/plenum CAT5E or CAT6 cable shall be at the contract bid item paid for each bid item “Furnish and Install Cat6 Cable through conduit, walls, and cable trays from TMC workstations to City IT Room” including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work, termination panels, labels on cables, and no additional compensation will be allowed therefor.

p. **Furnish and Install Surge Protector UPS 2200VA Tower (Base Bid Item No. 30):** Payment for furnishing and installing surge protector shall be considered in the unit contract price paid for each bid item “Furnish and Install Surge Protector UPS 2200 VA Tower” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

q. **Furnish and Install Workstation 24” Monitors (Base Bid Item No. 31):** Payment for furnishing and installing new Workstation Monitors shall be considered in the unit contract price paid for each bid item “Furnish and Install Workstations 24” Monitors” including full compensation for furnishing all labor, material, tools, equipment and incidentals necessary to perform the items of work. This includes

performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

r. **Furnish and Install Doorstop (Base Bid Item No. 32):** Payment for furnishing and installing doorstopper shall be considered in the unit contract price paid for each bid item “Furnish and Install a Door Stopper” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

s. **Furnish and Install 24 Port 1 GBPS Ethernet Switch (Base Bid Item No. 33):** Payment for furnishing and installing ethernet switch shall be considered in the unit contract price paid for each bid item ‘Furnish and Install 24 Port 1GBPS Ethernet Switch’ including full compensation for furnishing all labor, material, equipment, power supply, cables, connectors, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

t. **Furnish and Install Video Wall Controller (Base Bid Item No. 34):** Payment for furnishing and installing video wall controller, low voltage cables & connectors, UPS unit including all equipment complete shall be considered in the unit contract price paid for each bid items “Furnish and Install Video Wall Controller” including full compensation for furnishing all labor, material, equipment, power supply, cables, connectors, and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

u. **Furnish and Install Video Wall Matrix Software (Base Bid Item No. 35):** Payment for furnishing and installing video wall software shall be considered in the unit contract price paid for each bid items “Furnish and Install Video Wall Matrix Software” including full compensation for furnishing all labor, material, and incidentals necessary to perform the items of work. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

v. **Furnish and Install a Firewall/Router with High Availability (Base Bid Item No. 36):** Includes under the direction of Engineer, furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing a Firewall/router with high availability as specified in these Special Provisions, and on the plans will be considered as included in the unit contract price paid for each “Furnish and Install a Firewall/Router with High Availability” and no separate payment will be made therefor.

6. Old TMC Server Room/Old TMC Room/IDF Closet (SEB Building)

a. **General:** Includes providing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing racks, servers, firewall, and necessary cables and cable mounting accessories in the server room.

b. **Remove and Salvage Existing Equipment/Furniture (Base Bid Item No. 37):** Payment for removing and salvaging existing equipment/furniture shall be as contract lumpsum price under bid item

for “Remove and Salvage Existing Equipment/Furniture” including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

c. **Furnish and Install 2 Post Rack (Base Bid Item No. 38):** Payment for furnishing and installing floor mounted 2-post 19” open rack shall be under bid item “Furnish and Install 2 Post Rack” and shall include floor mount kit and power strip. The payment for bid item shall include full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
d. **Furnish and Install 4 Post Rack (Base Bid Item No. 39):** Payment for furnishing and installing floor mounted 4-post 19” open rack shall be under bid item “Furnish and Install 4 Post Rack” and shall include floor mount kit and power strip. The payment for bid item shall include full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
e. **Furnish and Install 12’ Cable Ladder (Base Bid Item No. 40):** Payment for furnishing and installing cable ladder for cable management system shall be considered in the unit contract price paid for each bid item “Furnish and Install 12” Cable Ladder’ including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
f. **Furnish and Install Cable Tray Extension (Base Bid Item No. 41):** Payment for furnishing and installing cable tray extension shall be considered in the unit contract price paid for each bid item “Furnish and Install Cable Tray Extension” including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
g. **Furnish and Install Horizontal Cable/Wire Manager (Base Bid Item No. 42):** Payment for furnishing and installing cable/wire manager shall be considered in the unit contract price paid for each bid item “Furnish and Install Horizontal Cable/Wire Manager” including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
h. **Furnish and Install Vertical Cable/Wire Manager (Base Bid Item No. 43):** Payment for furnishing and installing cable/wire manager shall be considered in the unit contract price paid for each bid item ‘‘Furnish and Install Vertical Cable/Wire Manager” including full compensation for furnishing all labor, material, equipment and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.
i. **Furnish and Install 10AWG Electrical Wire (Base Bid Item No. 44):** Payment for furnishing and installing electric receptacle shall be considered in the unit contract price paid for each bid item “Furnish and Install 20AMP/120V Quad Receptacle” including full compensation for

furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

j. **Furnish and Install 30 AMP/208V Receptacle (Base Bid Item No. 45):** Payment for furnishing and installing electric receptacle shall be considered in the unit contract price paid for each bid item “Furnish and Install 30AMP/280V Receptacle” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to install junction boxes and extend existing 30AMP receptacles to the top of racks as shown on the Plans and no additional compensation will be allowed therefor.

k. **Furnish and Install 24-Strand MMFO Cable (Base Bid Item No. 46):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing 24-strand MMFO cable between Rack A1 and Rack E1 in SEB Old TMC Room as specified in these Special Provisions, and on the plans will be considered as included in the contract price paid in linear foot for “Furnish and Install 24-Strand MMFO Cable”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

l. **Furnish and Install 72-Strand SMFO Cable (Base Bid Item No. 47):** Includes furnishing all labor, materials, tools, equipment, and incidentals for all the work involved in installing 72-strand SMFO cable between Rack B3 and Rack E1 in SEB Old TMC Room as specified in these Special Provisions, and on the plans will be considered as included in the contract price paid in linear foot for “Furnish and Install 72-Strand SMFO Cable”. This includes performing all operations, systems integration, testing, and commissioning and no additional compensation will be allowed therefor.

m. **Furnish and Install New Managed Ethernet Switch with 24 1G SFP and 4 10G SFP+ Ports (Base Bid Item No. 48):** Payment for furnishing and installing managed ethernet switch with 16 SFP and 16 ethernet ports shall be considered in the unit contract price paid for each bid item “Furnish and Install New Managed Ethernet Switch with 24 1G SFP and 4 10G SFP+ Ports” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

n. **Furnish and Install 24-Port CAT6 Patch Panel (Base Bid Item No. 49):** Payment for furnishing and installing CAT6 patch panel shall be considered in the unit contract price paid for each bid item “Furnish and Install 24-Port CAT6 Patch Panel” including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

o. **Furnish and Install Rackmount Fiber Housing and Patch Panels-3U with SC Interface (Base Bid Item No. 50):** Payment for furnishing and installing rackmount fiber housing with patch panels-3U with SC Interface shall be considered in the unit contract price paid for each bid item “Furnish and Install Rackmount Fiber Housing and Patch Panels-

3U with SC Interface" including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

p. **Furnish and Install Rackmount Fiber Housing and Patch Panels-3U with LC Interface (Base Bid Item No. 51):** Payment for furnishing and installing rackmount fiber housing with patch panels-3U with LC Interface shall be considered in the unit contract price paid for each bid item "Furnish and Install Rackmount Fiber Housing and Patch Panels-3U with LC Interface" including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

q. **Furnish and Install Rackmount Fiber Housing and Patch Panels-2U with LC Interface (Base Bid Item No. 52):** Payment for furnishing and installing rackmount fiber housing with patch panels-2U with LC Interface shall be considered in the unit contract price paid for each bid item "Furnish and Install Rackmount Fiber Housing and Patch Panels-2U with LC Interface" including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

r. **Furnish and Install Rackmount Power Splitter with Surge Protector (Base Bid Item No. 53):** Payment for furnishing and installing rackmount power splitter shall be considered in the unit contract price paid for each bid item "Furnish and Install Rackmount Power Splitter and Surge Protector" including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

s. **Furnish and Install 20 Amp UPS Controller with Battery Banks (Base Bid Item No. 54):** Payment for furnishing and installing 20 Amp UPS Controller with Battery Banks shall be considered in the unit contract price paid for each bid item "Furnish and Install 20 Amp UPS Controller with Battery Banks" including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

t. **Furnish and Install 30 Amp UPS Controller with Battery Banks (Base Bid Item No. 55)**: Payment for furnishing and installing 30 Amp UPS Controller with Battery Banks shall be considered in the unit contract price paid for each bid item "Furnish and Install 30 Amp UPS Controller with Battery Banks" including full compensation for furnishing all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

The work in Additive Bid shall include, but not be limited to, the following:

1. **Furnish and Install Managed Ethernet Switch and Power Supply Upgrade (Additive Bid Item No. 1):** Payment for furnishing and installing managed ethernet switch and Power Supply Upgrade shall be considered in the unit contract price paid for each bid item "Furnish and Install Managed Ethernet Switch and Power Supply Upgrade" including full compensation for furnishing

all labor, material, equipment, and incidentals necessary to perform the items of work and no additional compensation will be allowed therefor.

9-1.03 Quantities

The **following** estimate of the quantities of work to be done and materials to be furnished are **approximate only**, and are intended as a basis for the comparison of bids. The City does not expressly or by implications agree that the actual amount of work will correspond therewith but reserves the right to increase or decrease the amount of any class or portion of the work without increase or decrease in the unit price bid or to omit portions of the work that may be deemed necessary or expedient by the Engineer.

ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	MOBILIZATION	LS	1
2	TRAFFIC CONTROL	LS	1
	TRAFFIC SIGNAL (VARIOUS LOCATIONS)		
3	FURNISH AND INSTALL NEW TRAFFIC SIGNAL CONTROLLER WITH FIRMWARE/SOFTWARE	EA	198
4	FURNISH AND INSTALL FIRMWARE/SOFTWARE IN EXISTING M60 CONTROLLER	EA	86
5	FURNISH AND INSTALL MANAGED ETHERNET SWITCH AND POWER SUPPLY	EA	228
6	FURNISH AND INSTALL SFP MODULES (SFP-22A AND SFP22B)	EA	50
7	FURNISH, INSTALL AND CONFIGURE NETWORK MANAGEMENT SOFTWARE IN CITY-FURNISHED VIRTUAL SERVER	LS	1
8	FURNISH AND INSTALL KITS SOFTWARE IN CITY-FURNISHED SERVER	LS	1
	FIBER OPTIC (VARIOUS LOCATIONS)		
9	FURNISH AND INSTALL NEW 3" CONDUIT WITH MULETAPE AND FLEXIBLE INNERDUCT	LF	425
10	FURNISH AND INSTALL 4,000’ 48-STRAND SMFO CABLE	EA	2
11	FURNISH AND INSTALL 1,800’ 288-STRAND SMFO CABLE	EA	2
12	FURNISH AND INSTALL INNERDUCT TUBES WITH J-HOOK SUPPORTS AND RODS FOR CEILING MOUNTING	LF	330
13	REMOVE & SALVAGE 240-STRAND MMFO CABLE	LF	3,550
14	IDENTIFY UP TO 12 LIVE STRANDS ON THE 240-STRAND MMFO AND RELOCATE THEM TO EXISTING 72-STRAND SMFO BETWEEN OLD CITY HALL AND SEB PRIOR TO REMOVAL OF 240 STRANDS	EA	12
15	FURNISH AND INSTALL FIBER PATCH CORDS (VARIOUS CONFIGURATIONS)	LS	1
	NEW TMC ROOM (NEW CITY HALL BUILDING 2)		
16	FURNISH AND INSTALL TMC VIDEO WALL	EA	1
17	FURNISH AND INSTALL WALL-MOUNTED ADDITIONAL 65" SCREEN	EA	1
18	FURNISH AND INSTALL CABINET WITH COUNTERTOP	EA	3

ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
19	FURNISH AND INSTALL PORTABLE CABINET WITH WHEELS	EA	4
20	FURNISH AND INSTALL ERGONOMIC WORKSTATION DESK AND ACCESSORIES COMPLETE	EA	2
21	FURNISH AND INSTALL ERGONOMIC WORKSTATION CHAIR ASSEMBLY COMPLETE	EA	3
22	FURNISH AND INSTALL WORKSTATIONS WITH MOUSE, KEYBOARD AND WINDOWS OPERATION SYSTEM	EA	2
23	FURNISH AND INSTALL 3'X6' TABLE	EA	1
24	FURNISH AND INSTALL DIGITAL CLOCK	EA	1
25	FURNISH AND INSTALL 15AMP/120V DUPLEX RECEPTACLES	EA	8
26	FURNISH AND INSTALL CAT6 CABLE THROUGH CONDUIT, WALLS, AND CABLE TRAYS FROM TMC SERVER ROOM TO TMC WORKSTATION, VIDEOWALLS, AND SCREENS	EA	16
27	FURNISH AND INSTALL HDMI CABLE THROUGH CONDUIT, AND WALLS, AND CABLE TRAYS FROM TMC WORKSTATIONS TO VIDEOWALLS, AND SCREENS	EA	10
28	FURNISH AND INSTALL RG6 COAX CABLE THROUGH CONDUIT, WALLS, AND CABLE TRAYS FROM TMC SERVER ROOM TO THE 65" SCREEN	EA	1
29	FURNISH AND INSTALL CAT6 CABLE THROUGH CONDUIT, WALLS, AND CABLE TRAYS FROM TMC WORKSTATION TO CITY IT ROOM	EA	4
30	FURNISH AND INSTALL SURGE PROTECTOR UPS 2200VA TOWER	EA	2
31	FURNISH AND INSTALL WORKSTATION 24" MONITORS	EA	4
32	FURNISH AND INSTALL DOOR STOP	EA	1
33	FURNISH AND INSTALL 24 PORT 1GBPS ETHERNET SWITCH	EA	2
34	FURNISH AND INSTALL VIDEO WALL CONTROLLER	EA	1
35	FURNISH AND INSTALL VIDEO WALL MATRIX SOFTWARE	EA	1
36	FURNISH AND INSTALL A FIREWALL/ROUTER WITH HIGH AVAILABILITY	EA	1
OLD TMC SERVER ROOM, OLD TMC ROOM, AND IDF CLOSET (SEB)			
37	REMOVE & SALVAGE EXISTING EQUIPMENT/FURNITURE	LS	1
38	FURNISH AND INSTALL 2 POST RACK	EA	4
39	FURNISH AND INSTALL 4 POST RACK	EA	4
40	FURNISH AND INSTALL 12' CABLE LADDER	EA	5
41	FURNISH AND INSTALL CABLE TRAY EXTENSION	EA	4
42	FURNISH AND INSTALL HORIZONTAL CABLE/WIRE MANAGER	EA	26
43	FURNISH AND INSTALL VERTICAL CABLE/WIRE MANAGER	EA	13
44	FURNISH AND INSTALL 10AWG ELECTRICAL WIRE	LF	420
45	FURNISH AND INSTALL 30AMP/208V RECEPTACLE	EA	3

ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
46	FURNISH AND INSTALL 24-STRAND MMFO CABLE	LF	30
47	FURNISH AND INSTALL 72-STRAND SMFO CABLE	LF	30
48	FURNISH AND INSTALL NEW MANAGED ETHERNET SWITCH WITH 24 1G SFP AND 4 10G SFP+ PORTS	EA	4
49	FURNISH AND INSTALL 24-PORT CAT6 PATCH PANEL	EA	2
50	FURNISH AND INSTALL RACKMOUNT FIBER HOUSING AND PATCH PANELS - 3U WITH SC INTERFACE	EA	14
51	FURNISH AND INSTALL RACKMOUNT FIBER HOUSING AND PATCH PANELS - 3U WITH LC INTERFACE	EA	4
52	FURNISH AND INSTALL RACKMOUNT FIBER HOUSING AND PATCH PANELS - 2U WITH LC INTERFACE	EA	2
53	FURNISH AND INSTALL RACKMOUNT POWER SPLITTER WITH SURGE PROTECTOR	EA	14
54	FURNISH AND INSTALL 20AMP UPS CONTROLLER WITH BATTERY BANKS	EA	1
55	FURNISH AND INSTALL 30AMP UPS CONTROLLER WITH BATTERY BANKS	EA	4

ADDITIVE BID			
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**ESTIMATED QUANTITY**
1	FURNISH AND INSTALL MANAGED ETHERNET SWITCH AND POWER SUPPLY UPGRADE	EA	55

Each bidder shall bid each item on the Base Bid Schedule and Additive Bid Schedule. Failure to bid an item shall be just cause for considering the bid as non-responsive. The City reserves the right to include or delete any Schedule or portion thereof, or to reject all bids.

Official bid documents, including plans and specifications are available online at http://www.stocktongov.com/services/business/bidflash/pw.html?dept=Public_Works**.** All bids submitted for this project, must conform to the requirements of the official bid documents, including plans and specifications.

9-1.04 Unsatisfactory Progress

If the number of working days charged to the contract exceeds 75 percent of the working days in the current time of completion and the percent working days elapsed exceeds the percent work completed by more than 15 percentage points, the City will withhold 10 percent of the amount due on the current monthly estimate.

The percent working days elapsed will be determined from the number of working days charged to the contract divided by the number of contract working days in the current time of completion, expressed as a percentage. The number of contract working days in the current time of completion shall consist of the original contract working days increased or decreased by time adjustments approved by the Engineer.

The percent work completed will be determined by the Engineer from the sum of payments made to date plus the amount due on the current monthly estimate, divided by the current total estimated value of the work, expressed as a percentage.

When the percent of working days elapsed minus the percent of work completed is less than or equal to 15 percentage points, the funds withheld shall be returned to the Contractor with the next monthly progress payment.

Funds kept or withheld from payment, due to the failure of the Contractor to comply with the provisions of the contract, will not be subject to the requirements of Public Contract Code 7107 or to the payment of interest pursuant to Public Contract Code Section 10261.5.

9-1.05 Mobilization

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; picking up City furnished material from City's storage facility; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

Full compensation for mobilization shall be considered as included in the lump sum price paid for Mobilization, and no additional compensation will be allowed therefore.

DIVISION II GENERAL CONSTRUCTION

SECTION 10 – GENERAL CONSTRUCTION

10-1.01 Order of Work

The order of work shall conform to the Contractor's approved project schedule described in Section 8-1.03, "Progress Schedule", of these Special Provisions.

Contractor's attention is directed to the Public Safety, Public Convenience, and Maintaining Traffic sections of these Special Provisions. Nothing in this section shall be construed as to relieve the Contractor of his/her responsibility to stage the work in a manner which complies with the requirements of these sections.

All permits and approvals as may be required for this project shall be secured or ordered immediately after award of the contract or their acquisition timing determined, such that the same is not a cause for delay. The cost of the permits shall be included in the total bid costs.

At those locations exposed to public traffic where guard railings or barriers are to be constructed, reconstructed, or removed and replaced, the Contractor shall schedule operations so that at the end of each working day there shall be no post holes open nor shall there be any railing or barrier posts installed without the blocks and rail elements assembled and mounted thereon.

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.

The Contractor shall stage and sequence the work as follows:

1. The contractor orders all items required, after all submittals are approved by the Engineer, for this project which may have long lead times to assure that their acquisition is not the cause for any delays. These items may include, but are not limited to, traffic signal controllers, fiber optic cables, Ethernet Switches, and related appurtenances. The Contractor shall furnish the Engineer with statements from the vendors that the orders for said equipment has been received and accepted by said vendors. These statements shall be furnished within ten (10) working days of the Notice to Proceed date.

2. Obtain all necessary permits.

3. Prior to the start of construction, the Contractor shall submit to the Engineer for approval a detailed “Traffic Control Plan” which also addresses pedestrian detours. The Traffic Control Plan shall be prepared in accordance with the provisions in Section 12-1.01,” Maintaining Traffic” of these special provisions.

4. Traffic signal controller and other above ground electrical equipment shall not be installed until the Contractor has received delivery of all electrical materials.

5. Prior to the start of construction, the Contractor shall verify the location and depth of all existing utilities and underground facilities within the project limits. The Contractor shall notify the Engineer of any discrepancies between the conditions in the field and the plans.

6. Portions of existing concrete curbs, gutters and sidewalks that are removed shall be replaced within 10 working days after removal.

7. Street lighting, traffic signals, including fiber system shall be maintained at all times.

8. Upon award of the Construction Contract by Stockton’s City Council (Notice of Award) the Contractor shall prepare all project submittals for City review as set forth in Section 5-1.05, “Submittals” of these Special Provisions.

9. The work shown in plans shall follow this sequence. If the Contractor needs any changes to this sequence of work, the work order sequence shall be submitted to the City two weeks in advance for approval.

    a. Stewart Eberhardt Building (SEB) Work: The work shall include the

following:

i. The Contractor shall install necessary equipment in SEB Old Transportation Management Center (TMC) Room for the 576 SMFO termination as shown on Plan Sheets SB-1 to SB-5.
ii. The Contractor shall coordinate with City IT to transfer up to 12 live connections on the 2 X 240 strands MMFO to the existing 72 SMFO between the SEB and Old City Hall.

b. Fiber Run from SEB to City Manhole #1: The work shall include the following:

i. The Contractor shall remove existing 2 X 240 MMFO from SEB to City Manhole #1 located in front of the Old City Hall.
ii. The Contractor shall run two (2) 288 SMFO cables from SEB to City Manhole #1 for fiber to be spliced by AT&T. Fiber will terminate at patch panels at SEB Old TMC room and the IDF room (12 strands, COS 469-480).

c. Field Installation and Coordination with AT&T: The work shall include the following:

i. Under a separate contract with the City, AT&T is scheduled to cut and splice 500+ (2 X 288) SMFO in the City Manhole and perform OTDR test. It is estimated that AT&T will complete splicing all fibers in one day.
ii. The traffic signal controllers shall not be installed in field until the switches are replaced in field.

d. Fiber Run from SEB to TMC and IT: This work includes the installation of fiber between the SEB and the new TMC and IT in the new City Hall. The Contractor shall coordinate with the new City Hall building contractor for this work.

e. New TMC work: The Contractor shall coordinate with the TMC building contractor to schedule and the complete the work at the new TMC as shown on plans.

Minor deviations from these requirements may be allowed by the Engineer, if in the opinion of the Engineer, the prosecution of the contract will be better served and the work expedited. Any Contractor request for such deviations shall not be adopted without the Engineer's prior written approval.

Full compensation for conforming to such requirements will be considered as included in the prices paid for the various contract items of work, and no additional compensation will be allowed therefore.

10-1.02 Alternative Equipment

The City reserves the right to order discontinuance of any equipment in use. This will be determined at the discretion of the Engineer on the basis that the use of said equipment would prohibit obtaining the best possible end result.

Additional installation equipment may be requested by the Engineer for the above reason. Failure to comply with the Engineer's request concerning equipment use or removal will be deemed sufficient cause for shutting down all work until the requirements are met. Days lost for this type of shutdown will be charged as working days.

10-1.03 Inspections

All work under this contract shall be under the control and inspection of the City Engineer or his appointed representative. The Contractor shall notify of the Public Works Department, at (209) 937-8381, three (3) working days in advance of any construction.

10-1.04 Obstructions

Attention is directed to Section 5-1.36,"Property and Facility Preservation" of Caltrans Specifications, Sections 7-1.05, "Indemnification" and Section 7-1.06, " Insurance", of the Standard Specifications and Section 15, "Existing Facilities", of the Caltrans Specifications and these Special Provisions.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety, and welfare of workers and of the public. Facilities requiring special precautions include, but are not limited to, conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases, natural gas in pipelines six (6) inches or greater in diameter, or pipelines operating at pressures greater than 415 KPa (gage); underground electric supply system conductors or cables with potential to ground of more than 300 V, either directly buried or in duct or conduit, which do not have concentric grounded or other effectively grounded metal shields on sheaths.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least two (2) working days, but not more than fourteen (14) calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire, or other structure. Regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert – Northern California (USA)	(811) 227-2600 (800) 227-2600
South Shore Utility Coordinating Council (DICS)	(800)-541-3447

Relocations or repairs necessitated because of existing facilities, which are not shown on the plans or are shown at substantially different locations than existing, may be paid as extra work in accordance with Section 4-1.02, "Changes and Extra Work", of the these Special Provisions, but only if the Engineer rules that the Contractor exercised due diligence in his operation. Due diligence may be determined by the Engineer by reviewing surface and subsurface conditions that were existing prior to exposing the facility and determining the absence of any signs sufficient to warn a diligent Contractor of the possible existence of a facility in the area.

Immediately upon encountering unknown existing facilities, the Contractor shall notify the Engineer in writing of the situation, request coverage of the work as extra work, and aid

the Engineer in determining due diligence. Failure to do so may result in forfeiture of any rights to receive extra work compensation under Section 8-1.07, "Delay", of the Standard Specifications. Should the Contractor stop work, no compensation will be made for any "down time" prior to written notifications being received by the Engineer or his representative.

Delays due to encountering unexpected facilities shall be determined and compensated in accordance with the provisions of Section 8-1.07, "Delay", of the Standard Specifications, and as herein modified. Delays due to encountering unexpected facilities shall be compensated as additional contract working days to the contractor. Contractor shall submit a written request to the Engineer requesting time extension due to the delay. No other compensation is allowed.

Payment for complying with this Special Provision shall be included in the various items of work, and no additional compensation will be allowed therefore.

10-1.05 System Outage Request, City of Stockton Facilities

Modifications to existing facilities, the construction of new facilities, and the connection of new to existing facilities may require the temporary outage or bypass of treatment processes, equipment, utilities, or other facilities. In addition to the Construction Schedule required under these Special Provisions, the Contractor shall submit a System Outage Request (SOR) and a detailed outage plan and time schedule for all construction activities, which will make it necessary to remove a tank, pipeline, channel, electrical circuit, control circuit, equipment, structure, road, or other facilities from service.

The SOR and outage plan shall be submitted to the Engineer and other affected utilities for review and acceptance a minimum of two (2) weeks in advance of the time that such outage is needed. The outage plan shall be coordinated with the construction schedule specified in these Special Provisions and shall meet the restrictions and conditions specified in this section. The detailed plan shall describe the Contractor's method for preventing bypassing of other facilities; the length of time required to complete said operation; any necessary temporary power, controls, instrumentation, or alarms required to maintain control, monitoring, and alarms for the affected facilities; and the labor, plant, and equipment which the Contractor shall provide in order to ensure proper operation.

In addition, the outage plan shall describe the Contractor's contingency plan that shall be initiated in the event that his temporary facilities fail, or it becomes apparent that the time constraints described in the approved outage plan cannot be met. The contingency plan shall conform to all specified outage requirements. All costs for preparing and implementing both the outage and contingency plans shall be borne by the Contractor with no additional compensation therefore.

The Contractor shall provide, Monday through Friday, at least three (3) working days prior to the actual shutdown, written confirmation of the shutdown date and time, or written notification that the schedule for performing the work has changed, or revisions to the outage plan are required.

Operations of the City's facilities and utilities are critical to the public health and safety of

the citizens of Stockton. Sufficient facilities to serve the needs and demands of the City shall remain in service at all times. The City and/or affected utility owner shall be the sole judge of its needs and the facilities that must remain in service to provide adequate service.

The Contractor shall coordinate and cooperate with the City and utilities to establish the Contractor's schedule for work at the entire project facilities. The approved project schedule shall be subject to change, as it pertains to site work and shutdowns, when required by the City/utilities to accommodate unforeseen or emergency situations in the operation of the affected facilities.

Payment for complying with this Special Provision shall be included in the various other items of work, and no additional compensation will be allowed therefore.

10-1.06 Directional Boring

Contractor's attention is directed to the provisions in Section 77-1.09, "Conduit" of these Special Provisions and Sections 86-1.02B, "Conduit and Accessories" and 87-1.03B, "Conduit Installation" of the Caltrans Specifications for the installation of signal and ITS conduits. Should the contractor desire to use other type(s) of conduit such as HDPE for the ITS conduits then the Contractor should submit the material specifications for the proposed conduit to the Engineer for his review and approval. Contractor's attention is also directed to the provisions in Section 5-1.05 "Submittals" of these Special Provisions.

A. General

1. Quality Assurance

The requirements set forth in this document specify a wide range of procedural precautions necessary to ensure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

2. Submittals

a. WORK PLAN: Prior to beginning work, the Contractor must submit to the Engineer a general work plan outlining the procedure and schedule to be used to execute the project. Plan should document the thoughtful planning required to successfully complete the project.

b. EQUIPMENT: The Contractor shall submit specifications on directional boring equipment to be used to ensure that the equipment will be adequate to complete the project. Spares inventory shall be included.

c. MATERIAL: Specifications on material to be used shall be submitted to the Engineer. Material shall include the conduit, fittings and any other item which is to be an installed component of the project. Contractor's attention is directed to the

provisions in Section 6-1.04, “Buy America requirements” of these Special Provisions for purchase of the signal and ITS conduits.

d. PERSONNEL: Documentation of training and relevant experience of personnel shall be submitted.

B. Equipment Requirements

1. General

The directional boring equipment shall consist of a directional boring rig of sufficient capacity to perform the bore and pullback the conduit, a boring fluid mixing and delivery system of sufficient capacity to successfully complete the boring, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

2. Boring System

a. BORING RIG: The directional boring machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill conduit into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the directional boring. The hydraulic power system shall be self-contained with sufficient pressure and volume to power boring operations. The hydraulic system shall be free of leaks. The rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations. The rig shall be grounded during boring and pull-back operations. Sufficient spares shall be kept on hand for any break-downs which can be reasonably anticipated.

b. BORE HEAD: The bore head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and boring fluid jets.

3. Guidance System

The Guidance System shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

C. Operations

1. General

The Engineer must be notified 48 hours in advance of starting work. The Directional Bore shall not begin until the Inspector is present at the job site and agrees that proper preparations for the operation have been made. The Inspector’s approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. The conduit shall be installed below the minimum depth of 36" unless directed otherwise by the Engineer.

2. Boring Procedure

a. SITE PREPARATION: Prior to any alterations to the work site, the Contractor shall photograph or video tape the entire work area, including entry and exit points. One copy of which shall be given to the Engineer and one copy shall remain with the Contractor for a period of one year following the completion of the project.

The work site, as indicated on drawings, within right-of-way, shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. The Contractor shall confine all activities to designated work areas.

b. BORE PATH SURVEY: The entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on the drawings. If the Contractor is using a magnetic guidance system, the drill path shall be surveyed for any surface geo-magnetic variations or anomalies.

c. ENVIRONMENTAL PROTECTION: The Contractor shall protect all boring operation areas and any drainage or other area designated for such protection by contract documents and/or state, federal and local regulations. Additional environmental protection necessary to contain any hydraulic or boring fluid spills shall be put in place. The Contractor shall adhere to all applicable environmental regulations.

d. UTILITY LOCATES: the Contactor shall notify all companies with underground utilities in the work area via the state or local "one-call" to obtain utility locates. Once the utilities have been located the Contractor shall physically identify the exact location of the utilities by vacuum or hand excavation, when possible, in order to determine the actual location and path of any underground utilities which might be within 4 feet of the bore path. The Contractor shall not commence boring operations until the location of all underground utilities within the work area have been verified.

e. SAFETY: The Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to the Engineer.

f. CONDUIT: Conduit shall be connected together in one length prior to pull-back operations, if space permits.
The Contractor’s attention is called to the fact that extreme care will be required when placing the conduit so as to permit the installation of the conduit to the alignment and depth, as shown on the Plans and these Special Provisions. Variations from theoretical grade of the conduit at the time of completion of boring shall not exceed one percent of the distance from the bore pit point.

g. PILOT HOLE: Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100’.

h. BORE PIT: Where ground conditions at the face of the bore pit are such that sloughing or caving of ground is likely to occur at the face of the excavation upon commencement thereof, the face of the pit shall be made stable so that an excessive void is not carried with the face of the excavation for the length of the casing or conduit. This may be accomplished by solid sheathing at the portal of the bore pit or excavating and backfilling the face of the bore pit with cohesive material.

i. REAMING: Upon successful completion of pilot hole, the Contractor shall ream bore hole to a minimum of 25% greater than outside diameter of conduit using the appropriate tools. The Contractor shall not attempt to ream at one time more than the boring equipment are designed to safely handle.

j. PULL-BACK: After successfully reaming the bore hole to the required diameter, the Contractor shall pull the conduit through the bore hole. In front of the conduit shall be a swivel. Once pull-back operations have commenced, operations must continue without interruption until conduit is completely pulled into the bore hole. During pull-back operations the Contractor shall not apply more than the maximum safe conduit pull pressure at any time.

In the event that conduit becomes stuck, the Contractor shall cease pulling operations to allow any potential hydro-lock to subside and shall commence pulling operations. If conduit remains stuck, the Contractor shall notify the Engineer. The Engineer and the Contractor shall discuss options and then work shall proceed accordingly.

k. EXCAVATED MATERIAL: In general, excavated material shall be removed from the conduit as boring progresses and no accumulation of excavated material within the conduit will be permitted. Should appreciable loss of ground occur in installations where the face of the excavation is accessible, the voids shall be backpacked promptly to the extent practicable with an approved soil cement.

3. Site Restoration

Following boring operations, the Contractor shall de-mobilize equipment and restore the work site to its original condition. All excavations shall be backfilled and compacted according to the City of Stockton requirements.

4. Record Keeping, As-Builts

The Contractor shall maintain a daily project log of boring operations and a guidance system log with a copy given to the Engineer at the completion of the project. As-built drawings shall be certified as to accuracy by the Contractor.

D. Payment

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved with installing conduits by directional boring methods, including, but not be limited to, excavating, backfilling and compacting the boring and receiving pits, boring and tunneling, removing and replacing concrete sidewalk, as shown on the Plans, as set forth in these Special Provisions, and as directed by the Engineer

will be considered as included in the contract prices paid for various items of work requiring installation of conduit, and no additional compensation will be allowed therefore.

10-1.07 Sheeting and Shoring

Attention is directed to Section 10-1.02E, “Excavation” of the Caltrans Specifications. Excavations shall be adequately shored and braced so that the earth will not slide, move, or settle, and so that all existing improvements of any kind will be fully protected from damage.

Attention is called to Article 6 of "Construction Safety Orders" of the California Division of Industrial Safety, which applies to all open excavations made in the earth's surface, including trenches.

Trenches over five (5) feet in depth requires a permit from California Division of Industrial Safety and shall be evaluated for stability prior to personnel entering the trench. Where trenches are deeper than five (5) feet, the Contractor shall comply with the California Occupational Safety and Health Administration (CAL OSHA) requirements pertaining to trench safety.

The Contractor shall furnish, install, and maintain such sheet piling, timbering, lagging, and bracing as indicated on the standard drawings or any additional precautions not specifically set forth as necessary to support the sides of the trench. The protection of adjacent structures from movement of the ground and the elimination of the element of danger to life, property, or to existing improvements is the intent of this requirement.

Additional supports requested by the Engineer shall in no way relieve the Contractor of his responsibility for the sufficiency of his precautions.

All such piling, timbering, lagging, and bracing shall, unless otherwise required by the Engineer, be removed during backfilling in such a manner as to prevent any movement of the ground or damage to the piping or other structures.

Full compensation for complying with these provisions shall be included in the contract prices paid for the various items of work, and no additional compensation will be allowed therefore.

10-1.08 Surface Restoration

Surface restoration shall consist of restoring all areas within the limits of work to their original existing condition prior to construction or to the condition shown on the plans or specified in the Specifications.
The Contractor shall restore all paved areas, such as driveways, curb and gutter, sidewalk, roadway surfaces, ditches, etc., landscaped areas, and all other improvements disturbed or damaged by his operations.

Payment for the restoration of damaged areas, for which specific bid items are not provided, shall be included in the prices paid for various items of work and no additional compensation will be allowed therefore.

SECTION 11 – BLANK

SECTION 12 – TEMPORARY TRAFFIC CONTROL

Attention is directed to Part 6 of the California MUTCD, and Sections 12, "Temporary Traffic Control", of the Caltrans Specifications, Standard Specifications, and these Special Provisions.

12-1.01 Maintaining Traffic

Attention is directed to Part 6 of the California MUTCD, Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", Section 12-4 “Maintaining Traffic”, of the Caltrans Specifications, and Section 10-1.01, "Order of Work", of these Special Provisions. Nothing in these Special Provisions shall be construed as relieving the Contractor from the responsibilities specified in these sections.

The Contractor shall furnish, and maintain in good working order, all barricades and flashers, and provide flaggers as necessary to protect pedestrians, bicyclists, and vehicular traffic. The Contractor shall furnish and maintain all barricades, flashers, and any detour signs twenty-four (24) hours a day, including covering or removing signs during non-construction hours.

The Contractor shall provide adequate and continuous ingress and egress for all adjacent properties; except for the limited period of time it is necessary to perform work at a specific property. The Contractor shall diligently prosecute all work directly impacting businesses to completion. The Contractor shall coordinate limited closures with tenants or owners, as required by these Special Provisions, and as directed by the Engineer. The Contractor shall cover signal heads with traffic jackets, signs and other traffic control devices that may conflict with any detours.

The Contractor shall submit to the City Engineer a detailed "Traffic Control Plan" for review and approval. The "Traffic Control Plan" shall be submitted no later than ten (10) working days following the Notice to Proceed date and at least 3 working days prior to commencing any work which requires implementation of any component of the "Traffic Control Plan". The plan shall be approved by the Engineer prior to its implementation by the Contractor.

The "Traffic Control Plan" shall conform to the typical traffic control details included in the Caltrans Standard Plans, Part 6 of the California MUTCD, and the requirements of Section 12-1.02, "Traffic Control System for Lane Closure", of these Special Provisions. The Traffic Control Plan shall include, but not be limited to, detailed requirements for the following:

- Traffic signal switch-over (traffic signal shut down and start up)
- Traffic control devices, including signs and markings.
- Construction routes, phasing and/or staging of both the roadway and sidewalk areas.
- Employee, Customer, and Business/Delivery access to adjacent property.
- Emergency vehicles access.

- Bus, refuse collection, and mail delivery access.
- Any parking zones to be removed on a temporary basis.
- Pedestrian and bicyclist access.

The Traffic Control Plan shall consider the impacts of changes in traffic volumes and capacities related to the construction activities, and their impact on vehicular and bicycle traffic and pedestrian operations, on roadway pavements, including provisions to restore construction-damaged pavements.

Traffic Lane and Sidewalk Closures
Lanes and sidewalks may be closed only as indicated in the Section 12, of these Special Provisions. Except for work required under Section 7-1.03 “Public Convenience” and Section 7-1.04, “Public Safety” of the Standard Specifications, work that interferes with public traffic shall be performed only as indicated. Traffic lane and sidewalk closures shall conform to the following requirements:

Lane closure, a maximum of one lane in each direction of travel, not less than twelve (12) feet wide, shall be permitted only between the hours of 9:00 a.m. and 5:00 p.m. Any lane closures other than specified shall be approved by the Engineer.

Standard working hours shall be 9:00 a.m. to 5:00 p.m. Any extended working hours require the approval of the Engineer.

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

Adequate ingress and egress shall be maintained throughout the project limits for fire, police, and other emergency vehicles. The Contractor shall provide adequate ingress and egress for residences, property owners, and abutting business owners to their respective properties except when performing work at their specific locations.

Also, the Contractor shall provide adequate signing, barricades and flashers or portable flashing beacons, flaggers, and other equipment and personnel necessary to adequately control and direct traffic in a safe manner. The Contractor shall maintain all barricades, flashers and detour signs twenty-four (24) hours a day, including covering signs during non-construction hours. The Contractor shall also provide the City with the names and telephone numbers of three (3) representatives available at all times.

Except as otherwise allowed by the Engineer, “long term” and temporary closures shall be removed and the full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress during the working period or successive working periods.

The contractor shall provide for pedestrian and wheelchair access to at least one (1) intersection corner within each block and the abutting sidewalk facilities along each block, at all times. Simultaneous closure of both intersection corners to pedestrian traffic within the same block is not allowed.

The contractor shall maintain at least one (1) north/south crosswalk and one (1) east/west crosswalk open to pedestrian and wheelchair access, where exists, at each intersection at all times.

Whenever Contractor's vehicles or equipment are parked within six (6) feet of a traffic lane, the area shall be closed with fluorescent traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the traffic lane at twenty-five (25) foot intervals to a point not less than twenty-five (25) feet past the last vehicle or piece of equipment. A minimum of nine (9) cones or portable delineators shall be used for the taper. A W20-1 (Road Work Ahead) sign shall be mounted on a portable sign stand with flags. The sign shall be placed where directed by the Engineer.

Temporary Pedestrian Access Routes
Attention is directed to Section 12-4.04, “Temporary Pedestrian Access Routes” of the updated Caltrans Specification and these Special Provisions.

When a pedestrian circulation path is temporarily closed by construction, alterations, maintenance operations, or other conditions, contractor shall submit a work plan for a temporary pedestrian access route complying with Caltrans Specification Section 12-4.04A(3) and sections 6D.01, 6D.02, and 6G.05 of the MUTCD, and State Standard plans T30, T31, T32, T33, and T34 shall be provided. The work plan must Be sealed and signed by an engineer who is registered as a civil engineer in the State.

Whenever possible work should be done in a manner that does not create a need to detour pedestrians from existing pedestrian routes. Extra distance and additional pedestrian street crossings add complexity to a trip and increase exposure of risk to accidents. The alternate pedestrian routes shall be accessible and detectable, including warning pedestrians who are blind or have low vision about sidewalk closures. Proximity-actuated audible signs are a preferred means to warn pedestrians who are blind or have low vision about sidewalk closures.

The surface shall be skid-resistant and free of irregularities. Pedestrian walkways shall be maintained in good condition and shall be suitable for wheelchair use. Walkways shall be kept clear of obstructions.

The Contractor shall cause the least possible disruption to the affected properties and restore suitable pedestrian access immediately following completion of the active work in progress.

At least one (1) continuous walkway along one (1) side of the street shall be available at all times. At locations where work is actively in progress, the pedestrian walkway within a single block may be temporarily closed at one (1) end of the block along one (1) side of the street. Pedestrians shall be rerouted to the walkway on the opposite side of the street.

Minor deviations from the requirements of this section, 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 them

in writing. All other modifications will be made by contract change order.

12-1.02 Traffic Control System for Lane Closure

A traffic control system shall consist of closing traffic lanes in accordance with the details shown on the plans, the provisions of Section 12, "Temporary Traffic Control", of the Caltrans Specifications, and Standard Specifications, and these Special Provisions.
The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take the measures that may be necessary to comply with the provisions in Section 7-1.04, "Public Safety", of the Standard Specifications and these Special Provisions.

During traffic striping operations and pavement marker placement operations using bituminous adhesive, traffic shall be controlled, at the option of the Contractor, with either stationary or moving type lane closures. During all other operations, traffic shall be controlled with stationary type lane closures. The Contractor's attention is directed to the provisions in Sections 84-2.03, "Construction", of the Caltrans Specifications.

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

When lane closures are made for work periods only, at the end of each work period, all 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, approved by the Engineer, within the limits of the highway right-of-way.

Each vehicle used to place, maintain, and remove components of a traffic control system 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 the components. Vehicles equipped with Type II flashing arrow signs not involved in placing, maintaining, or removing the components when operated within a stationary type 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 the vehicles which are doing the placing, maintaining, and removing of components of a traffic control system, and shall be in place before a lane closure requiring its use is completed.

The Contractor shall pay fully the cost of furnishing all flaggers, including transporting flaggers, to provide for passage of public traffic.

Attention is directed to Part 6 of the California MUTCD. Nothing in these Special Provisions shall be construed as relieving the Contractor from his responsibility as provided in Part 6 of California MUTCD.

Full compensation for furnishing all labor (including flagging costs), materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in lane

closures, including placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system, as shown on the plans, as specified in the Caltrans Specifications and these Special Provisions, and as directed by the Engineer, shall be included in the lump sum price paid for “Traffic Control”, and no additional work compensation will be allowed therefor.

Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary.

12-1.03 Not Used

12-1.04 Not Used

12-1.05 Construction Area and Informational Signs

Construction area and informational signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, "Temporary Traffic Control", of the Caltrans Specifications, Standard Specifications, and these Special Provisions.

The Contractor shall at least; install two (2) project informational signs; 6’W x 4.5’H in size with 3” minimum height letters. Letters on the Informational signs shall be black on white background. Location of signs shall be determined by the City Inspector.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least two (2) working days, but not more than fourteen (14) calendar days, prior to commencing any excavation for all the sign posts.

All excavations required to install all the 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.
Sign substrates for stationary mounted construction informational signs may be fabricated from fiberglass reinforced plastic, as specified under "Pre-qualified and Tested Signing and Delineation Materials" elsewhere in these Special Provisions.

Type IV reflective sheeting for sign panels for portable signs shall conform to the requirements specified under "Pre-qualified and Tested Signing and Delineation Materials" elsewhere in these Special Provisions.

The Contractor shall maintain accurate information on the signs. Signs that are no longer required shall be immediately covered and 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.

12-1.06 Maintaining Existing and Temporary Electrical Systems

Maintaining existing electrical systems and communication systems shall conform to the provisions of Section 87, “Electrical Systems," of the Caltrans Specifications and these Special Provisions. Existing traffic signal systems and communication systems shall be kept in effective operation for the benefit of the traveling public during the progress of the work, except when shut down is permitted. The traffic signal shutdowns shall be limited to the hours of 8:30 a.m. to 4:00 p.m. and shall be permitted only during the switch over from existing to new controller operation, unless prior approval is obtained from the Engineer. Contractor required to obtain authorization at least three (3) working days before interrupting communication between an existing system and the traffic management center (TMC).

Temporary standards with signal equipment may be required during the construction of the new installation. The Contractor shall provide temporary equipment if deemed necessary by the Contractor or Engineer. The cost of the temporary systems shall be included in the lump sum price paid for the various contract items of work involved and no additional compensation shall be allowed therefor.

12-1.07 Barricades and Channelizers

Barricades shall be furnished, placed and maintained at the locations shown on the approved Traffic Control Plan (TCP), specified in Part 6 of the California MUTCD, in the Standard Specifications or in these Special Provisions or where designated by the Engineer. Barricades shall conform to the provisions in Section 12, "Temporary Traffic Control," of the Standard Specifications and these Special Provisions.

Attention is directed to Section 6-1.07 "Pre-qualified and Tested Signing and Delineation Material" of these special provisions regarding retroreflective sheeting for barricades.

Construction area sign and marker panels conforming to the provisions in Part 6 of the California MUTCD and Section 12, “Temporary Traffic Control,” of the Caltrans Specifications, Standard Specifications, and these Special Provisions shall be installed on barricades in a manner determined by the Engineer at the locations shown on the plans and the TCP. Where provided, pedestrian barricades and channelizing devices shall comply with sections 6F.63, 6F.68, and 6F.71 of the MUTCD.

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

Channelizers shall conform to the provisions in Section 6-1.07 "Pre-qualified and Tested Signing and Delineation Material" of these Special Provisions.

At the time of completion of the project, certain channelizers shall be left in place as determined by the Engineer.

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.

12-1.08 Payment

Full compensation for all work under Section 12," Temporary Traffic Control", shall be considered as included in the lump sum price paid for "Traffic Control ", and no additional work compensation will be allowed therefore.

SECTION 13 – WATER POLLUTION CONTROL

13-1.01 General

Attention is directed to Sections 13, "Water pollution Control", of the Caltrans Specifications, these Special Provisions, and as directed by the Engineer.

The Contractor shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters. The Contractor shall inspect and maintain all BMPs.

Full compensation for water pollution control shall be considered as included in the prices paid for various items of work, and no additional compensation will be allowed therefore.

SECTION 14 – ENVIRONMENTAL STEWARDSHIP

Attention is directed to Sections 14, "Environmental Stewardship", of the Caltrans Specifications, these Special Provisions, and as directed by the Engineer.

14-1.01 Construction Site Waste Materials Management

Removal of existing traffic stripes and marking shall be per Caltrans Specifications Section 84-9, "Existing Markings".

Where grinding or other methods approved by the Engineer are used to remove thermoplastic traffic stripes and pavement markings, the removed residue, including dust, shall be tested for lead and chromium content. If the thermoplastic grindings are found to be hazardous, the materials shall be disposed of at a Class 1 facility.

Residue from removing traffic stripes and pavement markings which contains lead from the paint or thermoplastic. The average lead concentrations are less than 1,000 mg/kg total lead and 5 mg/L soluble lead. This residue:

1. Is a nonhazardous waste
2. Does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs
3. Is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Submit a lead compliance plan under section 7-1.02K(6)(j)(ii) "Lead Compliance Plan", of

the Caltrans Specifications.

Earth Material Containing Lead
This section includes specifications for handling, removing, and disposing of earth material containing lead.

Submit a lead compliance plan.

If earth material is disposed of:

1. Disclose the lead concentration of the earth material to the receiving property owner when obtaining authorization for disposal on the property
2. Obtain the receiving property owner's acknowledgment of lead concentration disclosure in the written authorization for disposal
3. You are responsible for any additional sampling and analysis required by the receiving property owner

If you choose to dispose of earth material at a commercial landfill:

1. Transport it to a Class III or Class II landfill appropriately permitted to receive the material
2. You are responsible for identifying the appropriately permitted landfill to receive the earth material and for all associated trucking and disposal costs, including any additional sampling and analysis required by the receiving landfill

Soil Handling
Excess soils must be handled as potential hazardous waste, or the excess soils must be tested for concentrations of lead prior to disposal.

Contaminated Soil
Identify contaminated soil from spills or leaks by noticing discoloration, odors, or differences in soil properties. Soil with evidence of contamination must be sampled and tested by a laboratory certified by Environmental Laboratory Accreditation Program (ELAP).

If levels of contamination are found to be hazardous, handle and dispose of the soil as hazardous waste.

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 test the water using a laboratory certified by ELAP. If levels of contamination are found to be

hazardous, handle and dispose of the water as hazardous waste.

Upon completion of underground facilities and backfilling of the trenches in each portion of the work, the sub-grade shall be prepared by compacting to a relative compaction of not less than ninety-five (95) percent for a minimum depth of zero point five (0.5) feet below the grading plane (sub-grade plane) for a total width of the area to be paved.

All portland cement concrete flatwork shall be saw-cut a minimum of 3-1/2 inches deep prior to removal. All monolithic portland cement concrete shall be saw-cut a minimum of 8 inches deep prior to removal.

Existing asphalt concrete sections to be removed shall be neatly saw cut two and one-half (2-1/2) inches deep and excavated to a depth of fifteen (15) inches. The vertical edges of the pavement shall be neatly trimmed. All debris shall be removed. The top six inches of the sub-grade shall be compacted to 90% of the maximum density at near optimum moisture content.

Payment

Full compensation for disposing, transporting, testing and preparation of lead compliance plan handling material contaminated, or potentially contaminated with aerially deposited lead, except as otherwise provided, shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Payment for handling, removal, transporting, and disposal of pavement residue that is a nonhazardous waste is included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

14-1.02 Air Pollution Control

Attention is directed to Section 14-9.02 “Air Pollution Control” of the Caltrans Specifications.

Comply with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statures provided in government code 11017 (Pub Cont Code 10231).

Do not burn material to be disposed of.

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

14-1.03 Dust Control, Apply Water, Site Maintenance, and Cleanup

Dust control shall conform to any requirements set forth in the San Joaquin Valley Air Pollution Control District Construction Notification Form, the provisions in Section 14-9, “Air Quality” of the Caltrans Specifications, and these Special Provisions. Use of water except for recycled, reclaimed, or other non-potable water for the purpose of dust control or other construction uses unless for health or safety purposes is prohibited. All dust

control operations shall be performed by the Contractor at the time, location and in the amount ordered by the Engineer. The application of either water or dust palliative shall be under the control of the Engineer at all times." Watering shall conform to the provisions of Section 13 "Water Pollution Control" of the Caltrans Specifications and these Special Provisions. Attention is also directed to Section 18 “Dust Palliatives” of the Caltrans Specifications and these Special Provisions.

During construction, the Contractor shall remove all rubbish and debris as it is generated. Upon completion of the work, the Contractor shall remove all equipment, debris, and shall leave the site in a neat, clean condition all to the satisfaction of the Engineer. A permit shall be obtained from the Municipal Utilities Department, or California Water Service, as applicable, for construction water obtained from City hydrants. This permit shall be approved by the City of Stockton Fire Department.

The Contractor shall conduct and cause all working forces at the site to maintain the site in a neat, orderly manner throughout the construction operations. The work shall be conducted in a manner that will control the dust. When ordered to provide dust control, the Contractor shall use water to reduce the dusty conditions all to the satisfaction of the Engineer. During construction, the Contractor shall remove all rubbish and debris as it is generated. The Contractor shall pay to the City of Stockton the sum of Two Hundred Fifty Dollars **($250)** for every calendar day where debris has remained on the job site overnight. Upon completion of the work, the Contractor shall remove all equipment and debris, and shall leave the site in a neat, clean condition all to the satisfaction of the Engineer.

14-1.04 Sound Control Requirements

The Contractor's attention is directed to Section 14-8.02 “Noise Control” of the Caltrans Specifications and the project specific equipment noise control measures listed in Table 8.1 below. Nothing in the Caltrans Specifications or these Special Provisions voids the Contractor’s public safety responsibilities or relieves the Contractor from the responsibility to comply with other ordinances regulating noise level.

The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

To minimize the construction impacts to residents, the Contractor is encouraged to select the bore method (directional drilling) over conventional trenching to install new conduits.

The noise level requirement shall apply to the equipment on the job or related to the job, including, but not limited to, trucks, transit mixers, or transient equipment that may or may not be owned by the Contractor. All equipment shall have sound-control devices that are no less effective than those provided on the original equipment. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Project Specific Equipment Noise Control

Table 8-1 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. The noise levels generated by the boring machine would be lower than any equipment listed in the table.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration 1995.

Further, implementing the following measures would minimize the temporary noise impacts from construction:

All equipment shall have sound-control devices that are no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.

As directed by the Engineer, the contractor shall implement appropriate additional noise mitigation measures as warranted. These could include, but are not specifically limited to, changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources. Furthermore, construction activities shall be limited to the time period between 9:00 a.m. and 5:00 p.m.

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

14-1.05 Supplied Biologist will be done by others

General

If construction will occur during migratory bird season (February 1 – September 30), a preconstruction bird survey will be within the project footprint. If an active bird nest is observed, a 100-foot buffer will be established around nest until the young have fledged, A 300-foot buffer will be established around any active hawk or other raptor nest that is observed.

14-1.06 Cultural Resources

If cultural materials are discovered during construction, including human remains, do not disturb the resources and immediately stop all work within a 60-foot radius of the discovery and within any nearby area suspected to overlie the discovery. Immediately notify all appropriate parties including the Caltrans District 10 Local Assistance archaeologist, the Local Assistance Engineer (DLAE), and the County Coroner if human remains are found. Do not move cultural materials or take them from the job site. Do not resume work within the discovery area until authorized. Additional protocols for human remains are given in the State Health and Safety Code Section §7050.5 and §5097.98.

The area along west Weber Avenue is archeology sensitive area. The Contractor shall coordinate with City's contracted tribe representative when the 3" fiber conduit is being installed in front of SEB.

Full compensation for doing all the work involved in trench excavation, water control and dewatering, bedding and backfilling, placement of temporary paving, and cultural resources shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be made therefore.

14-1.07 Soil Management Plan

Contractor shall prepare a Soil Management Plan for work causing ground disturbance at the following locations:

1. New conduit installation location along E Weber Avenue.

The Soil Management Plan(s) shall identify the nearby contaminated site(s), affected media, and corresponding contaminants of concern. Specific procedures should be identified for handling the impacted media during construction. Furthermore, a contingency plan should be incorporated into the Soil Management Plan in the event that gross contamination is discovered during construction. The Soil Management Plan should also outline health and safety concerns for workers coming in contact with the contaminated media.

Full compensation for the Soil Management Plans shall be considered as included in the price paid for other bid items and no additional compensation will be allowed therefore.

SECTION 15 – EXISTING FACILITIES

15-1.01 Existing Facilities

Contractor attention is directed to requirements of Section 5-1.16, “Property and Facility Preservation” of these Special provisions, and 7-1.05, "Indemnification” and 7-1.06 “Insurance", of the Caltrans Specifications.

Work performed in connection with various existing highway facilities (e.g., traffic signals and streetlights, storm drain pipe, catch basins, sidewalk drains, roadway pavement, roadside signs, utility boxes, trees, fences, etc.) shall conform to the provisions in Section 15, "Existing Facilities", of the Caltrans Specifications and these Special Provisions.

All traffic control signs shall be maintained. If relocation is necessary to facilitate the construction, the Contractor shall notify the Public Works Department, at (209) 937-8381, three (3) working days prior to said relocation, and request for approval as to where sign is to be temporarily relocated. Full compensation for performing such removal and reinstallation shall be considered as included in the various items of work and no additional compensation will be allowed therefore.

Fire hydrants, water valves, curb-stop boxes, and other utility facilities shall be unobstructed and accessible during the construction period.

Should the Contractor desire to have any alterations made in any utility or other improvement for Contractor's own convenience in order to facilitate Contractor's construction operations and for Contractor's sole benefit, Contractor shall make all necessary arrangements with the owners and bear all expense in connection therewith.

Removed highway facilities that are not to be salvaged shall become the property of the Contractor and shall be disposed of according to these special provisions, Section 15 “Existing Facilities” of Caltrans specifications, and as indicated on the plans.

Items of work under this section, "Existing Facilities", for which specific bid items are not provided, shall be considered as included in the prices paid for the various items of work of the bid schedule, and no additional compensation will be provided therefore.

Any contract adjustment that may be warranted due to differing site conditions will be made in accordance with the provisions of Section 4-1.02, "Changes and Extra Work", of these Special Provision.

Relocations or repairs necessitated because of existing facilities which are not shown on the plans, or are shown at substantially different locations than shown may be paid as extra work in accordance with Section 4-1.02, “Changes and Extra Work”, of these Special Provisions, but only if the Engineer rules that the Contractor exercised due diligence in his operation. Due diligence may be determined by the Engineer by reviewing surface and subsurface conditions that were existing prior to exposing the facility, and determining the absence of any signs sufficient to warn a diligent Contractor of the possible existence of a facility in the area.

Utility Facilities

Attention is directed to the possible existence of underground utilities not known to the City or in a location different from that which is shown on the plans or in these Special Provisions. The Contractor shall take steps to ascertain the exact location of such facilities prior to doing any work that may damage such facilities or interfere with their service.

Remove Existing Concrete

Existing concrete sidewalk, gutter, curb and gutter, median curb with apron, driveways, wheelchair ramps, and other concrete surfacing, where shown on the plans to be removed, shall be removed and disposed of. Concrete removal includes removal of any steel embedded in the concrete. Sawcut concrete ramps, walks, curbs, and gutters to be removed at the nearest joint or scoreline, at the locations indicated on the plans, and as designated by the Engineer.

Remove Existing Pavement
Asphalt concrete pavement and aggregate base shall be removed by saw-cutting and excavation or cold planing to the lines, depths, and dimensions indicated on the plans and/or as directed by the Engineer.

Roadside Signs
Unless otherwise shown on the plans, the Contractor shall maintain existing roadside signs in place. The Contractor shall replace or repair all signs damaged by his operations and under this contract by using new material. Such material shall be a replacement of the original in regards to type of sign, posts, and construction. Relocation of the existing signs shall be done the same day the sign is removed from its original location.

At the Contractor's option, existing signs may be temporarily removed in order to facilitate the Contractor's construction of other improvements included under this contract. Any sign which is removed or damaged by the Contractor's shall be reinstalled at its original location using new unistrut posts in conformance with the City of Stockton Standard Specifications number R-109. Existing steel pipe sign posts shall be salvaged as directed by the Engineer. Each roadside sign shall be reinstalled on the same day that the sign is removed.

Full compensation for any temporary removal and reinstallation of roadside signs and removing existing concrete and pavement shall be considered included in the lump sum price paid for “Traffic Control”, and no additional compensation will be allowed therefor.

Full compensation for potholing existing utilities shall be considered included in the “Furnish and Install New 3” Conduit with Muletape and Flexible Innerduct”, and no additional compensation will be allowed therefore.

SECTION 16 – BLANK

DIVISION III EARTHWORK AND LANDSCAPE

SECTION 17 – EARTHWORK AND LANDSCAPE

17-1.01 Clearing and Grubbing
Clearing and Grubbing shall conform to the requirements of Section 16, "Clearing and Grubbing", of the Standard Specifications, Section 17-2, “Clearing and Grubbing”, of the Caltrans Specifications, and these Special Provisions.

Payment for removal of existing highway facilities for which specific bid items are not provided, shall be considered as included in the contract prices paid for various items of work, and no additional compensation will be provided therefore.

All materials removed shall be off hauled and disposed of by the Contractor.
Attention is directed to Section 19-1.03D, "Buried Man-Made Objects", of the Caltrans Specifications.

Existing underground structures, trash, debris, loose fill, tree roots, tree remains, organic surficial soil, and other rubbish shall be removed or otherwise disposed of so as to leave the areas that have been disturbed with a neat and finished appearance, free from debris. Depressions left from any removals shall be properly filled and compacted in accordance with these Special Provisions, and as directed by the Engineer.

The methods for removal of subsurface irrigation and utility lines will depend on the depth and location of the line in relation to planned improvement. Unless otherwise specified, remove the pipe and compact the soil in the trench according to the applicable portions of these Special Provisions.

Where loose, uncompacted fill occurs at the surface of the site, the materials shall be excavated to expose firm natural ground or previously compacted fill. The exposed surface shall then be prepared to receive fill in accordance with the applicable portions of these Special Provisions.

Nothing herein shall be construed as relieving the Contractor of his responsibility for final cleanup of the highway as provided in Section 4-1.13, "Cleanup", of the Caltrans Specifications.

Full compensation for clearing and grubbing shall be considered included in the contract in various contract bid items that needs clearing and grubbing, and no additional compensation will be allowed. All the work involved in clearing and grubbing, shall include the removal and disposal of all the existing materials as shown on the plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer. Where it is required the contractor shall test the materials, according to Federal and State guidelines and regulations, before disposal.

SECTION 18 – BLANK

SECTION 19 – EARTHWORK

19-1.01 Roadway Excavation

Roadway excavation shall conform to the requirements of Section 19, "Earthwork", of the Standard Specifications, Caltrans Specifications, and these Special Provisions. Wherever relative compaction is specified, it shall be determined by ASTM D1557.

Surplus excavated material shall become the property of the Contractor and shall be disposed of outside the highway right-of-way in accordance with the provisions in Section 19-2.03B, "Surplus Material", of the Caltrans Specifications. All excavated material shall be loaded for off-haul from the site as it is generated. Material will not be allowed to accumulate within the right-of-way. If excavation exceeds 15 feet, water sampling will be required.
Full compensation for Roadway Excavation shall be considered included in the contract prices paid for the various items of work requiring “Earthwork” and no additional compensation will be allowed.

19-1.02 Trench Excavation and Backfill

Trench excavation, pipe bedding, and backfill shall conform to the requirements of Section 71, "Sanitary Sewer and Storm Sewers", of the Standard Specifications and City of Stockton Standard Plan Nos. R36 through R43, and any amendment and revisions, these Special Provisions, and as specified on the plans. Controlled Density Fill (CDF) shall be mandatory for trenches 8” wide or less. Contractor shall grind 3” deep, 12” each side of trench, and repave. If excavation exceeds 15 feet in depth, water sampling will be required.

Water control shall conform to the provisions of Section 19-3.03B(5) “Water Control and Foundation Treatment” of the Caltrans Specifications and these Special Provisions. The Contractor shall construct and maintain all necessary ditches, cofferdams, channels, drains, sumps, and temporary protective works, and shall furnish, install, and maintain all necessary pumping and other equipment for controlling flows, including ground water in the pipe trenches and structure excavations, so that no foundation will contain any free water. Full compensation for water control shall be included in the contract prices paid for various items of work, and no additional compensation will be made therefore.

The Contractor shall do all excavation of whatever substance is encountered to the lines and grades shown on the plans. Where it becomes necessary to excavate beyond the limits of normal excavation lines in order to remove boulders or other interfering objects, the void remaining after the removal of the boulders shall be backfilled with suitable material and density, as approved by the Engineer. The Contractor shall do such grading as is necessary to prevent surface water from entering the excavation. The Contractor shall remove and dispose of all water entering the excavation. Disposal of water shall be done in a manner to prevent damage or nuisance to adjacent properties.

Due to width limitations, proximity of existing utilities, structures, and access requirements, the Contractor may be required to provide a vertical, open trench, shoring system for portions of this project. Shoring of all trench excavations shall conform to the Sheeting and Shoring Section of these Special Provisions.

The amount of open trench or plated trench permitted at any one time shall not exceed fifty (50) feet or as allowed by the Engineer. Trench excavation shall be closed and all lanes shall be restored to traffic at the end of each workday. The Contractor shall furnish and install non-skid steel plates to span trench sections, which have not been backfilled. Non-skid trench plates shall have a manufactured surface with a coefficient of friction that equals or exceeds zero point thirty-five (0.35).

Approach and ending plates shall be attached to the roadway by a minimum of two (2) dowels predrilled into the corner of the plate and drilled a minimum of two (2) inches into the pavement. Interior plates are to be butted together. Fine graded asphalt concrete shall be compacted to form ramps with a maximum slope of eight and one-half percent (8.5%) with a minimum twelve- (12) inch taper to cover all exterior edges of the plates. When the plates are removed, the dowel holes in the pavement shall be backfilled with graded fines of asphalt concrete mix. A concrete slurry or equivalent slurry mix may be substituted with the approval of the Engineer.

All operations shall be carried out in an orderly fashion. Backfilling, compacting, and clean-up work shall be accomplished as the work is approved and traffic through the work shall be impeded or obstructed as little as possible.

The trench bottom shall be free of bumps or hollows and graded to provide uniform support along the length of pipe.

Excess excavated material shall become the property of the Contractor and shall be removed and disposed of away from the job site at the Contractor's expense. Full compensation for the removal and disposal of excess or unsuitable material shall be considered included in the contract unit prices paid for the various items of work and no additional compensation will be allowed therefore.

Pipe bedding and backfill shall be placed above and below the pipe to the lines and grades shown on the City of Stockton Standard Plans Nos. R36 through R43, as shown on the plans, and as specified in these Special Provisions.

Delete Section 19-3.03E, "Structure Backfill", of the Caltrans Specifications and substitute the following:

"Pipe bedding, envelope, and trench backfill material shall consist of imported material, free from vegetable matter and other deleterious substances and shall form a firm, stable base when compacted. The percentage composition weight by weight shall conform to the following grading:

Sieve Size	Percentage Passing
1"	100
¾"	90-100
No. 4	35-60
No. 30	10-30
No. 200	2-9

The material shall conform to the following quality requirements:

	Requirements
Resistance(R-value)	78 min.
Sand equivalent	25 min.

In no case shall native excavated material be used as pipe bedding, envelope, and trench backfill.

Bedding material shall be placed to approximately the same elevation on both sides of pipe to prevent unequal loading and displacement of the pipe. The difference in elevation of the bedding backfill on either side of pipe shall not exceed six (6) inches at any time.

Trench backfill shall consist of the trench area from the top of the pipe bedding to the ground surface, or if within a roadway, to the bottom of the roadway subgrade.

Backfill shall be compacted by impact, vibration, or by a combination of these methods,

as approved by the Engineer. However, impact type compactors shall not be used around or over PVC pipe until backfill over the top of the pipe will permit compaction of the backfill material without deflecting or damaging the pipe. Jetting will not be permitted.

All backfill shall be placed in maximum eight (8) inch uncompacted lifts.

Compaction shall be determined by ASTM D1557.

The Contractor shall place temporary surfacing promptly after backfilling and shall maintain such surfacing until permanent paving work can be installed.

Temporary paving shall consist of asphalt cutback rolled to provide a smoother surface. All edges shall be contoured to provide a smooth transition between the existing grade and the cutback surface. The Contractor shall maintain the surface free of depressions, bumps, loose pieces, and other defects at all times. During wet weather, the Contractor shall provide a solid, non-skid surface over temporary pavement to protect the surface from damage by traffic.

Temporary pavement shall be replaced with permanent pavement, as soon as is practical after the trench is backfilled and as allowed by the Engineer.

Until the permanent pavement is placed, the base rock and temporary asphalt plant mix at the surface of the trench shall be maintained at all times. Continuous inspection and maintenance of the trench area will be required.

Any excavation shall also conform to the provisions in Section 100, “Street Opening and Pavement Restoration Regulations” of the Standard Specifications.

Full compensation for doing all the work involved in trench excavation, water control and dewatering, bedding and backfilling, and placement of temporary paving shall be considered as included in the contract prices paid for the various items of work requiring “Earthwork’’ and no additional compensation will be made therefore.

19-1.03 Not Used

SECTION 20 – LANDSCAPE

20-1.01 Planting and Irrigation

The work performed in connection with planting shall conform to the provisions of Section 5-1.36, “Property and Facility Preservation,” Section 15, "Existing Facilities," and Section 20, "Landscape," of the Caltrans Specifications and these Special Provisions.

All trash, debris, rubble, concrete, and other foreign materials shall be removed from planting areas prior to modifying/repairing irrigation systems and planting.

Existing plants shall be maintained as directed by the Engineer. Payment for maintaining existing plants shall be considered as included in the various items of work and no additional compensation shall be allowed therefore.

Contractor shall furnish and install 12-inches minimum imported topsoil in planting areas. Existing on-site soil shall not be used unless approved by the Engineer. Imported topsoil shall be fertile, friable soil of loamy character having a normal amount of humus. The topsoil shall be free of subsoil, refuse, roots, rocks larger than 1/2" diameter, weeds and brush, nematodes or other objectionable material.

Contractor shall furnish and install sod equal to or better than the existing lawn. Final lawn (sod) acceptance shall be subject to the approval of the City. Where new concrete is to be constructed, existing turf at back of the walk, shall be adjusted to the new finished grade. Sod shall be a good quality bluegrass mix free of noxious weeds.

Contractor shall install additives and mulch as required by the Engineer. Commercial fertilizer (granular) shall be a pelleted or granular form controlled-release only and shall be applied at the rates as recommended by the manufacturer. Three applications of commercial fertilizer (slow release) shall be applied as directed by the Engineer. The plant establishment period shall be no less than 90 calendar days. All plant materials furnished and installed under this contract shall be guaranteed against any and all poor, inadequate or inferior installation and workmanship for the guarantee period of one year. Any materials found to be in poor condition during the plant establishment period shall be replaced immediately. The Engineer shall be the sole judge as to whether the poor condition of the material is the result of improper installation or of poor maintenance. Material to be replaced within the guarantee period shall be replaced by the Contractor within 10 days of written notification by the Engineer.

Existing sprinkler systems disturbed by the Contractor’s activity shall be repaired to the satisfaction of the City. Contractor shall be responsible for the removal and relocation of existing irrigation systems, including replacement of sprinkler heads, valves, lines, controllers, connections, etc. and other work, materials, or equipment required completing the work. All repairs shall be made with new materials. Pipe materials for irrigation systems shall be Schedule 40 PVC. Nipples shall be threaded. Sprinklers shall be the type, pattern and material and shall have the operating characteristics as that which is removed or disturbed by the work. Contractor shall coordinate repairs and modifications to the irrigation system with the property owner.

If required to match new sidewalk grade, existing Lawns shall be (1) raised by lifting existing turf and filling with tamped imported Clements loam, replacing and rolling the turf; or (2) lowered by lifting existing turf, removing sufficient soil to lower properly, replacing and rolling the turf.

Where new sidewalk to be constructed, the existing turf at the back of the walk, shall be adjusted to the new finished grade. The contractor has two options (1) remove the existing turf to adjust the grade and replace the existing turf with new turf or (2) lift the existing turf and by removing or adding sufficient soil adjust the turf to the new grade. Turf to be placed shall be a good quality bluegrass mix free of noxious weeds. All landscaping shall be

maintained in good health upon completion of the project.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in restoring planting and irrigation systems, complete in place, including the maintenance period, shall be considered as included in the prices paid for the various items of work and no additional compensation will be allowed therefore.

20-1.02 Not Used

SECTION 21 – BLANK

DIVISION IV SUBBASES AND BASES - BLANK

DIVISION V SURFACINGS AND PAVEMENTS - BLANK

DIVISION VI STRUCTURES - BLANK

DIVISION VII DRAINAGE FACILITIES - BLANK

DIVISION VIII – MISCELLANEOUS CONSTRUCTION

SECTION 73 – BLANK

SECTION 75 – MISCELLANEOUS METALS

75-1 Miscellaneous Iron and Steel

This work shall consist of furnishing and installing metal frames and covers or frames and grates for use in minor structures and shall conform to the provisions in Section 75, "Miscellaneous Metal", of the Standard Specifications.

Full compensation for furnishing and installing miscellaneous iron and steel, including metal frames and covers or frames and grates, shall be considered as included in the contract prices paid for the various contract items, and no additional compensation will be allowed therefore.

SECTION 77– LOCAL STRUCTURE

77-1 Transportation Management Center (TMC) Equipment Upgrade

Furnishing and installing electrical components of TMC equipment upgrade shall conform to Sections 86, “Electrical Work,” and 87, “Electrical Systems,” of the Caltrans Specifications, Section 86, “Electrical System” of the Standard Specifications, California MUTCD, and these Special Provisions. Non-electrical work elements included in the project included in these special provisions as well.

77-1.01 Scope

The work covered under TMC Equipment Upgrade includes work specified under

- Traffic Signal System
- Fiber Optic System
- Traffic Management Center
- Traffic Servers/Storage Room
- Old TMC Server Room, Old TMC Room, and IDF Closet

Work covered under this division shall include furnishing all labor, material, tools, equipment, and incidentals and doing all work involved which is required for the complete installation of electrical and non-electrical work.

Work or equipment not specified or shown on the Plans which is necessary for the proper operation of the work in this area shall be provided and installed at no additional cost to the City.

77-1.02 Regulations and Code

Regulations and Code shall conform to Section 86-1.01D (1) of the Caltrans Specifications and latest California Building Standards Code. Nothing in these plans or specifications shall be construed to permit work not conforming to the most stringent of applicable codes.

All individuals who perform work as electricians (kind of work apply to electrical connections 100 volt-amperes or more; Commercial and Industrial wiring, underground conduit installation, finish work and fixtures, and fire life safety), for contractors licensed as Class A, Class B and C-10 electrical contractors, shall be certified according to Labor Code Sections 3099 and 3099.2. Additionally, the contractor’s representative in charge of traffic signal controller upgrade shall possess an IMSA certificate.

77-1.03 Certificate of Compliance, Warranties, Guarantees and Instruction Sheets

Certificate of Compliance, Warranties, guarantees and instruction sheets shall conform to Sections 86-1.01C(6), 86-1.01C(8), and 87-2.01C of the Caltrans Specifications and these Special Provisions.

All equipment furnished shall be guaranteed to the City by the manufacturers for a period of not less than one- (1) year following the date of acceptance of the project. If any part (or parts) is found to be defective in materials or workmanship within the one year period and it is determined by the Engineer or by an authorized manufacturer's representative

that said part (or parts) cannot be repaired on the site, the manufacturer shall provide a replacement part (or parts) of equal kind and/or type during the repair period and shall be responsible for the removal, handling, repair or replacement, and reinstallation of the part (or parts) until such time as the traffic signal equipment is functioning as specified and as intended herein; the repair period shall in no event exceed seventy-two (72) hours, including acquisition of parts.

The one- (1) year guarantee on the repaired or replaced parts shall again commence with the date of acceptance of the project.

77-1.04 Description

The work to be performed at the locations shown on the Plans. Work or equipment not specified or shown on the Plans which is necessary for the proper operation of the work in this section shall be provided and installed at no additional cost to the City.

Any Contractor-requested change, from approved Plans and Specifications, shall be made in writing to the City. No changes shall be made in the field without written approval of requested changes by the City.

The contractor is responsible to take all necessary precautions and use best practices in the industry to perform all work require to complete the project.

77-1.05 Materials General

Attention is directed to Section 6 of standard specification, except as provided under "City-furnished Materials" of these Special Provisions, the Contractor shall furnish and install all other materials required to complete the work under this contract.

77-1.06 Equipment List and Drawings

Equipment list and drawings shall conform to the provisions in Section 86-1.01C(1) of the latest Caltrans Specifications, and these Special Provisions.

All equipment and materials that the Contractor proposes to install shall conform to these specifications and contract plans. A list of substitute equipment and/or materials along with a written descriptive summary, describing the functions of the components, which the Contractor proposes to install, shall be submitted along with his bid proposal. The list shall be complete as to the name of manufacturer, size and identifying number of each item. The list shall be supplemented by such other data as may be required. In all cases, the judgment of the Engineer shall be final as to whether substitute equipment and/or material recommended by the Contractor conform to the intent of these specifications.

THE CONTRACTOR SHALL FURNISH FINAL AS-BUILT DRAWINGS AS PART OF THIS PROJECT AT NO ADDITIONAL COST TO THE CITY.

77-2 Traffic Signal System

77-2.01 Description

Work under this section includes the work performed at the traffic signal locations as shown on the plans.

77-2.02 Traffic Signal Controller

The contractor shall furnish and install new McCain ATC eX2 controllers. The controllers shall have the following features:

- Open architecture platform with Linux operating system
- Compliant with NEMA and ATC 5.2b standards
- Compliant with D4 traffic controller software
- Cabinet Interface – NEMA TS 2 Type 1 and Type 2
- Communication Interfaces - 2XSDLC ports, 2XENET 1 100 Base-T Ethernet ports, ENET 2 100 Base-T Ethernet Port, 3X serial connection port, 2 USB 2.0 ports.
- 2070 style circular NEMA “D” Connector
- 4 GB USB flash drive

Installation

The Contractor shall replace the existing Siemens M50 series and 2070 controllers at locations shown on the plans. The Contractor shall install D4 traffic signal software on the controllers prior to the installation.

Contractor shall provide controller upgrade schedule for City to approve. For existing M60 locations, the upgrade should be rolling.

To minimize the delay in the field, the Contractor shall bench test all loaded controllers in City's signal shop prior to the deployment. After each switch-over, Contractor shall assist City staff to examine each signal operation such as EVP, detection, and pedestrian timing,

Systems Integration

The City has completed database conversions, the Contractor shall load the converted signal timing information to the D4 traffic signal controller software. The signal timing information shall include but not limited to “Free”, density, EVP, transit, coordination, and Time of day information.

77-2.03 Traffic Signal Controller Firmware/Software

The contractor shall furnish and install latest City approved D4 Version 1.6.2 11312 traffic signal controller software in existing or new traffic signal controllers as per the information shown on the plans. The Contractor shall load the converted signal timing information to the D4 traffic signal controller software. The contractor shall save the signal timing database on a 4GB flash drive to be left in signal cabinet for each location.

The D4 traffic signal controller software shall have the following features:

- 16 phases
- Supports NEMA TS-1, TS-2 Type 1 & Type 2, Caltrans 332/336, and ITS cabinets
- AB3418 and NTCIP protocol support
- Compatible with Siemens M60 series and McCain ATC eX2 controllers

Installation

The Contractor shall install D4 software in existing Siemens M60 controllers and new

McCain ATC eX2 controllers at locations shown on the plans. For existing Siemens M60 controllers, the contractor shall load software and timing in City's stock of spare M60 controllers at City Corp Yard, test in shop, and then swap in field. The process shall be repeated with retrieved field M60 controllers.

The contractor shall provide one two-full-day training session at handover and one additional two-full-day training within the first year of installation.

Systems Integration
The City has completed database conversions, the Contractor shall load the converted signal timing information to the D4 traffic signal controller software. The Contractor shall test the signal operations are as per the signal timing entered into the controllers. The signal timing information shall include but not limited to "Free", density, EVP, transit, coordination, and Time of day information.

77-2.04 Managed Ethernet Switch
The contractor shall replace existing unmanaged Comnet Ethernet switch with managed Ethernet switch in the traffic signal controller cabinet.

It is preferred that the Ethernet switch should be fully tested in a large scale (minimum 20 locations) and accepted by the City prior to this bid. The switch shall be fully compatible with City's existing edge and core network switches and shall not require reconfiguration of any existing equipment or use of proprietary features to enable communication. The switch shall also be an environmentally hardened 12-port managed ethernet switch that supports 10/100/1000Mbps and come standard with manufacturer provided lifetime warranty.

The module shall support transmission utilizing Category 5 or better cable and multimode or single-mode fiber. The module shall support the Ethernet data IEEE 802.3 protocol using Auto-negotiating and Auto-MDI/MDI-X features. The module shall feature 8 (eight) 10/100/1000BASE-T(X) RJ-45 ports, each capable of at least 30 Watt PoE, and 4 (four) Small Form-factor Pluggable (SFP) ports capable of at least 1000BASE-X. The SFP module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall provide unit power, fault alarm, PoE, and port status indicating LED's for monitoring proper system operation. The modules shall provide automatic re-settable solid-state current limiters on each module to reduce the chance of a single point failure of the system. The module shall have dual redundant power supply connections to minimize single point failure. The module shall provide a serial connection for local management of the device. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

1. DATA SPECIFICATIONS
    a. Data Interface: Ethernet IEEE802.3
    b. Data Rate: 10/100/1000 Mbps
    c. Data Inputs/Outputs: 12
    d. Operation Mode: Half or Full Duplex
    e. Max VLANs: 256 (4096 VIDs)

2. OPTICAL SPECIFICATIONS

a. Number of Optical ports: 4, SFP-dependent
b. Number of Fibers Required: 1, SFP-dependent
c. Optical Wavelength: 1310 or 1550 nm, SFP-dependent
d. Optical Power Budget: SFP-dependent
e. Maximum Distance: up to 120 km (70 mi) single mode, SFP-dependent

3. STATUS INDICATORS
   a. Power
   b. Per Port: Link/Activity
   c. Per Port: PoE Status
   d. Ring Status

4. CONNECTORS
   a. Optical: SC, SFP-dependent
   b. Data: RJ-45
   c. Console: RJ-45

5. ELECTRICAL SPECIFICATIONS
   a. Power: Dual redundant inputs
   b. Reverse polarity protected
   c. Overload current protected
   d. Circuit Board: UL 94 flame rated and meets all IPC standards.
   e. PoE: 30 W per port, 240 W budget, PoE Watchdog

6. ENVIRONMENTAL SPECIFICATIONS
   a. MTBF: >100,000 Hours
   b. Operating Temp: –20˚ C to +65˚ C
   c. Storage Temp: -40˚ C to +85˚ C
   d. Relative Humidity: 5% to 95% (non-condensing).

7. MOUNTING SPECIFICATIONS
   Shall be mountable on wall, shelf, or DIN rail

8. REGULATORY AGENCIES/APPROVALS AND LISTINGS
   a. Underwriters Laboratory (UL) Listing
   b. Federal Communication Commission (FCC) Part 15 compliant
   c. CE marked
   d. Restriction of Hazardous Substances (RoHS) compliant
   e. IP30 rating
   f. “Buy America” certificate of compliance or exemption

Accessories

- 6-foot Cat5e cable (with yellow skin) to connect the traffic signal controller
- to the 12-port Ethernet switch.
- 6-foot Cat5e cable (with red skin) to connect the EVP phase selector to the
- 12-port Ethernet switch.
- 6-foot Cat5e cable (with gray skin) to connect the video detection CPU to
- the 12-port Ethernet switch

- 6-foot Cat5e cable (with blue skin) to connect an additional IP device to the 12-port Ethernet switch
- Associated switch mounting hardware
- Din rail mountable 48V 240W power supply.
- Other accessories as required by the manufacturer.

Installation
The Contractor shall replace existing unmanaged Comnet Ethernet Switch (CNGE8US) with the new Comnet Managed Ethernet Switch. Install DIN Rails for mounting switch and PS. Changing to shelf mount or wall mount shall be pre-approved by Engineer.

Systems Integration
All the new switches shall be previously configured and labeled for an intersection where installed. The fiber allocation numbers at each intersection are listed on the plans.

77-2.05 Small Form-Factor Pluggables (SFP) Modules
The contractor shall furnish and install SFP-22A or SFP-22B module for fiber termination at the traffic signal cabinet if existing SFP-21 modules are damaged.

a) All SFPs shall come with manufacturer provided lifetime warranty.
b) Temperature Requirements: Products shall operate in an environment with an ambient temperature range of 0˚ F to +150˚ F without the assistance of fan-forced cooling. The modules shall have an MTBF (Mean time between failures) of >100,000 hours.
c) Provide MSA Compliant one fiber SC Small Form-Factor Pluggable (SFP) Optical Device. The devices shall utilize 1000fx, 1310/1550 nm optics capable of simultaneous bi-directional signal transmission on one single mode optical fiber. The SFPs shall have the same transmitting sensitivities with the matching SFPs upstream or downstream. The SFP modules shall have different wavelengths and optical power to offer distances from 300 meters to 120 kilometers. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall be UL listed. The circuit board shall be UL 94 flame rated and meet all IPC standards. Housing shall be of all metal construction. All LED indicators and both electrical and mechanical connections shall be identified with silk-screened labels. The Contractor shall install one 1000fx, 1550nm, single-mode SC fiber SFP and one 1000fx, 1310nm, single-mode SC fiber SFP into the 12-port Ethernet switch for field installation and deliver one each of the 1550nm and 1310nm SFPs to the City for central installation.
d) Copper 10/100/1000 Mbps RJ45 SFP module. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall be UL listed. The circuit board shall be UL 94 flame rated and meet all IPC standards. Housing shall be of all metal construction. All LED indicators and both electrical and mechanical connections shall be identified with silk-screened labels. Housing shall be of all metal construction. The Contractor shall deliver all copper SFPs to the City unless otherwise noted on plans.

Installation
The Contractor shall reuse the existing SFP-21 module from the replaced CNGE8US

unmanaged ethernet switch. If the existing SFP-21 module is damaged, then the Contractor shall replace it with new SFP-22A or SFP-22B module, respectively.

77-2.06 Network Management Software

The Contractor shall furnish and install network management software in a City furnished virtual server that has the following requirements.

- Includes a map
- Include links between network switches
- Has the ability of monitor the status of network switches
- Receive alerts of a network switch is down or has issues.
- Ability to remotely configure the existing and proposed switches
- Compatible with the existing and proposed managed switches

77-2.07 KITS Software

The Contractor shall furnish and install KITS ATMS to monitor and control traffic signal operations. The contractor shall configure the signals to connect to the KITS software.

77-3 Fiber Optic System

77-3.01 Not Used

77-3.02 Not Used

77-3.03 Not Used

77-3.04 Fiber Optic Conduit

Conduit shall conform to the provisions in Sections 86-1.02B, “Conduit and Accessories” and 87-1.03B, “Conduit Installation” of the Caltrans Specifications and these Special Provisions.

All Fiber Optic Conduits shall be 3” Poly Vinyl Chloride (PVC) or HDPE (Orange color), Schedule 80 with rigid steel sweeps unless otherwise specified on plans. The HDPE conduit shall be capable of being coiled on reels in continuous lengths and uncoiled for installation without affecting its properties or performance. With the exception for bends to and from pull boxes and foundations, the conduit shall run straight and true so that cable pulling forces are minimized. The conduit shall have smooth outer wall and smooth inner wall.

Conduit sweeps into No. 6 pull boxes on fiber optic interconnect runs shall enter/exit, with rigid sweeps, at 45 degrees (in vertical plane). Plastic pulling bells shall be installed on all conduit ends before conductors are pulled through the conduits.

After fiber has been installed, the ends of conduits terminating in pull boxes and/or controller cabinets will be sealed with an approved type of sealing compound. Refer to the City of Stockton Standard Drawing No.R87 for conduit/pull box details.

Refer to City of Stockton Standard Plan Drawing No. R37 for trench width and depth. All conduits shall be installed below the existing AC pavement regardless of the depth of the

existing AC pavement. All conduits shall be installed at a minimum depth of thirty-six (36) inches (top of conduit to the finish grade).
All excavated areas in the street or sidewalk shall be completely backfilled or covered at the end of each working day and approved by the Engineer.

Where existing conduits to be used, as directed by the Engineer, the existing conduit shall be cleaned and both old and new cables shall be pulled into the existing conduit as a unit per the Caltrans Specifications in Section 87-1.03F, "Conductors and Cable Installations".

All fiber optic interconnect conduits with fiber cable shall include one 1250lbf detectable Muletape with 22 AWG wire. A detectable Muletape shall be installed after Fiber Optic cable installation for future detection.

Flexible Innerduct
Innerduct consists of flexible fabric chambers that is installed inside conduit, and which in turn the fiber optic cable is installed. Innerduct within a conduit run must be continuous without splices or joints. Innerduct for this project must have a minimum of 3 cells.

Innerduct cells must include 1250lb minimum flat woven pull tape for installation. Innerduct shall be protected and installed per manufacturer specifications.

The innerduct must be shipped on reels marked with the manufacturer, the contract number, and the size and length of the innerduct. The material on reels must be covered with aluminized material to protect colors from UV deterioration during shipment and storage. Each innerduct must be one continuous unit within a conduit run. Each innerduct must comply with Caltrans Standard Specifications section 86-1.02, "Materials", of the State Standard Specifications.

Muletape
All fiber optic interconnect conduits with fiber cable shall include one 1,250 lbf detectable Muletape with 22 AWG wire. A detectable Muletape shall be installed after Fiber Optic cable installation for future detection.

77-3.05 Fiber Optic Cable

Fiber Optic Cable shall conform to section 87-19 "Fiber Optic Cable Systems" of State Standard Specifications, and these special provisions.

Certified experienced personnel, with at least 5 years' experience, shall do the installation and connection of any fiber optic cable. The personnel shall be certified by the Fiber Optic Material Personnel. The contractor shall submit the manufacture's recommended procedure for pulling fiber optic cable at least 20 working days prior to installing cable. Documentation of compliance to this specification shall be provided to the City Traffic Engineering Section of Public Works Department prior to ordering the material. All fiber optic cables shall be tested according to manufacturer's recommended testing procedures and verified by the City prior to final acceptance. The cable shall be new, unused, and of current design and manufacturer. The maximum allowable pulling tension

for the cable installation by the contractor shall not exceed 70 percent of the manufacturer's maximum pulling tension.

The fiber cable shall be all-Dielectric, Gel-Free, with stranded loose-tube design with dry water blocking for outdoor duct and aerial installations. The cable shall be comprised of water-swellable yarns and/or tapes, dielectric strength members, ripcord and a medium density polyethylene (MDPE) jacket containing carbon black to provide ultraviolet light protection while inhibiting the growth of fungus. The cable shall be fully water blocked using craft-friendly water-swellable yarns and tapes, making cable access simple and requiring no clean up. **Cables shall contain at least 24 single-mode, 48 single-mode, 72 single-mode and 288 single-mode or as indicated on the plans, (SM) dual operating window (1310nm and 1550nm) fibers.**

Each fiber shall be distinguishable by means of color-coding in accordance with TIA/EIA-598-A, "Optical Fiber Cable Color Coding." The fiber shall be colored with ultraviolet (UV) curable inks. The contractor shall provide manufacturer's certification that the cable is meeting the functional requirement of Rural Utilities Service (RUS) 7 CFR 1755.900 to 1755.902 and fully complain with ANSI/ICEA S-87-640, *Standard for Optical Fiber Outside Plant (OSP) Communications Cable*. Manufacturer shall be ISO9001 and TL9000 registered. Cable shall have storage temperature range of -40° to 70°C, an installation temperature range of -30° to70°Cand an operating temperature range of -40° to 70°C. The Cable shall have a short-term tensile rating of 2700N. Cable and fiber manufacturer shall be the same company with minimum of 20 years in manufacturing optical fiber cable to demonstrate cable long-term reliable field performance and to ensure the availability of fully integrated technical support.
The color code of the 500+ fiber (2 X 288) from SEB to City Manhole #1 shall match with the AT&T fiber color coding shown below.

Ribbon Color and #			Fiber Color and Number											
Ribbon Color	Ribbon #		Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua
BL	1		1	2	3	4	5	6	7	8	9	10	11	12
OR	2		13	14	15	16	17	18	19	20	21	22	23	24
GR	3		25	26	27	28	29	30	31	32	33	34	35	36
BR	4		37	38	39	40	41	42	43	44	45	46	47	48
SL	5		49	50	51	52	53	54	55	56	57	58	59	60
WH	6		61	62	63	64	65	66	67	68	69	70	71	72
RD	7		73	74	75	76	77	78	79	80	81	82	83	84
BK	8		85	86	87	88	89	90	91	92	93	94	95	96
YL	9		97	98	99	100	101	102	103	104	105	106	107	108
VL	10		109	110	111	112	113	114	115	116	117	118	119	120
RS	11		121	122	123	124	125	126	127	128	129	130	131	132
AQ	12		133	134	135	136	137	138	139	140	141	142	143	144
BL	13		145	146	147	148	149	150	151	152	153	154	155	156
OR	14		157	158	159	160	161	162	163	164	165	166	167	168
GR	15		169	170	171	172	173	174	175	176	177	178	179	180
BR	16		181	182	183	184	185	186	187	188	189	190	191	192
SL	17		193	194	195	196	197	198	199	200	201	202	203	204
WH	18		205	206	207	208	209	210	211	212	213	214	215	216
RD	19		217	218	219	220	221	222	223	224	225	226	227	228
BK	20		229	230	231	232	233	234	235	236	237	238	239	240
YL	21		241	242	243	244	245	246	247	248	249	250	251	252
VL	22		253	254	255	256	257	258	259	260	261	262	263	264
RS	23		265	266	267	268	269	270	271	272	273	274	275	276

Ribbon Color and #			Fiber Color and Number											
Ribbon Color	Ribbon #		Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua
AQ	24		277	278	279	280	281	282	283	284	285	286	287	288
BL	25		289	290	291	292	293	294	295	296	297	298	299	300
OR	26		301	302	303	304	305	306	307	308	309	310	311	312
GR	27		313	314	315	316	317	318	319	320	321	322	323	324
BR	28		325	326	327	328	329	330	331	332	333	334	335	336
SL	29		337	338	339	340	341	342	343	344	345	346	347	348
WH	30		349	350	351	352	353	354	355	356	357	358	359	360
RD	31		361	362	363	364	365	366	367	368	369	370	371	372
BK	32		373	374	375	376	377	378	379	380	381	382	383	384
YL	33		385	386	387	388	389	390	391	392	393	394	395	396
VL	34		397	398	399	400	401	402	403	404	405	406	407	408
RS	35		409	410	411	412	413	414	415	416	417	418	419	420
AQ	36		421	422	423	424	425	426	427	428	429	430	431	432
BL	37		433	434	435	436	437	438	439	440	441	442	443	444
OR	38		445	446	447	448	449	450	451	452	453	454	455	456
GR	39		457	458	459	460	461	462	463	464	465	466	467	468
BR	40		469	470	471	472	473	474	475	476	477	478	479	480
SL	41		481	482	483	484	485	486	487	488	489	490	491	492
WH	42		493	494	495	496	497	498	499	500	501	502	503	504
RD	43		505	506	507	508	509	510	511	512	513	514	515	516
BK	44		517	518	519	520	521	522	523	524	525	526	527	528
YL	45		529	530	531	532	533	534	535	536	537	538	539	540
VL	46		541	542	543	544	545	546	547	548	549	550	551	552
RS	47		553	554	555	556	557	558	559	560	561	562	563	564
AQ	48		565	566	567	568	569	570	571	572	573	574	575	576
BL	49		577	578	579	580	581	582	583	584	585	586	587	588
OR	50		589	590	591	592	593	594	595	596	597	598	599	600
GR	51		601	602	603	604	605	606	607	608	609	610	611	612
BR	52		613	614	615	616	617	618	619	620	621	622	623	624
SL	53		625	626	627	628	629	630	631	632	633	634	635	636
WH	54		637	638	639	640	641	642	643	644	645	646	647	648
RD	55		649	650	651	652	653	654	655	656	657	658	659	660
BK	56		661	662	663	664	665	666	667	668	669	670	671	672
YL	57		673	674	675	676	677	678	679	680	681	682	683	684
VL	58		685	686	687	688	689	690	691	692	693	694	695	696
RS	59		697	698	699	700	701	702	703	704	705	706	707	708
AQ	60		709	710	711	712	713	714	715	716	717	718	719	720
BL	61		721	722	723	724	725	726	727	728	729	730	731	732
OR	62		733	734	735	736	737	738	739	740	741	742	743	744
GR	63		745	746	747	748	749	750	751	752	753	754	755	756
BR	64		757	758	759	760	761	762	763	764	765	766	767	768
SL	65		769	770	771	772	773	774	775	776	777	778	779	780
WH	66		781	782	783	784	785	786	787	788	789	790	791	792
RD	67		793	794	795	796	797	798	799	800	801	802	803	804
BK	68		805	806	807	808	809	810	811	812	813	814	815	816
YL	69		817	818	819	820	821	822	823	824	825	826	827	828
VL	70		829	830	831	832	833	834	835	836	837	838	839	840
RS	71		841	842	843	844	845	846	847	848	849	850	851	852
AQ	72		853	854	855	856	857	858	859	860	861	862	863	864

The fiber optic cable shall consist of, but not limited to, the following components:

- Dielectric central member
- Water-swellable yarn
- Fiber and water-swellable yarns (at least 12 fiber per tube)
- Water-swellable tape

- Dielectric strength members
- Ripcord
- Outer jacket

The buffer tube shall be gel free. The optical fibers shall be contained within loose buffer tubes. The loose buffer tubes shall be stranded around a dielectric central member using the reverse oscillation stranding process. The buffer tubes shall be made of polyethylene (PE). Each buffer tube shall contain a water swellable yarn for water blocking protection. The buffer tube shall be manufactured to a standard 3.0 mm in size, Regardless of fiber count, to reduce the number of required installation and termination tools. Each buffer tubes shall be distinguishable from other buffer tubes in the cable by means of color-coding in accordance with TIA/EIA-598-B, “Optical Fiber Cable Color Coding.”

- Dielectric Central Member

The central member which functions as an anti-buckling element to resist temperature and induced stresses, shall be a glass reinforced plastic rod with similar expansion and contraction characteristics as the optical fiber and buffer tubes. The loose buffer tubes shall be stranded around a dielectric central member using the reverse oscillation stranding process.

- Water-Swellable Yarn and Tapes

The water-swellable yarn shall be non-nutritive to fungus, electrically non-conductive, and homogeneous. It shall also be free from dirt or foreign matters. Water swellable yarn(s) shall be applied longitudinally along the central member during stranding. The water swellable tape shall be applied longitudinally over both the inner and outer layer. The tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matters. Two (2) polyester yarn binders shall be applied contra-helically with sufficient tension to secure each buffer tube layer to the dielectric central member without crushing the buffer tubes.

- Dielectric Strength Member

Tensile strength shall be provided by high tensile strength yarns and/or fiberglass which shall be helically stranded evenly around the cable core and shall not adhere to other cable components.

- Ripcord

The cable shall contain at least one ripcord under the jacket for easy sheath removal.

- Outer Jacket

The Cable jacket shall be marked with the manufacturer’s name, the number of fiber “SM”, month and year of manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code (NESC), fiber count, and fiber type. The print color shall be in a contrasting color to the cable jacket. The height of the marking shall be approximately 2.5mm. The cable jacket shall be medium density polyethylene (MDPE) jacket containing carbon black to provide ultraviolet light protection while inhibiting the growth of fungus.

Installation
All Fiber Optic Cable installations shall include fiber optic cables and pull tape to remain for future to all conduits as defined on the plans and per these technical specifications.

Single mode Fiber Optic Cable (SMFO) shall be continuous and un-spliced between cabinets, with splicing permitted only at designated splice cabinet locations. The Contractor shall submit the manufacturer's recommended procedures for pulling fiber optic cable to the Engineer at least 20 working days prior to installing cable.

During cable installation, the bend radius shall be maintained at a minimum of twenty times the outside diameter. In no case, shall the cable exceed the minimum bending radius of the cable for installation. At each intermediate pull box, provide at least two turns of slack of the fiber optic cable neatly coiled and secured. This slack could be used in the future for emergency cable repairs.

Fiber optic cable shall be installed using a cable pulling lubricant recommended by the fiber optic cable and/or the innerduct manufacturer.

Any damaged or broken optical fiber cable shall be replaced at the Contractor's expense and at no additional compensation. Damaged SMFO shall not be repaired, reused or spliced on this project.

Fiber optic cable shall be installed without splices except where specifically allowed on the drawings and identified herein. Splices shall be permitted only as authorized in writing by the Engineer. Any midspan access splice or FDU termination shall involve only those fibers being spliced as shown on the drawings. Cable splices shall be located in splice closures within identified cabinets.

A minimum of 50 feet of slack shall be provided for each fiber optic cable at a splice vault without a splice closure. A minimum of 30 feet of slack for each fiber optic cable shall be provided on each side of the fiber optic splice closure within a splice vault. A minimum of 15 feet of slack shall be coiled in each cabinet and other pull box locations.

The project limit SMFO cable shall be tested end to end via Optical Time-Domain Reflectometer (OTDR), Power Meter and Light Source, in accordance with EIA Optical Test Procedure 171, and wavelengths specified for the OTDR tests. The differential in test results shall not exceed 0.5 dB. Should the link loss exceed the calculated link loss, the SMFO shall be removed and replaced only between the two stipulated splice points at Contractor's expense. Removal of small sections of cable and or additional splices shall not be permitted.

Testing
The contractor shall verify and certify all fiber tests and connections. Documentation of all test's results (factory and field tests) and fiber run as-builts shall be submitted to the Engineer within two (2) working days after completing the tests.

Testing shall include the tests on elements of the passive fiber optic components:

(1) The factory:
The Manufacturer with the appropriate documentation shall supply verification of the fiber specifications as listed in the Fiber Characteristics Table. After cabling, before shipment but while on the shipping reel, one hundred (100%) percent of all fibers shall be tested for attenuation. Copies of the results shall be (1) maintained on file at the Contractor's, Manufacturer's and Owner's place of business with a file identification number for a minimum of ten (10) years, (2) attached to the cable reel in a waterproof pouch, and (3) submitted to the Contractor and to the Engineer prior to the delivery of the cable to the jobsite.

(2) After delivery to the project site but prior to installation:
The Cable and reel shall be physically inspected by the Contractor on delivery and one hundred (100%) percent of the fibers shall be tested with the Optical Time Domain reflectometer (OTDR) for attenuation to confirm that the cable meets requirements.

OTDR testing shall be done at the following points in the system construction:

- At cable delivery (reel test).
- Following cable installation prior to connectorization, termination or splicing.
- End to End following installation of all pigtails, connectors, and termination devices.

In addition, the final test (post-connectorization test) shall be completed with an optical power meter and light source.

Test results shall be recorded, dated, compared with the manufacturer factory test results and filed with the factory manufacturer test results accompanying the shipping reel in a weatherproof envelope. Attenuation deviations from the shipping records greater than five (5%) percent shall be brought to the attention of the Engineer in writing. The cable shall not be installed until completion of this test sequence and written approval by the Engineer is received. Copies of traces and test results shall be submitted to the Engineer. If the OTDR test results are unsatisfactory, the reel of fiber optic cable shall be considered unacceptable and all records corresponding to that reel of cable shall be marked accordingly. The unsatisfactory reels of cable shall be replaced with new reels of cable at the Contractor expense. The new reels of cable shall then be tested to demonstrate acceptability. Copies of the test results shall be submitted to the Engineer for approval.

(3) After installation but prior to connection to any other portion of the system:
After the fiber optic cable has been pulled but before breakout and termination one hundred (100%) percent of all the fibers shall be tested with the OTDR for attenuation. Test results shall be recorded, dated, compared, and filed with the previous copies of the tests Copies of traces and test results shall be submitted to the Engineer for approval. If the OTDR test results are unsatisfactory, the fiber optic cable segment will be unacceptable. The unsatisfactory segment of cable shall be replaced with a new segment, without additional splices, at the

Contractor's expense. The new segment of cable shall then be tested to demonstrate acceptability. The contractor shall also perform end to end attenuation test, utilizing a power meter in field, after installing the cable to establish the integrity and performance of the system and its components. The end-to-end attenuation shall not exceed the sum of the maximum allowable attenuation for the component cable segments, splices, and typical loss for connectors. Nor shall the attenuation from an individual connector exceed the maximum allowable losses. If the fibers in the cable exceed the allowable loss, the Contractor shall take corrective measures to bring the cable's total attenuation below the allowable limit, including replacement of the cable at the Contractor's expense.

The Contractor shall perform all OTDR testing in the presence of the Engineer. The Engineer shall attach their written mark to all test I documentation made by the Contractor at the time of the test. Testing performed by the Contractor and not witnessed by the Engineer shall not be accepted, re-testing will be required.

The Contractor shall verify that the attenuation and optical continuity of each active and spare optical fiber in the cable plant satisfies the specified requirements.

Attenuation and continuity shall be measured at the operational wavelength of the equipment being used on the link. If the operational wavelength is unknown, the attenuation shall be measured at both 1310nm and 1550nm.

Testing of fiber links shall be completed in such way, to show the loss of each connector, in the OTDR trace. The tests shall be conducted in both directions. The test shall be performed at both wavelengths (1310 and 1550 nm). The cable shall be tested in accordance with EIA-455-3A (FOTP-3), "Procedure to Measure Temperature Cycling Effect on Optical Fiber, Optical Cable, and Passive Fiber Optic Components". Copies of the test results shall be submitted to the Engineer for approval.

(4) <u>During the final system testing:</u>
The active components shall be tested after installation. The Contractor shall provide all personnel, equipment, instrumentation and materials necessary to perform all testing. The Engineer shall be notified in writing a minimum of two (2) working days prior to all field tests. The notification shall include the exact location of the system to be tested.

The fiber optic shall be in one continuous length without factory splices in the fiber. Installation procedures and technical support information shall be furnished at the time of delivery. The change in attenuation at extreme operational temperature for singlemode fiber shall not be greater than 0.20dB/km, with 80% percent of the measured values no greater than 0.10dB/km. The singlemode fiber measurement is made at 1550nm.

The contractor shall also follow the following guidelines for efficient and accurate test results:

- Ensure that the test jumpers (end-to-end attenuation) or test fiber box (OTDR) are of the same fiber core size and connector type as the cable system, e.g., 50/125 µm core test jumpers should be used for testing a 50/125 µm multimode cable.
- Ensure that optical sources are stabilized and have center wavelengths within ± 20 nm of the 850/1300 nm multimode and 1310/1550 nm single-mode nominal wavelengths. In accordance with TIA/EIA-526-14-A, multimode LED sources should have spectral widths from 30-60 nm at 850 nm and 100-140 nm at 1300 nm.

- Ensure that the power meter is calibrated at each of the nominal test wavelengths and traceable to the National Institute of Standards and Technology (NIST) calibration standard.

- Ensure that the power meter and the light source are set to the same wavelength.

- Ensure that all system connectors, adapters, and jumpers are properly cleaned prior to and during measurement.

77-3.06 Reassignment of Fiber Optic Cables

Prior to the removal of existing 240 strand fiber optic cable, the Contractor shall identify active fiber strands and shift the functionality to the existing 72 strand fiber optic cable to maintain the connectivity between Old City Hall and SEB.

77-3.07 Removal of Existing Fiber Optic Cables

The Contractor shall remove existing 240 strand multimode fiber optic cable (FOC) at the locations shown on plans and at the direction of the Engineer. The existing FOC cable shall become the property of the Contractor. Care shall be taken to identify and minimize interruption exiting fiber optic circuits.

The Contractor shall NOT remove the existing FOC without written approval from the City or designated personnel. The Contractor shall contact City Engineer of designated personnel two weeks prior to removal of the existing FOC communication system.

77-3.08 Not Used

77-3.09 Fiber Patch Cords

The contractor shall furnish and install fiber patch cords as summarized below:

QUANTITY	CONNECTOR	LENGTH	TYPE
20	SC-to-SC	6ft	OS1
25	LC-to-LC	6ft	OM3 or OM4
10	SC-to-LC	6ft	OS1
20	LC-to-LC	10ft	OM3 or OM4
25	SC-to-SC	10ft	OS1
100	SC-to-SC	15ft	OS1
70	SC-to-LC	15ft	OS1
25	LC-to-LC	15ft	OS1
15	LC-to-LC	15ft	OM3 or OM4

QUANTITY	CONNECTOR	LENGTH	TYPE
20	LC-to-LC	20ft	OM3 or OM4
40	SC-to-SC	25ft	OS1
15	SC-to-LC	25ft	OS1
15	LC-to-LC	25ft	OM3 or OM4
40	SC-to-SC	30ft	OS1

77-3.10 Patch Panels

The contractor shall furnish and install SC fiber patch panels or LC patch panels at locations shown on the plans.

77-3.11 Not Used

77-3.12 Not Used

77-4 New Traffic Management Center (TMC)

The scope of work in this section consists of electrical work and provision of network equipment, workstations, and furniture in the new TMC room.

77-4.01 Video Wall

The Contractor shall furnish and install LCD Video wall in the new TMC building as shown on the plans. The Equipment Vendor shall coordinate with the Engineer prior to the final placement. Video wall shall have multi-window control via input by Video Wall Controller. The video wall consists of eight (8) 55-inch borderless monitors.

The video wall array shall be of modular design with each tile consisting of a lightweight, solid metal-backed 55” LCM Screen with rear quick-connect docking assembly that is easily removed to reveal three modular “field replaceable” components embedded in the chassis: power supply module, optional redundant power supply module and data/signal input module. Any modular component (55” screen, power module, data/signal module must be capable of being replaced in less than three minutes (MTTR).

Each tile shall include (2) embedded color and brightness sensors to constantly monitor color and brightness values. These values are transmitted to a display wall color/brightness management server that actively manages & achieves across the wall color & brightness uniformity over the lifetime of the system. Each video wall will have its own automatic and brightness balancing system.

Installation

The Contractor shall install the LCD Video Walls to match the TMC video wall and Screen details shown on the plans.
Total size of the video wall is 193”X54”X12” as shown on the plans and the approximate weight is 330 pounds.

The video wall mount bracketing system shall be installed per monitor with adequate support. The bracket system shall be auto-aligning for ease of access for replacing components and performing maintenance.

The Contractor shall coordinate with City Engineer, or designated personnel for final placement.

System Integration
The Contractor shall setup and configure the video wall displays including, but not limited to the video wall display monitors, video wall controller, ethernet switch, remote control, and I/R receiver. The video wall display shall have the capability to display a single source over the entire wall, multiple sources over the entire wall, the capability of overlapping widows with minimal to no latency when viewing/streaming video, the capability to open multiple windows for viewing, operating, and managing multiple applications simultaneously.

The Contractor shall coordinate with City Engineer or designated personnel for integration to each workstation at the TMC and to access and view the video wall display from workstations other offices.

Warranty
The LCD Video Walls shall be warranted by the manufacturer against hardware and software defects for a period of one year from date of system acceptance test and project completion.

The manufacturer's warranty shall be supplied in writing for LCD Video Walls per location. Second party extended warranties are not acceptable.

Any defects shall be corrected by the manufacturer, supplier or vendor at no cost to the owner.

77-4.02 Wall Mounted Screen
The Contractor shall furnish and install 65-inch wall mounted screen.

Installation
The Contractor shall install wall mounted screen on the east wall of the TMC as shown on the plans. The Contractor shall coordinate with the Engineer for the final placement. The mounting height shall be as per the plans.

System Integration
The Contractor shall setup and configure the wall mounted screen to display multiple applications including, but not limited to, workstation applications, Signal and ITS subsystems, cable television, and internet. The Contractor shall coordinate with City Engineer or designated personnel for connectivity and viewing applications.

Warranty
The wall mounted screen shall be warranted by the manufacturer against hardware and software defects for a period of one year from date of system acceptance test unless an additional warranty period is provided upon purchase.

The manufacturer's warranty shall be supplied in writing for wall mounted screen display. Second party extended warranties are not acceptable.

Any defects shall be corrected by the manufacturer, supplier or vendor at no cost to the

owner.

77-4.03 Cabinet with Countertop

The contractor shall furnish and install wall mount cabinet with countertop in the TMC room on east wall as shown in the plans. Necessary clearances from the door and the wall mount screen shall be provided as shown on the plans. Cabinet finishes shall be submitted to the Engineer and approved prior to ordering.

77-4.04 Portable Cabinet with Wheels

The contractor shall furnish and install free standing portable cabinet with wheels in the TMC room. on east wall as shown in the plans. The dimensions of the cabinet shall be 28” W X 35” H X 25” D as shown on the plans. Cabinet finishes shall be submitted to the Engineer and approved prior to ordering.

77-4.05 Workstation Desk

The contractor shall supply and install workstation desks for the TMC room. The workstation desks shall have the following features. Desk finishes shall be submitted to the Engineer and approved prior to ordering.

- Two 2’6” X 4’ desks
- One 3’X6’ worktable
- Ergonomic in nature

Installation

The desks shall be secured to the floor with proper clearances as shown on the plans. The placement shall be finalized with the City Engineer or designated personnel.

77-4.06 Workstation Chair

The contractor shall supply and install ergonomic workstation chair at locations shown in the TMC room layout. The height and placement of the chairs are set up to achieve recommended viewing distances shown on the plans. Chair finishes and style shall be submitted to the Engineer and approved prior to ordering.

77-4.07 Digital Clock

The Contractor shall furnish and install digital Ethernet clock on top of the video wall at location shown on the plans. The digital clock shall have the following features:

- The digit height shall be 4” in height
- Automatically adjust for Daylight Saving Time
- Synchronize via PoE/IP Technology
- Power Source-Power over Ethernet
- 12-or 24-hour time display
- PM indicator light -alternating time and date display option
- LED dimmer option

77-4.08 Electric Receptacles – 15 AMP/120V

The contractor shall supply and install electrical receptacles in the new TMC room at the locations shown on the plans. The electrical receptacle shall be 15 AMP/120V as per the shown in the plans.

77-4.09 CAT5E or CAT6 Cables

The Contractor shall furnish and install indoor/plenum rated CAT5E or CAT6cable(s) per the project plans, these Technical Specifications and as directed by City Engineer or designated personnel.
A category 5E or 6 cable must be a 4-pair, indoor/plenum rated, non-gel filled type and comply with ANSI/TIA/EIA 568-C.

The Contractor shall install the cables through conduit walls, and cable trays from TMC server room to TMC workstations, videowall and wall mounted screen and from TMC server room to City IT room.

77-4.10 HDMI Cables

The Contractor shall furnish and install HDMI cables per the project plans, these Technical Specifications and as directed by City Engineer or designated personnel.

The Contractor shall install the cables through conduit walls, and cable trays from TMC server room to TMC workstations, videowall and wall mounted screen.

77-4.11 RG6 Coax Cables

The Contractor shall furnish and install RG6 Coax cable per the project plans, these Technical Specifications and as directed by City Engineer or designated personnel.

The Contractor shall install the cables through conduit walls, and cable trays from TMC server room to 85-inch wall mounted screen.

77-4.12 Workstation Assembly

The Contractor shall furnish and install new, robust personal computer workstations to display all remote access traffic signal sub systems. The workstation assembly features include:

- personal computer tower
- dual 24” monitors as shown on the plans
- dedicated graphic card that has up to 4 HDMI/DP outputs
- Two network ports
- 32 GB RAM, i7 processor or higher
- wireless ergonomic keyboard and mouse,
- Elgato Stream Deck controller
- Windows Operating System

Workstation Installation

The Contractor shall install CPU tower within the new ergonomic workstation desk as shown on plans. Coordinate with the Engineer prior to final placement.

System Integration

Each workstation shall be configured, and setup to have access to the traffic signal system and ITS subsystem configured with user accounts and varied levels of control. The system software and configuration requirements shall be coordinated with the City engineer or designated personnel. Contractor to configure and install the workstations with Videowall controller software client, Verint Video system software client, Traffic

control systems' client applications, and configure Elgato Stream Deck controller customizable keys to use pre-assigned hot-keys to control pre-configured video-wall settings.

Warranty

The Workstations shall be warranted by the manufacturer against hardware and software defects for a period of one year from date of system acceptance test.

The manufacturer's warranty shall be supplied in writing with Workstation Second party extended warranties are not acceptable.

Any defects shall be corrected by the manufacturer, supplier or vendor at no cost to the owner.

77-4.13 Surge Protector UPS 2200VA

The Contractor shall furnish and install UPS 2200 VA tower surge protector to connect to operator workstations. The unit shall have 2200VA/1920W capacity. The unit shall have at least 3-year UPS and 2-year battery warranty.

77-4.14 Door Stopper

The Contractor shall furnish and install a floor mount door stopper to prevent the TMC door from hitting the video wall. The location of the floor mount door stopper shall be finalized with the City Engineer or designated personnel.

77-4.15 Network IP Ethernet Switch

The contractor shall supply and install two (2) 24-port managed Ethernet Switches in the traffic servers/storage room to establish communication between devices such as the traffic signal controller, and their associated central servers in TMC.

The Ethernet Switch shall consist of the following:

- Twenty-four 10/100/1000 ethernet ports
- Four SFP slots
- Manufacturer provided lifetime warranty
- Supports IEEE802.3af standard for Power over Ethernet

77-4.16 Video Wall Controller and Software

The Contractor shall furnish and install Video Wall Controller and software for the video wall display. The video wall controller shall be configured to control all LED video monitor displays and LCD video wall displays in the TMC. The videowall control software is needed for operators' workstations, server and client. The software shall be capable of sharing operator workstation desktop to the videowall display. The software shall be capable of control and synthesize the screens and converting CCTV streams.

Product

i. The video wall management system shall be a fully distributed solution, designed for multi-site and multiple server installations requiring 24/7 operation with support

for devices from different vendors. The video wall controller software shall offer centralized management of all devices, servers and users.

ii. The video wall controller software shall allow an unlimited number of users and groups to be defined and an unlimited number of displays to be connected to each system across multiple sites if required.

iii. The video wall controller software shall support 64 Bit Microsoft Server 2012 R2 or greater/ Windows 10 PRO or greater with the latest patches and service packs installed or Linux Debian, RHEL, CentOS or Ubuntu with latest supported packages and versions.

iv. The technology and software components shall currently exist in their entirety and be functional and operational as an implemented solution.

v. The video wall controller software shall consist of the following core components:

1. Control/Management
2. Video Display Processor
3. Graphical User Interface
4. Computer Desktop Transport and Remote Control
5. Separate management interface for administration and control
6. System Monitoring Service

vi. The video wall controller software shall support the following optional components:

1. IP Streaming Video Decoding Application
2. Mobile Device Interface Application
3. Desktop to Desktop Screen Share Application
4. Shared Content Set Application
5. System Interface Service

vii. The video wall controller software shall be built around a core management service that provides primary administrative control over all system functions and resources. The management service shall handle client login, system configuration, asset database and logging.

viii. The video wall controller software shall contain one or more video display processors that generate visual information for all system displays under the control of the management service. The system shall support multiple instances of this service to allow effective scaling in larger systems. The system software shall support both hardware-based and virtual machine environments.

ix. The video wall controller software shall contain multiple graphical user interface (GUI) modules that provide simultaneous operation to the users with an intuitive interface to control and manage all content to be displayed on a single or on multiple video display processors in real time. The system shall support multiple instances of this application to allow effective scaling in larger systems.

x. The video wall management system software shall include an application that provides computer desktop transport and control over the network. The application shall have the capability to capture and transport computer desktops in completely lossless mode or as an encoded IP stream. The application shall support both hardware-based and virtual machine environments.

xi. The video wall controller software shall support a monitoring application that provides the system with the capability to independently monitor and report on the health of all major system components.

xii. The video wall controller software shall include real time, fully automated, color management tool for the video displays to insure continuous color and brightness uniformity across all displays in the array.

xiii. The video wall controller software shall support the option for an IP streaming video decoding that provides the system with the capability to view multiple IP video streams from multiple IP camera/streaming video encoder vendors in all industry-standard formats and resolutions. The system shall support multiple instances of this application to allow effective scaling in larger systems.

xiv. The video wall management system shall support displaying video and control of desktop PCs on different networks while maintaining network air-gap between desktop PC network and AV network. The video wall software can display and control multiple of these air-gapped PCs on the same video wall.

xv. The video wall controller software shall support the option for a mobile device application that provides the system capability to capture and display photos and live video streams from a mobile device (mobile phone or similarly connected tablet/iPad device). The mobile application shall have the capability to remotely view and control the video wall system. The system shall support multiple instances of this application to allow effective scaling in larger systems.

xvi. The video wall controller software shall support the option for a desktop application that provides the capability to share a local desktop or application window with multiple users.

xvii. The video wall controller software shall support the option for a desktop application that provides the capability to create a set of networked content and share this set with multiple users as a discrete object.

xviii. The video wall controller software shall support the option for an application programming interface (API) that provides the capability for third-party control systems and applications to send commands to the system via standard TCP/IP or RS-232 protocol.

xix. The video wall controller software shall support an optional software module that provides highly customizable system actions in response to third-party application real-time events.

xx. The video wall controller software shall provide a management client from where an administrator can configure/manage all servers, system resources and users.

xxi. The video wall controller software shall allow the management application to be installed on dual servers configured as a redundant cluster ensuring that the secondary server in the cluster automatically takes over in case of primary server failure.

xxii. The video wall controller software shall allow the display processor software to be installed on dual servers in a failover configuration ensuring that the secondary processor server automatically takes over in case the first server fails.

xxiii. The video wall controller software shall support the display of standard video signal formats, applications, and industry-standard IP streaming video sources.

xxiv. The video wall controller software shall support integrated audio systems to allow full user control of all audio sources audio defined in the system.

xxv. The video wall controller software shall be designed in a manner to allow discrete system software modules to communicate from any location within a local area network.

xxvi. The video wall controller software shall support secure methods for data in transit over the network (ie. encrypted, HTTPS/SSL). Video wall management system shall support uploading of SSL certificates.

xxvii. The video wall controller software shall support the virtualization of the management server software.

Security Administration and CIP Requirements

i. The video wall controller software shall support Microsoft Windows or Linux Debian, RHEL, CentOS or Ubuntu with the latest patches and service packs installed. The system supplier must test patches and updates and maintain records of testing available for review.

ii. The video wall controller software shall support a monitoring application that provides the system administrator with the capability to monitor system health.

iii. The video wall controller software shall provide a separate and secure management client from where an administrator can configure/manage all user rights, privileges and access to visual information.

iv. The video wall controller software must meet NERC CIP requirements for auditing (NERC CIP 007-1 R5.1.2), Federal Information Protection Standards (FIPS) for encryption.

v. The video wall controller software shall allow installation in Microsoft Active Directory environments and allow authorized users to login to the system using Windows authentication.

vi. The video wall management system shall provide a setup and configuration utility application for administrative functions not directly exposed to system users.

vii. The software utility application shall provide full administrative control over all system configuration parameters for authorized users.

viii. The software utility application shall require additional login credentials independent from system user credentials.

ix. The System must comply with (CIP V5) capabilities; (005), Removable media (USB) protection, (007) defined and fixed set of Ports defined, Encryption, multi factor 8 Character perishable and complex sign on authentication, Log and activity tracking, limited number of attempts.

x. The video wall management system GUI shall be accessible only via successful user authentication and login. The system shall have the capability to alternatively use Windows Authentication credentials for system login providing single sign-on capability in Active Directory environments.

xi. The video wall management system GUI shall display all defined system resources authorized for access by the current user profile. System resources shall be viewable as a list, resource tree, or searchable by typing the designation of the desired resource.

xii. The video wall management system GUI shall allow multiple users to log in and control the system concurrently; each in accordance with their own user rights.

xiii. The video wall management system GUI shall provide real-time system logs to inform the user of system status.

Architecture

a. Network

The video wall management system shall reside on a standard Ethernet- based local area network (LAN). All system communications shall be TCP/IP standards based. Exceptions are limited to external devices under system control that are best communicated with via RS-232, RS-422, or Infra-Red methods.

Remote access modules shall be capable of residing outside of the LAN where VPN or other standardized networks tunneling protocols are available and even separate air-gapped networks.

i. Controller Hardware

1. The video wall management system hardware shall be comprised of commercially available servers and workstations. Servers and workstations shall be specified, configured, and provided (where possible) by the system provider.

2. Servers and workstations shall run on a 64 bit Windows OS: Windows Server 2012 R2 or greater; Windows 10 professional or greater or Linux Debian, RHEL, CentOS or Ubuntu.

3. Servers or workstations configured as video display processors shall utilize high-performance graphics output cards to render the video image for distribution to display systems.

4. The video display processor hardware shall be capable of ingesting industry- standard video signals for display, to include DisplayPort, HDMI, VGA/RGBHV, Component Video and Composite Video.

5. The video display processor hardware shall be capable of driving any commercially available display system(s) that utilize industry-standard video signals inputs, to include DisplayPort, HDMI, VGA/RGBHV, Component Video and Composite Video.

6. The core system hardware and video display processor shall be capable of being configured for automatic failover in the event of primary system failure.

ii. Software

1. The video wall controller software architecture shall be modular in design and scalable in function.

2. The system software modules shall be capable of residing on different host machines and communicating via encrypted TCP/IP transmissions within the LAN.

3. Servers and workstations shall support the use of multi-port network interface cards (NICs).

4. The system software shall be capable of being configured for automatic failover in the event of primary system failure.

iii. Sources

1. The video wall management system shall be capable of simultaneously or displaying multiple types of video signals, IP based streaming video formats, remote desktops, video graphics, web pages, graphics files, video files, and applications for simultaneous viewing on any system display.

2. The video wall management system shall allow the definition of an unlimited amount of sources.

3. Source shall be defined within the system and available to any authorized user.

4. Sources can be resized, stretched, cropped and scaled across any of the displays on the video wall.

iv. Displays

1. The video wall management system shall be capable of displaying any available system source on any common commercially available display utilizing common standard video signal types.

2. Displays shall be defined within the system and available to any authorized user.

3. Remote displays shall have the capability to be driven via TCP/IP communications via a local display processor.

4. The video wall management system shall allow the definition of an unlimited amount display wall processors.

b. Functionality

i. Graphical User Interface (GUI)

1. The video wall management system shall provide a software-based GUI capable of managing all available system operational functions. The software shall be capable of running on Windows-based systems or HTML Web browsers.

2. The video wall management system GUI shall provide an intuitive means for dynamically arranging content on any of the system displays. It shall provide a graphical representation of all system displays and indicate all content available and currently displayed in the system.

3. The video wall management system GUI shall provide the capability to create, store and recall multiple scripted actions. These scripts shall be assignable to user-defined push button-like graphical controls, allowing the scripts to execute upon clicking.

4. The video wall management system GUI shall provide the following content management functions:

    a. Resource view: A list of all available resources available to the system.
    b. Resource search: The capability to search system resources by typing the name of the resource.
    c. Video wall representation: the capability to see and manipulate a graphical representation of the video wall and/or displays along with the current content being displayed in real-time.
    d. Content templates: The capability to store and recall image locations on the video wall display independently of actual

content. New content added to the video wall is immediately aligned to content template boundaries.

e. Presets: The capability to store and recall content along with their relative positions on the video wall.
f. Crop: The capability to remove unwanted peripheral content from displayed content.
g. Zoom: The capability to magnify areas of a displayed source on the video wall.
h. Size: The capability to re-size content as it appears on the video wall; either preserving or modifying the original aspect ratio of the source.
i. Layering: The capability to place content on top of (or underneath) other content on the video wall.
j. Snap: The capability to force displayed content to align with the boundaries of a display.
k. Source default parameters: The capability to define default size and aspect ratio settings for a source.
l. Event scheduling: The capability to automatically call up predetermined content on the video wall by time-driven schedule.
m. Multi-views: The capability to create multiple alternate versions of displayed video wall content and toggle rapidly between them.
n. Multi-zone audio control: The capability to select audio source and control volume for all audio-capable sources and all audio zones defined within a system.

ii. Remote Desktop Transport Application

1. The video wall system shall include a lightweight application to be installed on host machines intending to be used as sources for the system.

2. The application shall provide lossless transport of the host system's desktop image via TCP/IP protocol.

3. The application shall provide encoded streaming transport of the host system's desktop image via TCP/IP protocol.

4. The application shall communicate with the core system via an encrypted transport mechanism.

5. The application shall provide the capability to transport desktops from hosts with multi-headed displays.

6. The application shall provide the capability to transport individual heads of desktops with multi-headed displays.

7. The application shall provide the capability to transport individual application windows of a remote host.

8. The application shall provide the capability to reduce the active area of the desktop being transported to a smaller, user-defined area.

9. The application shall provide the capability for remote Keyboard and Mouse (KM) control of the host machine.

10. The application shall provide a means to control the rate at which desktop images are transmitted in order to meet network bandwidth limitations.

11. The application shall have the capability to provide notification to the host machine user when the desktop transport is active and connected to the core system.

12. The application shall allow the host machine operator (if authorized) to set control parameters for communication with the core system; disabling KM or desktop transport when desired.

13. The application can be password protected to only allow authenticated user access to the remote desktop.

Networked Display Node Clock/Timing Synchronizer

Memory
8 GB

Disk drive
128 GB Solid-State Disk SSD

Network
2x 1Gb/s LAN

Graphics card
Professional high-performance NVIDIA Quadro-series graphic card

Processor
Intel(R) Core(TM) i5-9500E 6-core processor 3.0GHz (4.2GHz max. Turbo frequency)

Output
4x Display Port 1.2 (supporting up to 4x 4K-UHD) 4x DVI-SL via included adapters (supporting up to 4x HD)

Input
H.264, MPEG¬2/4, V2D, H.263, VNC, ProServer

Form factor
3U ½ 19" Rackmount housing

Dimensions
131.5mm x 220mm x 305mm | 5.18" x 8.66" x 12.01"

Weight
6.5 kg (max)

Power supply
100-240V, 8-4A, 50/60Hz

Power consumption
270 W (max)

Installation
The Video Wall Controller shall be housed in the 45RU rack located in server room.

System Integration
The video wall controller shall be set up and configured at to view, control, and manage the video wall displays at the TMC. The video wall shall be used as the display controller for running various types of Windows 10 based local applications.

Warranty
The video wall controller shall be warranted by the manufacturer against hardware and software defects for a minimum period of one year from date of system acceptance test and project completion.

The manufacturer's warranty shall be supplied in writing for the video wall controller. Second party extended warranties are not acceptable.

Any defects shall be corrected by the manufacturer, supplier, or vendor at no cost to the owner.

77-4.17 Firewall/Router
The Contractor shall furnish and install new Firewall/VPN appliance and associated equipment at traffic servers/storage room per the project plans and these Technical Specifications.

The firewall/VPN appliance shall provide security and allow VPN access to display and access all traffic signal subsystems. The Contractor shall furnish, install, configure, test, and commission the Firewall/VPN appliance inside IT server rack.

Final placement shall be determined by the City Engineer. All associated cables, panels, jumpers, ports and termination points shall be neatly labeled for use and direction by use of permanent label material. Hand-written labels shall not be allowed. All cables shall be managed and fastened neatly, as directed by City Engineer, or designated personnel.

77-5 Old TMC Server Room, Old TMC Room, and IDF Closet

77-5.01 Remove and Salvage Existing Equipment/Furniture

The Contractor shall remove and salvage existing three desks and cables from old TMC room as shown on the plans. Miscellaneous work that is not specifically shown on the plans like holes in the walls to run the conduits shall be considered included in this section.

77-5.02 Rack

The Contractor shall furnish and install a 4 post 19-inch server rack and a 2 post 19-inch server rack and associated equipment per the project plans and these technical specifications. Proper clearances shall be provided as shown on the plans.

The rack (45 U) shall have the following features:

- 2 post open frame rack
    - 7’ H and 20” W
    - 45 Rack Units
    - Include floor mount kit
    - Supports up to 750 lbs
    - Include power strip
    - Grounding per ANSI TIA 607 Standard
- 4 post open frame rack
    - 7’ H X 20” W X 3’ D
    - 45 Rack Units
    - Include floor mount kit
    - Supports up to 1500 lbs
    - Include power strip
    - Grounding per ANSI TIA 607 Standard
- Made with structural grade aluminum extrusion

77-5.03 Cable Ladder

The Contractor shall furnish and install overhead cable ladder for cable management and associated equipment per the project plans and these technical specifications. The proper clearances shall be provided. The cable ladder shall be located, as directed by the City Engineer or designated personnel.

The overhead cable ladder for cable management shall have the following features:

- 12” wide and 10-ft high
- Include ceiling support kit and hardware for straight and 90-degree bends
- Organizes cables outside of enclosures or open frame rack

77-5.04 Cable Tray Extension

The Contractor shall furnish and install cable tray extension t and associated equipment per the project plans and these technical specifications. The proper clearances shall be provided. The cable tray extension shall be located, as directed by the City Engineer or designated personnel.

77-5.05 Cable/Wire Manager

The Contractor shall furnish and install horizontal and vertical cable/wire managers and

associated equipment per the project plans and these technical specifications. The cable/wire managers shall be located, as directed by the City Engineer or designated personnel.

77-5.06 Electric Receptacle

The contractor shall supply and install electrical receptacles in the IT server room at the locations shown on the plans. The voltage and current ratings of the electrical receptacle shall the as per the information provided in the plans.

77-5.07 Managed Ethernet Switch

The contractor shall furnish and install managed ethernet switches in the old TMC room per the project plans and these technical specifications.
The Ethernet switch shall be an industrially-hardened modular-configuration all-gigabit managed layer 2 switch/layer 3 router that comes standard with manufacturer provided lifetime warranty.

The switches shall feature a high voltage power supply module, three (3) 8SFP modules, one (1) XE4SFP module, twenty-four (24) SFP-22A ports, and four (4) SFP-10G-SR ports.

77-5.08 CAT6 Patch Panel

The contractor shall supply and install 24 port CAT6 patch panels in the TMC server room. The housing shall be compatible with rack mounting.

77-5.09 Rack Mount Fiber Housing and Patch Panels

The contractor shall furnish and install fiber housing and patch panels. Fiber housing shall provide a means for securing, strain-relieving, protecting, and labeling of fiber optic terminations. Housing shall be available in rack mount configuration. Housing shall be available in 2U and 3U. The housings shall meet the design requirements of ANSI/TIA/EIA-598 and the plastics flammability requirements of UL 94 V-0. The material and installation shall include 48 port fiber patch panel with LC interface and 72 port fiber patch panel with SC interface with fiber splices, terminations, connectors, trays, and housings complete.

77-5.10 Rack Mount Power Splitter with Surge Protector

The contractor shall furnish and install rack mount power splitter with surge protector to provide power outlets to various equipment installed in the racks installed in TMC server room.

77-5.11 UPS Controller with Battery Banks

The contractor shall furnish15 AMP and 30 AMP UPS Controller with battery banks and install them in racks at locations shown on the maps. The contractor shall furnish the necessary rack mounting hardware, connectors, and cables for the UPS Controllers. The units shall have a minimum 2-year warranty.

DIVISION IX TRAFFIC CONTROL DEVICES - BLANK

DIVISION X ELECTRICAL WORK - BLANK

DIVISION XI MATERIALS

SECTION 90 – CONCRETE

Attention is directed to the Section 90, “Concrete” of the Standard Specifications and these Special Provisions.

90-1.01 Minor Concrete

Section 90-2, "Minor Concrete", of the Caltrans Specifications is amended by adding the following:

Mineral admixture will be required in the manufacture of concrete containing aggregate that is determined to be "deleterious" or "potentially deleterious" when tested in accordance with ASTM Designation: C 289. The use of mineral admixture in such concrete shall conform to the requirements in Section 90-1.02 of the Caltrans Specifications, "Materials", except the use of Class C mineral admixture will not be permitted.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all work involved in placing minor concrete shall be including in the various item of work involving minor concrete work.

CITY OF STOCKTON

COMMUNITY DEVELOPMENT DEPARTMENT

Permit Center • 345 N. El Dorado Street • Stockton, CA 95202-1997 • 209 / 937-8266 • Fax 209 / 937-8893
www.stocktongov.com/cdd

Acknowledgement of Monument Preservation
Monument Preservation prior to construction activity

I,_____, duly licensed Land Surveyor or Professional
(Please Print)

Engineer authorized to perform Land Surveying in the State of California, Registration No._____, hereby acknowledge and accept all responsibility for the monument preservation as required per Section 8771 (a-f) of the Business and Professional Code within the bounds of the construction activity permitted by the City of Stockton Permit No./ Plan No._____.

I further acknowledge that I am hereby responsible for the Acknowledgement of Monument Responsibility prior to final acceptance of construction activity permitted by the City of Stockton Permit No./ Plan No. _____

_____
Signature

_____
Date

Seal

[ ] Survey monuments found - Post Acknowledgment/ Corner Record to follow.
[ ] No survey monuments found.

CITY OF STOCKTON

COMMUNITY DEVELOPMENT DEPARTMENT

Permit Center • 345 N. El Dorado Street • Stockton, CA 95202-1997 • 209 / 937-8266 • Fax 209 / 937-8893
www.stocktongov.com/cdd

Acknowledgement of Monument Preservation
Monument Preservation prior to final acceptance of construction activity

I,_____, duly licensed Land Surveyor or Professional
(Please Print)

Engineer authorized to perform Land Surveying in the State of California, Registration No._____, hereby acknowledge and accept all responsibility for the monument preservation as required per Section 8771 (a-f) of the Business and Professional Code within the bounds of the construction activity permitted by the City of Stockton Permit No./ Plan No._____.

I hereby state that all monuments within the bounds of the construction activity permitted by the City of Stockton Permit No./ Plan No. _____ are in the original location or have been reset in accordance with Section 8771 (a-f) of the Business and Professional Code.

_____
Signature

_____
Date

Seal

[ ] Survey monuments found - Corner Record to be filed.
[ ] No survey monuments found.

CITY OF STOCKTON

COMMUNITY DEVELOPMENT DEPARTMENT
Permit Center • 345 N. El Dorado Street • Stockton, CA 95202-1997 • 209 / 937-8266 • Fax 209 / 937-8893www.stocktongov.com/cdd

Legislation changes effective January 1, 2015
Senate Bill No. 1467, Chapter 400

"SURVEY MONUMENT PRESERVATION"

Section 16: Section 8771(d) of the Business and Professions Code (Land Surveyor's Act):

> *(d) The governmental agency performing or permitting construction or maintenance work is responsible forensuring that either the governmental agency or landowner performing the construction or maintenance work provides for monumentperpetuation required by this section.*

The City of Stockton has modified the Encroachment, Grading, and Building permit process to ensure that a responsible individual is in charge of the Land Surveying activities within the bounds of the permitted construction activity. The responsible individual shall be a Licensed Land Surveyor or a Professional Engineer authorized to perform Land Surveyingin the State of California. It shall be at the sole discretion of the Public Works Department to determine if the permitted construction activity warrants the need to fulfill this requirement.