SECTION 00100

TAHOE VALLEY STORMWATER & GREENBELT IMPROVEMENT PROJECT, PHASE 1

CONSTRUCTION SPECIFICATIONS

Table of Contents

SECTION 10 CONSTRUCTION DETAILS 1
10-1 GENERAL CONSTRUCTION DETAILS 1
10-1.01 ORDER OF WORK AND PRECONSTRUCTION 1
10-1.02 PROGRESS SCHEDULE 4
10-1.03 PERMITS 5
10-1.04 MOBILIZATION AND DEMOBILIZATION 15
10-1.05 SUBMITTALS & CONTROL OF MATERIALS 17
10-1.06 PRESERVATION OF PROPERTY 18
10-1.07 OBSTRUCTIONS 19
10-1.08 COOPERATION 21
10-1.09 OCCUPATIONAL SAFETY AND HEALTH STANDARDS & TRENCH SHORING 23
10-1.10 LINES AND GRADES 24
10-1.11 CONSTRUCTION STAGING AND STORAGE AREAS 26
10-1.12 PROJECT SIGN 28
10-1.13 WATER POLLUTION CONTROL & TEMPORARY BMPS 29
10-1.14 AIR QUALITY & WATERING 41
10-1.15 TEMPORARY FENCING 43
10-1.16 CONCRETE WASHOUT FACILITY 45
10-1.17 TRAFFIC CONTROL 47
10-1.18 MAINTAINING TRAFFIC 50
10-1.19 TEMPORARY TRAFFIC CONTROL SYSTEMS 52
10-1.20 EXISTING FACILITIES 55
10-1.21 DEWATERING 55
10-1.22 CLEARING AND GRUBBING 57
10-1.23 TREE REMOVAL 58
10-1.24 POTHOLING & UTILITY RELOCATION 60
10-1.25 REMOVE CONCRETE AND ASPHALT CONCRETE SURFACING 67
10-1.26 REMOVE, RELOCATE, AND REPLACE EXISTING IMPROVEMENTS 68
10-1.27 EARTHWORK 73
10-1.28 FINISHING ROADWAY/TRAIL & FINISH GRADING 80
10-1.29 ROCK FRACTURE AND REMOVAL 81
10-1.30 NATIVE MATERIAL 82
10-1.31 AGGREGATE BASE 82
10-1.32 STRUCTURE BACKFILL 83
10-1.33 SLURRY CEMENT BACKFILL 84
10-1.34 CULVERT BEDDING MATERIAL 85
10-1.35 PERMEABLE MATERIAL 85
10-1.36 ROCK RIP RAP 86
10-1.37 REINFORCEMENT 87
10-1.38 MISCELLANEOUS IRON AND STEEL 87
10-1.39 GEOSYNTHETICS 87
10-1.40 PAINTING COLOR OF EXPOSED EQUIPMENT 88

10-1.41 GALVANIZED STEEL COLORING 88
10-1.42 CONCRETE STRUCTURES 90
10-1.43 STORM DRAIN MANHOLES 93
10-1.44 SEDIMENT TRAP 96
10-1.45 DRAINAGE INLET 97
10-1.46 BASIN OUTLET STRUCTURE 99
10-1.47 CONCRETE CURB, GUTTER, AND SIDEWALK 101
10-1.48 PLASTIC STORM DRAIN PIPE 103
10-1.49 REINFORCED CONCRETE PIPE 107
10-1.50 FLARED END SECTION 111
10-1.51 ROCK SURFACE TREATMENT & OTHER ROCK FEATURES 112
10-1.52 ROAD SHOULDER STABILIZATION (GRAVEL PAVER/PERMEABLE SUBBASE) 114
10-1.53 BUCK AND POLE FENCE 118
10-1.54 OBJECT MARKERS 119
10-1.55 ADJUST EXISTING MANHOLES AND UTILITY BOXES TO GRADE 120
10-1.56 TEMPORARY PAVING PATCH 121
10-1.57 HOT MIX ASPHALT CONCRETE (AC) 123
10-1.58 CONCRETE PAVEMENT, CURBS, AND SIDEWALKS (CITY PIES) 133
10-1.59 PAVEMENT TRAFFIC STRIPING AND MARKINGS 141
10-1.60 RECORD DRAWINGS 143
10-2 REVEGETATION TREATMENTS 145
10-2.01 GENERAL 145
10-2.02 SITE PREPARATION AND GRADING 145
10-2.03 REVEGETATION TREATMENT LOCATIONS 145
10-2.04 REVEGETATION TREATMENT TYPES 146
10-2.05 SUBMITTALS 147
10-2.06 MATERIALS 147
10-2.07 INSTALLATION OF TREATMENTS 151
10-2.08 MAINTENANCE 153
10-2.09 PERFORMANCE STANDARD AND ACCEPTANCE 153
10-2.10 PAYMENT 153
10-3 POTABLE WATER FACILITIES 156
10-3.01 RELOCATE WATER SERVICE LATERAL, AND WATER FACILITIES 156
10-3.02 DOMESTIC WATER FACILITIES 158
10-4 SANITARY SEWER FACILITIES 159
10-4.01 RELOCATE SEWER SERVICE LATERAL, AND SEWER FACILITIES 159
10-4.02 SANITARY SEWER FACILITIES 160
DOCUMENT 01300 - CONSTRUCTION PROGRESS DOCUMENTATION 161
Article 1 161
1.01 DEFINITIONS 161
Article 2 - PRODUCTS 162
2.01 SCHEDULING SOFTWARE 162
Article 3 - EXECUTION 162
3.01 CPM PROGRESS SCHEDULE 162
3.02 BASELINE SCHEDULE 163

3.03 OFFICIAL PROGRESS SCHEDULE 166
3.04 MONTHLY UPDATE OF THE OFFICIAL PROGRESS SCHEDULE..... 166
3.05 SHORT INTERVAL SCHEDULE 167
3.06 RECOVERY SCHEDULE 167
3.07 TIME EXTENSIONS..... 167

SECTION 10 CONSTRUCTION DETAILS

10 GENERAL CONSTRUCTION DETAILS

10-1.01 ORDER OF WORK AND PRECONSTRUCTION CONFERECE

Order of work, execution of preconstruction conferences and public meetings shall conform to the provisions in Sections 5, "Control of Work" and 8, "Prosecution and Progress" of the Standard Specifications, and these Special Provisions. Any job site activities and/or work that may cause disturbance to soils shall not commence prior to the preconstruction conference and the required Tahoe Regional Planning Agency (TRPA) pre-grade inspection and approval. The Contractor shall submit a notice at least 72 hours before starting job site activities to the Engineer.

The Contractor shall submit, before or at the preconstruction conference and prior to commencing any Project site work, a sequence and schedule of the entire work (i.e. construction schedule) for review and acceptance by the Engineer, in strict accordance with the provisions of the Contract Documents including all requirements as set forth in this section, these Special Provisions (inclusive of Section 8 ("Prosecution and Progress"), Document 01300 ("Construction Progress Documentation"), the Standard Specifications, and the Project Plans. In addition, the Contractor's construction schedule shall be in accordance with all local, regional, state, and federal laws and regulations, including the requirements of the Project Permits.

The City is in the process of acquiring permitting to work in Stream Environment Zone and a Timber Harvest Plan Exemption. Following the award of the Project Work, the Contractor is required to finalize the permit exemption to the Lumber Harvesting Permit and post the approved permit at the construction site in accordance with the permit conditions. Work shall not begin within the Project areas requiring special permitting (e.g. regulated waters of the State/US) such as a California Department of Fish and Wildlife (CDFW) Streambed Alteration Permit, 401/404 USACOE Permit, or the exemption to the Timber Harvesting Permit until the required permitting is issued to the City, and the Engineer provides written authorization to the Contractor to start work within special permit/regulated areas.

The country-wide supply-chain issue will likely affect the Contractor's ability to acquire all the construction materials in the normally expected timeframe. Understanding the constraints to complete the Project Work in the timeframe normally adequate for a project of this size, the City has set the Project Final Completion Date to October 15, 2023.

Because pipe materials and pre-cast structures are likely unavailable until later in the summer of 2022, storm drain installation work on F Street, Bonanza Avenue, and D Street (Bonanza Neighborhood) shall be constructed in 2023 unless the City specifically approves starting construction of the Bonanza Neighborhood storm drain system improvements in 2022 (i.e. construction materials are available in time for installation and mill and fill roadway reconstruction). The Project Bid Documents require a roadway pavement mill and overlay on F Street, Bonanza Avenue, D Street, and side-street tie-ins following the construction of all subsurface improvements (see Project Plans for extent of mill and overlay work).

If the construction materials necessary for subsurface improvements are received by the Contractor in time to construct those improvements but does not allow sufficient time to mill and overlay the affected roadways in the 2022 construction season, the Contractor, at their own expense may hot-patch a temporary pavement patch application with a minimum of two inches in depth of hot mix asphalt (HMA). If the Contractor chooses to construct storm drain improvements within the City public right-of-way in 2022, the temporary HMA pavement shall be removed as a part of the full-width roadway pavement mill and overlay in 2023. Any storm drain improvement work within the Bonanza Neighborhood occurring in 2022 must be approved by the City. Storm drain work in the Project area located between Lake Tahoe Blvd and Tahoe Keys Blvd, in the year 2022 will be allowed if pavement patch-work is completed on or before September 30, 2022.

Construction of the storm water treatment basins is preferred to occur in 2022 following receipt of required permitting to work within Stream Environment Zone and areas defined as being Waters of the United States. Final Completion date for all Project Work is October 15, 2023.

The construction (progress) schedule shall strictly comply with the requirements of the Contract Documents, including Section 8, "Prosecution and Progress," of the Standard Specifications, as modified by the Special Provisions, Section 8.3.1 of the Special Provisions ("Construction Schedule"), Document 01300 ("Construction Progress Documentation"), Section 10-1.02, "Progress Schedule" and these Special Provisions. The computer software to be used for performance of the construction/progress schedule shall be compatible with the current version of the operating system in use by the Engineer and Owner (MS Project).

A preconstruction conference, prior to construction, will be scheduled by the Engineer within fifteen (15) days after Contract award. The Contractor, including key personnel and its assigned representative(s), is required to attend and shall be prepared to discuss its proposed construction schedule plus other requirements and documentation as may be required pursuant to the Contract Documents, including Section 8, "Prosecution and Progress," of the Standard Specifications, as modified by the Special Provisions, Section 8.3.1 of the Special Provisions ("Construction Schedule") and Document 01300 ("Construction Progress Documentation"). The Contractor will further be required to have specialized sub-contractors attend the pre-construction conferences as determined by the Engineer.

The Contractor shall notify all residences, property owners and businesses within 300 feet of construction areas in writing of the proposed construction activities. The Contractor shall perform the notification once prior to construction. The Engineer will provide a list of all residents, businesses and property owners to be notified. Some of the notifications will be via US mail and some will require personal delivery to businesses within the Project area. The Contractor shall further "post" the Project area with a total of up to 10 informational signs (11"x17") at locations directed by the Engineer. The notifications and postings will be developed by the Contractor for review and acceptance by the Engineer. Construction scheduling and Contractor's contact information will be clearly displayed on all construction fencing (one sign at each staging area).

Attention is directed to the Temporary Best Management Practices required for the project (including Plan 'BMP' Sheets), the Storm Water Pollution Prevention Plan (SWPPP), and

requirements of these Special Provisions related to temporary erosion control, water pollution control, and other Best Management Practices prior to development and submittal of a construction schedule, and performance of any Project site work. Attention is also directed to all requirements found within these Special Provisions regarding the submittal and acceptance of a project construction schedule prior to performing any project site work, and to Section 10-1.17, "Traffic Control", of these Special Provisions regarding the submittal and acceptance of a traffic control plan prior to performing any work that requires traffic control.

In order to minimize the impact to the residents and businesses in the project area and limit the extent of open disturbed areas with potential for sediment runoff, the Contractor shall work diligently within a single area until all work is completed in that area prior to commencing work in another area. Exceptions to the "single" working location may be granted, in the sole discretion of the Engineer, upon the Contractor providing a detailed plan and schedule, acceptable in form and content to the Engineer, to enable Contractor to work in more than one area at a time. Under no circumstances shall any deviation from the single area requirement relieve the Contractor from his/her obligation to conform with any easement documents, right-of-entry, traffic control requirements, water pollution controls, and coordination efforts as explicitly detailed in Section 10-1.08 "Cooperation" of these Special Provisions.

The Contractor shall not open trench or disturb any more area than can be reasonably backfilled and/or protected by the end of the workday (or other timeline as outlined below, in these Special Provisions or as directed by Engineer) or if eminent rain is forecasted, etc. All work shall be in accordance with all local, regional, state and federal regulations, including what has been stated in these Special Provisions, and the TRPA, Regional Board and other Project Permits.

The Contractor shall not begin work within twenty (20) feet of any overhead utility line prior to contacting Liberty Energy, AT&T, Charter Communications, or any other applicable utility owner, at least twenty (20) working days in advance of the work.

The Contractor shall not begin work within twenty (20) feet of a Southwest Gas Corporation's High-Pressure Gas Main prior to contacting Southwest Gas Corporation, at least twenty (20) working days in advance of the work. Note that within two (2) feet of a high-pressure gas main all digging must be by hand methods and requires that Southwest Gas have personnel on site observing the digging until backfilling is complete.

The standard hours of work for the Project will be in accordance with City and TRPA regulations and shall only occur during the time periods between 8:00 AM and 6:30 PM Monday through Friday, non-holiday (Federal Holiday), except as described in these Contract Documents. No Project work will be allowed on weekends, holidays, or nights without prior written approval of the Engineer, City, Caltrans (if in state R-O-W) and, if required, a variance from the TRPA noise ordinance. For any construction work within the right of way of US Highway 50 which requires lane or shoulder closures, Caltrans has not designated when the hours of work must occur. The Contractor shall coordinate directly with Caltrans to schedule any lane or shoulder closure. See the Caltrans Encroachment permits for additional information (located in the Appendix of these Special Provisions).

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.02 PROGRESS SCHEDULE

Construction (progress) schedules will be required for this Contract and shall strictly conform to the Contract Documents, including, but not limited to, the Project Plans, Section 8, "Prosecution and Progress," of the Standard Specifications, as modified by the Special Provisions, Section 8.3.1 of the Special Provisions ("Construction Schedule"), Document 01300 ("Construction Progress Documentation"), and the Special Provisions. The Contractor's attention is directed to Section 10-1.01, "Order of Work and Preconstruction Conference" of these Special Provisions for additional scheduling requirements.

The construction (progress) schedule is to be submitted to the Engineer for acceptance in accordance with the Contract Documents; and at all times the current schedule is to be accessible to the Engineer, applicable permitting agency, and any federal, state, or local agency regulating water quality, including TRPA and Lahontan.

For each submittal to the Engineer (including monthly updates on or before 1st day of each month, starting after the baseline schedule is accepted) the Contractor shall provide: one (1) data-storage device containing the schedule data, two (2) sets of originally plotted, time-scaled network diagrams, and two (2) copies of a narrative report.

In addition to the requirements as stated in the Contract Documents, including, without limitation, Document 01300 ("Construction Progress Documentation"), the construction (progress) schedule should clearly show the order in which the Contractor proposes to carry out the work within the Contract Time and subject to all Contract Document requirements. The construction (progress) schedule shall show the start times and completion times for the salient features of the work provided in the Contract Documents. The construction (progress) schedule shall comply with the Contract Documents, including, without limitation, the requirements of Document 01300 ("Construction Progress Documentation"), and shall be in the form of a time-scaled schedule network, arrow diagram notation, precedence diagram notation, or other similar schedule developed under a critical path method. The schedule shall outline in sufficient detail the proposed operations, the interrelations of the various operations, and the order of performance so that the progress of the work can be evaluated accurately at any time during the performance of the Contract. The network shall reflect activity durations in a calendar and working daytime frame. Project constraints such as required finish date, phasing, and site access controls will also require modeling within the schedule. In addition, the network shall include details for complex issues such as lane closures (i.e. location, width, duration, etc.) and dewatering operations (i.e. intake and discharge location, volume, equipment, duration, etc.). The schedule and items of work shall conform to all provisions of the Contract Documents,

including, without limitation, the Standard Specifications, the Standard Plans, the Project Plans, the Project Permits, these Special Provisions, and as otherwise may be directed by the Engineer.

The Contractor shall conduct weekly construction meetings and shall be attended by the Contractor's project manager, the Contractor's daily operations superintendent, the Contractor's environmental controls manager, the Owner's Resident Engineer, the Owner's Construction Manager/Inspector, the project QSP, Design Engineer as requested, and other regulatory agency staff, project funders, and key personnel associated with the project (*Contractor to provide meeting space/facilities and parking for at least ten (10) attendees*). In addition to the current progress schedule, the Contractor shall be prepared to discuss and provide a weekly summary report at each weekly construction meeting that describes the current weeks' work activities, subsequent weeks' work activities, major milestones completed to date, public safety concerns or issues and traffic control, water pollution control activities and any violation or threatened violation events, any unknown discoveries and/or errors on the Plan sheets, and other critical construction related items that are necessary for discussion. The Contractor will be responsible to produce an agenda and take minutes at each meeting and provide the minutes at the subsequent meeting to the Engineer for review, comment and/or acceptance. The Owner's Resident Engineer (RE) will provide the previous weeks "Weekly Statement of Working Days" to the Contractor for discussion and acceptance. The weekly meeting shall be scheduled to occur at the same day and time of each week during the performance of contract work. This time/day will be determined by the Engineer and Contractor at the preconstruction conference.

A final updated schedule (record) with actual start and finish dates for the project activities/items of work shall be submitted within thirty (30) days after work completion by the Contractor, including a written certificate from an officer of the company.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.03 PERMITS

The Contractor shall secure any permits required for completion of the work, and pay all costs associated with obtaining all the required permits for a full and complete project in accordance with all local, regional, state, and federal regulations. In addition, the Contractor is bound to comply with all provisions and regulations of the Project Permits.

Copies of permits secured and provided by the City are located in the Appendices or will be added to the Project when and include but are not limited to the following agencies:

- Tahoe Regional Planning Agency (TRPA)
- California State Water Resources Control Board, and Regional Board (Lahontan Region)

- US Army Corps of Engineers
- California Department of Fish and Wildlife
- State of California Department of Transportation (Caltrans)
- Cal Fire – Exemption to Timber Harvest Permit

It should be anticipated, for those which the Owner is aware at time of writing, that the Contractor will be required to submit application materials and pay all associated fees to secure permits including but not limited to the following:

- Double Caltrans Encroachment Permit
- Air pollution control (El Dorado County)

The Contractor is required to obtain the Construction t Permit (double permit) from Caltrans, based on the encroachment permit secured by the owner. Based on the permit secured from Caltrans by the City, no fee is required for the Caltrans permit issued to the Contractor for this Project. The Contractor shall contact State Inspector seven (7) working days prior to commencing work, to arrange a pre-job meeting. A 24-hour notification before restarting work shall be strictly adhered to. All work shall be conducted and completed to the satisfaction of Caltrans representative. Immediately following completion of the work permitted herein, the Contractor shall fill out and mail the Notice of Completion attached to the Permit.

It shall be the Contractor's responsibility to be fully informed of the conditions of the permits and shall conduct their construction operations accordingly. The Contractor shall maintain a copy of permits at the construction site and shall make the permit(s) available to operating personnel during construction activities. Any requested change/deviation from the agency's conditions of approval, as proposed by the Contractor, shall be submitted to the Engineer for transmittal to the applicable regulatory agency for their review and acceptance/denial prior to commencement of the subject work.

The Contractor shall provide copies of all permits, any permit revisions and any extensions and amendments to all permits to all persons (construction foreman, superintendents and subcontractors) who will be working on the project at the project site. The Contractor shall further post copies of all permits at the jobsite for viewing by all of the Contractor's forces, subcontractors, regulators, funders, Engineer, Public, etc.

Conformance with the requirements of this Section shall in no way relieve the Contractor from his/her responsibilities, as provided in Sections 5, "Control of Work", and 7, "Legal Relations and Responsibility to the Public", of the Standard Specifications, as modified by these Special Provisions.

Relations with Tahoe Regional Planning Agency

This project is located within the Lake Tahoe Basin, which is regulated by the TRPA. A copy of the TRPA permit is included in the Appendix of these special provisions. This permit has specific requirements covering work to be performed under this Contract. The Contractor shall

meet the permit requirements for Best Management Practices, revegetation, grading season restrictions, and all agency approval conditions.

It shall be the Contractor's responsibility to be fully informed of the conditions of the permit and shall conduct his or her construction operations accordingly. Any change in the agency's conditions of approval as proposed by the Contractor shall be submitted to the Engineer for transmittal to the TRPA for their approval.

The Contractor shall maintain a copy of the TRPA permit at the construction site and shall make the permit available to operating personnel during construction activities.

Conformance with the requirements of this section shall in no way relieve the Contractor from the responsibilities as provided in and Section 7-1.05, "Indemnification," and Section 7-1.06 "Insurance" of the Standard Specifications.

Full compensation for conforming to the requirements of "Relations with Tahoe Regional Planning Agency" shall be considered as included without limitation in the contract prices for the various items of work involved; no additional payment will be allowed therefor.

Environmental Control Requirements:
In addition to Project permits, the City also obtained CEQA clearance for the Project. The CEQA review and approval included several construction control measures, to protect the environment, which the Contractor shall be required to abide by, implement and control. These construction control measures and best management practices (BMPs) will be used to minimize impacts on the environment during construction. The following construction controls, BMPs, and resource protection measures will be implemented prior to and maintained throughout the active construction period.

Dust Control/Air Emissions
All work and Contractor's operations will comply with the El Dorado County Air Quality Management District (AQMD) Construction Fugitive Dust Control and Emission Requirements, including exceedance of concentration and visible emission limits for construction projects. The Contractor shall develop and follow a Fugitive Dust Control Plan, in accordance with AQMD Plan requirements (Rule 223-1.5.B). A Fugitive Dust Control Plan specifying methods for the control of dust potentially generated by construction activities will be included as part of the submittal requirements associated with this project. The Contractor's Best Management Practices shall additionally include trackout management requirements and implementation of construction BMPs outlined in AQMD Rule 223-1, including the measures shown in Appendix C-1 of the AQMD's Tables 1-3 of Rule 223-1 as appropriate.

These measures include, but are not limited to: using water to stabilize soils prior to disturbance, during construction, and to create a crust at the end of each day's activities and after cut and fill activities to minimize dust during construction activities; keeping soils damp to ensure visible emissions do not exceed 50 feet or beyond the property line in any direction; stabilizing materials while unloading; stabilizing sloping surfaces using soil binders until vegetation or ground cover effectively stabilize the slopes; limiting vehicular traffic and disturbances on soil where possible; and dedicating a staging area (to be kept stabilized).

Additionally, the Project will implement the following air quality construction measures from TVAP Policy NCR-8.1:

- Implement measures recommended by the AQMD.
- Prohibit open burning of debris from site clearing unless involved with a fuels reduction project.
- Utilize low-emission construction equipment and/or fuels and use existing power sources wherever feasible.
- Restrict idling time for construction equipment and vehicles.
- Apply water to control dust as needed to prevent dust impacts.

Water Quality and Soil Protection Measures

The Project will be required to prepare a SWPPP compliant with the Tahoe General Construction Permit. The SWPPP will outline BMPs and other measures that will minimize impacts on water quality during construction and maintenance activities. The SWPPP is mandated as part of the NPDES permit regulated by the US Environmental Protection Agency (EPA) and implemented by Lahontan and will be required prior to obtaining any applicable permits for Project implementation. The Project will be required to prepare an Erosion and Sediment Control Plan (ESCP) compliant with TRPA requirements. Typical measures include preservation of existing vegetation to the extent feasible, use of native vegetation for landscaping, and implementation of construction pollutant source controls such as installation of silt fences, use of wind erosion control (e.g., geotextile or plastic covers on stockpiled soil), and stabilization of site ingress/egress locations to minimize erosion.

A variety of good housekeeping, source control, and erosion and sediment control BMPs will be implemented to avoid impacts on soil and water resources. The Project BMPs will be specified from standard documents applicable to the Project location including the current editions of the TRPA Best Management Practices Handbook, the Caltrans Construction Site Best Management Practices (BMP) Manual, and other regulatory agency sources. Detailed specification for these BMPs will be incorporated into final design plans and contract documents for approved Project.

At a minimum, the following water quality protection measures, sediment and erosion control BMPs, and construction control measures will be implemented to reduce impacts to soil and water quality:

- Create a working SWPPP as part of the NPDES requirements for projects larger than 1-acre of disturbance. BMPs and the ESCP described in the approved SWPPP will be implemented during Project activities. These measures may include, but will not be limited to, silt fences, straw wattles, water-filled berms, mulching, dewatering pumps, gravel/sandbags, stormwater drainage systems, construction fencing, and revegetation. The SWPPP will also include a Fugitive Dust Control Plan, specifying the methods for the control of dust potentially generated by construction activities.
- Cover stockpiled and transported material or water to control fugitive dust emissions and avoid wind erosion.
- Construction equipment will be cleaned to remove any loose dirt or sediment prior to entering or exiting the site.

- Stabilize disturbed areas, including staging and storage sites, and either revegetate following construction or repave.
- Implement erosion and sediment control BMPs (e.g., filter fences, sediment check dams, and storm drain inlet protection), as specified in the SWPPP prior to construction in each phased construction area.
- Winterize disturbed areas on or before October 15 of each year of construction (unless extensions are granted by the permitting agencies). The winterization will be in compliance with TRPA and Lahontan standards and BMPs designed to meet permit requirements for capture and infiltration of the 20-year, 1-hour storm volume will be used.

Traffic Control Plan

Construction activities will be conducted in compliance with the Project-specific Contractor's Traffic Control Plan (TCP) as documented in these Special Provisions. Project actions will conform to the latest revision of the Work Area Traffic Control Handbook (Watch Committee of Public Works Standards, Inc.) and the latest revision of the California Manual of Uniform Traffic Control Devices. Controls within the ROWs will include varying lane and shoulder closures using standard signage, delineators, barricades, and flagger personnel.

The TCP will be required to provide for safe emergency, business, residential, bicycle, and pedestrian access through the Project area or along a designated access facility. Access to driveways, parking lots, and other public/private points of access within the Project area will be detailed in the construction Contractor's TCP. At a minimum, the TCP will include the following measures:

- TC-1: The temporary traffic control measures will be implemented during construction periods (Monday through Friday, typically 8:00am – 6:00pm).
- TC-2: Access to driveways and parking lots within the Project area will be maintained at all times during the course of construction, unless work is being performed in the vicinity of, or for, the driveway or parking lot area.
- TC-3: If a driveway or parking lot closure is necessary to facilitate construction activities, the Contractor will hand deliver notices to the affected property owners at least 48 hours prior to closure.
- TC-4: During construction, temporary parking will be provided for construction personnel within designated staging areas.

Hazardous Materials Storage and Use

Staging, equipment refueling, and materials storage will take place in one central area of the Project site in accordance with City standard contract requirements and the provisions of Caltrans Construction Site BMPs WM-1, Material Delivery and Storage; WM-2, Material Use; WM-3, Stockpile Management; WM-5, Solid Waste Management; WM-6, Hazardous Waste Management; NS-8, Vehicle and Equipment Fueling; and NS-10, Vehicle and Equipment Management.

The material delivery and storage area may change throughout construction, depending on where activities take place, but it would not be located near a storm drain inlet or drainage swale or

adjacent to a fill slope.

In addition, a Spill Prevention Plan will be developed and implemented by the Contractor to protect construction workers and the public from construction-related health hazards. The plan will outline BMPs to ensure impacts on human and environmental health are avoided. Work will stop immediately if suspected contamination is encountered during construction, and the Project Engineer will be notified immediately. Upon confirmation of contamination, the Project Engineer will assess the Project design and obtain the required approvals to remove contaminated material or modify the design to avoid conflicts with the contaminated material and/or any ongoing or future remediation projects. Soil and groundwater materials removed during construction activities that have been deemed hazardous will be segregated and disposed of appropriately. The City's Contractor is responsible for familiarizing their personnel with the information contained in the SWPPP. Contractors will train/instruct on-site construction personnel in spill prevention practices and provide spill containment materials near staging areas. Further information regarding spills will be available in the Spill Response section of the SWPPP.

The Project will also implement Caltrans's BMPs regarding spill prevention and waste management measures and comply with the requirements of General Plan Policy HS-6.2: Construction Stoppage Due to Contamination.

Additionally, the City's Contractor will prepare a Soil Management Plan, which will address issues such as handing, transportation, and disposal of petroleum hydrocarbon-impacted soil, if encountered during construction.

Construction Water
Watering shall conform to the provisions in Section 10-6, "Watering," of the Standard Specifications.

If water is required for the project and the Contractor is to use a fire hydrant for water supply, the Contractor shall call South Tahoe Public Utility District (530) 544-6474 to obtain the necessary permits in accordance with S.T.P.U.D.'s Administrative Code 3.1.45 and 3.1.46. Note that all connections will require reduced pressure backflow devices and water meters.

The Contractor shall pay all required fees, such fees shall be considered as included in the various items requiring watering; no additional compensation will be allowed therefor.

Waste Material
All waste material shall become the property of the Contractor and shall be disposed of at a site approved by all local and regional agencies. Refer to Section 5.8 Waste Material of these Special Provisions.

Solid Waste Disposal
The proposed Project, and Contractor's operations, will be subject to Chapter 4.150 of the City Code regulating refuse and garbage and the TRPA Regional Plan (TRPA 2012c) Land Use Element Goal 5, Policy 1; Public Services Element Goal 3, Policy 2; and City General Plan Policy PQP-3.3, requiring the transport of solid waste outside the Tahoe Basin in compliance

with California state laws.

Compliant with TRPA Code Section 33.3.4, Disposal of Materials, the Project will be required to implement the following controls to limit impact from solid waste generation and disposal:

- Temporary stockpiling of the topsoil on the site for use in areas to be revegetated;
- Disposal of material at a location approved by TRPA; and
- Export of the materials outside of the region.

The Project will also implement Caltrans Construction Site BMPs that address solid waste, such as WM-5, Solid Waste Management, and will comply with federal and state regulations related to the storage and transportation of hazardous materials.

Biological Resource Protection Measures

For the protection of migratory bird nesting sites and special-status species and to control the potential spread of noxious or invasive plant species, the Project includes the following resource protection measures:

- The Project will implement wildlife protection measures to comply with Section 7 of the Endangered Species Act; Migratory Bird Treaty Act (MBTA); and TRPA Code Chapter 62, Wildlife for protection of sensitive species and their habitats.
- Tree and snag removal will be minimized to what is necessary for treatment basin construction, trail improvements, and the stormwater improvements. Construction access routes will be positioned around existing trees and snags to avoid tree removal to the extent practical. Logs and brush piles will be left within the Project Area to provide wildlife cover when they will not constitute a hazard to people or property. When not a hazard to people or property, larger logs and snags will be purposely retained in the Project Area to provide habitat for wildlife that depend on them for perches, nesting, or cover, consistent with TRPA Tree Removal standards (TRPA Code Chapter 61.1 Tree Removal and Chapter 62: Wildlife Resources subsection 62.3.4).
- For construction activities proposed to occur during the nesting season (i.e., March 15 through August 15), and outside of paved areas, the City will retain a specialist (outside consultant) to conduct pre-construction nest surveys, including a 100-foot buffer, to identify any willow flycatcher and MBTA protected migratory bird nest sites that may be present. The preconstruction nest survey will occur no more than 14 days prior to the Contractor's mobilization.
    - The Contractor shall provide a minimum of four weeks, and a maximum of 6 weeks' notice of the date (exact date) when project mobilization will occur (first on-site related construction efforts) so that the City and City's consultant can schedule and perform the review in the required time frame.
    - If a nest is present in the immediate vicinity, a qualified biological monitor (city's consultant) will evaluate whether any migratory birds are impacted by the Project. The biological monitor will have the authority to stop construction near occupied sites if construction activities appears to be having a negative or adverse impact on nesting migratory birds or their young. If construction must be stopped, the

biological monitor must consult with USFWS and CDFW staff within 24 hours to determine appropriate actions to restart construction while reducing impacts to identified migratory bird nests.
    - The Contractor will be required to implement the measures, as directed. All work will be at contract unit prices (for items of work included in the bid list) and a change order will be issued for any work that is not included in the bid list.
    - The Contractor and engineer will coordinate and formally agree to any time extensions/delays resulting. This shall be documented in writing, signed by both the Contractor and engineer. If this documentation is not formalized within 48 hours of initial notification by the Contractor to the engineer, then no additional compensation, change order or time extension/delay will be allowed therefor.
    - Any additional areas the Contractor uses for staging and storage, obtained for use by the Contractor, shall be solely the responsibility of the Contractor to meet all conditions of this item at the Contractor's cost with no additional compensation or contract time.
- Should special status species be observed within the Project area before or during construction, the construction Contractor or other project personnel will report the observation immediately to the Engineer, or other qualified City Representative. In response, the City will retain a qualified biological monitor to determine the measures to be implemented for adequate protections of special status species.
    - The Contractor will be required to implement the measures, as directed. All work will be at contract unit prices (for items of work included in the bid list) and a change order will be issued for any work that is not included in the bid list.
    - The Contractor and engineer will coordinate and formally agree to any time extensions/delays resulting. This shall be documented in writing, signed by both the Contractor and engineer. If this documentation is not formalized within 48 hours of initial notification by the Contractor to the engineer, then no additional compensation, change order or time extension/delay will be allowed therefor.
    - Any additional areas the Contractor uses for staging and storage, obtained for use by the Contractor, shall be solely the responsibility of the Contractor to meet all conditions of this item at the Contractor's cost with no additional compensation or contract time.
- The City (or City's consultant) will conduct inspections for invasive plants and noxious weed species from within the Project area, along travel routes near Project area egress and ingress points, and in areas identified on the plans for storage and staging prior to mobilization.
    - The Contractor shall provide a minimum of four weeks, and a maximum of 6 weeks' notice of the date (exact date) when project mobilization will occur (first on-site related construction efforts) so that the City and City's consultant can schedule and perform the review in the required time frame.
    - Areas identified will be flagged for treatment or avoided, depending on the risk presented by the species present (as determined by the City).
    - The Contractor will perform all treatment at the direction of the City as a change order to the contract.
    - Any additional areas the Contractor uses for staging and storage, obtained for use by the Contractor, shall be solely the responsibility of the Contractor to meet all

conditions of this item at the Contractor's cost with no additional compensation or contract time.

- Construction vehicles, including off-road vehicles, will be inspected by the City and must be clean when equipment comes into the Basin or comes from a known invasive plant infested area.
    - No equipment shall be delivered to the project site without a cleaning manifest provided to the Engineer.
- Equipment will be staged in weed-free areas to prevent vehicles from introducing or spreading invasive species.
- Earth-moving equipment, gravel, fills, or other materials are required to be weed-free. Onsite sand, gravel, rock, or organic matter will be used when possible or weed-free materials from gravel pits and fill sources that have been surveyed and approved will be used.
- Weed-free mulches and seed sources will be used. Topsoil will be salvaged from the Project area for use in onsite revegetation, unless contaminated with noxious weeds. Activities that require seeding or plantings will use locally collected native seed sources when possible.
- The amount of ground and vegetation disturbance in construction areas will be minimized. Vegetation outside of the construction boundary, as well as other vegetation designated on the approved plans, is required to be protected with temporary fencing, pursuant to Subsections 33.6.9 and 33.6.10 of the TRPA Code. Vegetation will be re-established where feasible on disturbed bare ground at the end of Project implementation to minimize weed establishment and infestation, especially in staging areas.
- Where disturbance cannot be avoided, prune or cut riparian vegetation at the ground to protect root structures and soil integrity. Clean pruning equipment will be used to ensure that no disease or pests are introduced into the stems. Shoots, if viable, may be used for replanting. During construction, any removed native riparian vegetation of good quality may be stockpiled and replanted. Specifications for this work will be included in a Revegetation Plan, pursuant to TRPA Code Chapter 61.4.5, Revegetation.
- Tree removal within SEZ boundaries will follow guidelines of TRPA Code Chapter 61.1.6C (Tree Cutting within Stream Environment Zones); including but not limited to vehicle restrictions within SEZs and limiting work within SEZs to times of the year when soil conditions are dry and stable.
- Disturbed areas, such as stormwater pipeline alignments, treatment basins, and staging areas will be revegetated or stabilized as needed once construction is complete, consistent with TRPA revegetation standards (TRPA Code Chapter 61.4, Revegetation) and City Landscaping Standards for use of species on TRPA recommended native and adapted plant list (City Code Chapter 6.10.150.2, Landscaping).

<u>Cultural Resource Protection Measures</u>

Although the Project area has been subject to systematic surface archaeological investigations, it is possible that buried or concealed cultural resources could be present and detected during Project ground disturbance activities. In accordance with the National Historic Preservation Act

of 1966 (16 U.S.C. 470) and City General Plan Policies NCR 4.3 and 4.4, the following procedures will be implemented to ensure historic preservation. In the event previously unknown potential historical, architectural, archaeological, or cultural resources (hereinafter cultural resources) are discovered during Project construction, the following procedures will be initiated:

- The Contractor will contact the Engineer immediately.
- The Contractor will cease all operations in the area in question, plus a 50-foot buffer in all directions.
- The Engineer will coordinate/contact a qualified archaeologist to assess the site.
- The Engineer will issue a "Stop Work Order" directing the City's Contractor to cease construction operations at the location of the potential cultural resources find.
- The "Stop Work Order" will be effective in the area of and within a 50-foot radius of the potential discovery until a qualified archaeologist assesses the value of the potential cultural resources and makes recommendations to the State Office of Historic Preservation.
- If the qualified archaeologist determines that the potential find qualifies for inclusion in the National Register of Historic Places and the California Register of Historic Resources, at the direction of the State Office of Historic Preservation, the Engineer will extend the duration of the "Stop Work Order" in writing, and the City's Contractor will suspend work at the location of the find. Resources that are considered significant will be avoided or subject to a data recovery program or other appropriate measures.
- In the unlikely event that human remains are encountered, The City's Contractor will suspend construction activities immediately and a qualified cultural resource specialist will be contacted to provide an initial evaluation of the remains. If the remains are found to be human or potentially human, the El Dorado County Sheriff/Coroner will be notified within 24 hours of the discovery to conduct proper evaluation and treatment of remains in accordance with Public Resources Code Section 5097.98 and Section 7050.5 of California Health and Safety Code. The sheriff/coroner will evaluate the find to determine whether it is a crime scene or of Native American origin. If human remains are determined to be Native American in origin, the sheriff/coroner must contact the Native American Heritage Commission (NAHC). The NAHC will assign a Most Likely Descendent who, in collaboration with the Project proponent and landowner, will determine the ultimate treatment and disposition of the remains.
- The Contractor will be required to implement the measures, as directed by the engineer (engineer will received direction from the qualified archeologist). All work will be at contract unit prices (for items of work included in the bid list) and a change order will be issued for any work that is not included in the bid list.
- The Contractor and engineer will coordinate and formally agree to any time extensions/delays resulting. This shall be documented in writing, signed by both the Contractor and Engineer. If this documentation is not formalized within 48 hours of initial notification by the Contractor to the Engineer, then no additional compensation, change order or time extension/delay will be allowed therefor.

Noise Reduction Measures

If there is a potential for activities that use impact equipment to occur within 200 feet of existing structures, measures will be designed and implemented to ensure that construction activities avoid or mitigate for vibrations above 0.02 inches/second (0.5 millimeters/second) at nearby structures (City 2011). The analysis will address the potential for adverse vibration levels based on the criteria contained in Table 4.6-12 of the General Plan Draft EIR.

- Equipment will be adequately muffled and maintained.
- Construction activities will be performed between 8:00 AM and 6:30 PM pursuant to TRPA Code Chapter 68, Noise Limitations.
- No piece of equipment, which generates maximum noise levels greater than 85 dBA measured at 50 feet, will be allowed on site.
- In inhabited areas, particularly residential, District's Contractor's operations will be performed in a manner to minimize unnecessary noise.
- In residential areas, special measures will be taken to suppress noise generated by repair and service activities during the night hours.
- The more stringent of either Cal-OSHA limits or the limits established by local ordinance will be implemented.

Recreational Use Protection Measures

To avoid potential conflicts with pedestrians and bicyclists, the following measures will be implemented by the Contractor:

- Public notices describing the nature and duration of construction will be posted at public access points to the Project area prior to the start of construction (two-weeks prior). The notices will be posted for the duration of construction.
- Construction fencing will be placed around the construction and staging area perimeters to deter continued use of the informal trails and pathways leading into the construction area during construction. Following construction, the fencing would be removed to restore access to the areas.
- The TCP will include actions for controlled passage of pedestrians and bicyclists through the linear project area during the construction period.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.04 MOBILIZATION AND DEMOBILIZATION

Attention is directed to Divisions I, "General Provisions" and II, "General Construction" of the Standard Specifications and Section 5.10 - "Job Site Sanitary Facilities" of these Special Provisions.

Mobilization

This contract item shall consist of preparatory work and operations for mobilization of the Contractor's personnel, equipment and supplies to the project site including obtaining all bonds, insurance, and permits; furnishing, purchasing, transportation, setup, storage and staging of all labor, materials, tools, equipment, and incidentals required for performance and completion of the work as shown on the Project Plans and specified in the Standard Specifications, these Special Provisions, as directed by the Engineer, required by the Project Permits, 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. In addition, mobilization shall also include but not be limited to the following items:

1. Provide on-site sanitary facilities;
2. Post all Occupational Safety and Health Administration (OSHA) required notices and establishment of safety programs;
3. Post all prevailing wage requirements;
4. Prepare and transmit all submittals as directed in these Special Provisions or as directed elsewhere in the Contract Documents, Standard Specifications, Permits and Project Plans; and
5. Wash and clean all tools and equipment prior to bringing on site, as specified in the Project Permits, Special Provisions, and as required by TRPA and the Regional Board.

Demobilization

Demobilization shall consist of the removal of all materials, tools, equipment, signage, temporary pollution control materials, trash, debris, and all other items imported to or generated on-site as a result of the work completed by the Contractor. Furthermore, demobilization shall include repairing all pavements, walkways, infrastructure, signage, landscape, and any other public or private facilities damaged by construction activities to their pre-construction conditions using comparable materials as accepted and directed by the Engineer.

Final acceptance of the project improvements must be in the form of a written "Notice of Completion." The Contractor shall provide record drawings to the Engineer in accordance with Section 10-1.60 "Record Drawings," of these Special Provisions.

Measurement and Payment

"MOBILIZATION" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract lump sum price paid for the item "MOBILIZATION" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in mobilization, including demobilization, as specified herein to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

No separate payment shall be made for demobilization. All costs associated with demobilization shall be included in the mobilization bid item and no additional compensation shall be allowed therefor.

Partial payments for "MOBILIZATION," shall be made as follows:
When 5% of the original contract amount is earned from other bid items, 50% of the amount bid for Mobilization, or 5% of the original contract amount, whichever is lesser, may be paid.

When 10% of the original contract amount is earned from other bid items, 75% of the amount bid for Mobilization, or 7.5% of the original contract amount, whichever is lesser, may be paid.

When 20% of the original contract amount is earned from other bid items, 95% of the amount bid for Mobilization, or 9.5% of the original contract amount, whichever is lesser, may be paid.

When 50% of the original contract amount is earned from other bid items, 100% of the amount bid for Mobilization, or 10% of the original contract amount, whichever is lesser, may be paid.

Upon completion of all work on the project, payment of any amount bid for Mobilization in excess of 10% of the total original contract amount will be paid.

10-1.05 SUBMITTALS & CONTROL OF MATERIALS

The work performed as part of this contract shall conform to the provisions in Sections 5-1.23, "Submittals" and 6, "Control of Materials", of the Standard Specifications, and these Special Provisions. For the purposes of this project and provisions of the Standard Specifications and these Special Provisions, the project is considered to be in a freeze-thaw area.

Submittals
See Section 5.11, "Submittals" of these Special Provisions for requirements.

Prior to commencement of construction the Contractor shall:

- For any rock/boulders to be imported to the project site for use on the Project, the Contractor shall submit source location/supplier, material samples, and photos for City and TRPA review and approval;
- The Contractor shall obtain permission for entry, access and/or construction in writing from any property owner where construction, staging, storage, access, etc. is proposed (where not designated on the Project Plans, nor controlled by the City);
- The Contractor shall submit a construction schedule for City submission to TRPA prior to commencement of construction in accordance with Document 01300 – Construction Progress Documentation.

The Engineer's review and acceptance of submittals will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. In addition, the Engineer's review and acceptance will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or

procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and acceptance of a separate item as such will not indicate approval of the assembly in which the item functions.

Use of Materials Generated on the Job Site
Section 4-1.04, "Use of Materials Found on the Job Site" of the Standard Specifications shall be modified as follows: The Contractor may use aggregate or other materials found in excavation that comply with the specifications, unless stated elsewhere in these Special Provisions. The material must be designated for use in the work. Replace the quantity of material removed and used with an equal quantity of material that is equal to or better in quality and to the same thicknesses and comparable density as the surrounding materials. Do not excavate or remove any material from outside the excavation's slope and grade lines without authorization. No additional compensation shall be paid the Contractor for use of materials generated on the job site, unless stated elsewhere in these Special Provisions.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.06 PRESERVATION OF PROPERTY

The work performed as part of this contract shall conform to the Contract Documents, including applicable provisions of Section 5, "Control of Work", Section 7, "Legal Relations and Responsibility to the Public" and Section 15, "Existing Facilities", of the Standard Specifications, as modified by the Special Provisions, and as otherwise required in the Special Provisions.

The Contractor is responsible for the protection of all existing lands, waterways, public utilities, public infrastructure, buildings, fencing, private improvements, landscape features, vegetation and all other existing facilities as may or may not be shown on the Project Plans or as identified by the utility companies, public agencies, or Owner. No disturbance to existing facilities, except where noted on the Project Plans, shall be allowed. Any disturbance or damage to existing lands, waterways, public or private facilities, fencing, landscaping, vegetation, etc., not otherwise specified on the Plans or in a contract item, shall be fixed or repaired at the Contractor's sole cost and no additional compensation shall be allowed therefor. Any replacement parts and materials including plants and vegetation shall be at least equal to or better than the pre-existing condition.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as

included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.07 OBSTRUCTIONS

Attention is directed to Sections 5-1.36, "Property and Facility Preservation" and 15, "Existing Facilities," of the Standard Specifications.

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. Possible facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gasses; natural gas in pipelines 6 inches and larger in diameter or pipelines operating at pressures greater than 60 psi (gage); pressurized sanitary sewer force mains; pressurized water mains; traffic control electrical system and signal devices; underground electric supply system conductors or cables either directly buried or in duct or conduit which do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical conductors or cables with a potential to ground of more than 300 volts.

The Contractor is hereby notified that prior to commencing construction, he/she is responsible for contacting all utility companies for verification at the construction site of the locations of all underground facilities that may conflict with the placement of the improvements shown on the Plans. Attention is directed to Section 10-1.08, “Cooperation” of these Special Provisions. Where potential conflict exists, the Contractor shall pothole existing utilities to determine their locations and elevation. 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 potholing, excavation, or other work close to any underground pipeline, conduit, duct, wire, or other structure. **Contractor shall submit underground service alert ticket numbers to Engineer** within five (5) days of issuance. Regional notification centers include but are not limited to the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	(800) 642-2444

In addition to contacting Underground Service Alert the Contractor is further required to contact Caltrans Electrical and request mark-outs for any traffic control electrical system and signal devices at US Highway 50 a minimum of five (5) working days, and no more than ten (10) working days prior to any work taking place within the Caltrans Right-of-Way. Written notification is required to be provided to the Caltrans District 3 electrical and maintenance division. Their contact information can be obtained from the Caltrans District 3 encroachment permit department. It shall be noted that the electrical systems, traffic systems and traffic loops will not be marked by USA and the Contractor is required to coordinate with both Caltrans and the City for marking of these facilities prior to any work in the vicinity of these systems.

Irrigation systems may be present within the vicinity of the project or within the grading limits. The Contractor shall make reasonable efforts to locate irrigation system components and

underground lines and protect in place or relocate as shown on the Project Plans.

If any utility or traffic control electrical device location marks are worn away during construction, it is the responsibility of the Contractor to contact USA and/or Caltrans Electrical to relocate and mark said utility locations in the field during the course of construction activities.

The Owner has not performed potholing of utilities within the project area. The Contractor shall review the project area, project plans, existing utilities and USA information and provide the Engineer with proposed pothole locations (verification of those shown on the plans, additional, etc. potholes) required for the construction of the project. No potholes will be paid for that are not pre-accepted by the Engineer for potholing prior to the commencement of construction.

The Contractor will be required to perform any and all probing, potholing, soft digging, hydro-excavation, or other safe digging means to locate and identify existing utilities in conformance with the Standard Specifications and these Special Provisions. Any and all potholing performed by the Contractor will require the surveying of the potholed utility to provide accurate horizontal and vertical information to the Engineer. All surveying shall be performed with calibrated surveying equipment, trained and experienced surveying personnel and performed on the control/datum of the project plans and project survey.

Potholing shall be the first order of construction field operations and all potholing shall be completed, and information provided to the Engineering, a minimum of five (5) working days prior to commencement of any other construction activities that may conflict with any utility.

Measurement and Payment
Payment for "POTHOLE SUBSURFACE FACILITY (AS DIRECTED)" shall be in accordance with Section 10-1.24 Potholing and Utility Relocation, of these Special Provisions.

Payment for "SUBSURFACE FACILITY LOCATIONS / VERIFICATION" is paid on a lump sum basis (LS) and includes your work for locating and protecting subsurface facilities within the project site, including laterals and other appurtenances that may be marked (USA) only at the main, present as shown on utility grid maps and inferred from visible facilities, as required for completion of the contract work. Provide temporary traffic control as required. Backfill and replace surface pavements and/or concrete surface facilities as required for restoring area or prepare to receive proposed improvements as shown.

Partial payments for "SUBSURFACE FACILITY LOCATIONS / VERIFICATION", shall be made as follows:

- The initial 90% of the pay item is eligible for payment based on a percentage of the work completed and accepted by the Engineer at time of a progress payment. An example of this is if the progress payment value is $5,000 and the total bid value is $100,000, 5% of the bid item will be paid.
- The remaining 10% of the payment for SUBSURFACE FACILITY LOCATIONS / VERIFICATION will be made in the final payment to the Contractor.

Additionally, and in light of the regulatory requirements applicable to excavation and grading

activities in the Lake Tahoe Basin, no extension to Contract Time will be granted for any delays resulting from any utility relocation, conflict or obstruction, regardless as to the cause of said event.

10-1.08 COOPERATION

Attention is directed to Sections 5, "Control of Work" and 15, "Existing Facilities" of the Standard Specifications, and these Special Provisions.

The Owner reserves the right to do work with its own forces or to let other contracts for work on or contiguous to the work set forth in the Plans and Specifications. The Contractor shall protect the property and access (business, emergency and all other accesses) to all business located in, around and in the vicinity of the Project area.

Attention is directed to Section 10-1.01, "Order of Work and Preconstruction Conference" of these Special Provisions.

The Contractor shall coordinate all activities within the project area with the local jurisdiction (City of South Lake Tahoe), state highway department (Caltrans), private property owners, business owners, business managers, and each of the governing public utility companies/ purveyors. Any delays resulting from conflicts will be borne by the Contractor and no additional payment will be made, nor will any additional working days be granted, not otherwise provided for in a specific Contract item.

The following information is made available to the Contractor for informational purposes and is not considered to be all inclusive.

Potable Water & Sewer
South Tahoe Public Utility District
1275 Meadow Crest Drive
South Lake Tahoe, CA 96150
Phone: (530) 544-6474

Telephone
AT&T
3675 T Street, Room 170
Sacramento, CA 95816
Phone: (916) 453-6287 or
(888)-944-0447

Electric
Liberty Energy
933 Eloise Avenue
South Lake Tahoe, CA 96150
Phone: (530) 543-5278

Cable
Charter Communications
212 Elks Point Rd, Ste 334
Zephyr Cove, NV 89448
Phone: (775) 233-8706

Natural Gas
Southwest Gas Corporation
(Northern NV Division)
400 Eagle Station Lane
Carson City, NV 89701-8401
Phone: (775) 887-2864 or
(877) 860-6020

Storm Drain (local)
City of South Lake Tahoe
Public Works Department
1740 D Street
South Lake Tahoe, CA 96150
Phone: (530) 542-6030

Traffic Signals and Storm Drain (State)
Caltrans – District 3
703 B Street
Marysville, CA 95901
Phone: (530) 741-4566

Any costs incurred due to relocations, shutoff, startup, or any other costs related to utility relocations due to the construction of the project shall be the responsibility of the Contractor, not otherwise provided for in a specific Contract item. These efforts include the necessary coordination efforts with utilities to be relocated by utility companies in order to properly construct the project. The Contractor shall perform all necessary pre-construction, during construction and post construction coordination with the utilities in conflict to assure that all utilities are relocated by the utility companies. Any and all schedule delays are the responsibility of the Contractor, and not separate payment, change order, delay claims or extra work time or working days will be allowed therefor.

Within the project area there are several residential properties, and commercial businesses. All of the Contractor's efforts within the project area shall be performed in a manner as to minimize impact to all businesses, customers, citizens, emergency personnel and property owners within the Project area.

Each of these businesses, and other facilities, has different uses, different hours of operation and different impacts from the construction of the project, all of which shall be minimized by the Contractor. Any claims, litigation, lawsuits, or other damages claimed by any of the private property owners or businesses due to the Contractor's operations and construction activities is the responsibility of the Contractor with no additional compensation allowed therefor.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.09 OCCUPATIONAL SAFETY AND HEALTH STANDARDS & TRENCH SHORING

Attention is directed to Section 7-1.02K(6), "Occupational Safety and Health Standards," of the Standard Specifications and Section 7.4 "Contracts for Digging Trenches; Requirements" of these Special Provisions.

The Contractor shall furnish all applicable submittals in conformance with Cal/OSHA as stated in the Standard Specifications. For any excavation of five (5) feet or more in depth, the Contractor shall submit design details and shop drawings for proposed protective system.

In addition, excavation trenches that expose an existing utility line shall be shored in order to prevent the utility line from sloughing into the trench. Excavation shall not begin until the Contractor has received acknowledgement, from the Engineer, of receipt of the Contractors detailed plan for worker protection from caving ground.

The provisions of Section 7-1.02k(6)(b), "Excavation Safety," of the Standard Specifications shall be modified to read:

> *"7-1.02K(6)(b) - As required by Section 6705 of the California Labor Code and in addition thereto whenever work under the Contact involves the excavation of any trench or trenches five (5) feet or more in depth the Contractor shall submit trench shoring plans to a registered civil or structural engineer a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation, of such trench or trenches. If such plan varies from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety, the plan shall be prepared by a registered civil or structural engineer employed by the Contractor, and all costs, therefore, shall be included in the price named in the Contract for completion of the Work as set forth in the Contract Documents. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this section shall be construed to impose tort liability on the City, Engineer, or any of their officers, agents, representatives, or employees. The Contractor shall submit trench shoring plans and calculations to the City that are certified (sealed) by a professional qualified civil engineer or structural engineer before excavation of any trench that is five (5) feet or more in depth."*

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.10 LINES AND GRADES

Lines and grades shall conform to the provisions in Section 5-1.24, "Construction Surveys", of the Standard Specifications, and these Special Provisions. It is the intent of this Section to define the staking services that the Engineer will furnish, and to set forth the responsibilities of the Contractor respecting the use and maintenance of such.

Professional Requirements

All work associated with work in this section of these Special Provisions shall be performed by a licensed Land Surveyor in the State of California. Prior to any work commencing associated with this section the **Contractor shall submit the name, license number and name of the company of the Land Surveyor** who will be performing these efforts. The Engineer will review the Land Surveyor's license status and provide, in writing, acceptance or denial of the Land Surveyor. The Contractor may not change Land Surveyors on the project without notification to the Engineer and getting approval of the new Land Surveyor. The Contractor shall provide the Land Surveyor information to the Engineer prior to the Pre-construction meeting and the Engineer will provide written acceptance or denial within ten (10) working days.

Notification

Prior to the start of construction, the **Contractor shall provide the Engineer a written schedule of the dates when any specific staking services are to be performed.**

If the Contractor needs additional control points other than designated in the "*staking service*" below, the Contractor shall submit a staking request in writing at least two (2) weeks in advance of when the stakes will be required. Any lost working days due to Contractor not providing written schedule of dates when specific staking services are desired and/or providing the Engineer a staking request in writing at least two (2) weeks in advance of when the stakes will be required shall be charged against the Contractor's allowable working days and no additional compensation will be allotted.

Control

Horizontal and vertical survey control, as shown on the Plans, are reference points for all construction work; shall be set and conspicuously marked with paint or plastic flagging tape. It shall be the responsibility of the Contractor to inform his employees and his sub-Contractors of their importance and the necessity for their preservation. If a control point cannot be avoided, the Contractor shall notify the Engineer in writing at least five (5) working days in advance of the date the control point will be disturbed.

Staking Service

The Engineer will only provide one (1) staking service for establishment of the control points as shown on the Project Plans at the Owner's expense. These marks will be set prior to construction of the project. Any additional staking or re-staking necessary shall be at the Contractor's sole expense and subject to inspection and acceptance by the Engineer prior to continuing any work based on the reset staking. All re-staking of control points shall be performed by a Licensed Land Surveyor in the State of California. The Contractor shall be fully responsible for conformance and agreement of the work with lines and elevations as shown on the Plans.

The Contractor shall be responsible for his own construction layout based on the control points and electronic plans/data set provided by the Engineer (note the Plan set was developed using AutoCAD Civil 3D, from which the applicable electronic information and data set points will be generated). Attention is directed to Professional Requirements, found elsewhere in this section. At a minimum the Contractor will be prepared to set stakes or marks as necessary for the completion of the work shown on the Project Plans and Standard Plans, and specified in these Special Provisions and Standard Specifications, including but not limited to the following:

- Grading and Construction Limits (including temporary fencing)
- Earthwork, Embankments, Slope Grading, Storm Water Basins, Flow Channels
- Storm Drainage Systems, Pipelines, Culverts, Inlets, Manholes
- Curb and Gutter, Roadside Swales, Road Shoulder Treatments
- Roadway / Driveway Patching, Tie-in Pavement Restorations
- Signage, Delineators, and Striping
- Site Stabilization, Revegetation, and Erosion Control Treatments

Re-staking

Control point stakes or reference marks to be provided by the Engineer, as specified herein, will be set one time only. Any re-staking, for whatever reason, will be performed by the Contractor's retained licensed land surveyor at the Contractor's expense. In case any of the control point stakes or reference marks are disturbed, removed, or destroyed, the Contractor shall be liable for the cost of replacement thereof, and such cost may be deducted from payments due the Contractor. The Engineer shall be notified at least five (5) working days in advance.

Property Boundary Stakes/Pins

The Contractor will be working in areas where property boundary markers (stakes, pins, pipes, etc.) are present. It shall be the Contractor's responsibility to protect all of these in place. In the event the Contractors operations disturb, in any manner, any of these markers, the markers shall be reset at the Contractor's sole expense and no additional compensation shall be allowed therefor.

The Construction Staking shall include Right of Way survey staking on parcels every 2-3 parcels in Project areas where the shoulder improvements are within 1' of the Right of Way to avoid encroachment.

Measurement and Payment

"CONSTRUCTION SURVEYING AND STAKING" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract lump sum price paid for the item "CONSTRUCTION SURVEYING AND STAKING" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard

Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

Partial payments for the 'CONSTRUCTION SURVEYING AND STAKING' bid item shall be made as follows:

- The initial 90% of the pay item is eligible for payment based on a percentage of the work completed and accepted by the Engineer at time of a progress payment. An example of this is if the progress payment value is $5,000 and the total bid value is $100,000, 5% of the bid item will be paid.
- The remaining 10% of the payment for CONSTRUCTION SURVEYING AND STAKING will be made in the final payment to the Contractor.

10-1.11 CONSTRUCTION STAGING AND STORAGE AREAS

The staging and storage areas secured by the Owner and allowed for use on the project are identified on the Project Plans. The Contractors use of the designated staging/storage areas shall be limited to and/or controlled by the time allowances and other restrictions as noted on the Project Plans, Project Permits, easements, rights-of-entry, and elsewhere in these Special Provisions, Standard Specifications, and as directed by the Engineer. When the construction staging and storage areas are no longer in use, each area shall be returned, as nearly as possible, to the lines and grades which existed prior to construction.

The Contractor shall take care within the public right-of-way or construction easement areas to cause the least amount of disturbance possible to the existing facilities including, but not limited to existing roadway/pavements, existing utilities, signage, trees, fences, landscaping, slopes, and other existing facilities.

The Contractor shall be responsible for appropriate security and safety measures at all staging/storage areas to protect property and the public in conformance with these Special Provisions, Project Permits, and the Standard Specifications.

Storage of construction materials, supplies, and equipment within the public right-of-way is prohibited, except where identified on the Project Plans or accepted by the Engineer, City, Caltrans, and TRPA. At no time shall materials, supplies, or equipment be stored or stockpiled within twenty (20) feet of a travel lane unless separated by guardrail, concrete barrier rail, or other suitable device accepted by the Engineer. Spoil piles and other excess earthen materials from trenching or other operations shall be removed from the pavement, traveled way, or shoulder as the excavation, backfill, or other work is carried forward, unless specifically accepted by the Engineer.

Setup, use and maintenance of all staging/storage areas shall comply with these Special Provisions, Standard Specifications, and Project Permits while storing or stockpiling materials. During construction operations, if it becomes necessary to temporarily stockpile materials on site, the stockpiling of this material shall not interfere with normal site operations. **No stockpiling of materials shall be allowed for in designated easement areas of the Project**

site. No materials shall be stored on native vegetation. Stockpile management shall be in accordance with the requirements of these Special Provisions, Project Permits, Standard Specifications and all applicable sections of these Special Provisions.

The Contractor shall be responsible for locating staging/storage areas and will need to install all temporary erosion controls and BMPs and maintain them at all times during construction and until project closeout. **The limits of the staging/storage areas shall be reviewed and accepted by the Engineer prior to installation of any fencing and use of area.** All necessary temporary erosion controls and BMPs shall be installed at the staging/storage areas prior to the TRPA Pre-Grade Meeting and will be inspected during said meeting to ensure proper installation and controls are in place.

Should the Contractor require additional staging and storage areas it will be the Contractor's sole responsibility to secure use of these areas with agreements with the individual property owners. The Contractor will be responsible for bearing all costs with legally securing these areas, and restoring the areas, with no additional compensation allowed.

Set-up, use and restoration of all staging and storage areas requires the Contractor to protect all existing infrastructure, utilities (above and below ground/grade), vegetation, pavements, concrete, and surface features (such as, but not limited to, fences, posts, signs, boulders, etc.) in place, except where improvements or other modifications are designated on the Project Plans and specified elsewhere in these Special Provisions. Should the Contractor's operations damage any of these said items, to be protected, the Contractor shall replace, in kind, the damaged or destroyed item at the sole cost to the Contractor. The damage or destruction of any item will be determined by the Engineer during the course of construction or at the final punch list development. In the event the Contractor needs to relocate any item (i.e. signage, fence, irrigation, boulder, etc.) the Contractor shall remove, salvage, and replace the item to its original location. If the relocated item is damaged, as determined by the Engineer, the Contractor will be required to replace the damaged item with an in-kind replacement of equal or better quality. No additional compensation will be allowed for any relocation, or replacement of damaged items, not otherwise specified in these Special Provisions.

The Contractor shall control and contain any trash generated as part of the Construction operations and those of the construction crew. All trash containing any food items created during construction will be properly contained in wildlife-proof containers and removed at the end of each day. No food items will be left overnight on site due to the potential of attracting wildlife.

Measurement and Payment

"TEMPORARY STAGING, CONSTRUCTION ACCESS & PROJECT SIGN" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract lump sum price paid for the item "TEMPORARY STAGING, CONSTRUCTION ACCESS & PROJECT SIGN" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown

on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

Partial payments for the 'TEMPORARY STAGING, CONSTRUCTION ACCESS & PROJECT SIGN' bid item shall be made as follows:

- The initial 90% of the pay item is eligible for payment based on a percentage of the work completed and accepted by the Engineer at time of a progress payment. An example of this is if the progress payment value is $5,000 and the total bid value is $100,000, 5% of the bid item will be paid.
- The remaining 10% of the payment for TEMPORARY STAGING, CONSTRUCTION ACCESS & PROJECT SIGN will be made in the final payment to the Contractor.

10-1.12 PROJECT SIGN

Work under this item shall consist of furnishing all labor, tools, materials, and equipment necessary to furnish and install the project sign(s) in accordance with the Project Plans, Standard Specifications, and these Special Provisions. Attention is directed to Section 82-3, "Roadside Signs" of the Standard Specifications.

Prior to the start of project site work (in accordance with the general Order of Work in Section 10-1.01, "Order of Work and Preconstruction Conference" of these Special Provisions) the Contractor shall install a project sign with the wording and layout shown in the detail on the Project Plans, at the location directed by the Engineer. The sign shall be kept clean and in good repair by the Contractor for the duration of the project.

Upon completion of the work, the sign shall become the property of the Owner. The sign shall remain erect for the duration of construction and be left, after completion of construction, in the condition when first installed. Should the Contractor's operations damage the sign, or any aspect of the sign, as determined by the Engineer, the sign shall be replaced with a new sign at the Contractor's sole expense.

The letter sizes to be used shall be as shown on the project sign detail on the Plans. The information shown on the signs shall be limited to that shown on the Plans.

A copy of the logos referenced in detail will be provided electronically to the Contractor, at the Contractor's request. The logos will be provided in ".jpg" format.

The Contractor shall submit a proof of the sign prior to printing for review and acceptance by the Engineer. The final location of the signs will be confirmed by the Engineer in the field prior to Contractor installation.

Materials

The wood posts shall be 4 inches x 6 inches, No. 2 grade Douglas fir and shall conform to

Section 82-3.02C, "Wood Posts" of the Standard Specifications.

The sign panel shall be 1-inch Crezon, Duraply, or ACX exterior grade plywood.

The sign panel shall be securely fastened to the posts using galvanized 5/8-inch diameter Hex or Carriage head bolts, flat washers (two per post), nut and jam nut. Washers shall be used on bolt heads to prevent pull thru. Bolt heads shall not obscure any lettering. Bolts shall not extend more than two (2) inches from back of post.

Paint
Paint for the project sign shall conform to the provisions of Section 91, "Paint" of the Standard Specifications, and these Special Provisions.

The project sign panel, prior to lettering, shall be painted with two (2) coats off-white latex base paint for exterior wood conforming to Sections 78-4.02, "Painting Timber" of the Standard Specifications. For bare or unpainted wood sign panel, apply one (1) coat of wood primer before white exterior paint.

Wood posts (treated) do not require painting.

Colors, size, and placement of lettering/logos shall be as indicated on the project sign detail. Lettering/logos shall be painted or applied in a manner that is visible for the intended purpose and durable for the duration of the project work.

The finished product shall display good workmanship. Uneven letters/logos or unprofessional appearance shall be cause for rejection.

Measurement and Payment
Project sign(s) as shown on the Project Plans shall be paid under the bid item "TEMPORARY STAGING, CONSTRUCTION ACCESS & PROJECT SIGN" complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract price paid for Project Sign(s) as shown on the Project Plans shall include full compensation for layout, furnishing all sign materials, manufacturing, painting, excavation, concrete, pervious material, backfill, compaction, disposal of waste material, and all other appurtenances as necessary for installing and maintaining each project sign in conformance with the Project Plans, Standard Specifications and these Special Provisions, as directed by the Engineer, and no additional compensation will be allowed therefor.

10-1.13 WATER POLLUTION CONTROL & TEMPORARY BMPS

The Contractor's attention is directed to Sections 10-1.03, "Permits" and 10-1.14, "Air Quality and Watering", of these Special Provisions.

The Contractor shall conform to the provisions of Section 13, "Water Pollution Control", of the Standard Specifications. In lieu of the language in said Section 13, the applicable contract bid items shall include full compensation to provide all water pollution control at any Contractor-support facilities located at the project site, or within the Lake Tahoe Basin, and as shown on the

Project Plans.

Conformance with the requirements of this Section shall in no way relieve the Contractor from his/her responsibilities, as provided in Sections 5, “Control of Work”, and 7, “Legal Relations and Responsibility to the Public”, of the Standard Specifications.

The Contractor shall immediately notify the Engineer by telephone (staff member and contact information will be provided at the Preconstruction meeting) whenever an adverse condition occurs as a result of a discharge. Such a condition includes, but is not limited to, a violation of the conditions of the permits, a significant spill of petroleum products or toxic chemicals, or damage to control facilities that would cause noncompliance.

The Contractor will be required, upon award, to submit detailed information that includes, but is not limited to:

1. Name of General Developer/Contractor’s company.

2. Name, address, and telephone number of the Contractor's Foreman.

3. List of all Contractors and subcontractors associated with project.

4. Emergency contact person and 24-hour phone number.

No work having potential to cause water pollution as determined by the Engineer shall be performed until BMPs are in place and inspected and accepted by the Engineer and all materials required for work are on site.

10-1.13-1.0 GENERAL

Per TRPA Code of Ordinances section 60.4.3.A, project work shall include all necessary Temporary Best Management Practices (BMPs) in accordance with the Handbook of Best Management Practices, and as required in TRPA Code of Ordinances section 33.5. All Temporary BMPs and requirements in Attachment Q shall be implemented on site and maintained through the construction period until winterization is completed.

The TRPA permit has specific requirements covering work to be performed under this contract that potentially impact storm water. The Contractor shall meet the requirements for Best Management Practices, Discharge Specifications and Prohibitions, Provisions, and all agency approval conditions. It shall be the Contractor’s responsibility to become fully informed of the conditions of the TRPA permit and shall conduct his or her construction operations accordingly. The Contractor shall comply with the special conditions contained in the permit.

The Contractor shall be responsible for the cleanup of all asphalt and spoils generated from the project. Cleaning out of any paving equipment by spreading of asphalt concrete spoils on unpaved surfaces is not allowed. Diesel fuel spilled onto unpaved areas shall be documented and cleaned up immediately. Diesel fuel shall not be used as a release agent on this project.

The Contractor shall be responsible for the cleanup of all concrete spoils generated from the

project. Cleaning out of any concrete washout or spoils on the site is not allowed unless completely contained and removed from the site immediately.

The Contractor shall be responsible for installing the water pollution control devices at the existing and proposed outlets of the storm drain.

Conformance with the requirements of this section shall in no way relieve the Contractor from the responsibilities as provided in Section 7-1.05, "Indemnification" and Section 7-1.06 "Insurance" of the Standard Specifications.

In the event the Contractor does not satisfy the Regional Board or TRPA requirements (operations and activities performed or required of the Contractor), it will be the Contractor's sole responsibility to pay all fines, whether issued to the Owner, or Contractor. No additional working days or additional compensation will be granted as a result of failure to satisfy the applicable requirements of the Project Permits and regulatory agencies, the Project Plans, Special Provisions, and Standard Plans and Specifications.

Work under this item shall include planning, assessment, practices, performance, implementation, installation and/or construction of water pollution control practices and temporary best management practices (BMPs) as described in the these special provisions, shown on the Project Plans, directed by the Project Permits, specified in the Standard Specifications, and as otherwise required by the regulatory agencies and Engineer, to prevent, control, and abate water, mud, and erosion damage to public and private property and also manage waste and prevent discharges of pollutants, waste and debris to sensitive areas, the storm drainage system or to watercourses as a result of the construction of this project.

Any repair, replacement, removal, cleanup, and/or disposal of water pollution control practices and temporary BMPs and associated debris or damages, due to the improper installation or negligence of the Contractor shall be the sole responsibility of the Contractor and no additional compensation shall be allowed therefor.

The temporary erosion control plan sheet(s) included as part of the Project Plans (BMP Sheets) are diagrammatic in nature and should be considered for bidding purposes, along with the provisions in these Special Provisions and the Standard Plans and Specifications, as the minimum requirements for this Project. All water pollution controls, temporary BMPs, erosion control devices, and fencing are the responsibility of the Contractor and shall be modified as necessary per progression of the work to reflect each daily active working area in accordance with the Contractors schedule. During the course of the project the Contractor may request changes to the water pollution controls, temporary BMPs, erosion control devices, and fencing; and the Contractor is hereby advised that additional controls, BMPs, devices, and fencing may be required as directed by the regulatory agencies and/or Engineer if the project site is deemed to be out of compliance with any requirements of the Project Permits and these Special Provisions. **Within ten (10) days of Contract award and before construction activities begin the Contractor's program for water pollution control and temporary BMPs shall be submitted to the Engineer for review and acceptance.** The submittal shall include the Contractor's plans for water pollution control and temporary BMPs for all phases of the work (updated BMP plan sheets, which would detail any proposed changes to its main body and attachments including the

dewatering plan, etc. as well as Contractor and subcontractor information, training documentation, responsible parties and operators, suppliers and materials list, and other submittal requirements). In addition, the submittal shall include material specifications for each material, product and BMP device proposed for placement in the work

The Contractor will be required to attend pre-construction, TRPA pre-grade, and progress meetings (weekly construction meetings) where scheduled.

The Contractor's operations shall limit the amount of land disturbance and include the performance/installation of all water pollution, erosion and sediment control practices as necessary to minimize or eliminate the discharge of sediment and other pollutants from the project site. Efforts shall be made to prevent disturbed soil movement by both wind and water, and the protection of all water bodies and other sensitive areas. The Contractor's program for water pollution control and temporary BMPs shall be in conformance with these special provisions, the Standard Specifications, and generally follow the practices in a tiered fashion/order as identified below:

a. Site evaluation and assessment of risks
b. Phasing of work (i.e. staged clearing and grubbing) to minimize areas of disturbance at a given point in time
c. Storm water runoff controls to manage or bypass run-on from undisturbed areas adjacent to or outside the active construction area and project site
d. Soil stabilization using vegetative controls to protect existing vegetation and/or installation of temporary mulching and/or seeding to protect disturbed areas prior to permanent/final revegetation requirements
e. Soil stabilization using structural controls and practices to protect disturbed areas within the project site
f. Storm water runoff controls (i.e. diversions, traps, basins, check dams, outlet protection) to manage on-site waters, and reduce impacts to disturbed areas
g. Sediment controls to capture and trap pollutants to reduce the discharge of sediment and other pollutants from the project site (i.e. silt fence, traps, basins, coir logs, filter fabric)

Water pollution controls and temporary BMPs shall be implemented, functional and maintained until project work is complete and all disturbed areas have been stabilized. This includes stabilization of new revegetation areas and the completion of all applicable facilities, structures and improvements as shown on the Project Plans. Suspension of water pollution controls and final removal of any temporary BMPs requires acceptance of the Engineer, and approval of the applicable permitting agencies.

Upon discovery by the Contractor, Engineer or other of a deficiency in the implementation of the BMP plans and water pollution controls, the deficiency shall be corrected by the Contractor immediately and before precipitation occurs, unless a later date is authorized by the Engineer. The Owner may correct the deficiency and deduct the cost of correcting the deficiency from payment if the Contractor fails to correct the deficiency in a timely manner or before the onset of precipitation.

When no longer required, as determined by the Engineer, temporary BMPs and erosion control devices shall become the property of the Contractor and shall be removed and disposed of, including the retained silt and any trapped solids, in conformance with the provisions in Section 13, "Water Pollution Control", of the Standard Specifications, and these Special Provisions.

Ground disturbance including trenches, holes, depressions, pits, etc. caused by the installation and removal of any temporary BMPs and erosion control devices shall be backfilled, graded, compacted, and repaired using materials equal to or better in quality and to the same thicknesses and comparable density as the surrounding materials. Attention is directed to Section 5-1.36, "Property and Facility Preservation" of the Standard Specifications, and these Special Provisions.

Orange construction fencing may be used in lieu of designated silt fence only on the uphill side of areas to be cleared and grubbed to delineate the limits of disturbance. **Straw and/or hay bales shall not be allowed for temporary erosion control. No sandbags will be permitted as part of this project; gravel bags are the specified product.**

10-1.13-2.0 JOB SITE MANAGEMENT

The Contractor shall implement effective handling, storage, usage, and disposal practices to control material pollution and manage waste and non-stormwater issues at the Project site to prevent said material and waste from contact with storm drain systems and receiving waters. It is the responsibility of the Contractor to conform to the provisions as noted in the Special Provisions and the Standard Specifications to perform job site management, including spill prevention and control, material management and storage, waste management, non-stormwater management, vehicle and equipment cleaning and maintenance, sweeping, and dewatering activities. Attention is directed to these Special Provisions, and Section 13-4, "Job Site Management" of the Standard Specifications.

Sweeping Operations

In order to control dust, sediment, tracking, and the accumulation of other debris on paved and otherwise stable surfaces within the project area, the Contractor shall perform sweeping by hand or mechanical methods such as vacuuming. The use of mechanical kick brooms and other devices which generate excessive dust and are ineffective for sediment pickup are prohibited.

Haul routes within and thru the Project site shall be swept at minimum on a daily basis (at the end of each working day) with a PM 10 efficient vacuum street sweeper(s). Other paved areas within the vicinity of the Project site (i.e. driveways, parking lots, roadways) impacted by the Contractor's operations shall be swept a minimum of weekly (at the end of the work week), or more frequently as directed by the Engineer (if dust, tracking or other events occur). During excavation, backfill and other earthmoving activities the sweeping frequency (multiple times per day) and construction operations shall be modified as necessary to prevent the tracking of any sediment and debris outside the Project limits or onto public streets and other paved surfaces. The Contractor is required to monitor all paved areas and roadways within the Project area. In the event the Contractor's operations cause construction debris, sediment, dust, sand, etc. to accumulate on any paved area or public street beyond what is acceptable to the Engineer, TRPA, or Regional Board, the Contractor will be required to make the necessary adjustments to the sweeping schedule noted above. Where sweeping is not sufficient to control the tracking of

excessive sediment and debris onto public streets and other paved surfaces, the Contractor shall be required to modify their construction operations, including truck haul routes or installation of additional gravel construction entrance/exit pads or installation of a portable tire wash facility where applicable as described in Section 10-1.13 of these Special Provisions (under the subsection for Temporary Construction Entrance). Any such modifications to the Contractors operations or installation of additional tracking control measures shall be the responsibility of the Contractor and no additional compensation shall be allowed therefor.

Excessive accumulation of sediment or other construction debris may require sweeping at spot locations as directed by the Engineer. Additionally, the Contractor will sweep all streets and paved areas impacted by the Contractor's operations prior to forecast or imminent storm events to prevent runoff of construction debris and sediment.

Sweeping operations shall remove collected sediment and debris from paved areas, road shoulders, curbs, and all drainage facilities. Dust shall be kept to a minimum during any sweeping operations. Temporary stockpile of collected material shall be covered and protected from erosive forces (wind, water, or other), and disposal of said material shall be at least once per week in accordance with the Project Permits and these Special Provisions.

10-1.13-3.0 TEMPORARY SOIL STABILIZATION, SEDIMENT CONTROL, AND TRACKING CONTROL

The Contractor shall install materials, facilities and temporary BMP devices used for water pollution control practices before performing any land disturbance construction activities. It is the responsibility of the Contractor to conform to the provisions as noted in the special provisions and Standard Specifications for applying temporary soil stabilization materials, constructing temporary sediment control measures, and limiting and removing sediment and debris tracked onto roadways. Attention is directed to applicable sections of these Special Provisions, and Sections 13-5, "Temporary Soil Stabilization", 13-6, "Temporary Sediment Control", and 13-7, "Temporary Tracking Control" of the Standard Specifications.

All materials and construction methods shall comply with the applicable provisions of these Special Provisions, and to Sections 13, "Water Pollution Control", 21, "Erosion Control", and 96, "Geosynthetics" of the Standard Specifications.

Temporary Soil Stabilization

The Contractor shall install soil stabilization materials for water pollution control in all disturbed work areas that are considered inactive (i.e. excess of 14 days) or before forecast storm events. Should any temporary erosion control of this nature be required elsewhere as directed by the Engineer and/or regulatory agencies, the Contractor shall install within 24 hours of notification. Where applicable and upon acceptance of the Engineer, the Contractor shall furnish and apply/install temporary erosion control blankets, temporary mulch, temporary hydraulic mulch, or temporary covers in conformance with the Standard Specifications and these Special Provisions. Materials and construction methods shall comply with the Standard Specifications and these Special Provisions.

The Contractor shall maintain a temporary cover on all stockpiles at all times. Whenever a temporary cover is removed to perform other work, the temporary cover shall be replaced and

secured within one (1) hour of stopping work.

Compensation for the requirements of this section, not otherwise provided for in a specified bid item, shall be considered included in the general bid item for water pollution control and no additional compensation will be allowed.

Temporary Sediment Control and Linear Sediment Barriers

The Contractor shall install and maintain temporary sediment control and linear sediment barriers including but not limited to silt fence, reinforced silt fence, fiber rolls (sediment log), weighted fiber rolls (weighted coir logs), gravel bag berm, sediment check dams, and drain inlet protection as shown on the Project Plans and Standard Plans, specified in the Project Permits, Standard Specifications, these Special Provisions, and as directed by the Engineer. Materials and construction methods shall comply with the Standard Specifications and these Special Provisions. In addition to the Standard Specifications the following shall apply:

Silt Fences – Reinforced or prefabricated silt fence shall be as shown on the Project Plans and conform to the material and construction specifications in Sections 13, "Water Pollution Control" and 96, "Geosynthetics" of the Standard Specifications and Standard Plans. **The Contractor shall submit a material specification for the silt fence, for acceptance of the Engineer, prior to placement in the work.**

Fiber Roll (sediment log, coir log, etc.) – Fiber roll size shall be as shown on the Project Plans and conform to the material and construction specifications in Section 21, "Erosion Control" of the Standard Specifications and Standard Plans. Fiber rolls shall be prefabricated fiber roll logs or wattles with a rice straw, pine straw, wood excelsior fiber, coconut fiber or other similar filler material, and covered with biodegradable jute, sisal, or coir fiber netting or open weave containment fabric secured tightly at each end. The use of plastic/photodegradable netting shall not be allowed. All materials shall be certified weed free. Its basic purpose is to provide a flexible, lightweight, porous sediment control device demonstrating the ability to conform to terrain details, dissipate water velocity, and capture loose sediment. Installation and maintenance shall follow the manufacturer's recommendations and shall be as shown on the Project Plans and Standard Plans, and as specified in these Special Provisions and Standard Specifications. All fiber rolls shall be properly staked in place, except where its use is intended to be short term (daily operations) or reposition of the fiber roll will occur on a regular basis (i.e., active construction areas, trenching operations and windrows, temporary or active stockpiles, active areas for soil processing/screening operations, spill containment devices, etc.). In such instances where a fiber roll is not staked, it shall be weighted or secured in place using a sufficient number of gravel bags to control the flow of storm water and capture sediment. **The Contractor shall submit a material specification for the fiber roll, for acceptance of the Engineer, prior to placement in the work.**

Weighted Fiber Roll (weighted coir log, travel lane wattle, etc.) – Where indicated on the Project Plans, as directed by the Engineer, or in instances where a standard fiber roll cannot be properly secured in place the Contractor shall furnish a weighted fiber roll, weighted coir log, travel lane wattle or other similar device to control the flow of storm water and capture sediment. The weighted fiber roll/travel lane wattle should be durable, flexible, and designed as a reusable sediment control device for temporary check dams, worksite entry/exit points, travel lanes, paved

surfaces, and other areas subject to traffic impacts. A weighted fiber roll/travel lane wattle shall be prefabricated wattles with similar filler material as a standard fiber roll, a durable containment fabric, and weighted inner core for stabilization. Synthetic netting, high visibility polyester mesh, or other durable containment fabric is accepted for a weighted fiber roll/travel lane wattle. Weighted fiber roll/travel lane wattle shall be at least eight-inch (8") diameter, average non less than four pounds per linear foot (4 lb/lf), and come in standard lengths such as six (6), ten (10), or fifteen (15) feet long. **The Contractor shall submit a material specification for the weighted fiber roll, for acceptance of the Engineer, prior to placement in the work.**

Gravel-filled Bags – Gravel bag berms shall be as shown on the Project Plans and conform to the material and construction specifications in Sections 13, "Water Pollution Control" and 96, "Geosynthetics" of the Standard Specifications and Standard Plans. The gravel bag material shall comply with the Standard Specifications (96-1.02F) and the gravel material must be 3/8 to 3/4 inch open graded, non-cohesive, and washed clean and free from clay, organic matter and other deleterious materials. Prior to installation, the bedding area for a temporary gravel bag berm (or other measures which require gravel bags per the Project Plans, Project Permits, and these Special Provisions) shall be level and firm and cleared of obstructions to provide for a stable foundation. Where applicable gravel bags are to be placed with the ends abutted tightly and not overlapped, and multiple layers staggered at each overlapping joint. **The Contractor shall submit a material specification for the gravel bags, for acceptance of the Engineer, prior to placement in the work.**

Dirtbag (dewater bag) – Use of any 'Dirtbag' or other similar sediment control filter bag device used in coordination with pumping of sediment laden waters for discharge shall be as shown on the Project Plans and details and conform to the provisions of the Project Permits and these special provisions. The 'Dirtbag' shall be a commercially manufactured nonwoven geotextile fabric bag (polypropylene or equivalent) intended for such use, with a minimum grad tensile strength of 200 psi in any principal direction (ASTM D4632), and permittivity of 0.05 sec (ASTM D4491). For project area soils (source of sediment in waters) with more than 15% by weight passing a No. 200 sieve the fabric shall have an apparent opening size between 50 and 140, and for project area soils (source of sediment in waters) with less than 15% by weight passing a No. 200 sieve the fabric shall have an apparent opening size between 20 and 50. The geotextile fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide an expected usable life comparable to the anticipated construction period; ultraviolet stability shall exceed 70% after 500 hours of exposure (ASTM D4355). The 'Dirtbag' device shall have a fill spout large enough to accommodate a pump four (4) inch discharge hose and attachment straps to secure the hose in place. The Dirtbag' device shall be sized to accommodate the applicable flow rates and prohibit release of the target effluent. Location of any 'Dirtbag' device requires acceptance of the Engineer, equipment access for removal and off-site disposal, and the area shall be stable to prevent erosion. Placement of drain rock, fabric, or other suitable substance to create a stable discharge site is the responsibility of the Contractor. Any 'Dirtbag' device shall be fitted with straps strong enough for lifting and the device removed from the Project site and properly disposed of; **cutting open the device and leaving the captured sediment/fines in place is prohibited**. Removal and off-site disposal may be facilitated by placing the 'Dirtbag' device on pallets, crates, trailer, or some other small mobile device to dismiss the need for lifting the 'Dirtbag' device by straps. **The Contractor shall submit a material specification for the**

'Dirtbag' device, for acceptance of the Engineer, prior to placement in the work.

Compensation for the requirements of this section, not otherwise provided for in a specified bid item, shall be considered included in the general bid item for water pollution control and no additional compensation will be allowed.

Temporary Construction Entrance

Gravel construction entrance/exit pads shall be constructed for each phase of the work at each entrance and exit access road onto the project site as shown on the Project Plans and specified in these Special Provisions and the Standard Specifications (13-7). Work under this item shall consist of clearing and grubbing, excavation, furnishing and placing slope protection fabric, furnishing and placing rock at each entrance/exit access road, maintenance (i.e. removal of large quantities of captured sediment, and/or placement of additional rock during course of construction), removal, disposal of excess materials, and restoration of disturbed area.

Fabric to be used for the temporary construction entrance shall be Class 8 rock slope protection fabric (RSP) in conformance with Section 96-1.02I, "Rock Slope Protection Fabric" of the Standard Specifications. Overlap the sides and ends of the fabric by at least twelve (12) inches. Rock for a Type I temporary construction entrance shall be angular to sub-angular in shape, durable for its intended purpose and conform to the requirements for Type A rock in Section 13-7.03B(2), "Rock" of the Standard Specifications.

Each gravel construction entrance/exit shall be of adequate size to minimize the generation of dust and prevent the tracking of soil and sediment onto any roadway or public right-of-way. At a minimum the size of each gravel construction entrance/exit shall be twelve (12) inches thick, twenty (20) feet wide and fifty (50) feet long.

Each gravel construction entrance/exit shall be maintained for the duration of the project to control the displacement or migration of the rock surfacing and the buildup of captured sediment. Any significant depressions, rutting, or other displacement shall be repaired upon discovery and additional rock shall be added as necessary.

In areas where existing pavement and space limitations restrict the use of a gravel construction entrance/exit (and tracking of sediment is likely to occur and/or the potential for sediment discharge is high and sweeping operations may not be sufficient to control the tracking of excessive sediment and debris); where directed by the Engineer the Contractor is required to install and make use of a portable tire wash facility capable of preventing the tracking of sediment and other debris off-site and onto any public roadways. The requirement for the installation of the tire wash facility will only occur in the event the Contractor cannot control tracking of sediment from the work area as determined by the Engineer and/or the regulatory agencies. The portable tire wash facility shall be of sufficient size to accommodate the Contractors equipment and trucks to be used on the Project. The Contractor shall submit an equipment list and work plan to the Engineer for review and acceptance prior to installation and use of a portable tire wash facility. Use of a portable tire wash facility shall conform to Section 13 "Water Pollution Control" of the Standard Specifications (attention is directed to 13-4.03E(3) Vehicle and Equipment Cleaning). Discharge liquids and waste from the operation of the portable tire wash facility must be contained, recycled, and properly disposed of in order to

prevent a discharge from the Project or be cause for violation of the Project Permits. Installation of a portable tire wash facility, where sweeping operations are not sufficient and deemed ineffective by the Engineer or regulatory agencies, shall be the responsibility of the Contractor and no additional compensation will be allowed therefor.

While tracking control facilities are in use, pavement shall be swept, cleaned and sediment removed at least once a day and as often as necessary when directed by the Engineer. Soil and sediment or other extraneous material tracked onto existing pavement shall not be allowed to enter any existing or proposed drainage facilities. In the event the Contractor's operations are causing excessive tracking of materials the Engineer may direct the Contractor to replace the gravel construction entrance/exit, expand the size (area – length and/or width) of the gravel construction entrance/exit, expand the depth of the gravel construction entrance/exit, and/or modify any as directed tire wash facility. In the event this is required the Contractor will not be entitled to any additional payment.

The relocation of any temporary construction entrance/exit (already installed) or as directed portable tire wash facility for performance of the Contractors operations shall be at his/her sole expense and no additional compensation shall be allowed therefor.

When no longer required as shown on the Project Plans or as determined by the Engineer, each tracking control facility shall become the property of the Contractor and be removed and disposed of in conformance with the Contract Documents, Standard Specifications, and these Special Provisions. Under no circumstance shall any of the materials used for gravel construction entrance/exit be re-used on the project. All areas disturbed by the placement and use of each gravel construction entrance/exit shall be graded and restored to its pre-existing condition, including any provisions for revegetation found elsewhere in these Special Provisions.

10-1.13-4.0 TEMPORARY CONCRETE WASHOUTS

Attention is directed to Section 10-1.16, "Concrete Washout Facility" of these Special Provisions.

10-1.13-5.0 GENERAL MAINTENANCE

All water pollution controls, temporary BMPs, and erosion control devices shall be functional and properly maintained for the duration of the Project work. In addition to the requirements as noted on the Project Plans and Standard Plans, and found in the Project Permits, Special Provisions, and Standard Specifications the Contractor shall meet the following provisions:

- All water pollution controls, temporary BMPs, erosion control devices, and fencing shall be inspected routinely. Any required repairs shall be made immediately upon discovery.
- Damage to any water pollution controls, temporary BMPs, erosion control devices, and fencing during the course of the project shall be repaired by the Contractor immediately upon discovery and at his/her expense.
- Construction equipment must be monitored for leaks and repaired and/or removed from service if necessary to protect water quality.

- Construction limit and tree protection fencing shall be inspected daily and repaired, secured, and/or replaced as necessary to maintain and preserve its intended purpose.
- Should silt fence fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
- Should a fiber roll decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fiber roll shall be replaced promptly.
- Any single or group of gravel bag(s) shall be replaced when the bag material is ruptured or when the yarn has failed, allowing the bag contents to spill out.
- Any stakes and/or rope used to secure a fiber roll in place shall be routinely inspected and repaired as necessary if found to be loose or ineffective.
- Damage to any temporary gravel bag berm (or other measures which require gravel bags per the Project Plans, Project Permits, and these Special Provisions) shall be repaired or replaced on the same day when the damage occurs or is discovered.
- Sediment deposits and other debris shall be removed when they reach approximately one-third the height of the sediment barrier (or as recommended by the Manufacture) and disposed of in accordance with the Project Permits, Standard Specifications, and these Special Provisions, and as directed by the Engineer.
- Any sediment deposits remaining in place after the water pollution controls, temporary BMPs, and/or erosion control devices are no longer required shall be removed and disposed of in accordance with the Project Permits, Standard Specifications, and these Special Provisions, and as directed by the Engineer.
- Ground disturbance including trenches, holes, depressions, pits, etc. caused by the installation and removal of any water pollution controls, temporary BMPs, and/or erosion control devices shall be backfilled, graded, compacted, and repaired using materials equal to or better in quality and to the same thicknesses and comparable density as the surrounding materials.
- All areas disturbed by the installation and removal of any water pollution controls, temporary BMPs, and/or erosion control devices shall be stabilized and revegetated in conformance with the Project Permits, Standard Specifications, and these Special Provisions, and as directed by the Engineer.

10-1.13-6.0 PROJECT SITE STABILIZATION & MAINTENANCE

The project site (as a whole or portion where applicable) shall be stabilized and maintained in accordance with the Project Permits, and all Regional Board and TRPA requirements for the duration of any downtime (in excess of 14 days) a. The Contractor shall take measures to perform all water pollution control measures (Standard Specifications, Section 13), maintain a safe project site, and stabilize all disturbed areas in conformance with the Standard Specifications and these Special Provisions.

Compensation for the requirements of this section, not otherwise provided for in a specified bid item, shall be considered as included in the general bid item for water pollution control and no additional compensation will be allowed.

All disturbed areas that have not received designated revegetation treatments or stabilization measures (per the Plans and Special Provisions) prior to the occurrence of any downtime (in

excess of 14 days), shall be stabilized using temporary soil stabilization methods as noted in the Standard Specifications (Section 13-5) such as erosion control blankets, wood/pine needle mulch, and hydraulic mulch. Per the TRPA permit, any wood/pine needle mulch temporary soil stabilization measure shall be no less than three (3) inches depth of cover. Any temporary soil stabilization shall be maintained for the duration of the subject downtime or winter season, to provide for sufficient cover of the disturbed area including any reapplications (regardless of the number of times) in order to maintain compliance with the Project Permits. All necessary temporary soil stabilization methods shall be proposed by the Contractor for acceptance by the Engineer prior to performance of said work.

10-1.13-7.0 MEASUREMENT AND PAYMENT

Additional practices, controls, and BMPs may be required as directed by the regulatory agencies and/or Engineer if the project site is deemed to be out of compliance with any requirements of the Project Permits and these Special Provisions. If any additional practices, controls, or BMPs are required as so indicated above due to negligence by the Contractor and/or any disturbance outside of the grading limits as shown on the Project Plans, no separate payment to the Contractor shall be allowed therefor.

Any fiber rolls (standard or weighted) or other similar sediment control device required or used in the work on a short term basis (daily operations) that are not permanently staked/secured in place and/or are anticipated to be moved on a daily or routine basis (such as areas immediately adjacent to trench excavations, temporary daily stockpiles, active areas for soil processing/ screening operations, spill containment devices, etc.) shall be considered as included in the general bid item for water pollution control and no additional compensation will be allowed.

"TEMPORARY EROSION, WATER POLLUTION, DUST CONTROLS & BMPs" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract lump sum price paid for the item "TEMPORARY EROSION, WATER POLLUTION, DUST CONTROLS & BMPs" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the provisions of this Section, not otherwise provided for in select bid items, complete and/or in place as shown on the Project Plans and Standard Plans, as specified in the Project Permits, Standard Specifications, these Special Provisions, and as otherwise required and directed by the Regional Board, TRPA, other regulatory agencies, and/or the Engineer.

Partial payments for the "TEMPORARY EROSION, WATER POLLUTION, DUST CONTROLS & BMPs" bid item shall be made as follows:

- The initial 90% of the pay item is eligible for payment based on a percentage of the work completed and accepted by the Engineer at time of a progress payment. An example of this is if the progress payment value is $5,000 and the total bid value is $100,000, 5% of the bid item will be paid.

- The remaining 10% of the payment for TEMPORARY EROSION, WATER POLLUTION, DUST CONTROLS & BMPs will be made in the final payment to the Contractor.

10-1.14 AIR QUALITY & WATERING

Air pollution control shall conform to the provisions in Section 14-9, "Air Quality", of the Standard Specifications, including all local, regional, state, and federal regulations. Watering for proper construction of the improvements and/or dust control shall conform to the provisions in Section 10-6, "Watering", of the Standard Specifications, the Project Permits, and these Special Provisions.

Dust control shall conform to the provisions in Section 14-11.04, "Dust Control", of the Standard Specifications, the Project Permits, local regulations, and these Special Provisions. In addition, dust control operations shall conform to the provisions in TRPA Best Management Practices Handbook.

All work and Contractor operations shall conform to the applicable provisions of the El Dorado County Air Quality Management District (EDCAQMD - Rules 223, 223-1 and 223-2) and Best Management Practices noted therein. Upon request of EDCAQMD, the Contractor shall provide a Fugitive Dust Control Plan (see Section 223-1.5). Website link to EDCAQMD is: http://www.arb.ca.gov/drdb/ed/cur.htm

The Contractors operations shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, such that the presence of such fugitive dust remains visible, or exceed shade darker as that designated as No. 0 on the Ringelmann Chart, or exceed 0% opacity as determined in accordance with US EPA Method 9, in the atmosphere at 50 feet from the point-of-origin and/or beyond the boundary line of the emission source. Visible emissions shall not exceed the shade designated as No. 1 on the Ringelmann Chart, or exceed 20% opacity as determined in accordance with US EPA Method 9 at the point-of-origin. **When sustained wind speeds result in visible dust emissions in excess of the standards noted above, despite the application of dust mitigation measures, grading and earthmoving operations except water trucks shall be suspended.**

No chemical additives, binder, or dust palliative shall be permitted for any watering/dust controls operations without prior written acceptance of the Engineer.

The Contractor is responsible for the control of dust due to his/her operations. In conditions where earthen material or other debris is tracked off-site, the Contractor shall sweep, clean, and provide dust control measures on all impacted public/private roads and travel ways. The control of dust caused by public traffic, as result of the Contractor's operations or negligence, shall not be considered change order work.

The Contractor shall be responsible to obtain any permit, license, agreement, certification, or any combination of these, and pay all associated fees in order to develop a suitable water supply for construction operations. It should be expected that any connection to a potable water service will require a certified (annually) reducing pressure backflow device and meter. The contact information for the local water purveyor is noted below:

South Tahoe Public Utility District
1275 Meadow Crest Drive
South Lake Tahoe, CA 96150
Phone: (530) 544-6474

All work and Contractor operations shall conform to the applicable provisions of the California Code of Regulations (CCR) Titles 13 and 17 for regulations of the California EPA Air Resources Board (CARB) in addition to the following: [1] Grid power will be used instead of diesel/gas generators where it is feasible to connect to grid power (generally contingent on power line proximity, capacity, and accessibility). [2] Conform to CCR Title 13 Sections 2480 and 2485; which in effect (excluding noted exemptions therein) limits the idling of all diesel-fueled school buses or commercial motor vehicles (vehicle or combination of vehicles weighing over 10,000 pounds, both California- and non-California-based trucks) to no more than 30 seconds at a school or at any location within 100 feet of a school, and to no more than 5 minutes at any location greater than 100 feet from a school. Also, the use of diesel auxiliary power systems (APS) and main engines will be limited to no more than 5 minutes when within 100 feet of individual or multifamily housing units while the driver is sleeping or resting. [3] Conform to CCR Title 17 Section 93115 "Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines," which specifies fuel and fuel additive requirements and emission standards to reduce diesel particulate matter (PM) and criteria pollutant emissions, for operation of stationary diesel-fueled CI engines with a rated brake horsepower greater than 50 (>50 bhp). [4] A schedule of low-emissions tune-ups will be developed, and such tune-ups will be performed on all off-road equipment and on-road vehicles, particularly haul and delivery trucks. Low-sulfur (≤15 ppmw S) diesel fuels will be used in all stationary and mobile equipment.

The Contractor is expected to: maintain all construction equipment in proper working condition according to manufacturer's specifications; use the proper size of equipment for the job; and make use equipment with new technologies where available and feasible (e.g., repowered engines, electric drive trains). If grid power is not available or cannot be safely connected to the site, use clean fuel generators rather than temporary diesel-powered generators. If such sources or generators are not available, low-sulfur fuel is to be used for diesel-powered generators. CARB-approved diesel fuel will be used for diesel-powered equipment.

Measurement and Payment
Air quality, dust controls and watering shall be paid under the bid item "TEMPORARY EROSION, WATER POLLUTION, DUST CONTROLS & BMPs" complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract price paid for air quality, dust controls and watering shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.15 TEMPORARY FENCING

Temporary fencing (construction limit fence (CLF) and chain link fence) shall be furnished, constructed, maintained, and later removed as shown on the Project Plans, directed in the Project Permits, specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, including but not limited to the following: active and completed construction areas as work is progressing to ensure public safety; active for trees and vegetation requiring protection; around areas not to be disturbed including grading and construction limits of disturbance; staging and storage areas; and stockpiled earthen materials, tools, equipment, and other miscellaneous items. Temporary fencing activities will generally conform to the staging and storage areas and construction zones (as identified on the Plans).

Temporary chain link fencing is required to be set-up by the Contractor around staging/storage for control of access and public safety. It is the responsibility of the Contractor to protect public safety and maintain emergency, business, and private residential access, for the duration of the project. All temporary fencing and other protective devices for the protection of vegetation shall be in place prior to the start of any clearing and grubbing operations.

The temporary fencing and other protective devices shall be checked regularly to see that they are in place and functioning as intended; the Contractor shall repair or replace any temporary fence and other protective device immediately upon discovery. Temporary fencing that is damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at the Contractor's expense.

All temporary fencing shall conform to the specifications for fencing of similar character as provided in Section 80, "Fences", of the Standard Specifications, and as specified on the Project Plans, and these Special Provisions. Temporary fencing shall be installed to have a minimum height of 48 inches or as designated on the Project Plans. Materials shall be of commercial quality providing the dimensions and sizes of the materials are equal to, or greater than, the dimensions and sizes shown on the Project Plans or as specified herein. Temporary fencing shown on the Project Plans as "Chain Link Construction Limit Fence" shall be in accordance with Section 80, "Fences", of the Standard Specifications.

Allowable materials for temporary fencing will be Tensar Orange Safety Fence, Pearlweave Safety Netting, or an accepted equal. Posts shall be metal, or wood only where acceptable to the Engineer. The following is not required for temporary fencing: galvanizing or painting of steel elements; treating wood with a wood preservative; or concrete footings for metal posts. Used materials may be installed providing the used materials are good, sound, and are suitable for the purpose intended, as determined by the Engineer. **The exposed end of all metal posts shall have an orange or red safety cap securely attached.**

All existing trees, shrubs, and other vegetation identified to be protected or located outside the areas to be cleared and grubbed, shall be protected from injury or damage resulting from the Contractor's operations. To ensure the survival of desirable trees and other vegetation within the project limits, the Contractor shall clearly mark these areas with TRPA approved soil and vegetation protection (temporary fencing and other devices) and instruct all construction site personnel to use extra care when operating equipment near the protected areas. Heavy equipment shall not be parked or operated inside the dripline of tree branches. No fill material

shall be placed next to a tree trunk or vegetation that is to be saved. The Contractor shall conform to protection methods described in the TRPA Best Management Practices Handbook. Soil and vegetation protection shall be in strict accordance with the TRPA permit, and Regional Board General Construction Permit. Temporary fencing and other protective devices shall be installed as shown on the Project Plans (including grading limits or limits of disturbance) and as directed by the Engineer. All trees within the limits of disturbance that are not marked for removal that cannot be adequately protected by temporary fencing will be protected by 2-inch x 4-inch x 6-foot wood batter boards placed vertically around the entire circumference of each tree trunk and temporarily fastened with cable or rope in a manner that does not damage the tree.

When no longer required for the work as determined by the Engineer, temporary fencing shall be removed. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work, except as otherwise provided in this Section.

Ground disturbance including trenches, holes, depressions, pits, etc. caused by the installation and removal of any temporary fencing shall be backfilled, graded, compacted, and repaired using materials equal to or better in quality and to the same thicknesses and comparable density as the surrounding materials. Attention is directed to Section 5-1.36, "Property and Facility Preservation" of the Standard Specifications, and these Special Provisions.

Construction limit fence and chain link fence as identified on the Project Plans will likely require installation, removal, relocation, and re-installation on multiple occasions as the work progresses and to accommodate changing work zones of the project site. The quantity measurement for the subject fence bid items is intended to be performed for its initial/first installation and each subsequent 'qualifying' installation in order to calculate an aggregate total (i.e. the quantity of fencing for each qualifying installation will be measured for payment as part of the subject bid item). In order for a (construction limit or temporary chain link) fence installation to 'qualify' for payment it must be accepted by the Engineer and considered necessary for completion of the work. Qualifying factors include but are not limited to: complete take-down and removal of the subject fence materials for transfer to a subsequent construction zone, removal and re-installation as specifically directed by the Engineer, and all fencing materials maintained in good and sound condition for the intended purpose. Fencing materials may be used for multiple installations but any torn, broken, damaged or un-useable components shall be replaced with new materials. Any minor modifications to temporary fencing shall not be considered for payment including but not limited to: changes to gates, entry points and other adjustments to the fencing to accommodate daily work operations and movement of equipment; minor changes or adjustments to the fencing within an established/active construction zone for traffic control and other public safety needs; daily adjustments to fencing within an established/active construction zone for trenching operations; changes or adjustments to fencing to accommodate stockpile management and other daily operations within an established staging and storage area; changes to the fencing required due to failure to conform to the Plans and Specifications or negligence of the Contractor; and any other adjustments or changes deemed non-qualifying by the Engineer.

Measurement and Payment

"TEMPORARY BARRIERS, FENCING, AND VEGETATION PROTECTION" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the temporary fence, complete in place, as described in this section including but not limited to submittals, layout, installation, maintenance, fencing, posts, supports, gravel bags, wood batten around trees, excavation, backfill, compaction, grading, restoration of disturbed areas, disposal of materials, and any other appurtenances, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per linear foot for every linear foot of temporary fence constructed and accepted by the Engineer under the bid items "TEMPORARY BARRIERS, FENCING, AND VEGETATION PROTECTION" and no additional compensation will be allowed.

Partial payments for the "TEMPORARY BARRIERS, FENCING, AND VEGETATION PROTECTION" bid item shall be made as follows:

- The initial 90% of the pay item is eligible for payment based on a percentage of the work completed and accepted by the Engineer at time of a progress payment. An example of this is if the progress payment value is $5,000 and the total bid value is $100,000, 5% of the bid item will be paid.
- The remaining 10% of the payment for TEMPORARY BARRIERS, FENCING, AND VEGETATION PROTECTION will be made in the final payment to the Contractor.

10-1.16 CONCRETE WASHOUT FACILITY

Temporary concrete washout facilities shall be constructed, maintained, and later removed in conformance with Section 13-9, "Temporary Concrete Washouts" of the Standard Specifications, these Special Provisions, and in conformance with details shown on the Project Plans, Standard Plans (T59), and as directed by the Engineer.

When a temporary concrete washout facility is no longer required for the work, as determined by the Engineer, the hardened concrete and liquid residue shall be removed and disposed of at a facility or plant licensed to receive solid concrete waste, liquid concrete waste, or both. The temporary concrete washout facility shall become the property of the Contractor and all materials associated with it shall be disposed of in conformance with the Standard Specifications, the Project Permits, and these Special Provisions.

Ground disturbance including trenches, holes, depressions, pits, etc. caused by the installation, use and removal of any temporary concrete washout facility shall be backfilled, graded, compacted, and repaired using materials equal to or better in quality and to the same thicknesses and comparable density as the surrounding materials. Attention is directed to Section 5-1.36, "Property and Facility Preservation" of the Standard Specifications, and these Special Provisions.

Details for an alternative temporary concrete washout facility shall be submitted to the Engineer for acceptance at least seven (7) days prior to installation.

Materials

A. Plastic Liner

Plastic liner shall be single ply, new polyethylene sheeting, a minimum of 10 mils thick, and shall be free of holes, punctures, tears, or other defects that compromise the impermeability of the material. Plastic liner shall not have seams or overlapping joints.

B. Permeable Material
Permeable material shall be Class 1, Type A as specified in Section 68-2.02F, "Permeable Material" of the Standard Specifications.

C. Fiber Roll
Fiber Roll (Sediment Log) shall be as specified in Section 10-1.13, "Water Pollution Control & Temporary BMPs", of these Special Provisions.

D. Gravel Bags
Gravel bags shall as specified in Section 10-1.13, "Water Pollution Control & Temporary BMPs", of these Special Provisions.

E. Stakes
Stakes shall be wood or metal, and a minimum four (4) feet in length. Wood stakes shall be untreated fir, redwood, cedar, or pine; cut from sound timber; and shall be straight and free from loose or unsound knots and other defects which would render them unfit for the purpose intended. Wood stakes shall be minimum one (1) inch x two (2) inches in size. Metal stakes shall be made of steel, weigh at least 0.75 pound per foot, and have a T-shaped, U-shaped or other cross-sectional shape. The tops of the metal stakes shall be capped with an orange or red plastic safety cap that fits snugly to the metal stake.

Installation

The temporary concrete washout facility shall be installed as shown on the Plans and as follows:

A. The temporary concrete washout facility shall be installed prior to beginning placement of concrete and located a minimum of 50 (fifty) feet away from storm drain inlets, open drainage facilities, and water courses unless determined infeasible by the Engineer. The facility shall be located away from construction traffic or direct access to the staging and storage area.
B. The temporary concrete washout facility shall be constructed in sufficient size to contain liquid and concrete waste generated by washout operations for concrete wastes. The facility shall be constructed to contain liquid and concrete waste without seepage, spillage, or overflow.
C. The depressed area or pit shall be covered with a plastic liner in order to protect the underlying soils from contamination.
D. The plastic liner may be held in place using sediment logs, gravel bags, or berms constructed from compacted native materials.

Maintenance

The temporary concrete washout facility shall be maintained to provide adequate holding capacity with a minimum freeboard of six (6) inches. Holes, rips, and voids in the plastic liner shall be patched and repaired by taping, or the plastic liner shall be replaced. Plastic liner shall

be replaced when patches or repairs compromise the impermeability of the material as determined by the Engineer. Maintaining the temporary concrete washout facility shall include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials shall be removed and disposed of in conformance with the provisions of the Standard Specifications, Project Permits, and these Special Provisions.

The temporary concrete washout facility shall be repaired or replaced on the same day when the damage occurs. Damage to the temporary concrete washout facility resulting from the Contractor's vehicles, equipment, or operations shall be repaired at the Contractor's expense.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.17 TRAFFIC CONTROL

Attention is directed to Sections 7, "Legal Relations and Responsibility to the Public" and 12, "Temporary Traffic Control" of the Standard Specifications, and other applicable sections of these Special Provisions. Nothing in these Special Provisions shall be construed as relieving the Contractor from their responsibility as provided in said Section 7.

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

The Contractor shall notify local authorities of their intent to begin work at least five (5) days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make their own arrangements relative to keeping the working area clear of parked vehicles. The Contractor is responsible for notification of emergency services prior to any road closure.

The Contractor shall take special care and consideration for the Contractors vehicular movement and construction equipment movement throughout the entire Project area at all times. All Project-related vehicles (Contractor's vehicles and equipment and Contractor's employee and subcontractor vehicles and equipment) will adhere to a maximum speed limit of 15 miles per hour (mph) on all dirt or unpaved road travel and will adhere to the speed limits on all paved roads to minimize any potential of striking a special-status mammal species.

Traffic Control Plan
The traffic control plan for controlling the traffic (pedestrian, bike and vehicle) and parking, including detours and road closures on roadways, state highways, applicable bikeways, pedestrian facilities, parking lots, and other private property in conjunction with the work shall be submitted by the Contractor. The traffic control plan shall be consistent with all specific site conditions and work conditions for this project and shall conform to the requirements of all

Encroachment Permits, the Project Plans, the Standard Specifications, the Standard Plans, these Special Provisions, the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) latest edition, and California Manual on Uniform Traffic Control Devices (California MUTCD) latest edition. The traffic control plan shall be prepared and certified/ stamped (*include license, registration, or certification number of certifying person*) by Civil Engineer or Professional Traffic Operations Engineer (PTOE) licensed to practice engineering in the State of California, or an ATSSA certified Work Site Traffic Supervisor. The plan shall be submitted to the Engineer for review and acceptance prior to any traffic control being performed for any aspect of the project. The traffic control plan shall take into account provisions for any potholing work, utility relocations, or other support work that may need to occur as part of the project work.

Contractor shall submit three (3) copies of a proposed traffic control plan to the Engineer for review and comments no later than five (5) working days prior the pre-construction conference. Construction shall not begin until the traffic control plan has been reviewed and accepted by the Engineer. The Contractor shall allow up to ten (10) working days for the Engineer's review. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the traffic control plan within five (5) calendar days of receipt of the Engineer's comments and shall allow five (5) working days for the Engineer to review the revisions; and if the Contractor proposes to modify portions of the traffic control plan applicable for work in the Caltrans right-of-way the Contractor shall allow thirty (30) working days for the Engineer's review. Upon acceptance of the traffic control plan by the Engineer, three (3) copies of the final traffic control plan, incorporating all the revisions, shall be submitted to the Engineer. Failure to submit an acceptable traffic control plan shall not in any way delay the start of the Contract working days. The site-specific Traffic Control Plan shall be prepared and certified/ stamped (include license, registration, or certification number of certifying person) by a Civil Engineer or Professional Traffic Operations Engineer (PTOE) licensed to practice engineering in the State of California, or an ATSSA certified Work Site Traffic Supervisor. If the Contractor makes significant changes to the accepted Traffic Control Plan during the course of the project, these changes must also be prepared and certified by a licensed/certified person as identified above.

The Contractor shall not proceed with any construction until proper traffic control has been accepted by the Engineer. Failure to comply with any specification herein or with direction from the Engineer may result in stoppage of the work until compliance is restored.

Any lost days due to improper traffic control will be charged against the Contractor's allowable working days.

The Contractor's traffic control plan shall include and detail all proposed provisions, temporary signage, fencing, ADA access compliance, ramps, crossings, and all other materials and planned Contractor operations, as necessary to provide safe access and clearly delineate safe routes for all pedestrian and bicycle access throughout the project site, including areas within and adjacent to the public right-of-way and other private property areas that are impacted by the project work in accordance with Section 10-1.18, "Maintaining Traffic", of these Special Provisions, and the Standard Specifications.

All provisions required by the Contractor for compliance with these requirements for pedestrian and bicycle access shall be considered as included with the "Traffic Control" bid item and no additional compensation shall be allowed therefor.

The traffic control plan shall include preparation of a plan for the work to be performed within the project limits including, but not limited to, all flagging, signs, portable message signs, barricades, temporary striping, cones, pedestrian access facilities, and other incidentals associated with completion of the Contract items and construction of the project improvements.

Acceptance by the Engineer of the submitted traffic control plan shall in no way relieve the Contractor of his/her responsibility for any and all safety requirements conforming to the Standard Specifications, these Special Provisions, or others of any public authority having jurisdiction for the safety of persons and property or to protect them from damage, injury or loss.

The adjustment provisions in Section 4-1.05, "Changes and Extra Work", of the Standard Specifications shall not apply to the item of traffic control. Adjustments in compensation for traffic control will be made only for increased or decreased traffic control required by Contract changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. Adjustments will be made on a force account basis as provided in Section 9-1.04, "Force Account" of the Standard Specifications for increased work and estimated on the same basis in the case of decreased work.

Measurement and Payment

"TEMPORARY TRAFFIC CONTROL" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract lump sum price paid for the item "TEMPORARY TRAFFIC CONTROL" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals to develop a traffic control plan, place all signage and traffic control devices, and to perform all traffic control required to complete the Contract items, in accordance with the Contractor's submitted and accepted Traffic Control Plan, the Project Plans, and as specified in the Standard Specifications, these Special Provisions, encroachment permits, and all other agency requirements for traffic control.

Partial payments for the 'TEMPORARY TRAFFIC CONTROL' bid item shall be made as follows:

- The initial 90% of the pay item is eligible for payment based on a percentage of the work completed and accepted by the Engineer at time of a progress payment. An example of this is if the progress payment value is $5,000 and the total bid value is $100,000, 5% of the bid item will be paid.
- The remaining 10% of the payment for TEMPORARY TRAFFIC CONTROL will be made in the final payment to the Contractor.

Traffic Control Fee:

Should the Contractor fail to provide adequate traffic control or other temporary traffic control

systems and devices, and in the event a responsible individual cannot be located or refuses to perform, the Owner will, at its option, place needed devices and/or engage a private firm to provide traffic control and/or place and maintain said systems and devices. All costs incurred by the Owner, including labor and material together with the cost and expense of any repairs as may be deemed necessary, shall be borne by the Contractor. If a private firm is engaged, all charges will be directly billed to the Contractor, plus fifteen percent (15%).

10-1.18 MAINTAINING TRAFFIC

Attention is directed to Sections 7, "Legal Relations and Responsibility to the Public" and 12, "Temporary Traffic Control" of the Standard Specifications, and other applicable sections of these Special Provisions. Nothing in these Special Provisions shall be construed as relieving the Contractor from their responsibility as provided in said Section 7.

During construction, temporary parking shall be provided by the Contractor for construction personnel within staging areas. No on-street parking shall be allowed.

In the event the Contractor's operations impact the existing bus/transit stops within the project area the Contractor shall provide for a temporary bus/transit stops to address the potential temporary loss of the bus/transit stops. The Contractor shall coordinate with BlueGO on the acceptable temporary bus stop and provide all of the required signage and notifications required by BlueGO.

The full width of the traveled way and all business/residence driveway accesses and parking shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays, after 12:00 noon on Fridays and the day preceding designated legal holidays; except as described in the Contractor's accepted traffic control plan, as stated in Section 10-1.08, "Cooperation" of these Special Provisions, and approval of the Engineer.

The City's designated legal holidays are: New Year's Day - January 1st; Martin Luther King, Jr Day - third Monday in January; Presidents' Day - third Monday in February; Memorial Day - last Monday in May; Independence Day - July 4th; Labor Day - first Monday in September; Columbus Day - second Monday in October; Veterans Day - November 11th; Thanksgiving Day - fourth Thursday in November; Christmas Day - December 25th. When a designated legal holiday falls on a Saturday, the preceding Friday shall be the designated holiday. When a designated legal holiday falls on a Sunday, the following Monday shall be the designated holiday.

Pedestrian and bicycle access and facilities shall be provided through the project area and be clearly described in the Contractor's traffic control plan. At all times the Contractor is required to make provisions for and safely provide emergency, business, residential, bicycle, and pedestrian access through the project area or along a designated access facility.

Access to driveways and parking lots within the project area shall be maintained at all times during the course of construction, unless otherwise noted in the Contractor's accepted traffic control plan. Access to driveways, parking lots, and other public/private points of access within the project area shall be detailed in the Contractor's traffic control plan for review and acceptance by the Engineer.

Closures for traffic lane(s), roadway, driveways, parking lots, and other public/private points of access shall conform to the applicable provisions of Section 12-4, "Maintaining Traffic" of the Standard Specifications, and these Special Provisions. Attention is directed to Section 10-1.19, "Temporary Traffic Control Systems" of these Special Provisions for additional information on temporary traffic control equipment and devices.

Lane closures will be limited to construction work hours only and no lane closures will be allowed over weekends, holidays, or nights (between 6 PM and 8 AM), except as described in the Contractor's accepted traffic control plan and acceptance of the Engineer. A minimum of one (1) paved traffic lane, not less than twelve (12) feet wide, shall be open for use by public traffic at all times. When construction operations are not actively in progress, not less than two such lanes shall be open to public traffic.

When traffic cones or delineators are used to delineate a temporary edge of traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane. However, the Contractor shall not reduce the width of an existing lane to less than 12 (twelve) feet without written acceptance from the Engineer.

If a closure is necessary to facilitate construction activities, as described in the Contractor's accepted traffic control plan, the Contractor shall hand deliver notices to the affected property owners at least forty-eight (48) hours prior to closure, or as stated in Section 10-1.08, "Cooperation" of these Special Provisions, the greater of the notice shall prevail and be performed by the Contractor. The notices shall indicate a construction schedule and the restrictions related to ingress and egress. The Contractor is responsible for notification of emergency services at least five (5) working days prior to any closure. The Contractor is also responsible for supplying "No Parking Signs" along applicable sections of the side of the road to be closed three (3) working days prior to the beginning of work on that section of road. The Engineer will assist the Contractor in identifying the affected property owners. The Contractor shall take provisions as necessary to maintain at least one driveway access to any affected business, if multiple driveways are present.

At the end of each working day if a difference in excess of four (4) inches exists between the elevation of the existing pavement and the elevation of any excavation within five (5) feet of the traveled way, material shall be placed and compacted against the vertical cuts adjacent to the traveled way. During excavation operations, native material may be used for this purpose; however, once the placing of the structural section commences, structural material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 6:1 (horizontal: vertical) or flatter to the bottom of the excavation. Treated base shall not be used for the taper. Where applicable for public safety requirements and other provisions of the Contract documents, the use and design of any trench plates to properly support anticipated traffic, construction or other loadings is solely the responsibility of the Contractor, and he/she shall assume all liability for using any trench plating devices.

Full compensation for placing backing material as noted above, regardless of the number of times it is required and subsequent removing or reshaping of the material to maintain its integrity and intended purpose shall be considered as included in the various contract items of work and no additional compensation will be allowed. No payment will be made for material placed in

excess of that required for the structural section as identified in the Plans.

Minor deviations from the requirements of this Section concerning hours of work which do not significantly change the cost of 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 as accepted by the Engineer. These deviations shall not be adopted by the Contractor until the Engineer has accepted the deviations in writing.

Measurement and Payment
Attention is directed to Section 10-1.17, "Traffic Control" of these Special Provisions.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the provisions of this Section, shall be considered as included in the contract lump sum price paid for under the bid item "TEMPORARY TRAFFIC CONTROL", and no additional compensation will be allowed.

10-1.19 TEMPORARY TRAFFIC CONTROL SYSTEMS

All temporary traffic control systems implemented by the Contractor as required to properly complete the contract items shall be in accordance with the Contractor's submitted and accepted Traffic Control Plan, the Project Plans, the Standard Plans, and as specified in the Standard Specifications, the Manual on Uniform Traffic Control Devices, encroachment permits, and provisions found elsewhere in these Special Provisions, and as directed by the Engineer.

The provisions in this Section shall not be construed as relieving the Contractor from the responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7, "Legal Relations and Responsibility to the Public" of the Standard 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 said component to its original condition or replace said component and restore the component to its proper location.

When lane closures are made for daily work periods only, at the end of each work period, all components of the traffic control system shall be removed from the traveled way and shoulder. If the Contractor so elects, said components may be stored at selected central locations, accepted by the Engineer, within the limits of the project right-of-way.

In lieu of Section 12-1.04, "Payment", of the Standard Specifications, full compensation for all flagging costs including furnishing and operating pilot cars as required for contract items and work within the project limits shall be included in the Contract price paid for Traffic Control and no additional compensation will be allowed.

Traffic Control Devices
Flagging, signs, barricades, portable flashing beacons, and all other traffic control equipment and devices conforming to the provisions in Section 12, "Temporary Traffic Control", of the Standard Specifications shall be furnished, installed, maintained, and removed when no longer

required, at the locations as required per the Contractor's accepted traffic control plan, and the Standard Plans, Project Plans, Project Permits, and as directed by the Engineer.

Category 1 traffic control devices are defined as those devices that are small and lightweight (less than 100-lbs [45-kg]). The devices shall be known to be crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 traffic control devices include traffic cones, plastic drums, portable delineators, and channelizes.

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 traffic control devices at least five (5) working days prior to beginning any work using the devices or within two (2) working days after the notification if the devices are already in use. Self-certification shall be provided by the manufacturer or Contractor and shall include the following: date; federal aid number (if applicable); expenditure authorization; district; county; route and kilometer post of project limits; company name of certifying vendor, street address, city, state, and zip code; printed name, signature, and title of certifying person; and an indication of which Category 1 traffic control devices will be used on the project. The Contractor may obtain a standard form for self-certification from the Engineer.

Category 2 traffic control devices are defined as those items that are small and light weight (less than 100-lbs [45-kg]) and that are not expected to produce significant vehicular velocity change but may otherwise cause damage to impacting vehicles. Category 2 traffic control devices include barricades and portable sign supports.

Category 2 devices must be on the Authorized Material List (Caltrans) for acceptable, crashworthy Category 2 hardware for work zones. Category 2 devices must be labeled with the FHWA acceptance letter number and the name of the manufacturer. The label must be legible and permanently affixed to the traffic control device by the manufacturer.

If requested by the Engineer, the Contractor shall provide a written list of Category 2 devices to be used on the project at least five (5) days prior to beginning any work using the devices or within two (2) days after the notification if the devices are already in use. For each type of device, the list shall indicate the FHWA acceptance letter number and the name of the manufacturer.

Category 3 traffic control devices are defined as temporary traffic-handling equipment and devices weighing 100-lbs (45-kg) or more and that are expected to produce significant changes in the vehicular velocity of impacting vehicles. Category 3 traffic control devices include crash cushions, impact attenuator vehicles, temporary railing, temporary barrier, and end treatments for temporary railings and barriers.

Category 3 devices must be the type shown and on the Authorized Material List (Caltrans) for highway safety features.

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

allowed.

Pavement Striping, Markings, and Markers

In order to protect public safety, functional pavement striping, markings and markers (including temporary additions) shall be maintained along roadways and parking lots within temporary traffic control zones as designated in the Contractor's submitted and accepted Traffic Control Plan, or as directed by the Engineer. Any conflicting striping and markings shall be completely removed as identifiable pavement striping and markings under daylight or at night, wet or dry conditions.

Any existing traffic stripes, pavement markings, or pavement markers that are obliterated or removed by the Contractor or as directed by the Engineer, shall be replaced and/or reinstalled by the Contractor before the completion of this project.

Before obliterating any pavement delineation that is to be replaced on the same alignment and location, as described in the Contractor's accepted traffic control plan or 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 also include the limits or changes in striping pattern, including one- and two-way barrier lines, limit lines, crosswalks, and other pavement markings. Full compensation for referencing pavement delineation shall be considered as included in the Contract prices paid for other items of work, and no additional compensation will be allowed.

Before applying any asphaltic emulsion that would obliterate existing traffic stripes, the Contractor shall place temporary raised pavement markers on the existing traffic stripes as specified in Section 81-3, "Pavement Markers", of the Standard Specifications.

Wherever final sweeping or brooming of the seal coat surface has been completed, permanent traffic stripes and pavement markings, shall be completed within ten (10) calendar days if required.

During traffic striping, marking, 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, "Traffic Stripes and Pavement Markings" and 81-3, "Pavement Markers", of the Standard Specifications.

Measurement and Payment

Attention is directed to Section 10-1.17, "Traffic Control" of these Special Provisions.

Full compensation for furnishing all labor (including flagging costs), materials (including signs and other traffic control devices), tools, equipment, and incidentals and for doing all work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system as required to complete the contract items or other work as shown on the Project Plans, as shown on the Contractor's accepted traffic control plan, Standard Plans, as specified in the Standard Specifications, these Special

Provisions, and project permits, and as directed by the Engineer will be included in the contract lump sum price paid for "TEMPORARY TRAFFIC CONTROL", and no additional compensation will be allowed.

10-1.20 EXISTING FACILITIES

The work performed on or in connection with various existing facilities, including but not limited to removing, abandoning, salvaging, reconstructing, modifying, resetting, relocating, adjusting, etc. shall conform to the provisions in Section 15, "Existing Facilities", of the Standard Specifications, and provisions found elsewhere in these Special Provisions.

The Contractor's construction operations shall provide for a complete and functioning storm drainage system at the end of each working day. The storm drainage system shall be of the capacity of the existing or proposed system, as shown on the Project Plans, to provide for the conveyance of storm water runoff through the Project area under the current and/or proposed condition depending on the Contractor's disturbance to the existing system, as directed by the Engineer. In all instances the Contractor shall provide for a completely functioning storm drainage system to reduce, minimize or eliminate upstream and downstream impacts to the storm drainage system and surrounding vicinity. The Contractor shall provide a plan, for review and acceptance of the Engineer prior to the installation of any temporary connection. This shall be in addition to any and all requirements for temporary by-pass pumping required to construct the Project as described in the Contract Documents.

Connections (tie-in) to any existing public utilities, surface pavements, and other public or private improvements, as shown on the Project Plans or as directed by the Engineer, shall be in accordance with the Plans, Standard Specifications, these Special Provisions, and applicable utility purveyor specifications.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.21 DEWATERING

Work under this item shall consist of furnishing all labor, tools, equipment, and materials as necessary to dewater, divert and/or bypass, and discharge any groundwater or surface waters to maintain a reasonably dry excavation or general work area for the proper installation, construction, curing, grow-in, maintenance, and completion of any improvements and utility relocates, including revegetation/restoration activities, for a complete job in place as shown on the Project Plans, described in the Special Provisions and Standard Specifications, in conformance with the Project Permits in accordance with the required contract phasing timelines, and as directed by the Engineer. Discharge of all captured, retained, and/or diverted waters shall be in conformance with all project permit regulations.

The provisions in this Section shall not be construed as relieving the Contractor from the responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7, "Legal Relations and Responsibility to the Public" of the Standard Specifications.

Dewatering, diversion, and discharge operations as stated herein, or as directed by the Engineer, are required to be performed at any time and on a continual basis, for the duration of the project and any ensuing maintenance period, as necessary to install, construct, complete and maintain all project improvements including revegetation/restoration activities.

No direct aquifer testing has been completed to accurately estimate the maximum rate of groundwater flow which will need to be pumped in order to maintain a dewatered construction area. The Contractor is responsible to generate the information necessary to appropriately dewater the construction site and achieve the implementation of the project improvements.

The excavation and general work area shall be sufficiently dry to allow for the proper construction and inspection of the excavation, subgrade, bedding and backfill materials, and installation of all Project improvements proposed for placement below grade, for a complete job in place as shown on the Project Plans, described in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

In the event there is a storm event, the Contractor shall make provisions for and have equipment (i.e. pumps, piping, gravel bags, plastic sheeting, temporary dams, etc.) on standby; to provide adequate protection of the work area, avoid flooding and inundation of the excavation, divert runoff to stabilized discharge points away from any active work site(s), and prevent erosion and discharge of sediment or other pollutants from the project site.

Petroleum Hydrocarbon-impacted Groundwater

The Contractor is hereby notified that dewatering fluids may be turbid and/or contain contaminants which must be properly disposed of and there is potential for presence of dissolved petroleum hydrocarbons in the groundwater. For additional background information the Contractor's attention is directed to the report (Aerially Deposited Lead and Petroleum Hydrocarbon Site Investigation Report, SLT US Hwy 50 Improvement Project, Caltrans) located in the Appendix to these Special Provisions.

In the event that petroleum hydrocarbon-impacted groundwater is encountered, the discharge of dewatering fluids to surface areas and/or temporary dewatering basins will be restricted (sampling and testing will be performed by the Engineer or Owners representative). Coordination with the Owner, Contractor, RWQCB, and El Dorado County Environmental Management Department will be required and any necessary contract change order shall apply. In addition the Contractor should anticipate the need for containment, sampling and testing, and treatment of dewatering fluids prior to discharge in conformance with regulatory requirements and the Project Permits, RWQCB, and TRPA (the most stringent level shall be adhered to). In the event of a dispute caused by such conditions, the Contractor shall not be excused from performance of the Contract.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.22 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 17-2, "Clearing and Grubbing", of the Standard Specifications. Vegetation, including trees (less than 10-inches diameter at breast height [4.5 feet above ground surface]) and all stumps (regardless of size of tree), shall be cleared and grubbed only within the project limits. For tree removal operations, attention is directed to Section 10-1.23, "Tree Removal" of these Special Provisions.

Work under this item includes the removal of all objectionable and unacceptable natural or artificial materials from within the right-of-way lines or construction area project limit lines, and disposal of said material off the job site, in order to construct the project in a proper manner, in accordance with the Project Plans, Project Permits, Standard Specifications, these Special Provisions, as directed by the Engineer, and other applicable local and state requirements. This includes but is not limited to any earthen material containing vegetative matter or organic silt, topsoil, frozen material, trees (less than 10-inches diameter at breast height), all stumps (regardless of size of tree), man-made deposits, industrial waste, sludge or landfill. Fallen branches, loose debris, and otherwise dead material shall be removed and disposed unless otherwise shown in the Plans or directed in these Specifications to be processed for duff, mulch, and revegetation work. Stumps and root systems of trees, clay and other organic material shall be fully and completely removed. This work shall be performed in advance of grading and trenching operations and in accordance with the requirements herein specified, subject to all erosion control requirements. Also included, except where provided for, is all removal, excavation, embankment and grading to finished subgrade within catch points of slopes outside of right-of-way lines as shown on typical sections. Import, placement, and compaction of accepted subgrade material are also included if required to meet original subgrade.

Existing facilities, to be preserved, shall be lowered and protected and restored upon completion of the work. Existing aggregate and asphalt roadway materials designated for removal may be reused for embankments, after being reduced in size to particles of three inches (3'') maximum diameter, only upon acceptance of the Engineer. All embankment and fill, and areas over excavated shall be compacted to a relative density of ninety five percent (95%) within the roadway and shoulder prism, and ninety (90%) in ditch and slope areas.

Vegetation shall be cleared and grubbed only in the areas showing proposed improvements on the Plans and/or bounded by the limits of disturbance shown on the Project Plans (areas within the construction limit fence) or as directed by the Engineer. All existing trees, shrubs, and other vegetation identified to be protected or located outside the areas to be cleared and grubbed, shall be protected from injury or damage resulting from the Contractor's operations. Additionally, tree

roots over 4" in diameter shall not be severed, if avoidable, pursuant to Subsection 65.2.F of the TRPA Code of Ordinances. Attention is directed to Section 10-1.15, "Temporary Fencing" of these Special Provisions.

Topsoil and Organic Materials

During clearing and grubbing, the Contractor shall salvage and stockpile all topsoil for reuse in the project area as directed by the Engineer. Any excess topsoil not used for revegetation efforts shall be re-spread within the project area at the direction of the Engineer.

All suitable organic materials removed during the clearing and grubbing operation including, but not limited to, pine needles, leaves, duff, trees smaller than ten (10) inches DBH, stumps, and suitable roots shall be stockpiled and used for restoration.

The Contractor shall not stockpile any vegetation or other debris generated as a result of the clearing and grubbing or tree removal operations that is not suitable for use in restoration efforts. All unsuitable vegetation or other debris (identified by the Engineer) shall be removed from the job site by the end of each working day.

Removal and Disposal of Materials

All inorganic materials removed during the clearing and grubbing operation shall become the property of the Contractor, except where noted elsewhere in these Special Provisions, and shall be disposed of at the end of each working day outside the project right-of-way in accordance with the provisions in the Standard Specifications, these Special Provisions, and the Project Permits. The Contractor shall follow all local ordinances and acquire any necessary permits. Broken concrete, asphalt, and other construction debris developed during clearing and grubbing and other operations shall be considered unsuitable and disposed of outside the project right-of-way in accordance with the provisions in the Standard Specifications, these Special Provisions, and the Project Permits.

Nothing herein shall be construed as relieving the Contractor of his responsibility for final clean-up of the project site as provided in Section 4-1.13, "Cleanup," of the Standard Specifications.

Measurement and Payment

"CLEARING AND GRUBBING" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract lump sum price paid for the item "CLEARING AND GRUBBING" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.23 TREE REMOVAL

Work under this item shall consist of furnishing all labor, materials, tools, equipment and

incidentals necessary for the removal and disposal of trees equal to or larger than 10-inches in diameter, measured at an elevation of 4.5-feet above the prevailing existing ground surface on uphill side of tree (a.k.a diameter at breast height - DBH). Trees equal to or larger than 10-inches DBH to be removed are shown on the Plans and will be marked in the field by the Engineer. All stumps (regardless of size of tree) and trees less than 10-inches DBH, designated for removal, shall be included as part of clearing and grubbing operations.

The Contractor shall make all efforts to minimize any damage to existing trees and/or root systems not designated for removal. Prior to timber removal, all project temporary BMP devices must be in place.

Trees to be removed shall be marked by the Engineer with an "X" made with orange (or white) paint. The Contractor shall give the Engineer five (5) working days' notice in requesting trees to be marked for removal. The Contractor shall not remove any tree greater than or equal to 10" diameter, unless marked. Following excavation work within the immediate vicinity of any tree the Engineer shall inspect the area and identify any additional trees that are required for removal.

Contractor shall obtain a Timber Operator's License from the California Division of Forestry prior to starting work if the fuel wood or timber is to be sold. All wood products must be removed from the site prior to resale.

The Contractor shall be liable for damage to utility service lines, fences or other structures. Trees shall be felled to minimize disturbance to surrounding vegetation and traffic flow.

Contractor shall be responsible for all traffic control during timber removal in accordance with the Contractor's accepted Traffic Control Plan, Section 12, "Temporary Traffic Control", of the Standard Specifications, and these Special Provisions.

All felled trees must be removed from the site (or chipped) within three (3) calendar days to reduce the spread of insects. Contractor is responsible for complete site cleanup, including slash disposal. No slash may be stored or burned on site (except where chipped and properly stockpiled for use in future revegetation treatments).

Contractor should note that tree stump removal (including remnant stumps from these tree removal operations) are considered included in the pay for clearing and grubbing and no separate payment will be allowed therefor. This includes stumps of all sizes to be removed for proper construction of the project as directed by the Engineer. The Contractor shall remove the stumps from the project site in accordance with all local, regional, and state requirements and shall not "bury" the stumps on the project site.

Measurement and Payment

"TREE REMOVAL (10" to 18" DBH)", "TREE REMOVAL (19" to 24" DBH)", "TREE REMOVAL (25" to 35" DBH)", and "TREE REMOVAL (>36" DBH)" shall be measured per each on the number of trees removed, complete and accepted by the Engineer as conforming to all the requirements in the complete work. The diameter of each tree shall be based on the measured diameter at an elevation of 4.5-feet above the prevailing existing ground surface on the uphill side of tree (a.k.a diameter at breast height - DBH).

Full compensation for removal of trees equal to or larger than 6-inches in diameter, shall be included in the Contract unit price per each under the bid items "TREE REMOVAL (10" to 18" DBH)", "TREE REMOVAL (19" to 24" DBH)", "TREE REMOVAL (25" to 35" DBH)", and "TREE REMOVAL (>36" DBH)" and shall include full compensation for furnishing all labor, materials, tools, obtaining permits and licenses, equipment, and incidentals, and for doing all work involved in removing trees as specified above and no additional compensation will be allowed therefor. The contract value for tree removal items may be from zero up to the contract amount, as determined by the Engineer. Full compensation for removing all stumps (regardless of the size of the tree) and trees smaller than 10-inches in diameter shall be considered as included in prices paid for the various other contract items (clearing and grubbing) and no additional compensation will be allowed therefor.

10-1.24 POTHOLING & UTILITY RELOCATION

Attention is directed to Sections 5, "Control of Work" and 15, "Existing Facilities", of the Standard Specifications, and Sections 10-1.01, "Order of Work and Preconstruction Conference", 10-1.07, "Obstructions", and 10-1.08, "Cooperation" of these Special Provisions.

The Contractor shall be responsible for verifying the location of all existing underground facilities within the project area, which may have potential to conflict with the location of proposed improvements, as shown on the Project Plans and as indicated by USA markings. Actual field conditions and locations can vary considerably from those shown on the Project Plans; therefore, the Owner cannot, and does not, assume responsibility for the existence or location of any underground structures such as, but not limited to, pipelines, laterals, conduits, valves, meters, vaults, manholes, junction boxes, and other components of a typical utility, drainage, or irrigation system. The Contractor shall be responsible for contacting all utilities, agencies and/or public and private owners to verify such information prior to and during construction of any of the proposed improvements.

The Contractor shall notify the Engineer in advance of all potholing activities. Any delays that may result from failure of the Contractor to locate and/or pothole a potential utility conflict shall be at the Contractor's expense. Any costs incurred due to relocations, shutoff, startup, or any other costs related to utility relocations due to the construction of the project, not otherwise provided for in a specific Contract item, shall be the responsibility of the Contractor.

Water, sanitary sewer, storm drain, and other utility main crossings must conform to the "guidance criteria for the separation of water mains and non-potable pipelines" of the State of California Department of Health Services.

As part of the Contract work the Contractor will be installing improvements in the vicinity of existing utility systems and other various public improvements. Where conflicts appear to exist with underground utilities the Contractor is hereby advised that he/she will be required to pothole each location prior to relocation of the subject utility, in order to properly identify and locate its position. The Contractor is responsible to schedule the Contractor's surveyor to be onsite during potholing of conflicts for utility elevation verification (surveying of the horizontal and vertical location of the top of the pipe is required). Upon verification such utilities will require relocation by the Contractor or utility agency or its agents in accordance with these Special Provisions, Project Plans, Standard Specifications, and associated utility standards. **Any potholing shall be**

completed where conflicts appear to exist with underground utilities a minimum of ten (10) working days before beginning construction as the first order of work associated with the Project.

Only pothole locations identified on the Project Plans, or directed, in writing by the Engineer shall be paid for under the pothole subsurface facilities bid item. All other utility locations including any additional potholing as necessary to properly construct the project, not covered under the stipulations identified in the paragraph above, shall be performed by the Contractor and considered as included in prices paid for the various Contract items of work involved and no additional compensation will be allowed therefor.

The Contractor is hereby advised that his/her identification and location of existing underground facilities also include service laterals and conduit for water, sewer, gas, electric, phone, and cable. Any potholing of services shall be considered as included in the costs for construction of the improvements coming in potential conflict with those services and no additional compensation shall be allowed therefor. The water and sewer service lateral information shown on the Plans is approximate and based on existing South Tahoe Public Utility District (STPUD) grid and meter maps. The accuracy of this information is unknown and there is a potential for large discrepancies up to and greater than twenty (20) feet. Additionally, STPUD may not be able to mark (USA) these lateral services (horizontal and/or vertical locations) in the field. Natural gas, electric, telephone, and cable service providers did not provide any detailed grid map information for service connections within the project area; however, it is known that service connections do exist and those shown on the Plans are approximate based on field observations. The Contractor will need to coordinate with all utility service providers to have any applicable services marked, prior to construction. It will be the Contractor's responsibility to locate utility services during the construction of improvements and if encountered and damaged (as determined by the Engineer and utility purveyor) will be the Contractor's responsibility to coordinate with and repair said services in compliance with the utility purveyors standing policy, and in conformance with these Special Provisions and Standard Specifications. In the event there is a conflict between the proposed improvement and service lateral/conduit, then the service lateral/conduit will be relocated in accordance with these Special Provisions, Standard Specifications, Project Plans, and utility purveyor standards.

If any existing utilities that are not shown by USA or on the Plans as indicated to be relocated by others are found to be in conflict with the proposed location of the improvements shown on the Plans, the Contractor shall contact the Engineer immediately. The Engineer will either provide the Contractor with new grades/elevations to eliminate such conflicts or shall contact the utility agency to arrange for relocation of the conflicting utility. The Contractor shall coordinate all necessary activities with the utility agency in order to complete or facilitate the subject relocation(s).

It is the Contractor's responsibility to verify that all existing utilities that conflict with the proposed improvements are identified and relocated. The Contractor shall take all precautions necessary to not damage any existing facilities and coordinate with the applicable utility purveyor for all scheduled utility relocations so as to minimize impacts to the public utility systems, which may require the Contractor to do the relocations at off peak hours and off-peak days (night work may be required). Utility relocations not currently identified on the Project

Plans, and determined to be necessary by the Engineer, shall generally be performed as described below.

Sanitary Sewer

Sewer main, service lateral, cleanout, and manhole horizontal locations shown on these Plans are approximate only. The Contractor shall assume that each parcel is served by a sewer service. Where proposed improvements and existing sewer pipe cross, as shown on Plans or as marked by Underground Service Alert (USA), Contractor shall pothole sewer lines to a minimum depth of twelve (12) inches below bottom of proposed improvement. If conflict exists and is not shown on the Plans, the Contractor shall notify Engineer immediately.

Existing sewer services and mains that conflict with the installation of project improvements and require relocation, as determined by the Engineer, shall be performed by the Contractor as part of the project work. Coordination with STPUD is required, and a minimum of 5 working days shall be allowed for the relocation. All sewer related construction materials, methods, testing and inspection shall conform to the requirements of STPUD (including utility purveyor standard specifications and details), the Project Plans, and the related Sections found elsewhere in these Special Provisions, and the Standard Specifications.

Contractor shall notify STPUD a minimum of two (2) working days in advance of work affecting sewer lines. Contractor shall coordinate disruptions to service with STPUD and the affected property owner/s and residents.

Potable Water

Potable water main, service lateral, water meter, and valve locations shown on these Plans are approximate only. The Contractor shall assume that each parcel is served by a water service. Where proposed improvements and existing water pipe cross, as shown on Plans or as marked by USA, Contractor shall pothole water lines to a minimum depth of twelve (12) inches below bottom of proposed improvement. If conflict exists and is not shown on the Plans, the Contractor shall notify Engineer immediately.

Existing water services and mains that conflict with the installation of project improvements and require relocation, as determined by the Engineer, shall be performed by the Contractor as part of the project work. Coordination with STPUD is required, and a minimum of 5 working days shall be allowed for the relocation. All water related construction materials, methods, testing and inspection shall conform to the requirements of STPUD (including utility purveyor standard specifications and details), the Project Plans, and the related Sections found elsewhere in these Special Provisions, and the Standard Specifications.

Contractor shall notify STPUD a minimum of two (2) working days in advance of work affecting water lines. Contractor shall coordinate disruptions to service with STPUD and the affected property owner/s and residents.

Natural Gas Service

Gas main, service lateral, and valve horizontal locations and depths shown on these plans are approximate only. The Contractor shall assume that each parcel is served by a gas service. Where proposed improvements and existing gas pipe cross, as shown on Plans or as marked by

USA, Contractor shall pothole for gas lines to a minimum depth of twelve (12) inches below bottom of proposed improvement. If conflict exists and is not shown on the Plans, the Contractor shall notify Engineer immediately.

The Contractor will be required to coordinate relocation of existing gas services with Southwest Gas Corporation. The Contractor will further be required to coordinate relocation of existing gas mains with Southwest Gas Corporation.

Existing gas services and mains that conflict with installation of project improvements and require relocation, as determined by the Engineer, shall be performed by Southwest Gas Corporation. Coordination with Southwest Gas Corp is required. Any and all gas line relocations shall be coordinated with Southwest Gas at least four (4) weeks prior to commencement of contract work in that area. The Contractor shall expose existing pipe and provide all trenching, shoring, and pipe bedding as required by Southwest Gas Corp. The gas utility will construct the pipe relocation and install all the necessary relocated piping appurtenances. Contractor shall construct all backfill, compaction, and trench resurfacing per details on the Plans. All gas related construction materials, methods, testing and inspection shall conform to the requirements of the current governing gas utility, the Project Plans, and the related Sections found elsewhere in these Special Provisions, and the Standard Specifications.

Gas services that are located above the proposed improvements and that are not in conflict with the proposed pipe/structure may be temporarily disconnected and then reconnected to facilitate construction. Should the Contractor wish to construct by this method the Contractor shall coordinate all efforts with Southwest Gas Corp for the disconnection and reconnection work to be performed; the Contractor shall not disconnect any gas service or main. All work associated with temporarily disconnecting and reconnecting the existing gas service will be considered incidental to the construction of the subject improvement with which it is associated and no additional payment will be allowed. All provisions of these Special Provisions shall apply to the disconnection and reconnection work.

Utility Poles, Underground Conduit and Power/Telephone/Cable Lines

Any excavation within fifteen (15) feet of an existing utility pole or anchor line may require that pole to be braced, temporarily removed, or relocated. Should bracing, temporary removal, or relocation be required, coordination activities are to be initiated with Liberty Energy, AT&T and Charter Communications at least four (4) weeks prior to commencement of work in that area. All bracing, temporary removal, or relocation work shall be completed, prior to the commencement of contract work in that area, in accordance with Liberty Energy, AT&T and Charter Communications requirements.

The Contractor shall not begin work within twenty (20) feet of any overhead line prior to contacting Liberty Energy, AT&T, and Charter Communications at least four (4) weeks in advance of the work.

The Contractor shall not begin work within ten (10) feet of any underground electric or telephone conduit prior to contacting Liberty Energy and AT&T at least four (4) weeks in advance of the work.

The Contractor shall further be required to supply, perform and observe the following items in association with the construction of the Project:

- protect existing electrical and telephone conduit in place
- protect existing utility pole in place and coordinate with Liberty Energy and/or AT&T on protection requirements
- coordinate with Liberty Energy and/or AT&T for relocation of existing electrical mains, services, and vaults

No separate payment will be allowed for any of these efforts. All costs associated with these efforts shall be considered in costs of other items and not separate payment or additional compensation shall be allowed therefor.

Storm Drain

Any and all local and/or state storm drain facility modifications and/or relocations will be performed by the Contractor as part of this project. The Contractor shall refer to other sections of these Special Provisions, the Project Plans and the Standard Plans and Specifications for details and specifications on the work to be performed. Coordination with City Public Works Department and/or Caltrans is required.

Traffic Signals and Electrical System (Caltrans)

The Contractor shall take all efforts to protect the existing traffic signal, poles, cabinets, pull boxes, conduits, conductors and vaults in place.

All Other Utilities

Any and all public utility main, service, conduit, loops and/or lateral (not identified above) that have horizontal locations and depths shown on these Plans are approximate only. Where proposed improvements and existing public utilities cross, as shown on Plans or as marked by USA, Contractor shall pothole for each utility to a minimum depth of twelve (12) inches below bottom of proposed improvement. If conflict exists and is not shown on the Plans, the Contractor shall notify Engineer immediately.

Existing public utility services and mains (not identified above) that conflict with installation of project improvements and require relocation, as determined by the Engineer, shall be performed in coordination with the associated public utility company/purveyor. Any and all relocations shall be coordinated with the associated public utility company/purveyor at least four (4) weeks prior to commencement of contract work in that area. The Contractor shall expose existing pipe/conduits and provide all trenching, shoring, and pipe bedding as required by the associated public utility company/purveyor. The utility company/purveyor will construct the pipe/conduit relocation and install all the necessary relocated appurtenances. Contractor shall construct all backfill, compaction, and trench resurfacing per details on the Plans. All related construction materials, methods, testing and inspection shall conform to the requirements of the current governing utility, the Project Plans, and the related Sections found elsewhere in these Special Provisions, and the Standard Specifications.

Existing public utility services (not identified above) that are located above the proposed improvements and that are not in conflict with the proposed pipe/structure may be temporarily

disconnected and then reconnected to facilitate construction. Should the Contractor wish to construct by this method the Contractor shall coordinate all efforts with the associated public utility company/purveyor for the disconnection and reconnection work to be performed; the Contractor will not disconnect any public utility service. All work associated with temporarily disconnecting and reconnecting the existing public utility will be considered incidental to the construction of the subject improvement with which it is associated, and no additional payment will be allowed. All provisions of these Special Provisions shall apply to the disconnection and reconnection work.

The Contractor shall coordinate all public utility work with the associated public utility company/purveyor.

Utilities Relocated by Others:

Utilities may be identified on the project plans that are required to be relocated by the utility companies owning and/or operating the utilities. It is the Contractor's responsibility to coordinate all relocation efforts for these utilities. This includes all pre-construction, during construction and post-construction coordination efforts so that the utility is relocated in accordance with the Contractor's progress/work schedule. The Contractor shall perform pre-construction coordination with each utility to be relocated, develop a detailed progress schedule for each relocation and provide all necessary support to relocate the utility. The relocation schedule, including the utility company's efforts, shall be included in the overall project schedule for the construction of the project. At a minimum, after all pre-construction coordination has been completed, and the schedule/efforts have been formalized, the Contractor shall provide at least 4-weeks written notice to each utility of when the utility needs to be relocated, with additional, written, weekly notices in advance of the relocation. The notices shall include the pre-agreed to schedule with each utility, along with any necessary documentation, agreements, etc. documented as part of the pre-construction coordination efforts.

In addition to coordination efforts, the Contractor's surveyor will be responsible for providing control staking and construction staking for the proposed location of the utilities facilities to be relocated. This information shall be provided in the format required by the utility company and include all office and field time necessary to provide the proposed horizontal and vertical location of all relocated facilities. The schedule of the staking and associated efforts shall be in accordance with the utility companies schedule and request, and the Contractor shall assume a separate mobilization for the surveyor for each utility to be relocated, and that the efforts will not be able to be performed as part of another surveying project related effort.

The Contractor shall provide the City and Engineer with weekly updates on the status of all utility relocations once construction has commenced. In addition, the Contractor shall provide the City and Engineer with a summary and documentation of all pre-construction coordination efforts, schedules and agreements related to each relocation.

No additional compensation, work time, delay claims, extra working days, etc. will be allowed for or provided for in the event there is any delay or additional cost as a result of utility relocations by others necessary for the completion of the project, all costs and time are solely borne and responsibility of the Contractor.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"POTHOLE SUBSURFACE FACILITY (AS DIRECTED)" shall be measured per each on the number of pothole locations excavated and backfilled, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for each "POTHOLE SUBSURFACE FACILITY (AS DIRECTED)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with coordinating with the applicable utility companies, and potholing of the facilities including but not limited to saw-cutting, soft-digging methods, excavation, location and identification, survey and measurements, backfill, compaction, restoration of area, aggregate base, asphalt concrete, disposal of materials, and other appurtenances as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, requirements of the current governing utility, and as directed by the Engineer, and no additional compensation will be allowed.

The payment for potholing of existing utilities shall be limited to the potholing locations as shown on the Project Plans or as expressly directed by the Engineer. No separate payment shall be made for general location and/or potholing activities performed as part of the project or work outside the direction of the Engineer. All other work involved in provisions of 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.

"UTILITY SERVICE LATERAL REPLACEMENT (COORDINATION W/ UTILITY) - EX. NATURAL GAS SERVICE LATERAL (SOUTHWEST GAS CORP.)" shall be measured per each on the number of facilities, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for each "UTILITY SERVICE LATERAL REPLACEMENT (COORDINATION W/ UTILITY) - EX. NATURAL GAS SERVICE LATERAL (SOUTHWEST GAS CORP.)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with coordinating with the applicable utility companies, including but not limited to saw-cutting, soft-digging methods, excavation and exposure of the service lateral, coordination for lateral replacement work by the applicable utility, backfill, compaction, restoration of area, aggregate base, asphalt concrete, disposal of materials, and other appurtenances as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, requirements of the current governing utility, and as directed by the Engineer, and no additional compensation will be allowed.

Measurement and payment descriptions for sewer and water utility relocations are part of the

Special Provisions under Sections 10-3 and 10-4.

10-1.25 REMOVE CONCRETE AND ASPHALT CONCRETE SURFACING

Work under this section shall include removal and disposal of all concrete and asphalt concrete surfacing, temporary patch, and cold patch (i.e. asphalt pavements, roadways, driveways, swales, dikes, and concrete curb and gutter, driveways, sidewalks, pads/aprons, etc.) as required to properly construct the project, as shown on the Project Plans, described in the Standard Specifications, these Special Provisions, and/or as directed by the Engineer. Attention is directed to Section 15, "Existing Facilities," of the Standard Specifications. This includes removal and disposal of any and all portions of the full depth structural section associated with the work in order to prepare the area to receive the proposed improvements shown on the Project Plans. Saw cutting (to full depth) of any asphalt concrete and concrete surface improvements as required in order to complete the contract work shall be considered as included in prices paid for the various Contract items of work involved, and no additional compensation will be allowed therefor.

All concrete and asphalt surfacing materials that are removed by the Contractor shall become the property of the Contractor. Existing concrete and bituminous surfacing requiring removal shall be sawcut and then removed and disposed of in accordance with local ordinances, the Standard Specifications, these Special Provisions, and Project Permits. All loading, hauling, dumping, and disposal fees are the responsibility of the Contractor.

Where no joint exists in the concrete and/or asphalt pavement on the line at which the surfacing is to be removed, a straight, neat cut with a power driven saw shall be made along the line to a full depth of the existing section (no less than 6-inches) before removing the surfacing material. If the straight edge or other immediate adjacent area of the saw cut concrete and/or asphalt pavement section is damaged prior to placement of the adjacent structural section and surfacing, it shall be the Contractor's responsibility to re-cut any damaged, broken, or uneven portion prior to paving at Contractor's own expense. Under no circumstance shall the Contractor be allowed to pave against a joint with a broken, jagged, or uneven line.

The Contractor shall remove and dispose of all concrete and asphalt concrete surfacing and materials shown on the Project Plans in accordance with local, regional, and state requirements. The Contractor shall additionally sawcut all concrete and asphalt concrete surfaces as shown on the Project Plans in accordance with these Special Provisions and the Project permits.

Measurement and Payment

"REMOVE AC SURFACES (FOR PROJECT INSTALLATIONS, INCL. SAWCUTTING – DOES NOT INCLUDE QUANTITY/REMOVALS FOR MILL/OVERLAY WORK) [FP ITEM]" shall be a final pay item per plans for asphalt concrete surfacing removed, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract price paid for "REMOVE AC SURFACES (FOR PROJECT INSTALLATIONS, INCL. SAWCUTTING – DOES NOT INCLUDE QUANTITY/REMOVALS FOR MILL/OVERLAY WORK) [FP ITEM]" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal and disposal of all asphalt concrete surfaces as shown on the Project Plans, including removal of any associated subsurface materials, plus restoration of disturbed areas to the pre-existing grades including

backfill, and compaction, along with disposal of the generated waste debris, in order to prepare the subject area to receive the scheduled improvements and/or restore to a functioning state, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.26 REMOVE, RELOCATE, AND REPLACE EXISTING IMPROVEMENTS

The work performed in connection with various existing facilities and landscape elements shall conform to the provisions in Section 15, Existing Facilities, of the Standard Specifications. Excavation, backfill, and compaction work performed in conformance with this section shall conform to the provisions in Section 10-1.27, "Earthwork", of these Special Provisions.

The work performed on existing irrigation facilities and landscaping shall conform to the applicable provisions of Section 20, "Landscape" of the Standard Specifications.

The work performed on existing asphalt concrete shall conform to the applicable provisions of Section 39-3, "Existing Asphalt Concrete" of the Standard Specifications.

The work performed on existing structures shall conform to the applicable provisions of Section 60, "Existing Structures" of the Standard Specifications.

The work performed on existing drainage facilities shall conform to the applicable provisions of Section 71, "Existing Drainage Facilities" of the Standard Specifications.

Work under this section will consist of the abandonment, removal, modifying, salvaging, resetting, relocation, replacement, and/or repairing of existing improvements and facilities which interfere with construction or as required to properly construct the project, as shown on the Project Plans, described in the Standard Specifications, these Special Provisions, and as directed by the Engineer. Any materials removed, including excavated earthen material, in conformance with this section shall become the property of the Contractor and shall be disposed of at an approved site in accordance with these Special Provisions, the Standard Specifications and the Project Permits.

Do not perform work on an existing facility until the facility is no longer needed. Reconstructed facilities must comply with the design of and be equal to the best parts of the existing facilities. Reconstruction work must comply with the specifications for new work of similar character. Materials used in the work must be similar in character to the existing materials and conform to the specifications for minimum quality.

The abandonment, removal, modifying, salvaging, resetting, relocation, replacement, and/or repairing of existing improvements as shown on the Project Plans includes but is not limited to:

- The removal, disposal and/or abandonment of portions or entire lengths of existing storm drainage facilities, pipe, culvert, headwalls, drain inlets, manholes, inlet/outlet

structures, junction boxes/vaults, etc. plus the backfill, compaction, and restoration of the disturbed area, as shown on the Project Plans.

- Connect to existing storm drainage system structures and pipes
- Plug openings in existing storm drainage structures (where existing storm drainage pipe is to be removed)
- Protect existing State (highway 50) storm drainage systems in place
- Protect existing public utilities and storm drainage systems in place (above and below ground)
- Removal of existing roadway markers/snow poles that interfere with performance of the work.
- Removal, salvage and resetting of existing fences that interfere with performance of the work.
- Removal, salvage and resetting of existing posts, barriers, mailboxes, signs, landscape rocks, mulches, sod, irrigation and other miscellaneous common landscape/site facilities along roadway frontages that interfere with the performance of the work, plus the restoration of the disturbed area to the pre-existing grades including backfill, sod and other applicable pre-existing condition/improvements.

All work required in saw cutting, removal, and disposal of any concrete and asphalt concrete surfacing, including sidewalk, driveway, curb and gutter, valley gutter, roadway or other surface improvements shall be in accordance with the Standard Specifications and these Special Provisions. No concrete, asphalt concrete, or other debris shall be left in excavated trenches or be included as part of the backfill or placed in embankments.

Where any pipes, fittings, drainage inlets, frames and covers, or other devices are removed from any structure, manhole, junction box, joint, valve, fitting, etc. and the remaining facility is to be protected in place; all repairs, seals, plugs, caps, and other modifications as necessary to make the structure or device sound and complete shall be constructed by the Contractor as shown on the Project Plans, and in conformance with the Standard Specifications and these Special Provisions, or as directed by the Engineer. All repairs, plugs, caps and other modifications as noted above shall be considered as included in the prices paid for each associated bid item of work, not otherwise provided for, and no additional compensation shall be allowed therefor.

For abandonment in place, slurry cement backfill material shall conform to Section 10-1.33 "Slurry Cement Backfill" of these Special Provisions and construction methods shall conform to the Project Plans and applicable details.

All disturbed areas where pipe, structures, surface pavements, and other miscellaneous improvements are removed, shall be restored in like kind to match the pre-existing lines and grades and surrounding adjacent area, unless otherwise noted on the Plans, or as directed by the Engineer. The Contractor is required to backfill and compact excavated trenches to sub-grade using accepted native material and/or local borrow or imported borrow as determined by the Engineer if import is required; replace the structural section, aggregate base, pavements, and other surface improvements as applicable; and/or replace the topsoil and pre-existing landscape features or revegetate the disturbed area. **Any native, local borrow, or imported borrow soils used for backfill shall be accepted by the Engineer prior to placement**. Restoration of an

area and/or replacement of all pavements and other surface improvements in conformance with this section shall be considered as included in the prices paid for each associated bid item removed, except components of the work for which payment is made under separate contract items, and no additional compensation shall be allowed therefor.

Trenches, holes, depressions and pits caused by the removal of existing improvements shall be backfilled with materials equal to or better in quality and to the same thicknesses as the surrounding materials. All backfill materials at a minimum shall not exceed optimum moisture content and be free of stones or lumps exceeding 3 inches in greatest dimension, organic matter, or other unsatisfactory material that may restrict compaction requirements. In surfaced areas (i.e. pavement, concrete) that are otherwise to remain undisturbed, the structural section shall be replaced with materials equal to or better in quality and to the same thicknesses as the surrounding materials.

Fill to be placed beneath structures, junction boxes, asphalt pavements, concrete slabs, buildings, and all other components subject to structural loading shall conform to the requirements of Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications. If a new structure is specified to replace the old structure, unsuitable materials shall be removed as directed by the Engineer. Unless otherwise specified remaining material and fill material shall be compacted to ninety-five percent (95%) relative dry density, within the roadway and shoulder prism, and ninety percent (90%) in ditch and slope areas, and brought up to the bottom grade of aggregate structural section of the new structure.

Existing Irrigation Systems/Irrigation System Modifications:
The project area may include irrigation systems along roadway frontages that inadvertently extend into the public right-of-way and may be encountered as part of the project construction. The exact location of valves, irrigation lines, irrigation heads and the entire irrigation system is not known, and there are no as-built drawings of these systems. It is the responsibility of the Contractor to coordinate with the property owners to the extent practicable prior to the start of construction to identify and determine the extents of the existing irrigation systems and the impact of the proposed improvements on the systems.

Prior to the start of construction, and after all pre-project coordination efforts have been performed by the Contractor related to an irrigation system, the Contractor shall provide a plan to the City for review and acceptance documenting any required shutdowns, temporary watering and replacement of irrigation system parts. The plan shall be a written document, include a schedule and drawing plan as necessary, documenting everything required to replace the impacted irrigation systems in like-kind, including concurrence from each of the property owners/operators of the irrigation systems.

Existing Landscape Turf/Sod Removal, and Replacement:
The project work may include the removal and replacement of existing landscape turf/sod to construct the proposed improvements. The landscape turf/sod which is in conflict with the proposed improvements shall be removed and disposed of; salvage and re-use of existing sod is not allowed. All landscape turf/sod that is to be installed shall be new, healthy turf, of the same type, species, etc. as the turf that exists in the area of disturbance for the project work (this may require more than one type/species of landscape turf/sod to be used on the project). The intent is

for the finished product to be consistent across the existing landscape area that is disturbed in association with the project work.

Existing Fencing Removal, Salvage, and Resetting:
The project may include the removal, salvage and resetting of existing fencing to facilitate construction of the proposed improvements. Fencing which is in conflict with construction operations will be removed/dismantled, parts labeled and salvaged, and later reset/installed for a complete fence structure/facility. Replacement of small parts and fasteners is required as necessary. Any posts, beams or cross braces that are damaged, or cannot be reused, must be replaced in like-kind. The intent is for the reset fence to be consistent with the original facility, and be reset using good workmanship, for a complete and functional fence structure similar in character and quality to the existing fence.

Measurement and Payment
"REMOVE FENCE" shall be measured on a per linear foot basis along the centerline of the facility to be removed and disposed, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "REMOVE FENCE" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal and disposal of all designated fence as shown on the Project Plans, including associated post footings, and terminations/repairs for any portion to remain in a functioning state, plus backfill of holes/depressions and restoration of disturbed areas to the pre-existing grades including backfill, compaction, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REMOVE ROADWAY MARKERS/SNOW POLES" shall be measured on a basis per each of the facility to be removed and disposed, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "REMOVE ROADWAY MARKERS/SNOW POLES" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal and disposal of all designated roadway markers and snow poles as shown on the Project Plans and/or as directed, including associated post footings, plus backfill of holes/depressions and restoration of disturbed areas to the pre-existing grades including backfill, compaction, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REMOVE STORM DRAIN PIPE (UP TO/INCL. 36" DIA)" shall be measured on a per linear foot basis along the centerline of the facility to be removed and disposed from the outside face of

any adjoining structures, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "REMOVE STORM DRAIN PIPE (UP TO/INCL. 36" DIA)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal and disposal of all existing storm drainage pipe, culvert, and laterals as shown on the Project Plans, including associated surface improvements (concrete, curb and gutter, asphalt concrete, concrete pavers, landscape features, etc.), plus restoration of disturbed areas to the pre-existing grades including backfill, compaction, and other applicable pre-existing surface condition/improvements (pavement, concrete, curb and gutter, pavers, landscape features, etc.) along with disposal of the generated waste debris, in order to prepare the subject area to receive the scheduled improvements and/or restore to a functioning state, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REMOVE STORM DRAIN MINOR STRUCTURES (E.G. DRAIN INLETS, MANHOLES, PIPE FES, HEADWALLS, BASIN OUTLETS)" shall be measured per each on the number of minor structures removed and disposed, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "REMOVE STORM DRAIN MINOR STRUCTURES (E.G. DRAIN INLETS, MANHOLES, PIPE FES, HEADWALLS, BASIN OUTLETS)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal and disposal of existing storm drainage minor structures (e.g. drain inlets, basin outlets, pipe culvert headwalls, etc.) as shown on the Project Plans, including removal of any associated surface improvements (concrete, curb and gutter, asphalt concrete, concrete pavers, landscape features, etc.), plus restoration of disturbed areas to the pre-existing grades including backfill, compaction, and other applicable pre-existing surface condition/ improvements (pavement, concrete, curb and gutter, pavers, landscape features, etc.) along with disposal of the generated waste debris, in order to prepare the subject area to receive the scheduled improvements and/or restore to a functioning state, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REMOVE, SALVAGE & RESET FENCING" shall be measured on a linear foot basis, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "REMOVE, SALVAGE & RESET FENCING" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal, salvage and resetting of existing fences that may interfere with

the performance of the work, including replacement of small parts and fasteners, replacement of damaged posts, beams or cross braces, and minor concrete for post footings, for a complete and functional fence structure similar in character and quality to the existing fence, along with disposal of the generated waste debris, in order to prepare the subject area to receive the scheduled improvements and/or restore to a functioning state, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REMOVE, SALVAGE & RESET COMMON LANDSCAPE/SITE FACILITIES (MISCELLANEOUS PROJECT AREAS)" shall be measured on a lump sum basis, complete and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "REMOVE, SALVAGE & RESET COMMON LANDSCAPE/ SITE FACILITIES (MISCELLANEOUS PROJECT AREA)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with removal, salvage and resetting of existing posts, barriers, mailboxes, signs, landscape rocks, mulches, irrigation and other miscellaneous common landscape/site facilities along roadway frontages that may interfere with the performance of the work, plus the restoration of the disturbed area to the pre-existing grades including backfill, compaction, and other applicable pre-existing surface condition/ improvements (irrigation and landscape features, etc.) along with disposal of the generated waste debris, in order to prepare the subject area to receive the scheduled improvements and/or restore to a functioning state, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.27 EARTHWORK

Work under this item shall consist of furnishing all labor, tools, equipment and materials necessary to excavate, load, transport, place, backfill, grade, compact, and dispose of all earthen materials, of whatever nature, as necessary to construct and complete any contract items requiring earthwork.

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications, and these Special Provisions. Where discrepancies or conflicts are noted between Section 19 of the Standard Specifications, the Special Provisions shall prevail.

Trenching, shoring and excavation safety shall conform with the requirements of Section 7-1.02K(6), "Occupational Safety and Health Standards" of the Standard Specifications and the relevant sections of these Special Provisions.

10-1.27-1 GENERAL

All articles of archaeological interest that may be uncovered by the Contractor during the

progress of the work shall be reported immediately to the Engineer. The further operations of the Contractor with respect to the findings will be decided under the direction of the Engineer. In no case shall any archaeological findings result in any claim to be made by the Contractor including, but not limited to, project delay.

While excavating areas over the roots of trees, tree roots over 4-inches in diameter shall not be severed if avoidable, pursuant to Subsection 65.2F of the TRPA Code of Ordinances.

Surplus excavated material and excavated material that is not suitable for use as fill shall become the property of the Contractor and shall be removed and disposed of outside of the project right-of-way in accordance with the provisions in the Standard Specifications and these Special Provisions, unless specified elsewhere in these Special Provisions. In addition all surplus and waste materials shall be disposed of outside the Tahoe Basin, or at a distinct site approved by the regulatory agencies and jurisdictions.

During construction operations, if it becomes necessary to temporarily stockpile materials on site, the stockpiling of this material shall not interfere with normal site operations. No materials shall be stored on native vegetation. Stockpiled materials shall be in accordance with the requirements of the Standard Specifications, the Project Permits, and all applicable sections of these Special Provisions. The Contractor is hereby notified that due to the confined nature of the project area(s) and public right-of-way, stockpiling of select materials may require loading and transport to and from other staging and storage areas outside the immediate vicinity of the active working area.

All finished areas with cuts and fill slopes shall be sloped as indicated on the Project Plans and staked in the field, but in no case shall cut slopes be steeper than 3:1 and fill slopes steeper than 10:1 unless shown on the plans or directed by the Engineer. The Contractor may be directed in the field to vary the angle of slopes to achieve a natural appearance. No additional compensation for this varying sloping will be considered. Compensation for finish grading and sloping is considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

Grade tolerances shall be equivalent to those as stated in Section 19, "Earthwork," of the Standard Specifications, unless otherwise so indicated on the Project Plans or elsewhere in these Special Provisions, or as directed by the Engineer.

Compaction shall conform to all the provisions and requirements of Section 19, “Earthwork”, of the Standard Specifications, except as noted elsewhere in these Special Provisions or so indicated on the Project Plans. Payment for compaction of earthwork shall be considered as included in the various items of work requiring compaction, and no additional compensation will be allowed.

In the event that the Contractor discovers hazardous materials or physical conditions of any unusual nature while excavating, the Owner’s representative shall be notified immediately. The Owner shall promptly investigate such conditions and shall issue a contract change order, if required or not covered elsewhere in these Special Provisions. In the event of a dispute caused by such conditions the Contractor shall not be excused from performance of the contract.

Importing of earthwork fill material, if necessary or required to meet the grades and elevations shown on the plans, shall be considered included in the Contractor's bid for the various items of work involved and no additional compensation will be made therefor. Should such imported material be required, the Contractor shall notify the Engineer of the borrow site location at least five (5) working days in advance, and provide an adequate sample size so the Engineer can verify the suitability of the material. **All imported materials shall be proposed by the Contractor in writing in accordance with the submittal requirements** of these Special Provisions and the Standard Specifications.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the provisions of this Section, not otherwise identified and provided for in this section, complete and/or in place as shown on the Project Plans and Standard Plans, as specified in the Special Provisions, City PIES, and Standard Specifications, as required in the Project Permits, and as directed by the Engineer, shall be considered as included in prices paid for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.27-2 STRUCTURE EXCAVATION AND BACKFILL

Structure excavation and backfill for culverts, pipes, drain inlets, and all other structure items requiring excavation and backfill, as shown on the Project Plans, shall conform to the provisions of Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications, and these Special Provisions. Unless otherwise shown on the Project Plans or specified in these Special Provisions, backfill composition shall conform to the material specified in Section 19-3.02C, "Structure Backfill", of the Standard Specifications.

If excavation occurs outside of any designated pay limits, the material placed in those excavations must comply with the material and compaction requirements of the adjacent structure backfill.

Attention is directed to Section 7-1.02K(6), "Occupational Safety and Health Standards," of the Standard Specifications and Section 7.4, "Contracts for Digging Trenches; Requirements" of these Special Provisions.

The Contractor's submitted and accepted construction schedule shall clearly indicate that no more than 1000 linear feet (in aggregate) of trench construction will be disturbed at any given time, in order to limit the extents of open disturbed areas with potential for sediment runoff and allowances to adequately provide for water pollution control.

All open trenches, pipe sections, and/or other structure excavations shall be backfilled or covered with "traffic rated" trench plating by the end of each working day so as not to present a hazard to the public or traffic. The use and design of any trench plates to properly support anticipated traffic, construction or other loadings is solely the responsibility of the Contractor, and he/she shall assume all liability for using any trench plating devices. Based on accessibility and exposure risks to the public or traffic, all trench plates shall be properly secured in place (i.e. trench plate locks, etc.) in order to prevent accidental movement of trench plates. Where trench plating is used in areas open to traffic, the Contractor shall "cold patch" all edges of the plate to

provide a smooth transition between the plate and the existing traveled way; in the event that trench plates are to be in place for greater than 24 hours, the trench plates shall be embedded into the existing AC. The embedding shall allow for the trench plate to be at the same elevation as the surrounding roadway, and provide greater stability/support for the trench plate in use. All use of trench plates shall be in full compliance with all local and state applicable rules, regulations and standards, and the project permits.

Attention is directed to Section 10-1.56, "Temporary Paving Patch" and Section 10-1.57, "Hot Mix Asphalt Concrete (AC)", of these Special Provisions for additional requirements regarding temporary trench patch, final pavement restoration, and other asphalt paving work.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.27-3 UNSUITABLE SUBGRADE MATERIAL
Any unsuitable material encountered during excavation and subgrade preparation work such as sod, mulch, organic matter, clay, swampy material or other which cannot provided for a stable trench or be properly compacted to the satisfaction of the Engineer, shall be removed and disposed of offsite (or salvaged for revegetation organic matter where applicable) in accordance with these Special Provisions and the Standard Specifications. Any such material which is encountered below finished subgrade shall be excavated to a depth required by the Engineer, disposed of and replaced with Type 2, Class B aggregate base, drain rock, controlled low strength material (CLSM), or other designated material, as so directed and accepted by the Engineer in writing. In addition and at the discretion of the Engineer, a geotextile material may be required to stabilize the bottom of the excavation or trench area.

There shall be no direct payment for standard subgrade preparation. Full compensation for subgrade preparation required to perform the construction operations specified shall be considered as included in the contract price paid for the items of work requiring subgrade preparation.

Measurement and Payment
"REMOVAL OF UNSUITABLE SUBGRADE MATERIAL (AS DIRECTED OR AUTHORIZED)" shall be measured per cubic yard volume of earthen material excavated and disposed of, as accepted by the Engineer as conforming to all the requirements in the complete work. The cubic yard volume shall be based on field measurement of in-place material to the limits of excavation (any increases in volume hauled due to swell shall be considered as included in the unit price paid, and no additional compensation shall be allowed therefor).

Full compensation for furnishing all labor, materials (including any fabric and its installation), tools, incidentals, and equipment necessary to excavate, load, transport, dispose of, backfill,

place, grade, and compact all unsuitable subgrade material and replacement materials, as directed by the Engineer shall be included in the contract price paid for each cubic yard of unsuitable subgrade material identified, marked and measured for removal, including the replacement of with such designated materials under the bid item "REMOVAL OF UNSUITABLE MATERIAL (AS DIRECTED OR AUTHORIZED)", and no additional compensation will be allowed. Any material removed without the direction of the Engineer will not be paid for under this item and all costs associated with such additional work will be borne solely by the Contractor and no additional compensation will be allowed therefor.

10-1.27-4 WATER QUALITY TREATMENT BASIN EARTHWORK & CONSTRUCTION

Excavation, loading, transport, stockpiling, backfill, embankment construction, grading, compaction, finish grading, placement of salvaged topsoil and organic, and disposal of earthen materials as necessary to construct the water quality treatment basins to the lines and grades as shown on the Project Plans shall conform to the provisions in Section 19, "Earthwork", of the Standard Specifications, these Special Provisions, and as directed by the Engineer.

The installation of the improvements will require excavation in previously undisturbed areas which will be monitored by a qualified archaeologist retained by the Owner. If unrecorded/new cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) are discovered during Project implementation, work will be halted immediately within 50 feet of the discovery, the City will be notified, and a professional archaeologist will determine the significance of the discovery. Any delays associated with the discovery or determination process shall not be considered cause for additional payment or working time and no additional compensation shall be allowed therefor.

The Contractor shall take care and consideration in the excavation and construction of the basins. Tree and snag removal in the basin site will be limited to trees within the footprint of the basins. Construction access routes will be positioned around existing trees and snags to avoid tree damage or removal to the extent practical. Existing logs and brush piles may be left within the area to provide wildlife cover, when it would not constitute a hazard to people or property, as directed by the Engineer (outside of the actual basin footprints/grading limits). When not a hazard to people or property, larger logs and snags will be purposely retained in the Project area to provide habitat for wildlife that depend on them for perches, nesting, or cover as directed by the Engineer.

The final grading of the Water Quality Treatment Basins shall have a "natural" appearance with varying side slopes on the basins between 3:1 and 5:1, with an average side slope of each individual basin being that of 4:1 of the entire side slope area of each basin. The varying side slopes shall be smooth and gentle. The Contractor shall coordinate with the Engineer and RS to provide for these varying side slopes to create a final "natural" appearance that will "blend" with the surrounding area and landscape.

All waste, debris, and surplus excavation material shall become the property of the Contractor and shall be removed and disposed of outside of the project right-of-way in accordance with the provisions in the Standard Specifications, and these Special Provisions.

Measurement and Payment

"EARTHWORK – SOUTH BONANZA BASIN" and "EARTHWORK – MARGARET/D ST BASIN" and "EARTHWORK – NORTH BONANZA BASIN" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "EARTHWORK – SOUTH BONANZA BASIN" and "EARTHWORK – MARGARET/D ST BASIN" and "EARTHWORK – NORTH BONANZA BASIN" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with earthwork and construction of water quality treatment basin area(s) including but not limited to excavation, loading, transport, stockpiling, backfill, embankment construction, grading, compaction, finish grading, placement of salvaged topsoil and organics, and disposal of earthen materials necessary to construct the water quality treatment basins to the specified lines and grades, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.27-5 ROADWAY AND TRAIL EXCAVATION & CONSTRUCTION

In addition to the provisions of the Standard Specifications (particularly Section 19), roadway and trail excavation and grading work shall include excavation, loading, transport, stockpiling, sub-grade and sub-base preparation, structural fill material, placement, grading, compacting, embankment construction, and disposing of surplus material necessary to construct the improvements identified on the Project Plans within the roadway, trail or other paved areas as directed by the Engineer.

Roadway excavation does not include structure excavation, trench excavation, or other excavation work paid for as a separate item or included in other construction/bid items as stated in these Special Provisions.

The Contractor shall excavate, fill, construct and grade the roadway and trail improvements to the lines and grades as shown on the Project Plans and applicable cross-section sheets, and as directed by the Engineer. All designated areas shall be graded, compacted, and the sub-base otherwise prepared in order to receive the aggregate base section, hot mix asphalt, ac swale, concrete curb and gutter, valley gutter, sidewalk, rock surface treatments, or other surface improvements as shown on the Project Plans.

Finishing roadway and trail shall conform to Section 10-1.28 "Finishing Roadway/Trail & Finish Grading" of these Special Provisions. Shoulder backing for roadway and trail improvements shall be as shown on the Plans and conform to the provisions in Section 19-9, "Shoulder Backing" of the Standard Specifications.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section,

complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.27-6 VEGETATED SWALE EXCAVATION AND GRADING

Site preparation, salvage of existing organics and sod materials, excavation, subgrade preparation, grading, topsoil placement, salvaged sod placement, over seeding, and finishing for construction of a vegetated swale at the James/Eloise parcel as shown on the Project Plans shall conform to Section 10-2, "Revegetation", of these Special Provisions. Additional specifications for excavation, earthwork and grading applicable to construction of a vegetated swale shall conform to the provisions in Section 19, "Earthwork" of the Standard Specifications, these Special Provisions, and as directed by the Engineer.

Surplus excavation material shall become the property of the Contractor and shall be removed and disposed of outside of the project right-of-way in accordance with the provisions in the Standard Specifications, and these Special Provisions.

Measurement and Payment

Payment for the vegetated swale revegetation treatment type is defined under Section 10-2, "Revegetation", of these Special Provisions.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"EARTHWORK – VEGETATED SWALE (JAMES/ELOISE SITE)" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract unit price paid for "EARTHWORK – VEGETATED SWALE (JAMES/ELOISE SITE)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with earthwork and construction of the vegetated swale subgrade preparation including but not limited to excavation, loading, transport, stockpiling, backfill, embankment construction, grading, compaction, finish grading, placement of salvaged topsoil and organics, and disposal of earthen materials necessary to prepare the subgrade to receive the salvaged sod and construct the water quality treatment basins to the specified lines and grades, and other appurtenances as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.27-7 RIPRAP – ROCK WEIR, ROCK DISSIPATER/TRANSITIONS, ROCK CHECK DAMS, RSP, DRAINAGE EROSION PROTECTIONS

Excavation, subgrade preparation, compaction, grading, and finishing for the construction of rock weir, rock dissipater/transitions, rock slope protection, rock check dams, drainage erosions protections, and other rock features as shown on the Project Plans and applicable details shall conform to the provisions in Section 19, "Earthwork" of the Standard Specifications, these Special Provisions, and as directed by the Engineer. Attention is directed to Section 10-1.36, "Rock Rip Rap", and Section 10-1.51, "Rock Surface Treatment & Other Rock Features", of these Special Provisions.

Surplus excavation material shall become the property of the Contractor and shall be removed and disposed of outside of the project right-of-way in accordance with the provisions in the Standard Specifications, and these Special Provisions.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.28 FINISHING ROADWAY/TRAIL & FINISH GRADING

Finishing of roadway and multiuse trail shall conform to the provisions of Section 22, Finishing Roadway, of the Standard Specifications, these Special Provisions, and as directed by the Engineer.

All finished areas with cut and/or fill slopes shall be graded as indicated on the Project Plans, staked in the field, and directed by the Engineer. The Contractor shall employ excavation and/or placement methods that does not disturb or damage other work. Areas that are shown to not have any excavation or grading shall be protected and remain undisturbed to protect the existing soil profile and vegetation cover.

Because of the nature of the project, careful excavation, backfill, and grading are mandatory. The proposed contours, representative cross sections, and applicable typical cross section as shown on the Project Plans represent the intended shape of the land but the Contractor shall take into account that the proposed multi-use trail, sidewalks, tie-ins, slopes, grade breaks, and other adjacent proposed improvements shall be constructed and graded to natural shapes that transition smoothly to adjacent features and grades. As part of the scope of this item of work, the Contractor shall work under the direction of the Engineer to create a natural-looking finished grade surface in accordance with all ADA regulations. The Contractor may be directed in the field to make minor modifications to the depth of cuts, heights of fills, angle of slopes, and other contour grading to achieve a natural appearance, and the desired functioning of the system and proposed improvements. Additionally, the Contractor may be field directed, by the Engineer, to slightly modify the alignment or elevation of the proposed improvements to account for variations in substrate or topography, and true field conditions present at the time of

construction. Compensation for these potential directives and minor field modifications, as noted above, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.29 ROCK FRACTURE AND REMOVAL

It is possible that large boulders and/or bed rock will be encountered during roadway and trench excavation for the removal, relocation, and/or construction of various underground improvements as shown on the Project Plans or as directed by the Engineer. The Contractor will receive extra compensation for excavation of large boulders and excavation through bedrock. To be eligible for extra compensation for excavation the material must have a compressive strength greater than 20,000 pounds per square foot (psf), and individual boulders must have an average diameter greater than 3 feet. To be eligible for extra compensation the Contractor must notify the Engineer when the potential large boulder or bedrock is encountered, prior to excavation of the material. Should the Engineer not be properly notified nor be present during the excavation of rock meeting these requirements, no additional compensation will be allowed and all costs associated with the work will be borne solely by the Contractor.

The Contractor will additionally be responsible for backfilling and compaction of the areas disturbed as part of rock fracture and removal, in accordance with all other sections of these Special Provisions and Standard Specifications and no other compensation will be allowed therefor.

The Contractor will additionally be responsible for surface restoration to the same condition as prior to construction, for areas disturbed as part of rock fracture and removal, in accordance with all other sections of these Special Provisions and Standard Specifications and no other compensation will be allowed therefor.

The quantity shown on the bid schedule is approximate only and actual rock excavation may vary from zero to an amount greater than that shown. No adjustment of compensation will be made for any increase or decrease in the quantities of rock fracture and removal required, regardless of the reason for the increase or decrease. The provisions in Section 9-1.06, "Changed Quantity Payment Adjustments", of the Standard Specifications shall not apply to rock fracture and removal.

Measurement and Payment
"ROCK FRACTURE AND REMOVAL (AS DIRECTED OR AUTHORIZED)" shall be measured per cubic yard volume of rock material excavated and disposed of, as accepted by the Engineer as conforming to all the requirements in the complete work. The cubic yard volume

shall be based on field measurement of in-place material removed to the limits of excavation (any increases in volume hauled due to swell shall be considered as included in the unit price paid, and no additional compensation shall be allowed therefor). Any removal of rock outside the lines of what would be normally required for construction of the improvement as shown on the Plans and applicable details will not be compensated for, and all costs associated with this shall be borne solely by the Contractor and no additional compensation will be allowed therefor.

Full compensation for furnishing all labor, material, tools, equipment, and incidentals necessary to remove and dispose of rock includes, but is not limited to, excavation, loading, transport, backfill materials, grading, compaction, surface and/or pavement restoration, traffic control, disposal of rock and other debris, and incidentals is included in the contract price paid for each cubic yard of rock removed and disposed of under the bid item "ROCK FRACTURE AND REMOVAL (AS DIRECTED OR AUTHORIZED)" and no additional compensation will be allowed.

10-1.30 NATIVE MATERIAL

Native material used for sub-base or structure backfill must be accepted by the Engineer before placement in the work. The Contractor shall inform the Engineer, in writing, at least ten (10) working days prior to any proposed use of native material in the work. No native material shall be used for structure backfill without written acceptance of the Engineer. Relative compaction of not less than 90 percent shall be obtained in all material for a minimum depth of 0.5-foot below the grading plane for the width of the improvement, whether in excavation or embankment, except as specified to be 95 percent.

The Contractors attention is directed to Section 10-1.27, "Earthwork", of these Special Provisions for additional information and disposal requirements as related to unknown quantities of contaminated/hazardous soils located within the project site that may contain petroleum hydrocarbons. Disposal of any contaminated/hazardous soils shall be in compliance with the Project Plans, Special Provisions, City PIES, Standard Specifications, Project Permits, and as directed by the Engineer.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.31 AGGREGATE BASE

Aggregate base material (Class 2, 3/4 inch maximum aggregate grading) and construction shall conform to the provisions in Section 26, "Aggregate Bases", of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions. All Aggregate base material shall be Class 2, 3/4 inch maximum aggregate grading unless specifically noted otherwise on the project plans. Recycled aggregate base material which

includes any reclaimed asphalt concrete shall not be used for backfill of pipelines, underground structures or other areas where contact with seasonal high ground waters is expected; in general said recycled aggregate base material should only be used for road base, sidewalk base and multiuse trail base, and not used in shoulder areas or areas that will be exposed/not covered by a permanent impervious surface. Recycled aggregate base material may only be placed in the work provided it meets the grading and quality requirements of said Section 26 and is accepted by the Engineer.

All aggregate base material used for the project shall be of the class/grading for each improvement type and area as shown on the Project Plans and applicable details, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer. **Supporting documentation to indicate the source and material properties conformance with the Standard Specifications for each of the proposed types of aggregate base material shall be submitted to the Engineer no less than ten (10) working days prior to placement in the work for review and acceptance.**

Contractor shall furnish, transport, place, compact, grade, and otherwise apply all aggregate base as necessary to construct and complete all project improvements involved as shown on the Project Plans and specified in the Standard Specifications and these Special Provisions. Aggregate may only be stockpiled at staging and storage areas identified on the Project Plans and in accordance with the Project Permits and shall not be stockpiled in a manner that destroys or damages existing vegetation in areas not shown on plans for excavation or grading. Areas disturbed by the stockpiling of aggregate outside of designated storage areas will be revegetated at the Contractors expense, and no additional compensation will be allowed.

Attention is directed to Section 10-1.56, “Temporary Trench Paving” and Section 10-1.57, “Hot Mix Asphalt Concrete (AC)”, of these Special Provisions for additional requirements regarding pavement restoration and other asphalt paving work.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.32 STRUCTURE BACKFILL

Structure backfill material and construction shall conform to the applicable provisions in Section 19, "Earthwork", of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions. Attention is directed to Section 19-3.02C, “Structure Backfill” of the Standard Specifications.

All structure backfill material used for the project shall be in conformance with the Standard Specifications for each improvement type and area as shown on the Project Plans and applicable details, as specified in these Special Provisions, the Standard Specifications, and as directed by

the Engineer. **Supporting documentation to indicate the source and material properties conformance with the Standard Specifications for the proposed structure backfill material shall be submitted to the Engineer no less than ten (10) working days prior to placement in the work for review and acceptance.**

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.33 SLURRY CEMENT BACKFILL

Slurry cement backfill material and construction shall conform to the applicable provisions in Section 19, "Earthwork", of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions. Attention is directed to Section 19-3.02E, “Slurry Cement Backfill” and Section 90, “Concrete” of the Standard Specifications.

Slurry cement backfill shall be used for structure backfill of: plastic pipes, concrete pipes, culverts, and/or underground structures in locations where there is less than 18-inches of cover from the top of the pipe/structure to the finished structural grade surface (or bottom of AC pavement section), used for encasement and protection of designated utility lines and crossings, or placed in other areas, as shown on the Project Plans, or as directed by the Engineer.

Slurry cement backfill used for encasement and protection of designated utility lines and crossings shall generally occur as shown on the Project Plans and as directed by the Engineer, when proposed storm drainage pipe/culvert crossings are within two (2) feet of any existing sanitary sewer and/or potable water lines. All such cementitious backfill used for encasement and protection will be directed by the Engineer on a case by case basis, and is also intended to protect the utility by eliminating the need for mechanical compaction equipment and standard structure backfill between the pipe/culvert and the utility.

Unless otherwise shown on the Project Plans, specified in these Special Provisions, or Standard Specifications, the use of slurry cement backfill for structure backfill shall only be allowed upon acceptance of the Engineer. Should the Contractor place any slurry cement backfill without the direction of the Engineer the Contractor shall bear all costs associated with said work and no additional compensation shall be allowed therefor.

The Contractor shall determine the mix proportions for all slurry cement backfill to be placed in the work and submit a copy of the mix design to the Engineer at least ten (10) working days in advance of planned work. In addition, the Contractor’s submittal shall include information for the aggregate gradation and a certificate of compliance for any cementitious material, admixtures, etc. No slurry cement backfill shall be used in the work until the mix design is accepted, in writing, by the Engineer.

Measurement and Payment
"SLURRY CEMENT (STRUCTURAL BACKFILL/SHALLOW PIPE INSTALLATIONS)" shall be measured on a cubic yard basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The Contract lump sum price paid for the item "SLURRY CEMENT (STRUCTURAL BACKFILL/SHALLOW PIPE INSTALLATIONS)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.34 CULVERT BEDDING MATERIAL

Culvert and storm drain pipe bedding material and construction shall conform to the applicable provisions in Section 19, "Earthwork", of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions. Attention is directed to Section 19-3.02F, "Culvert Beddings" of the Standard Specifications.

All culvert and storm drain pipe bedding material used for the project shall be of the type and applicable gradation for each improvement type and area as shown on the Project Plans and applicable details, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer. **Supporting documentation to indicate the source and material properties conformance with these Special Provisions and the Standard Specifications for each of the proposed types of bedding material shall be submitted to the Engineer no less than ten (10) working days prior to placement in the work for review and acceptance.**

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.35 PERMEABLE MATERIAL

Permeable material shall conform to the provisions in Section 68-2.02F, "Permeable Material", of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions.

All permeable material used for the project shall be of the class/type for each improvement type and area as shown on the Project Plans and applicable details, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer. **A sample of each of**

the proposed types of permeable material (approximately 0.5 cu-ft) **shall be submitted to the Engineer no less than thirty (30) days prior to placement in the work for review and acceptance.** The permeable material submittal shall include supporting documentation to indicate the source and material properties conformance with the Standard Specifications.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.36 ROCK RIP RAP

Rock rip rap material and construction shall conform to the provisions in Section 72, "Slope Protection," of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions.

Rock rip rap shall be angular and of a color that is consistent with native granite material found in the Lake Tahoe. All rock rip rap material used for the project shall be uniform in color and meet the size and gradation for each improvement type and area as shown on the Project Plans and applicable details, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer. **A sample of each of the proposed type of rock rip rap material** (approximately 0.5 cu-ft) **shall be submitted to the Engineer no less than thirty (30) days prior to placement in the work for review and acceptance.** The rock submittal shall include supporting documentation to indicate the source and material properties conformance with the Standard Specifications. Rock color, size, type, and material properties will be reviewed for acceptance by the Engineer.

Unless otherwise noted in these Special Provisions, placement of all rock shall be in accordance with the applicable Method A requirements of Section 72-2.03B, “Placement Method A”, of the Standard Specifications. All materials shall be placed to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. In confined linear areas where protection of existing infrastructure, vegetation, and/or soils is specified only equipment that can be safely operated in the confined construction corridor will be permitted. Prior acceptance of the Engineer shall be required if the Contractor proposes initial placement of rock by dumping and spreading from the bucket of a backhoe or other similar equipment. Hand placement or manipulation of rock will be required under the direction of the Engineer to achieve the required configuration of the improvement.

All rock is to be placed to minimize the potential for movement when flow is induced, which shall be accomplished by interlocking the angular nature of the rock with itself. Local surface irregularities of the rock rip-rap shall not vary from the planned slopes by more than four (4) inches measured at right angles to the slope.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.37 REINFORCEMENT

Reinforcement and related materials shall conform to the provisions of Section 52, "Reinforcement," of the Standard Specifications.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.38 MISCELLANEOUS IRON AND STEEL

Frames, grates, covers and other miscellaneous iron and steel shall conform to the provisions of Section 75, "Miscellaneous Metal," of the Standard Specifications.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.39 GEOSYNTHETICS

Filter fabric, silt fence fabric, gravel bag, sediment filter bag, rock slope protection fabric, pavement reinforcing fabric, and other geosynthetic materials and construction shall conform to the applicable provisions of Section 96, "Geosynthetics", of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions.

For each type of geosynthetic used for the project the Contractor shall submit to the Engineer no less than thirty (30) days prior to placement in the work for review and acceptance, a Certificate of Compliance, test sample representing each lot, and minimum average roll value (MARV). All submittals shall include the manufacturer's name and product information.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.40 PAINTING COLOR OF EXPOSED EQUIPMENT

Painting shall conform to the provisions of Section 59-3, "Painting Galvanized Surfaces"; 59-4, "Painting Sign Structures"; and 78-4.02, "Painting Timber" of the Standard Specifications, the Project Permits and related sections of these Special Provisions.

All exposed, newly installed metal or galvanized structures, not identified for coloring with the "Natina Steel" (or equal) product, as shown on the Project Plans or specified elsewhere in these Special Provisions, including but not limited to sign backs, sign posts, access gate, above grade utility boxes, etc. shall be painted, with an industrial paint which will adhere to galvanized material or other metal facility with a color consistent with Color Chart "RAL 6012 – Black green" as described on the website http://www.ralcolor.com. **Contractor must submit product specifications and a color sample for acceptance by the Engineer.**

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.41 GALVANIZED STEEL COLORING

Work under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals as necessary for cleaning and staining exposed galvanized steel components listed below or as identified on the Project Plans and details to blend with surrounding features and/or as directed by the Engineer in accordance with the Project Plans, Standard Plans, Standard Specifications, these Special Provisions, the Project Permits, and as directed by the Engineer.

The following galvanized steel components (exposed portions above grade) shall be colored with a "Natina Steel" product (or equal).

- Any galvanized storm drain risers, and inlet grates

The Engineer will verify all locations of galvanized steel surfaces that are to be cleaned and stained prior to initiation of the work.

Materials - The stain must consist of a clear soluble solution of soft buffered organic acids that

accelerates the oxidization process without compromising the protective qualities of the galvanized surfacing. No pigment based colorants should be added to achieve the desired color. The stain must react with the galvanized surface over a period of 5-10 days to produce a dark brown color with a matte finish. The stain must be resistant to fading in the sun.

Preparation - Galvanized surfacing to be stained must be free of oils, dirt, and other contaminants. All surfaces must be dried thoroughly before application of stain. Cleaning of galvanized surface must be performed by one of the following methods:

a) Steam cleaning conforming to Section 59-1.03C(4) of the Standard Specifications.

b) Scrubbing with a brush and biodegradable detergent; thoroughly rinsing with clean water.

c) Pressure washing with biodegradable detergent and thoroughly rinsing with clean water.

d) Solvent cleaning conforming to the requirements in Surface Preparation Specification No. 1, "Solvent Cleaning," of the "SSPC - The Society for Protective Coatings."

Application - After the designated areas to be stained have been prepared and the test section accepted, apply stain to all visible galvanized surfaces. Apply stain according to the Manufacturer's instructions to achieve a color consistent with the accepted test section. Spray application must be contained to prevent overspray onto adjacent surfaces and wood posts. Spray application should not be performed under windy conditions.

Stain must be applied uniformly. Any irregularities must be corrected according to the stain Manufacturer's recommendations. Stained surfaces must be kept dry for a period of ten (10) days following the application of stain.

Test Section - The Contractor shall apply stain to a minimum 2 foot test section of galvanized steel identified by the Engineer. The Engineer shall be notified not less than seven (7) days before staining the test section. Prepare and stain the test section with the same materials, tools, equipment and methods to be used in staining final surfaces. The applied stain must be allowed to cure for a minimum of five (5) days before the Engineer's inspection. In the event more than one test section is required by the Engineer, each additional test section will be paid for as change order work. Use the accepted test section as the standard of comparison in determining acceptability of staining.

Submittals - The Contractor shall submit the following items to the Engineer a minimum of seven (7) days prior to application of staining (see test section requirements above):

1. A copy of the stain Manufacturer's product Material Safety Data Sheet, written stain application instructions, and the location and date of staining test section.
2. Certificate of Compliance for the stain product.
3. Proposed methods to control overspray, spillage and protection of adjacent surfaces for staining work occurring at the job site. No staining work will be allowed prior to acceptance.

Pre-Accepted Products - The following product(s) are accepted for use in conformance with this section. Any substitute product must be submitted two weeks prior to the bid date.

Product: Natina Steel (or equivalent)
Natina Products, LLC
1577 First Street, Coachella, CA 92236
Phone 877-762-8462

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.42 CONCRETE STRUCTURES

Portland cement concrete structures shall conform to the provisions of Section 51, "Concrete Structures" of the Standard Specifications, unless otherwise shown on the Project Plans or specified elsewhere in these Special Provisions. Portland cement concrete shall conform to the provisions of Section 90, "Concrete" of the Standard Specifications.

All pre-cast or pre-fabricated storm drain manholes, risers, grade rings, drain inlets, miscellaneous drainage facilities, and other minor concrete structures shall conform to the provisions in Sections 51, "Concrete Structures", 70, "Miscellaneous Drainage Facilities", and 90-4, "Precast Concrete", of the Standard Specifications.

Reinforcement shall conform to the details shown on the plans, these Special Provisions, Section 52, "Reinforcement" of the Standard Specifications, and applicable shop drawings.

All concrete structures (including frame, cover, hatch, grate or other access opening feature) shall be designed to meet AASHTO HS20-44 / HL-93 LRFD traffic loading (whichever is more stringent).

Metal frames and covers or frames and grates shall conform to the provisions in Section 75, "Miscellaneous Metal", of the Standard Specifications.

Concrete shall be air-entrained when installed in areas subject to freeze-thaw conditions. Attention is directed to Section 90-1.02I, "Concrete in Freeze-Thaw Areas" of the Standard Specifications.

No admixtures other than those listed in the Standard Specifications and these Special Provisions shall be added to concrete without prior written acceptance of the Engineer.

The Contractor shall determine the mix proportions for all concrete to be used in cast-in-place structures and submit a copy of the mix design to the Engineer at least ten (10)

working days in advance of planned work. No concrete shall be used in the work until the mix design is accepted, in writing, by the Engineer. In addition the Contractors submittal shall include information for the aggregate gradation and a certificate of compliance for any cementitious material, admixtures, and curing compound.

Surface finishes for all concrete structures shall conform to Section 51-1.03F "Finishing Concrete" of the Standard Specifications. Apply "Ordinary Surface Finish" to all concrete surfaces before applying a higher class finish. Concrete surfaces that are fully buried underground or covered with embankment shall receive an "Ordinary Surface Finish." All other concrete surfaces for this project shall receive "Class 1 Surface Finish", unless a higher class is specified elsewhere in these Special Provisions or the Standard Specifications.

Curing of concrete (including mortar and grout) shall conform to one of the methods specified in Section 90-1.03B, "Curing Concrete", of the Standard Specifications, unless specified elsewhere in these Special Provisions or the Standard Specifications. Selection of a particular curing method for each concrete structure shall be subject to acceptance of the Engineer. Where used, curing compound shall be clear.

Where the depth of concrete drainage structures (manholes, junction boxes, drainage inlet, etc.) is 2.5 feet or more, measured from the top of cover/grate to the floor of the structure, the Contractor shall install steps with the lowest rung 12 inches above the floor and highest rung not more than 12 inches below the top of cover/grate. The distance between steps shall not exceed 12 inches and shall be uniform throughout the length of the wall. Place steps in the wall without an opening and properly align with access opening. Steps inserts may be substituted for the bar steps. Step inserts shall comply with State Industrial Safety Requirements. See Caltrans Standard Plan D74 for step details.

Trenching and shoring shall be in accordance with the requirements of Section 7-1.02K(6), "Occupational Safety and Health Standards" of the Standard Specifications and the relevant sections of these Special Provisions.

All concrete structures and drainage facilities (including curb and gutter, pipe, culvert, manholes, drain inlets, etc.) shall be clean and free of any debris and sediment before acceptance by the Engineer.

Surplus excavated material shall become the property of the Contractor and shall be removed and disposed of outside of the highway right-of-way and Tahoe Basin in accordance with the Standard Specifications, these Special Provisions, and the Project Permits.

For all cast-in-place or pre-cast concrete structures **the Contractor shall submit shop drawings showing dimensions, materials, reinforcement, penetrations, joints, access openings, frames, covers, etc. In addition a Certificate of Compliance shall be furnished for the cementitious material used in pre-cast or pre-fabricated concrete structures.** All materials and items used shall be in accordance with the Project Plans, the Standard Specifications, and these Special Provisions. Quality control and assurance for precast concrete members (including the Quality Control Inspector and Quality Control Plan) shall conform to the requirements in Sections 51-4, "Precast Concrete Members", and 90-4.01D, "Quality Assurance" of the Standard

Specifications.

In addition to the shop drawings and other submittal requirements as noted above, the Contractor shall submit calculations (stamped by a Civil Engineer registered in the State of California) for any applicable underground concrete structure (i.e. manholes, drainage inlets, etc.) demonstrating that the empty weight of the structure shall be 120% of the resultant buoyant force. Design of joints and other connections shall also take account for tensile, shear, and moment forces likely to occur during seasonal high ground water levels, to guard against potential joint separation or displacement from differential settlement movements. In consideration for buoyancy forces and the required flotation calculations, seasonal high ground water levels shall be as noted on the Project Plans, or no greater than 2-feet below surface grade. Soil friction may be considered in buoyancy calculations. Excavation depths and soil cover for structures should be expected in close proximity to that which is depicted on the Project Plans.

All elements of any precast concrete structures shall be designed in conformance with these Special Provisions, the Standard Specifications, and to meet the following minimum criteria:

- ACI 304 and 318
- CRSI Manual of Standard Practice
- Current/applicable ASTM and AASHTO standard(s)
- AASHTO HS20-44 / HL-93 LRFD traffic loading (whichever is more stringent)
- Current Building codes for the City of South Lake Tahoe

Cement shall be Type V portland cement as specified in ASTM C 150. The minimum 28-day concrete compressive strength shall be 4,000 psi, unless other strengths are designated on the drawings. All reinforcing steel shall be embedded in the concrete with a minimum clear cover as recommended by ACI 318.

Precast concrete products shall not be shipped or delivered to a jobsite or transported from the facility of origin until adequate quality and maturity/strengths has been attained, as specified by the precast manufactures quality control standards and as described in these specifications:

- All finished products shall be properly cured and be a minimum age of five (5) days.
- All concrete products shall attain at least the specified design strength
- No concrete product shall be delivered without Certification; any product delivered without the acceptable certifications will be subject to rejection.

Precast concrete sections shall be transported and handled with care in accordance with the manufacturer's written recommendations. Where lifting devices are provided in precast sections, such lifting devices shall be used as intended. Where no lifting devices are provided, the Contractor shall follow the manufacturer's recommendations for lifting procedures to provide proper support during lifting.

Buried precast concrete structures shall be assembled and placed in excavations on properly compacted foundations as indicated. Precast concrete structures shall be set to grade and oriented to provide the required dimensions and clearances from pipes and other structures.

Prior to backfilling of structures, all lifting holes, cracks, and other remnant voids shall be filled with non-shrink grout or polyurethane sealant, or both.

Acceptance Testing
The Contractor shall conform to all applicable Quality Control and Assurance provisions as noted in the Standard Specifications, and elsewhere in these Special Provisions.

At the Owner's option, test cylinders for compressive strength testing may be taken by the Owner or its representative from each load of concrete delivered to the site for construction of concrete structures. Test cylinders will be produced, cured, and tested in accordance with the provisions of Section 90-1.01D "Quality Assurance" of the Standard Specifications. The costs of all such tests will be borne by the Owner. In the case of test failure, a copy of the test report for the failed concrete will be provided to the Contractor. If determined by the Engineer, it shall be the Contractor's responsibility to replace or repair, to the satisfaction of the Engineer, the portion of the work in which the unacceptable concrete was used. The cost of additional testing for the portion of the work which is replaced or repaired shall be borne by the Contractor.

The Engineer reserves the right to reject any cast-in-place or pre-cast concrete unit/structure, and require replacement, for any cast-in-place or pre-cast concrete unit/structure which does not conform to the dimensions or structural standards shown on the Project Plans or specified herein, and/or which is not suitable for the intended application as determined by the Engineer.

Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.43 STORM DRAIN MANHOLES

Work under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing a storm drain manhole(s) with frame and cover, complete in place, as shown on the Project Plans and in accordance with the provisions of Section 10-1.42, "Concrete Structures," of these Special Provisions, the Standard Specifications, and as directed by the Engineer. Frames, grates, covers and other miscellaneous iron and steel shall conform to the provisions of Section 75, "Miscellaneous Metal," of the Standard Specifications. **The Contractor shall submit shop drawings showing dimensions, materials, reinforcement, penetrations, frame and cover, etc. of the proposed storm drain manhole components.** All items used shall be in accordance with the Project Plans, the Standard Specifications, and these Special Provisions.

Attention is directed to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

The complete finished manhole structure including frame and cover shall be constructed in a water tight fashion meeting ASTM C478 specifications, and conformance with these Special Provisions and the Standard Specifications. Precast manholes shall consist of concrete riser sections set on concrete bases including cylindrical sections, concentric or eccentric cones, grade adjusting rings, plus frame and cover as shown on the Project Plans and applicable details.

All designated pipe penetrations in the storm drain manhole(s) shall be located (horizontal and vertical position) as shown on the Project Plans. Each penetration shall be cast or core drilled for the exact opening size as scheduled (considering basis of outside pipe diameter and material type), no block-outs or knock-outs are allowed. All connectors shall be selected and sized specifically for the type of pipe to be installed in accordance with the manufacturer recommendations.

Where the depth of concrete drainage structures (manholes, junction boxes, drainage inlet, etc.) is 2.5 feet or more, measured from the top of cover/grate to the floor of the structure, the Contractor shall install steps with the lowest rung 12 inches above the floor and highest rung not more than 12 inches below the top of cover/grate. The distance between steps shall not exceed 12 inches and shall be uniform throughout the length of the wall. Place steps in the wall without an opening and properly align with access opening. Steps inserts may be substituted for the bar steps. Step inserts shall comply with State Industrial Safety Requirements. See Caltrans Standard Plan D74 for step details.

All precast manhole sections shall have a tongue and groove assembly with flexible watertight rubber gasketed joints meeting the requirements of ASTM C443 {hydrostatic water pressures up to 13 psi (~30ft)}. Joint material shall be pre-lubricated profile type rubber gasket, confined o-ring rubber gasket, or equivalent (mastic sealants, butyl tape, or other preformed flexible joint sealants are not an acceptable alternative). Installation shall be in strict accordance with manufacturer's instructions. Riser sections and frames shall be mortared on both the inside and the outside of the structure. The interior mortar shall be finished to provide a smooth and flush surface on the interior of the structure. The exterior mortar shall be a minimum thickness of three (3) inches. The finished manhole shall be watertight and provide smooth interior walls throughout, including at the pipe penetrations – there shall be no sharp edges or irregularities.

Where pipes are installed in manholes (penetrations), the connection shall be at least equal to that of the pipe joint performance requirements. Where soil-tight pipe joints are specified, the ends of the pipes shall be placed flushed or cut off flush with the inside face of the structure, and be grouted in place with hydraulic cement "non-shrink" grout, unless otherwise directed by the Engineer. Where watertight pipe joints are specified, connection between the pipe and structure shall conform to the applicable requirements of ASTM C923 or ASTM F2510. Performance of the pipe, fittings, and connections is highly dependent on proper installation procedures. The Contractor must ensure gasket, resilient cast in boot or rubber boot, mechanical seal, corrugated pipe adapters, etc. are uniformly seated around the pipe and/or structure opening. Extra precautions must be taken to prevent differential settlement between the pipe and structure (i.e. pipe must be centered in connection assembly and trench foundation shall be compacted to no less than ninety (90) percent for a minimum length of five (5) feet as measured from outside face of adjoining structure). Installation shall be in conformance with all manufacture recommendations, the Project Plans and applicable details, the Standard Specifications, these

Special Provisions, and as directed by the Engineer. The costs for these connections (including any core drilling and all materials, adapters, gaskets, seals, band clamps, couplings, grout, concrete collars, etc.) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the pipe to manhole/structure connections as required for a complete construction of the project.

Where manholes are located within any paved area the finished grade of the frame, rim and cover shall be placed no less than one-eighth (1/8) inch and no greater than one-quarter (1/4) inch below the finished grade of the adjacent paved surface to protect the device from interference with future snowplow operations. In earth shoulder areas, asphalt concrete shall be placed to a minimum of two (2) feet around the manhole and paved out at 45 degrees to the edge of existing pavement if the structure is within two (2) feet of the existing pavement. Where manholes are within any non-paved area (greater than 2 feet from existing pavement) the finished grade of the frames, rims, covers, grates, etc. shall be placed two (2) inches above the prevailing finished grade of the adjacent non-paved surface area; and include construction of a concrete collar (minimum twelve (12) inch depth and width, 4000 psi concrete) around the circumference of the manhole frame/cover to fully engage the manhole riser sections. The frame, rim and cover shall further be in accordance with the Detail on the Project Plans.

Attention is directed to Section 10-1.56, "Temporary Paving Patch" and Section 10-1.57, "Hot Mix Asphalt Concrete (AC)", of these Special Provisions for additional requirements regarding temporary trench patch, final pavement restoration, and other asphalt paving work.

Measurement and Payment

"48" DIA. STORM DRAIN MANHOLE" and "60" DIA. STORM DRAIN MANHOLE" and "60" DIA. STORM DRAIN MANHOLE w/ 36" GRATE INLET TOP" and "72" DIA. STORM DRAIN MANHOLE w/ DIVERTER" shall be measured per each on the number of structures, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per each paid for the "48" DIA. STORM DRAIN MANHOLE" and "60" DIA. STORM DRAIN MANHOLE" and "60" DIA. STORM DRAIN MANHOLE w/ 36" GRATE INLET TOP" and "72" DIA. STORM DRAIN MANHOLE w/ DIVERTER" contract items shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the manhole, complete in place, including sawcutting, asphalt concrete removal, structure excavation and backfill, subgrade preparation, concrete base, precast sections, adjustable weir/diverter, core drilling, pipe connections, adapters, gaskets, seal boot, band clamps, couplings, mortar, grout, joint materials, frame and cover, modified grate inlet top, hardware, concrete collars, steps, backfill, pervious materials, aggregate base, compaction, grading, adjustment to grade, and other incidentals, as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.44 SEDIMENT TRAP

Corrugated metal pipe for sediment traps shall conform to the provisions of Sections 66, "Corrugated Metal Pipe" and 61, "Culvert and Drainage Pipe Joints", of the Standard Specifications, and these Special Provisions. Frames, grates, covers and other miscellaneous iron and steel shall conform to the provisions of Section 75, "Miscellaneous Metal," of the Standard Specifications. All concrete used shall be in conformance with Section 90, "Concrete", of the Standard Specifications.

Attention is directed to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

Shop drawings including all components of the sediment traps plus a Certificate of Compliance(s) for each type of pipe material furnished shall be submitted to the Engineer for review and acceptance, prior to fabrication. The certificate of compliance shall also certify that all pipe materials and workmanship comply with the specifications and any applicable shop drawings. Include all information for any materials used for the frame, grate, cover, concrete base, and any pipe joint/connections.

Corrugated metal pipe used for the sediment traps shall be fabricated from zinc-coated steel sheet with a nominal thickness no less than 10-gauge (0.138" wall thickness) unless otherwise stated on the Plans. The corrugated metal pipe shall be helically corrugated steel pipe with a continuous helical lock seam. All sediment trap sizes, diameter, dimensions, openings, etc shall be as delineated on the Project Plans and applicable details. All sediment trap grates or covers shall conform to the Standard Plan D75A (steel pipe inlet) and/or Standard Plan D77B (bicycle proof grate details) as specified on the Project Plans.

All completed steel components, hardware, and exposed surfaces shall be colored to minimize the structures appearance. Attention is directed to Sections 10-1.40, "Painting Color of Exposed Equipment" and 10-1.41, "Galvanized Steel Coloring" of these Special Provisions. **Prior to application, the Contractor shall submit a color sample to the Engineer for review and acceptance.** The painting/coloring of any portion of the sediment trap(s) shall be included in the unit cost of the sediment trap and no additional compensation will be allowed therefor.

Measurement and Payment

"DRAINAGE INLET, TYPE 1 – SEDIMENT TRAP (36" DIA. CMP, 10 GAUGE MIN.)" and "DRAINAGE INLET, TYPE 1 – SEDIMENT TRAP (48" DIA. CMP, 8 GAUGE MIN.)" and "DRAINAGE INLET, TYPE 2 – SEDIMENT TRAP (36" DIA. CMP, 10 GAUGE MIN.)" and "SEDIMENT TRAP w/ HINGED COVER TOP (36" DIA. CMP, 10 GAUGE MIN.)" and "SEDIMENT TRAP w/ HINGED COVER TOP (60" DIA. CMP, 8 GAUGE MIN.)" shall be measured per each on the number of structures, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per each paid for the "DRAINAGE INLET, TYPE 1 – SEDIMENT TRAP (36" DIA. CMP, 10 GAUGE MIN.)" and "DRAINAGE INLET, TYPE 1 – SEDIMENT TRAP (48" DIA. CMP, 8 GAUGE MIN.)" and "DRAINAGE INLET, TYPE 2 – SEDIMENT TRAP (36" DIA. CMP, 10 GAUGE MIN.)" and "SEDIMENT TRAP w/ HINGED COVER

TOP (36" DIA. CMP, 10 GAUGE MIN.)" and "SEDIMENT TRAP w/ HINGED COVER TOP (60" DIA. CMP, 8 GAUGE MIN.)" contract items shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in fabricating and installing the sediment traps, complete in place, including, corrugated metal pipe, metal frames, grates, covers, hardware, structure excavation, sub-grade preparation, concrete base, fabrics, pervious material, rock bottom layer, pipe connections, concrete collars, aggregate base, structure backfill, compaction, grading, disposal of materials, and any other appurtenances, as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.45 DRAINAGE INLET

Work under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing drain inlet(s) with frame, grate and curb hood, complete in place, as shown on the Project Plans and in accordance with the provisions of Section 10-1.42, "Concrete Structures," of these Special Provisions, the Standard Specifications, and as directed by the Engineer. Frames, grates, covers and other miscellaneous iron and steel shall conform to the provisions of Section 75, "Miscellaneous Metal," of the Standard Specifications. **The Contractor shall submit shop drawings showing dimensions, materials, reinforcement, penetrations, frame and grate, etc. of the proposed drainage inlet or yard drain components.** All items used shall be in accordance with the Project Plans, the Standard Specifications, and these Special Provisions.

Attention is directed to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

Each drain inlet shall be constructed as shown on the Project Plans and as directed by the Engineer. All items used shall be in accordance with the Project Plans, the Standard Specifications, and these Special Provisions. All drain inlets shall meet AASHTO H-20 traffic loading.

Each drain inlet shall be constructed as shown on the Project Plans, Standard Plans and as directed by the Engineer. All items used shall be in accordance with the Project Plans, Standard Plans, the Standard Specifications, and these Special Provisions. All drain shall meet AASHTO H-20 traffic loading.

The complete finished drain inlet, including frame, grate and curb hood shall be constructed in a water tight fashion meeting ASTM C890 and C913 specifications, and conformance with these Special Provisions and the Standard Specifications.. Precast drain inlets shall consist of a precast base unit with a cast-in-place top section to receive the frame, grate, and curb hood to meet the existing/proposed grades as shown on the Project Plans and applicable details. Drain inlets that are entirely precast are not acceptable. The upper one (1) foot (minimum) of the structure including the curb and gutter transition to a point 6-feet on either side of the drain inlet centerline shall be poured in place; the placement of reinforcement and dowels shall be as shown on the

applicable detail. All drain inlets shall be furnished with bicycle-proof grates.

The grate for all Drain Inlets shall be in accordance with the detail shown on the Project Plans and in accordance with Section 10-1.38, Miscellaneous Iron and Steel of these Special Provisions. The "hood" for the drain inlet shall be of the size/dimension shown on the detail of the Project Plans and made of a ½" minimum thickness steel plate. The Color of the hood shall meet the requirements of coloring of exposed equipment (Section 10-1.40 of these Special Provisions). Further, the hood shall be cold galvanized after any welding is performed. The Contractor shall submit a shop drawing depicting the construction and installation of the hood to the drain inlet, components, which shall be connected (welded) to the drain inlet frame and cast into the concrete curb and gutter as shown on the Project Plans.

All designated pipe penetrations in the drain inlet shall be located (horizontal and vertical position) as shown on the Project Plans. Each penetration shall be cast or core drilled for the exact opening size as scheduled (considering basis of outside pipe diameter and material type), no block-outs or knock-outs are allowed. All connectors shall be selected and sized specifically for the type of pipe to be installed in accordance with the manufacturer recommendations.

Where pipes are installed in the drain inlet structure (penetrations), the connection shall be at least equal to that of the pipe joint performance requirements. Where soil-tight pipe joints are specified, the ends of the pipes shall be placed flushed or cut off flush with the inside face of the structure and be grouted in place with hydraulic cement "non-shrink" grout, unless otherwise directed by the Engineer. Where watertight pipe joints are specified, connection between the pipe and structure shall conform to the applicable requirements of ASTM C923 or ASTM F2510. Performance of the pipe, fittings, and connections is highly dependent on proper installation procedures. The Contractor must ensure gasket, resilient cast in boot or rubber boot, mechanical seal, corrugated pipe adapters, etc. are uniformly seated around the pipe and/or structure opening. Extra precautions must be taken to prevent differential settlement between the pipe and structure (i.e. pipe must be centered in connection assembly and trench foundation shall be compacted to no less than ninety (90) percent for a minimum length of five (5) feet as measured from outside face of adjoining structure). Installation shall be in conformance with all manufacture recommendations, the Project Plans and applicable details, the Standard Specifications, these Special Provisions, and as directed by the Engineer.

The costs for pipe connections (including any core drilling and all materials, adapters, gaskets, seals, band clamps, couplings, grout, concrete collars, etc.) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the pipe to drain inlet connections as required for a complete construction of the project.

Where the depth of structures is 2.5 feet or more, measured from the top of cover/grate to the floor of the structure, the Contractor shall install steps with the lowest rung 12 inches above the floor and highest rung not more than 12 inches below the top of cover/grate. The distance between steps shall not exceed 12 inches and shall be uniform throughout the length of the wall. Place steps in the wall without an opening and properly align with access opening. Steps inserts may be substituted for the bar steps. Step inserts shall comply with State Industrial Safety Requirements. See Caltrans Standard Plan D74 for step details.

Attention is directed to Section 10-1.56, “Temporary Paving Patch” and Section 10-1.57, “Hot Mix Asphalt Concrete (AC)”, of these Special Provisions for additional requirements regarding temporary trench patch, final pavement restoration, and other asphalt paving work.

Measurement and Payment
“DRAIN INLET, TYPE 3” and “DRAIN INLET, TYPE 4” shall be measured per each on the number of structures, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per each paid for the “DRAIN INLET, TYPE 3” and “DRAIN INLET, TYPE 4” contract item shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the drainage inlet, complete in place, including precast structures, formwork, concrete, reinforcement, metal frames, grates, hoods, structure excavation and backfill, sub-grade preparation, fabrics, permeable material, pervious material, aggregate base, backfill, compaction, grading, core drilling, pipe connections, gaskets, seals, grout, curing compound, disposal of materials, and other incidentals, as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.46 BASIN OUTLET STRUCTURE

Work under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing a basin outlet structure(s) with grate and drainage components, complete in place, as shown on the Project Plans and in accordance with the provisions of Section 10-1.42, "Concrete Structures," of these Special Provisions, the Standard Specifications, and as directed by the Engineer. Frames, grates, covers and other miscellaneous iron and steel shall conform to the provisions of Section 75, "Miscellaneous Metal," of the Standard Specifications. **The Contractor shall submit shop drawings and material data sheets showing dimensions, materials, reinforcement, penetrations, frame and grate, etc. of the proposed basin outlet structure components.** All items used shall be in accordance with the Project Plans, the Standard Specifications, and these Special Provisions.

The complete finished basin outlet structure including grate, hardware, and drainage components shall be constructed in a watertight fashion meeting ASTM C890 and C913 specifications, and conformance with these Special Provisions and the Standard Specifications. The basin outlet structures shall consist of a single unit (i.e. monolithic without joints or seams; riser sections are not allowed) precast concrete drain inlet structure modified as necessary to receive the grate assembly (including hinges, lock, and other hardware) and drainage components (including PVC pipe and fittings, threaded pipe cap, etc). Each basin outlet structure shall be installed to meet the lines, grades and elevations as shown on the Project Plans and applicable details.

All drainage components (8” Ø PVC pipe and fittings) for the basin drains shall be SDR26 or other equivalent pressure rating pipe. All pipe and fittings shall be from the same manufacture. Where any pipe section is to be exposed above grade, the pipe material shall be UV stabilized

and painted with two coats of a light colored water base outdoor latex paint.

The locking dome grate (8" Ø, light duty ductile iron) shall be designed as a drop in style grate to fit PVC pipe types; similar or equivalent to Nyloplast 8" Dome Locking Grate Assembly (0899CGDL).

All designated pipe penetrations in the basin outlet structure shall be located (horizontal and vertical position) as shown on the Project Plans. Each penetration shall be cast or core drilled for the exact opening size as scheduled (considering basis of outside pipe diameter and material type), no block-outs or knock-outs are allowed. All connectors shall be selected and sized specifically for the type of pipe to be installed in accordance with the manufacturer recommendations.

Where pipes are installed in the basin outlet structure (penetrations), the connection shall be at least equal to that of the pipe joint performance requirements. Where soil-tight pipe joints are specified, the ends of the pipes shall be placed flushed or cut off flush with the inside face of the structure and be grouted in place with hydraulic cement "non-shrink" grout, unless otherwise directed by the Engineer. Where watertight pipe joints are specified, connection between the pipe and structure shall conform to the applicable requirements of ASTM C923 or ASTM F2510. Performance of the pipe, fittings, and connections is highly dependent on proper installation procedures. The Contractor must ensure gasket, resilient cast in boot or rubber boot, mechanical seal, corrugated pipe adapters, etc. are uniformly seated around the pipe and/or structure opening. Extra precautions must be taken to prevent differential settlement between the pipe and structure (i.e. pipe must be centered in connection assembly and trench foundation shall be compacted to no less than ninety (90) percent for a minimum length of five (5) feet as measured from outside face of adjoining structure). Installation shall be in conformance with all manufacture recommendations, the Project Plans and applicable details, the Standard Specifications, these Special Provisions, and as directed by the Engineer. The costs for these connections (including any core drilling and all materials, adapters, gaskets, seals, band clamps, couplings, grout, concrete collars, etc) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the pipe to basin outlet structure connections as required for a complete construction of the project.

All completed steel components, hardware, and exposed surfaces shall be colored to minimize the structures appearance (including the exposed portion of the concrete structure above grade). Attention is directed to Sections 10-1.40, "Painting Color of Exposed Equipment" and 10-1.41, "Galvanized Steel Coloring" of these Special Provisions. **Prior to application, the Contractor shall submit a color sample to the Engineer for review and acceptance.** The painting/coloring of any portion of the basin outlet structure(s) shall be included in the unit cost of the basin outlet structure and no additional compensation will be allowed therefor.

Measurement and Payment

"BASIN OUTLET STRUCTURE" shall be measured per each on the number of structures, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per each paid for the "BASIN OUTLET STRUCTURE" contract item

shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the basin outlet structure, complete in place, including precast structures, grates, hardware, steel components, drainage components, structure excavation and backfill, sub-grade preparation, permeable material, pervious material, aggregate base, backfill, compaction, grading, core drilling, pipe connections, gaskets, seals, grout, disposal of materials, and other incidentals, as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.47 CONCRETE CURB, GUTTER, AND SIDEWALK

Concrete curb & gutter, transitions, valley gutter, driveways, sidewalk and other concrete surface improvements as shown on the Plans shall conform to the provisions of Section 73, "Concrete Curbs and Sidewalks", of the Standard Specifications, the PIES, and other sections of these Special Provisions, except that in no case shall the cement content be less than 658 pounds per cubic yard. The standard portland cement concrete (PCC) mix shall be fiber reinforced with a 28-day compressive strength of not less than 4,000 pounds per square inch. Maximum slump shall be four (4) inches, and an air-entraining admixture conforming to the requirements of Section 90-1.02E, "Admixtures", of the Standard Specifications shall be added to the concrete to result in an air content of six (6) percent (min. 5.5% and max. 8%) in the freshly mixed concrete.

Curing of concrete shall conform to one of the methods specified in Section 90-1.03B, “Curing Concrete”, of the Standard Specifications, unless specified elsewhere in these Special Provisions or the Standard Specifications. Selection of a particular method for curing concrete shall be subject to acceptance of the Engineer. Where used, curing compound shall be clear.

All concrete shall be placed to the lines, grades, and dimensions as shown on the Project Plans and applicable details; except that where concrete sidewalk falls within a commercial driveway the thickness shall be no less than six (6) inches. Work under this item includes but is not limited to: submittals; layout and staking; transport; saw cutting and removal of existing pavements; excavation; sub-base preparation; aggregate base; grading and compaction; constructing forms; placement of reinforcement; joining with adjacent improvements; furnishing and placing concrete; detectable warning surface; finishing and curing; backfill; disposal; and any other appurtenances for a complete job in place and accepted by Engineer, in accordance with the Project Plans, and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer.

All concrete work must be protected from motorized traffic or other damaging stresses until it has reached a compressive strength of not less than 3,000 pounds per square inch or been in place for at least 7 days. The Contractor will be required to plate or bridge driveway accesses to sufficiently protect newly installed curb and gutter, and sidewalk in order to comply with the requirements in Section 10-1.01, "Order of Work and Preconstruction Conference " and Section 10-1.18, “Maintaining Traffic”, of these Special Provisions.

At the Owner's option, test cylinders for compressive strength testing may be taken by the Owner

or its representative from each load of concrete delivered to the site for construction of concrete curb & gutter, transitions, valley gutter, pedestrian curb ramp, sidewalk, and other concrete surface improvements as shown on the Plans. Test cylinders will be produced, cured, and tested in accordance with the provisions of Section 90-1.01D "Quality Assurance" of the Standard Specifications. The costs of all such tests will be borne by the Owner. In the case of test failure, a copy of the test report for the failed concrete will be provided to the Contractor. If determined by the Engineer, it shall be the Contractor's responsibility to replace or repair, to the satisfaction of the Engineer, the portion of the work in which the unacceptable concrete was used. The cost of additional testing for the portion of the work which is replaced or repaired shall be borne by the Contractor.

The Contractor shall determine the mix proportions for all concrete to be used in concrete curb & gutter, transitions, valley gutter, driveways, sidewalk, and other concrete surface improvements as shown on the Plans and submit a copy of the mix design to the Engineer at least ten (10) working days in advance of planned work. No concrete shall be used in the work until the mix design is accepted, in writing, by the Engineer.

No admixtures other than those listed in these specifications shall be added to concrete without prior written acceptance of the Engineer.

All costs associated with furnishing, installing, grading, compacting and all other effort necessary for the proper finished placement of all aggregate base under and around the concrete curb and gutter, concrete valley gutter, concrete curb end transitions, concrete curb transition to drainage inlet as shown on the Project Plans and described in the Special Provisions shall be included in the costs associated with those items and no additional payment shall be allowed therefor.

Attention is directed to Section 10-1.56, "Temporary Paving Patch" and Section 10-1.57, "Hot Mix Asphalt Concrete (AC)", of these Special Provisions for additional requirements regarding temporary trench patch, final pavement restoration, and other asphalt paving work.

Measurement and Payment

"CONCRETE CURB & GUTTER (VERTICAL BATTERED)" and "CONCRETE CURB & GUTTER (ROLLED)" and "CONCRETE EDGING (FOR GRAVEL PAVER SYSTEM)" shall be measured on a per linear foot basis along the centerline (at flow line) of the facility, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials (including forms, concrete, curing compounds, reinforcement, etc.), tools, equipment, and incidentals and for doing all the work involved in placing and finishing the concrete, complete in place, including submittals, transport, structure excavation and backfill, sub-base preparation, complete aggregate base section, constructing forms, reinforcement, joining with adjacent improvements, concrete, backfill, compaction, installation, finishing, curing, disposal, and any other appurtenances, as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer shall be at the contract unit price per linear foot for every linear foot of concrete curb and gutter, valley gutter, batter curb and vertical curb constructed and accepted by the

Engineer under the bid items for "CONCRETE CURB & GUTTER (VERTICAL BATTERED)" and "CONCRETE CURB & GUTTER (ROLLED)" and "CONCRETE EDGING (FOR GRAVEL PAVER SYSTEM)" and no additional compensation will be allowed.

"CONCRETE CURB TRANSITION (TYPE 1, CURB END)" shall be measured per each on the number of units, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials (including forms, concrete, curing compounds, reinforcement, etc.), tools, equipment, and incidentals and for doing all the work involved in placing and finishing the concrete, complete in place, including submittals, transport, excavation, sub-base preparation, complete aggregate base section, constructing forms, reinforcement, joining with adjacent improvements, concrete, backfill, compaction, installation, finishing, curing, disposal, and any other appurtenances, as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer shall be at the contract unit price per each concrete curb transition and adjustment structure constructed and accepted by the Engineer under the bid items for ""CONCRETE CURB TRANSITION (TYPE 1, CURB END)" and no additional compensation will be allowed.

10-1.48 PLASTIC STORM DRAIN PIPE

Plastic pipe for storm drains shall conform to the provisions of Sections 64, "Plastic Pipe" and 61-2, "Culvert and Drainage Pipe Joints", of the Standard Specifications. Perforated plastic pipe shall conform to the provisions of Section 68, "Subsurface Drains," of the Standard Specifications.

Attention is directed to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

A Certificate of Compliance(s) shall be furnished to the Engineer for review and acceptance, for each type of plastic pipe furnished and proposed for installation. The certificate shall also certify that the plastic pipe and joints complies with the requirements of the specifications, and shall include the resin material cell classification, unit weight of pipe, average pipe stiffness, joint property requirements, and date of manufacture. Also provide documentation of source quality control testing for watertight joints in accordance with Section 61-2.01D of the Standard Specifications. For corrugated polyethylene pipe, also submit the manufacturer's certification or copy of plant audits and test results from the National Transportation Product Evaluation Program (NTPEP) for the current cycle of testing for each pipe diameter furnished and its conformance with AASHTO minimum requirements.

Plastic pipe, fittings, gaskets, and other components shall be stored in a way that protects materials from the weather, heat sources, and corrosive liquids, in addition to protection from direct sunlight by storing in containers and/or covering with tarpaulins or other suitable materials. To minimize the potential for pipe shrinkage after installation, the temperature of pipe to be laid must not be more than five (5) degrees Fahrenheit higher than the ambient temperature of the trench. Should the Contractor not provide adequate cover of the pipe or install during changes in temperature the Engineer will not accept the pipe and the Contractor will be required

to replace the pipe which is deemed unacceptable by the Engineer. The Contractor will bare all costs associated with the replacement and no additional compensation will be allowed therefor.

HDPE Pipe Material

Plastic pipe for storm drains shall be double walled Type S corrugated high-density polyethylene (HDPE) pipe with a smooth interior wall, unless otherwise shown on the Plans, for all storm drain pipe less than 30-inch diameter. Plastic pipe for storm drains between 30- and 60-inch diameter shall be triple walled corrugated HDPE pipe with a smooth interior wall unless otherwise shown on the Plans.

Pipe materials for 4-to-10-inch diameter size pipe shall conform to the requirements in AASHTO designation M252, Type S and pipe materials for 12 to 60 inch diameter size pipe shall conform to AASHTO designation M294, Type S, except as otherwise specified.

Joint systems and couplers for plastic pipe for storm drains shall meet the minimum requirements for a "Positive Joint Classification" as noted in Section 61 of the Standard Specifications. **All joints and connections shall be watertight in conformance with the Standard Specifications, and in accordance with the requirements of ASTM D3212** {hydrostatic water pressures up to 10.8 psi (~25ft)}. Attention is directed to the Standard Plans for additional information on pipe couplings and joint details. Perforated pipe, where applicable as shown on the Project Plans, may have soil tight joints per manufacturer requirements.

Fittings shall conform to AASHTO M252, AASHTO M294, or ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of AASHTO M252, AASHTO M294, or ASTM F2306. All costs associated with providing, installing, removing and disposing of temporary plastic pipe and fittings (associated with the temporary dewatering basins and water quality treatment basins) shall be considered in the unit prices of other bid items and no separate payment shall be allowed therefor. Any pipe or fitting used for the temporary dewatering basin shall not be reused on the Project and shall be properly disposed of.

Pipe shall be installed in accordance with ASTM D2321, the pipe manufacturer's specifications, the Standard Specifications, and these Special Provisions.

Construction

Pipes shall be laid to the lines and grade shown on the Plans with the sections properly jointed, following generally accepted practices, the Manufacture's recommendations, and installed in accordance with ASTM D2321, the Standard Specifications, these Special Provisions, and as directed by the Engineer. Care shall be taken not to damage pipe sections, joints, or gaskets during assembly. Contractor shall make use of pipe lubricant, installation stub, etc. and follow manufacture recommendations to ensure all pipe sections are pushed "home." A "come-along" or other similar method should be used; construction equipment such as an excavator bucket, etc. must not have direct contact with the plastic pipe end sections unless an installation stub and large timber or other suitable cushioning medium is utilized. Excavation and backfill shall conform to Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications. Attention is directed to Section 64-2.02B "Backfill" of the Standard Specifications for additional information specific to the gradation of structure backfill for plastic pipes. Permeable backfill

for perforated storm drain pipe installations shall be as specified on the Plans, and conform to Section 10-1.35 “Permeable Material” of these Specifications. The Contractor shall clean the interior of the pipeline as work progresses and the pipeline shall be clear and free of debris and sediment before acceptance by the Engineer.

Changes in direction, without the use of elbows or other fittings, may be accomplished through joint deflection or longitudinal bending, but not both on the same length of pipe. Allowable joint deflection or longitudinal bending is dependent on pipe size and/or joint design and shall not exceed the pipe manufacturer’s published limits. No deflection in pipe shall be allowed without prior written acceptance by the Engineer.

The trench shall be excavated to the depth and width as necessary to allow for proper installation of the pipe and compaction of backfill material to the lines and grades as shown on the Project Plans and applicable details. The bottom of the trench shall be graded and prepared so as to provide a firm and uniform bearing for the pipe along its entire length. Where the trench bottom or immediate adjacent side walls are unsuitable (i.e. clay, peat, soft muck/refuse or bedrock/unyielding material unable to provide long-term pipe support), the Contractor shall excavate to a depth required by the Engineer and replace with suitable material as specified or directed by the Engineer. In addition, and at the discretion of the Engineer, a geotextile material may be required to stabilize the bottom of the trench. In-situ trench foundation shall be no less than 90% standard proctor; any materials placed to stabilize trench bottom foundation shall be no less than 95% standard proctor. Suitable bedding material shall be Class I or II in accordance with ASTM D2321 or accepted native soils. Minimum bedding thickness shall be 4 inches (for 4” - 24” pipe) and 6 inches (for 30” - 60” pipe). Suitable material for the initial backfill or pipe embedment (up to minimum 12 inches above top of pipe) including the haunch area and pipe zone shall be Class I or II in accordance with ASTM D2321. The final backfill section shall be structure backfill, aggregate base, or accepted native soils, as shown on the Plan details, and in conformance with Section 19-3, “Structure Excavation and Backfill”, of the Standard Specifications. Any trench backfill shall be placed in uniform lifts (not to exceed 8 inches) and shall be compacted to a relative compaction of 95 percent. Where conditions (i.e. space constraints, poor trench wall soil qualities, etc.) are cause for the Contractor’s inability to achieve the backfill compaction requirements, flowable fill or controlled low strength material (CLSM) shall not be placed in the work without prior acceptance of the Engineer.

During the use and removal of trench wall supports or boxes, it is critical that the initial backfill, haunch, or pipe embedment material (up to minimum 12 inches above top of pipe) is not to be disturbed once placed and compacted in the trench. It is recommended that a sub-trench, sidewall benches or other methods be utilized to support the bottom bearing section of trench boxes in order to minimize disturbance of the pipe or said backfill material.

In situations where the plastic pipe is placed under asphalt concrete paving or other concrete surface improvement and the cover over the pipe, from top of pipe to top to finished grade is 18-inches or less, then structural backfill shall be slurry cement backfill.

Where pipes are installed in manholes, drainage inlets, junction boxes or other structures, the connection shall be at least equal to that of the pipe joint performance requirements. Where soil-tight pipe joints are specified, the ends of the pipes shall be placed flush or cut off flush with the

inside face of the structure and be grouted in place with hydraulic cement "non-shrink" grout, unless otherwise directed by the Engineer. Where watertight pipe joints are specified, connection between the pipe and structure shall conform to the applicable requirements of ASTM C923 or ASTM F2510. Performance of the pipe, fittings, and connections is highly dependent on proper installation procedures. The Contractor must ensure gasket, waterstop, link seal, rubber boot, adapters, etc. are uniformly seated around the pipe and/or structure opening. Extra precautions must be taken to prevent differential settlement between the pipe and structure (i.e. pipe must be centered in connection assembly and trench foundation shall be compacted to no less than ninety (90) percent for a minimum length of five (5) feet as measured from outside face of adjoining structure). Installation shall be in conformance with all manufacture recommendations, the Project Plans and applicable details, the Standard Specifications, these Special Provisions, and as directed by the Engineer. The costs for these connections (including all materials, adapters, gaskets, seals, band clamps, couplings, grout, concrete collars, etc) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the connections required for a complete construction of the project. All watertight pipe penetrations (all connections to structures within the Commercial Core Area as shown on Sheet iii of the Project Plans) shall be in accordance with Detail 3 on Sheet D-2. All pipe penetrations at all structures shall be finished "flush" and "clean" with the interior wall of the structure to the acceptance of the Engineer.

Where pipes are to connect to existing pipes, proper couplings and methods shall be utilized to connect the plastic pipe to the existing pipe (including differing sizes and material), and the connection shall be at least equal to that of the pipe joint performance requirements. The connection shall be in conformance with all manufacturer recommendations, these Special Provisions, the Standard Specifications, and as directed by the Engineer. The costs for these couplings (including all materials, gaskets, seals, grout, concrete collars, etc) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the couplings required for a complete construction of the project.

Any pipe fittings, couplers, adapters, etc. as required for the proper construction of the project shall be as specified by the plastic pipe manufacturer and no substitutions will be allowed. The Contractor shall provide and install all necessary fittings and couplers per the manufacturer's recommendations/requirements.

Attention is directed to Section 10-1.56, "Temporary Paving Patch" and Section 10-1.57, "Hot Mix Asphalt Concrete (AC)", of these Special Provisions for additional requirements regarding temporary trench patch, final pavement restoration, and other asphalt paving work. Aggregate base structural section for trench backfill where applicable within roadway/pavement structural sections is considered included in the unit cost of work for the finished pavement item of work. There is no separate pay item for required aggregate base.

CMP to HDPE Connections

The existing storm drainage pipe in the project area is CMP material. The proposed pipe to be installed is HDPE and the connection of the existing CMP to the new HDPE shall be done in full compliance with this sub-section of these special provisions.

The Contractor shall provide a submittal, for review and acceptance by the City and Engineer,

for all storm drainage connections to existing storm drainage pipe. The connection shall be done in full conformance with the HDPE pipe manufacturer, and at a minimum shall include the following:

- Marmac connection by ADS, or equivalent, including
  - Internal Coupler (with matching flowlines)
  - Exterior coupler/wrap
  - Concrete collar
- Concrete collar
  - Full, 306 degree collar around entire connection
  - Minor concrete per the Standard Specifications
  - 6" thick
  - Extending a minimum of 12" in all direction from joint

Measurement and Payment

"12" DIA. HDPE STORM DRAIN PIPE" and "18" DIA. HDPE STORM DRAIN PIPE" and "24" DIA. HDPE STORM DRAIN PIPE" and "30" DIA. HDPE STORM DRAIN PIPE" and "24" DIA. HDPE STORM DRAIN, PERFORATED PIPE SUB-DRAIN" and "30" DIA. HDPE STORM DRAIN PIPE, PERFORATED PIPE SUB-DRAIN" shall be measured on a per linear foot basis along the centerline of the facility from the outside face of any adjoining structures, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the pipe, complete in place, including pipe, fittings, couplings, concrete collar, interconnection to existing pipe materials, gaskets, seals, fabrics, transport, excavation, sub-grade preparation, bedding, installation, connections, structure backfill, permeable material, aggregate base structural sections, compaction, disposal of materials, and any other appurtenances, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per linear foot for every linear foot of pipe installed and accepted by the Engineer under the bid items for "12" DIA. HDPE STORM DRAIN PIPE" and "18" DIA. HDPE STORM DRAIN PIPE" and "24" DIA. HDPE STORM DRAIN PIPE" and "30" DIA. HDPE STORM DRAIN PIPE" and "24" DIA. HDPE STORM DRAIN, PERFORATED PIPE SUB-DRAIN" and "30" DIA. HDPE STORM DRAIN PIPE, PERFORATED PIPE SUB-DRAIN" and no additional compensation will be allowed.

10-1.49 REINFORCED CONCRETE PIPE

Reinforced concrete pipe for storm drains shall conform to the provisions of Sections 65, "Concrete Pipe" and 61, "Culvert and Drainage Pipe Joints", of the Standard Specifications and these Special Provisions.

Attention is directed to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

A Certificate of Compliance(s) shall be furnished to the Engineer for review and acceptance, for each type of pipe furnished and proposed for installation. The certificate shall also certify that all materials and workmanship comply with the specifications and any applicable shop drawings. Include all information for any materials used for the joints; such as grout, rubber gasket, resilient joint materials, and lubricant. Also provide documentation of source quality control testing for watertight joints in accordance with Section 61-1.01D(1) of the Standard Specifications.

Circular reinforced concrete pipe shall be Class III or IV in compliance with AASHTO M 170 (ASTM C76), per application/locations as shown on the Project Plans. Arch shaped reinforced concrete pipe shall be Class IV in compliance with AASHTO M 206 (ASTM C506), unless otherwise shown on the Project Plans. Elliptical shaped reinforced concrete pipe shall be Class IV in compliance with AASHTO M 207 (ASTM C507), unless otherwise shown on the Project Plans. All elliptical pipe shall be designed for placement with the major axis horizontal "horizontal elliptical pipe", unless otherwise stated on the Project Plans as "vertical elliptical pipe." Non-reinforced concrete pipe shall not be allowed. All pipes shall be marked with the date of manufacture and class of pipe.

Joint systems and couplers for reinforced concrete pipe for storm drains shall meet the minimum requirements for a "Standard Joint Classification" as noted in Section 61 of the Standard Specifications. **All joints and connections shall be watertight in conformance with the Standard Specifications, and these Special Provisions.** Attention is directed to the Standard Plans (D97H, 2010) for additional information on pipe couplings and joint details. All reinforced concrete pipes shall have bell and spigot type assembly with flexible watertight rubber gasketed joints meeting the requirements of ASTM C443 {hydrostatic water pressures up to 13 psi (~30ft)}. Joint material shall be pre-lubricated profile type rubber gasket, confined o-ring rubber gasket, or equivalent (mastic sealants or butyl tape are not an acceptable alternative). Installation shall be in strict accordance with manufacturer's instructions.

Pipes shall be laid to the lines and grade shown on the Plans with the sections properly jointed, following generally accepted practices, the Manufacture's recommendations, and installed in accordance with ASTM C1479, Standard Practice, and the Standard Specifications. Care shall be taken not to damage pipe sections, joints, or gaskets during installation. A "come-along", box puller, or other similar method should be used; construction equipment such as an excavator bucket, etc. must not have direct contact with the concrete pipe end sections unless a large timber or other suitable cushioning medium is utilized. Contractor shall make use of pipe lubricant and follow manufacture recommendations to ensure all pipe sections are pushed "home." Excavation and backfill shall conform to Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications, and these Special Provisions. The Contractor shall clean the interior of the pipeline as work progresses and the pipeline shall be clear and free of debris and sediment before acceptance by the Engineer. All lift holes shall be plugged with a "non-shrink" grout to fill all voids.

The trench shall be excavated to the depth and width as necessary to allow for proper installation of the pipe and compaction of backfill material to the lines and grades as shown on the Project Plans and applicable details. The bottom of the trench shall be graded and prepared so as to

provide a firm and uniform bearing for the pipe along its entire length. The bottom of the trench shall be graded and prepared so as to provide a firm and uniform bearing for the pipe along its entire length. Where the trench bottom is unsuitable (i.e. soft muck/refuse or bedrock/unyielding material unable to provide long-term pipe support), the Contractor shall excavate to a depth required by the Engineer and replace with suitable material as specified or directed by the Engineer. In addition, and at the discretion of the Engineer, a geotextile material may be required to stabilize the bottom of the trench. In-situ trench foundation shall be no less than 90% standard proctor; any materials placed to stabilize trench bottom foundation shall be no less than 95% standard proctor. Suitable bedding material shall be sand beddings (per 19-3.02E(2) of Standard Specifications) or accepted native soils meeting the Standard quality and gradation requirements. Minimum bedding thickness shall be 3 inches (for pipe 60" or less) and 6 inches (for pipe 60" or less in rock foundation). Material for the haunch and outer bedding shall be of the same type as the bedding material defined above. Haunch (to springline) and outer bedding material shall be compacted to a relative compaction of 95 percent. The final backfill section shall be structure backfill, aggregate base, or accepted native soils, as shown on the Plan details, and in conformance with Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications. Any trench backfill shall be placed in uniform lifts (not to exceed 8 inches) and shall be compacted to a relative compaction of 95 percent. Where conditions (i.e. space constraints, poor trench wall soil qualities, flooded trench, etc.) are cause for the Contractor's inability to achieve the backfill compaction requirements, flowable fill or controlled low strength material (CLSM) shall not be placed in the work without prior acceptance of the Engineer.

In situations where the concrete pipe is placed under asphalt concrete paving or other concrete surface improvement and the cover over the pipe, from top of pipe to top to finished grade is 18-inches or less, then structural backfill shall be slurry cement backfill.

Where pipes are installed in manholes, drainage inlets, junction boxes or other structures, the connection shall be at least equal to that of the pipe joint performance requirements. Where soil-tight pipe joints are specified, the ends of the pipes shall be placed flush or cut off flush with the inside face of the structure and be grouted in place with hydraulic cement "non-shrink" grout, unless otherwise directed by the Engineer. Where watertight pipe joints are specified, connection between the pipe and structure shall conform to the requirements of ASTM C923 {hydrostatic water pressures up to 13 psi (~30ft)}. Performance of the pipe, fittings, and connections is highly dependent on proper installation procedures. The Contractor must ensure gasket, waterstop, link seal, rubber boot, adapters, etc. are uniformly seated around the pipe and/or structure opening. Extra precautions must be taken to prevent differential settlement between the pipe and structure (i.e. pipe must be centered in connection assembly and trench foundation shall be compacted to no less than ninety (90) percent for a minimum length of five (5) feet as measured from outside face of adjoining structure). Installation shall be in conformance with all manufacture recommendations, the Project Plans and applicable details, the Standard Specifications, these Special Provisions, and as directed by the Engineer. The costs for these connections (including all materials, adapters, gaskets, seals, band clamps, couplings, grout, concrete collars, etc) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the connections required for a complete construction of the project. All watertight pipe penetrations (all connections to structures within the Commercial Core Area as shown on Sheet iii of the Project

Plans) shall be in accordance with Detail 3 on Sheet D-2. All pipe penetrations at all structures shall be finished "flush" and "clean" with the interior wall of the structure to the acceptance of the Engineer.

Where pipes are to connect to existing pipes, proper couplings and methods shall be utilized to connect the concrete pipe to the existing pipe (including differing sizes and material), and the connection shall be at least equal to that of the pipe joint performance requirements. The connection shall be in conformance with all manufacturer recommendations, these Special Provisions, the Standard Specifications, and as directed by the Engineer. The costs for these couplings (including all materials, gaskets, seals, grout, concrete collars, etc) shall be included in the associated bid item of work and no additional compensation will be allowed therefor. There will be no separate payment for the couplings required for a complete construction of the project.

Any pipe fittings, couplers, adapters, etc. as required for the proper construction of the project shall be as specified by the concrete pipe manufacturer and no substitutions will be allowed. The Contractor shall provide and install all necessary fittings and couplers per the manufacturer's recommendations/requirements.

Attention is directed to Section 10-1.56, "Temporary Paving Patch" and Section 10-1.57, "Hot Mix Asphalt Concrete (AC)", of these Special Provisions for additional requirements regarding temporary trench patch, final pavement restoration, and other asphalt paving work. Aggregate base structural section for trench backfill where applicable within roadway/pavement structural sections is considered included in the unit cost of work for the finished pavement item of work. There is no separate pay item for required aggregate base.

Measurement and Payment

"18" DIA. RCP (CLASS III) STORM DRAIN PIPE" and "18" DIA. RCP (CLASS IV) STORM DRAIN PIPE" and "24" DIA. RCP (CLASS III) STORM DRAIN PIPE" and "30" DIA. RCP (CLASS III) STORM DRAIN PIPE" and "22" x 13.5" RCPA (CLASS IV) STORM DRAIN PIPE" and "28.5" x 18" RCPA (CLASS IV) STORM DRAIN PIPE" and "36.25" x 22.5" RCPA (CLASS IV) STORM DRAIN PIPE" shall be measured on a per linear foot basis along the centerline of the facility from the outside face of any adjoining structures, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the reinforced concrete pipe, complete in place, including pipe, fittings, couplings, gaskets, seals, fabrics, transport, excavation, sub-grade preparation, bedding, installation, connections, backfill, compaction, disposal of materials, and any other appurtenances, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per linear foot for every linear foot of reinforced concrete pipe installed and accepted by the Engineer under the bid item for "18" DIA. RCP (CLASS III) STORM DRAIN PIPE" and "18" DIA. RCP (CLASS IV) STORM DRAIN PIPE" and "24" DIA. RCP (CLASS III) STORM DRAIN PIPE" and "30" DIA. RCP (CLASS III) STORM DRAIN PIPE" and "22" x 13.5" RCPA (CLASS IV) STORM DRAIN PIPE" and "28.5" x 18" RCPA (CLASS IV) STORM DRAIN PIPE" and "36.25" x 22.5" RCPA (CLASS IV) STORM DRAIN PIPE" and

no additional compensation will be allowed.

10-1.50 FLARED END SECTION

Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to install and construct a designated flared end section (FES) as shown on the Project Plans, in conformance with the Standard Specifications and these Special Provisions, and as directed by the Engineer.

Flared end sections shall conform to the provisions of Section 70, "Miscellaneous Drainage Facilities", of the Standard Specifications. Each of the FES called for shall be of the applicable size for the adjoining pipe, manufactured by the same manufacturer as the adjoining pipe network and shall be of the same properties of said pipe material (plastic or concrete), unless otherwise noted on the Project Plans, or directed by the Engineer.

Any couplings and/or fittings required to connect the FES to the storm drain pipe shall be as specified by the pipe manufacturer and no substitutions will be allowed. The Contractor shall provide and install the FES (properly attached and jointed to end of pipe) following generally accepted practices, and the manufacturer's recommendations/requirements. Any modification and/or cutting, trimming of the end of a pipe section as necessary to properly install the FES shall be considered as included with the unit price for each FES.

Installation and construction of the FES as shown on the Plans and details shall include, but is not limited to, clearing and grubbing, excavation, sub-grade preparation, bedding, fabrics, furnishing and installing the FES, couplers, fittings, trash racks, backfill, compaction, grading, and disposal of excess material in accordance with the Project Plans, Standard Specifications, these Special Provisions, and as directed by the Engineer. The FES shall be clear and free of debris and sediment before acceptance by the Engineer.

The trench or foundation area for the FES shall be excavated to the depth and width as shown on the Project Plans and applicable details to allow for proper installation of the FES to the lines and grades as shown on the Plans. The foundation area for the FES shall be graded and prepared so as to provide a firm and uniform bearing for the FES along its entire length. Suitable bedding material shall be Class I, II or III in accordance with ASTM D2321, or accepted native soils. Where the trench bottom is unstable, the Contractor shall excavate to a depth required by the Engineer and replace with suitable material as specified or directed by the Engineer. Care shall be taken not to displace the storm drain pipe or damage the pipe end or FES during assembly. The Contractor shall properly backfill (native material and rock where applicable) and compact around the FES to meet finished grade and form a smooth, natural appearance as shown on the Project Plans or as directed by the Engineer; and to create a stable area to receive all proposed revegetation treatments as specified elsewhere in these Special Provisions.

Each FES shall include a trash rack as indicated on the Project Plans and applicable details. All materials and construction methods shall conform to the Standard Specifications (Sections 70 "Miscellaneous Drainage Facilities" and 75 "Miscellaneous Metal") and these Special Provisions.

Rock Dissipater

Where identified on the Project Plans, construction and materials for an associated rock dissipater shall be as shown on the Plans and conform to the provisions in Sections 10-1.36, "Rock Rip Rap" and 10-1.51, "Rock Surface Treatment & Other Rock Features" of these Special Provisions. Any specified filter fabric or coir fabric shall conform to the provisions of Section 10-1.39, "Geosynthetics" of these Special Provisions.

Measurement and Payment
"STORM DRAIN FES & RIPRAP DISSIPATER (MATCH CULVERT SIZE/MATERIAL TYPE)" shall be measured on a basis per each, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the flared end sections, complete in place, including, furnishing, FES, trash rack, riprap dissipater, excavation, sub-grade preparation, bedding, fabrics, installation, backfill, compaction, grading, riprap rock, disposal of materials, and any other appurtenances, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per each flared end section constructed and accepted by the Engineer under the bid items for "STORM DRAIN FES & RIPRAP DISSIPATER (MATCH CULVERT SIZE/MATERIAL TYPE)" and no additional compensation will be allowed.

10-1.51 ROCK SURFACE TREATMENT & OTHER ROCK FEATURES

Rock rip rap and rock aggregate materials for use in constructing the rock lined swales, rock surface treatments and other rock riprap features as shown on the Project Plans shall conform to the provisions in Section 10-1.36, "Rock Rip Rap" of these Special Provisions. Rock materials shall be of the size, gradation and type shown on the Project Plans and/or applicable details.

Excavation, subgrade preparation, compaction, grading, and finishing for the construction of rock weir, rock dissipater/transitions, rock slope protection, rock check dams, drainage erosions protections, and other rock features as shown on the Project Plans and applicable details shall conform to the provisions in Section 10-1.27, "Earthwork" of these Special Provisions, and as directed by the Engineer.

Unless otherwise noted in these Special Provisions, placement of all rock shall be in accordance with the applicable Method A requirements of Section 72-2.03B, "Placement Method A", of the Standard Specifications. All materials shall be placed to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. Because of the confined linear nature of the project areas where the rock features are to be constructed, only equipment that can be safely operated in the confined construction corridor will be permitted, and hand placement or manipulation of rock will be required under the direction of the Engineer to achieve the required configuration of the improvement.

The area designated to receive the improvement shall be excavated and graded to produce a firm, stable and smooth subgrade to the lines, grades and dimensions as shown on the Plans and applicable details, and as directed by the Engineer. The typical subgrade for drainage features shall be undisturbed native soils (or compaction of 80% to 85% if in fill condition) unless otherwise shown on the Project Plans. Where applicable, topsoil and other amendments shall be

applied to specified areas as may be designated per the restoration requirements of these Special Provisions.

For rock features that are linear to a road shoulder, and within the structural section of the road prism, the subgrade sections shall be compacted to a minimum of 95% relative compaction. Except for rock features linear to a road shoulder contained within curb and gutter, and part of a drainage infiltration feature, the subgrade sections shall be undisturbed native soils (or compaction of 80% to 85% if in fill condition).

Where indicated on the Project Plans and applicable details, all rock features that include any fabric or underlayment shall be uniformly graded and free from obstructions such as tree roots, projecting stones, or other foreign matter which may be cause for bridging of the fabric or underlayment. The fabric or underlayment shall be placed, keyed in, and staked where applicable as shown on the Project Plans or as stated in these Special Provisions. All fabric or underlayment shall be installed per the manufacture's requirements, these Special Provisions, and the Standard Specifications.

Where indicated on the Project Plans and applicable details, any filter fabric to be used for construction of a rock feature where designated shall be a permeable, nonwoven, needle-punched geotextile product meeting the provisions of Section 96, "Geosynthetics", of the Standard Specifications. The fabric shall be a 'rock slope protection fabric' suitable for the application and conform to Section 96-1.02I and meet the requirements for Class 8 for applications using 1-ton or smaller rock, and Class 10 for applications using larger than 1-ton rock. The filter fabric shall be treated with ultraviolet ray (UV) protection.

Where indicated on the Project Plans and applicable details, any coir fabric to be used for construction of a rock feature where designated shall be a rolled erosion control product (RECP) meeting the provisions of Section 21, "Erosion Control", of the Standard Specifications. The coir fabric shall be an open weave textile 100% woven coir (coconut fiber) matrix.

Initial placement of rock may be by dumping and spreading from the bucket of a backhoe or other similar equipment. However final placement of all rock will not be allowed to be "dumped", the rock shall be placed as directed by the Engineer for a natural appearance, which will require hand placement of rock. The Contractor shall take all necessary measures to protect any underlayment, fabric, or blanket from damage (if such material is damaged the product shall be repaired per the manufactures recommendations, and as directed by the Engineer). All rock is to be placed to minimize the potential for movement when flow is induced into the channel and this will be accomplished by interlocking the angular nature of the rock with itself. Local surface irregularities of the rock rip-rap shall not vary from the planned slopes by more than three inches (3-in) measured at right angles to the slope.

Measurement and Payment

"ROCK LINED SWALE" shall be measured on a linear foot basis along the centerline of the facility, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for

doing all the work involved to construct the rock lined swale feature as shown on the Plans and described herein, complete in place, including excavation, subgrade preparation, fabrics, rock and aggregates, backfill, topsoil, placement, grading, compaction, disposal, and any other appurtenances, as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer shall be at the contract unit price per linear foot for the length of rock lined swale feature constructed and accepted by the Engineer under the bid items for "ROCK LINED SWALE" and no additional compensation will be allowed.

"ROCK WEIR, GRAVEL CHECK DAMS, EXTENDED ROCK APRON CULVERT INLET/OUTLET CONTROLS, ROCK LINED SWALE TRANSITIONS, & DRAINAGE EROSION PROTECTIONS" shall be measured on a cubic yard basis of material, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved to construct the rock feature as shown on the Plans and described herein, complete in place, including excavation, subgrade preparation, fabrics, rock and aggregates, backfill, topsoil, placement, grading, compaction, disposal, and any other appurtenances, as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer shall be at the contract unit price per cubic yard of material placed for the rock feature constructed and accepted by the Engineer under the bid items for "ROCK WEIR, GRAVEL CHECK DAMS, EXTENDED ROCK APRON CULVERT INLET/OUTLET CONTROLS, ROCK LINED SWALE TRANSITIONS, & DRAINAGE EROSION PROTECTIONS" and no additional compensation will be allowed.

10-1.52 ROAD SHOULDER STABILIZATION (GRAVEL PAVER/PERMEABLE SUBBASE)

Excavation, subgrade preparation, compaction, grading, and finishing for the construction of the road shoulder stabilization gravel paver system as shown on the Project Plans and applicable details shall conform to the provisions in Section 10-1.27, "Earthwork" of these Special Provisions, and as directed by the Engineer.

MATERIALS

The load-transfer rolled panel gravel paver system material(s) shall conform to the following.

1) Load Transfer Rolled Panel Gravel Paver
- **a)** NDS "EZ Roll Gravel Pavers (Model: GP4x150); or equivalent.
- **b)** Injection-molded, high density polyethylene, rolled-plastic-panel gravel pavers for permeable, gravel paved environments.
- **c)** Material: Polyolefin plastic with carbon black for UV stabilization.
  - **i)** Black Gravel Pavers: 100 percent recycled material.
  - **ii)** Colored Gravel Pavers: Virgin material.
- **d)** Recyclable Content: 100 percent.
- **e)** Chemical Resistance: Superior chemical resistance; totally inert.
- **f)** Nominal Depth: 1 inch thickness.
- **g)** Wall Thickness: 0.12 inch minimum.
  - **i)** Cell Form: nested honeycomb.

h) Top Surface of Pavers: Smooth, without notches or grooves.
i) Connecting clips between panels for end-to-end and side-to-side clips/connections.
i) Paver Color: Black or Gray.
j) Paver Compressive Strength, Empty Cells: greater than 35,000 psf.

2) Geotextile fabric backing:
a) Nonwoven, spunbonded, continuous-filament, polypropylene filter fabric.
b) Thermally bonded or injection molded to the gravel paver grid bottom surface.
c) Grab Tensile Strength: 110 lbs.
d) Puncture Resistance: 30 lbs.
e) Apparent Opening Size (AOS), US Sieve Number: 50.
f) Permeability: 0.05 cm/sec.
g) Water Flow Rate: 95 gal/min/sf.
h) UV Stability: 70 percent.

3) Stakes/Anchors: NDS model "GPSTAKE".
a) Compliance: ASTM F 1667.
b) Material: Steel, C1004-C1008.
c) Coating: Bright-dipped galvanized.
d) Size: 12 inches by 3/8-inch diameter.
e) Head: 3/4 inch.
f) Point: Diamond.
g) Shank: Smooth/ring.

4) Permeable Base Rock
a) Conform to Section 10-1.35, Permeable Material of these Special Provisions.
b) Rock gradation shall be equivalent to AASHTO #57 stone, or Class 3 permeable material (Section 68-2.02F(4) of Caltrans Standards), or equivalent form local sources.

5) Surface Aggregate / Gravel Fill Inside Paver Grid
a) Clean crushed, angular, uniformly-graded 3/8-inch gravel, or AASHTO #6 stone.

6) Filter Fabric
a) Use non-woven, needle-punched geotextile filter fabric. Use filter fabric with Apparent Opening Size (AOS) <0.60 mm for native soils with 50% or less particles by weight passing No. 200 sieve and AOS <0.30 mm for native soils with 50% or greater particles by weight passing the No. 200 sieve. Woven geotextiles should not be used.

SUBMITTALS

Product Data: Submit manufacturer's product data, including preparation and installation instructions.

Samples: Submit manufacturer's sample of gravel paver product.

Submit Material Certification / Gradation Analysis for permeable base rock, and surface aggregate / gravel fill.

Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.

Manufacturer's Project References: Submit manufacturer's list of representative successfully completed gravel paver projects, including project name and location, name of designer and/or contractor, and type and quantity of gravel pavers furnished.

Warranty Documentation: Submit manufacturer's standard warranty

PRE-INSTALLATION MEETING

Convene pre-installation meeting at least 2 weeks before start of Work of this Section.

Require attendance of parties directly affecting the Work of this Section, including the prime Contractor, installer, Resident Engineer and Inspector, and manufacturer's representative (if applicable/available).

Review the following items, at minimum:

1) Materials.
2) Protection of in-place conditions.
3) Excavation, and sub-grade preparation.
4) Installation procedures.
5) Concrete Edging.
6) Adjusting and file fit options.
7) Protection of finished product.
8) Coordination with other Work

CONSTRUCTION

Examine areas to receive gravel paver system. Installation shall not occur when excavated and exposed subgrade native soil area has ponding water or ice or is frozen. Do not begin preparation or installation until acceptable conditions are present.

All materials shall be placed to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. Construction shall conform to the manufacture details and specifications. Because of the confined linear nature of the project areas where the gravel paver system is to be constructed, only equipment that can be safely operated in the confined construction corridor will be permitted.

The area designated to receive the improvement shall be excavated and graded to produce a firm, stable and smooth subgrade to the lines, grades and dimensions as shown on the Plans and applicable details, and as directed by the Engineer. The typical subgrade preparation within the structural section of the road prism shall be scarified, moisture conditioned, and compacted to at least 90% relative compaction.

Install concrete edging under Section 10-1.47, Concrete Curb, Gutter, and Sidewalk of these Special Provisions.

Where indicated on the Project Plans and applicable details, all features that include any fabric or underlayment shall be uniformly graded and free from obstructions such as tree roots, projecting stones, or other foreign matter which may be cause for bridging of the fabric or underlayment. The fabric or underlayment shall be placed, keyed in, and staked where applicable as shown on the Project Plans or as stated in these Special Provisions. All fabric or underlayment shall be installed per the manufacture's requirements, these Special Provisions, and the Standard Specifications.

Place and consolidate permeable base rock course material over prepared subgrade, in lifts not to exceed 8 inches, to the lines, grades and dimensions as shown on the Plans and applicable details, and as directed by the Engineer. Compaction of coarse aggregate materials to a specified density is difficult to accurately measure. Therefore, consolidate/compact the permeable base rock course with two to three passes of a minimum 5-ton steel wheel roller or equivalent load large rubber tire construction equipment.

Conform to manufacture installation methods and requirements, including the following installation notes:

1) Install gravel paver units by placing grid cells/units facing up and connecting lateral snap locks together to maintain proper spacing and to interlock units.
   a) Clearance: Leave 1-inch-minimum clearance between gravel paver units and fixed objects such as the concrete edging, and other surface structures.
   b) Top of Units: Leave top of gravel paver units 1/4 inch to 1/2 inch below surface of adjacent hard-surface pavements.
2) Install anchor stakes, per manufacturer requirements, to secure the gravel paver system units in place prior to filling gravel.
3) Place gravel fill in the gravel paver units as the units are laid in sections. Fill from outer periphery moving inward and avoid driving on empty paver units. Trucks and equipment that may drive over empty paver units while filling gravel should minimize or avoid turn maneuvers to avoid displacement of gravel paver unit panels.
4) Extend gravel fill to ½ inch above paver unit surface and match surrounding grade. When gravel fill is properly installed, paver units will have minimum visibility.
5) Gravel fill shall be placed within same day/work shift that the gravel paver units are installed.
6) Backfill and grade the area adjacent to gravel paver system for uniform transition to adjacent grades and surfaces.
7) Protect gravel paver system in place for duration of contract work. Make necessary corrections if damage or displacement has occurred since installation.

Where applicable, backfill and uniformly grade areas adjacent to newly installed gravel paver systems for a smooth transition to adjacent grades and facilities. Incorporate salvaged topsoil and organics and install final revegetation/soil stabilization measures to specified areas as may be shown on the Plans and/or designated per the restoration requirements of these Special Provisions under Section 10-2, Revegetation Treatments.

Measurement and Payment
"ROAD SHOULDER STABILIZATION (GRAVEL PAVER/PERMEABLE SUBBASE)" shall be measured on a square foot basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved to construct the road shoulder stabilization gravel paver system as shown on the Plans and described herein, complete in place, including excavation, subgrade preparation, fabrics, permeable base rock material, concrete edging, reinforcement bars, load-transfer rolled panel gravel paver system, anchor stakes, surface course aggregate, backfill, placement, transition grading, compaction, disposal, and any other appurtenances, as shown on the Plans, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer shall be at the contract unit price per square foot of road shoulder stabilization gravel paver system constructed and accepted by the Engineer under the bid item for "ROAD SHOULDER STABILIZATION (GRAVEL PAVER/PERMEABLE SUBBASE)" and no additional compensation will be allowed.

10-1.53 BUCK AND POLE FENCE

Existing fencing shall be protected in place, reset or replaced as may be required to facilitate the project work. The buck and pole fence shown on the Project Plans shall be reset or replaced, as described in these Special Provisions, and as directed by the Engineer. Exact locations must be coordinated and authorized by the Engineer prior to starting the work. The Contractor shall provide a written request to the Engineer for the location a minimum of one week prior to installation and no more than two weeks prior to installation. The Contractor shall be present when the Engineer locates the exact location for the fences.

The Engineer shall determine salvage and resetting of existing fence at time of construction based on site conditions and the existing material qualities and age of the fence. Replacement of a portion of buck and pole fence shall be constructed of the following materials:

Wood Materials:
Wood to be used for construction of the fence shall be native and natural pine logs of the sizes and diameters shown on the Project Plans. All wood shall have been recently harvested (within the past 3 months) and be free of any disease or insects. Should the Engineer deem the wood unacceptable, for any reasons, the Contractor shall remove and dispose of the unacceptable wood in accordance with these Special Provisions and the Standard Specifications at no additional cost (no compensation shall be allowed for removal, disposal and replacement of unacceptable wood). The Contractor shall provide the Engineer with the supplier and location of the wood to be used in accordance with these Special Provisions.

Hardware:
Rebar shall consist of the size and type shown on the Project Plans and be in conformance with Section 10-1.37, "Reinforcement", of these Special Provisions, and the Standard Specifications.

Concrete:
Concrete masonry blocks, concrete used to fill blocks, and concrete for any necessary end treatment foundations shall be of the size and type shown on the Project Plans in conformance

with Section 90, "Concrete", of the Standard Specifications. In conformance with Section 90-1.02I, "Concrete in Freeze-Thaw Areas", of the Standard Specifications the concrete must contain at least 590 pounds of cementitious material per cubic yard. **The Contractor shall submit a concrete mix design to the Engineer for review and acceptance at least ten (10) working days prior to placement in the work.**

Workmanship shall be first class throughout. Lumber shall be accurately cut and framed to a close fit. The fence shall be placed on angles as shown on the Project Plans and vary to create an irregular appearance, but at the same time maintain the boundary of the area to be enclosed by the fence. The Engineer will provide direction to the Contractor as to the angles of the fence during construction of the fence.

After completion of the construction and installation of the fence the Contractor shall restore any disturbed areas to the pre-existing condition prior to construction of the fence, except where the area is designated for a specific revegetation treatment type as shown on the Project Plans and directed by the Engineer. No separate payment will be made for restoration of any disturbed areas outside the grading limits or other areas where equipment and vehicular traffic is restricted.

Measurement and Payment
"BUCK AND POLE FENCING" shall be measured on a per linear foot basis along the centerline of the facility between each angle point (excluding any overlap of the log members at angle points), complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the removal and disposal of existing fence, reinforcement and foundation, construction and installation of the buck and pole fence, complete in place, including everything required for a complete job, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per linear foot for every linear foot of buck and pole fence constructed, installed and accepted by the Engineer under the bid item for "BUCK AND POLE FENCING" and no additional compensation will be allowed.

10-1.54 OBJECT MARKERS

This work shall consist of furnishing and installing ground object (snow) markers and object (snow) marker sleeves in locations shown on the Project Plans and/or as directed by the Engineer. It shall be the Contractor's sole responsibility to assure that the poles can fit into all sleeves, without modification to the poles or sleeves, prior to acceptance by the Engineer.

Object Marker Poles:
Snow marker poles shall conform to Section 82, "Signs and Markers", of the Standard Specifications, the detail on the Project Plans and these Special Provisions. The snow marker poles shall be one-inch outside diameter, with a length of six-feet, two-inches (to provide an above ground height of five-feet) and be in conformance with the Standard Specifications.

Object Marker Sleeves:

The work involved for the installation of snow marker (stake/pole) sleeves shall consist of furnishing and installing snow marker sleeves (including excavation and any miscellaneous metals) at the locations and according to the details shown on the Plans, the requirements of these Special Provisions, and as directed by the Engineer.

Pipe and metal for use as a snow marker sleeve and insert shall consist of miscellaneous metal of the type and size shown on the Plans and conform to the requirements of Section 75, Miscellaneous Metal, of the Standard Specifications, except for measurement and payment.

Measurement and Payment
"OBJECT MARKER, TYPE A" shall be measured per each on the number of units, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the object markers and object marker sleeves, complete in place, including, purchasing, hardware, fabrication, excavation, installation, backfill, compaction, disposal of materials, and any other appurtenances, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per each marker and sleeve constructed, installed and accepted by the Engineer under the bid item for "OBJECT MARKER, TYPE A" and no additional compensation will be allowed.

10-1.55 ADJUST EXISTING MANHOLES AND UTILITY BOXES TO GRADE

Adjustment of existing manhole, utility box, valve cans, clean outs, hand hole, risers, frames, rims, covers, grates, etc. to grade within the project limits for project activities performed by the Contractor shall conform to the provisions in Section 15 "Existing Facilities" of the Standard Specifications. Adjustment of said facilities shall not occur until final paving has been completed or as authorized by the Engineer.

Where manholes, valve boxes, sanitary sewer cleanouts, pull boxes, hand holes, and other miscellaneous utility boxes are within any paved area the finished grade of the frames, rims, covers, grates, etc. shall be placed no less than one-eighth (1/8) inch and no greater than one-quarter (1/4) inch below the finished grade of the adjacent paved surface to protect the device from interference with future snowplow operations. In road shoulder areas, asphalt concrete or concrete collar (where applicable to the facility) shall be placed to a minimum of two (2) feet around the manhole, vault, utility box, etc. and paved out at 45 degrees to the edge of existing pavement if the structure is within two (2) feet of the existing pavement. All manhole rims, grates and covers shall be in further compliance with the Project Plans.

Where manholes, valve boxes, sanitary sewer cleanouts, pull boxes, hand holes, and other miscellaneous utility boxes are within any non-paved area the finished grade of the frames, rims, covers, grates, etc. shall be placed two (2) inches above the prevailing finished grade of the adjacent non-paved surface area.

Where any existing manhole, vault, junction box, and utility box, risers, frames, rims, covers, grates, etc. has been damaged due to the Contractors operations, the damaged device shall be replaced using materials that are equivalent to or better than what existed. All devices, shall at a

minimum, be rated for H-20 traffic loading.

All concrete associated with the work shall be in conformance with Section 10-1.47. "Concrete Curb, Gutter, and Sidewalk" of these Special Provisions.

Measurement and Payment
"ADJUST MINOR UTILITY BOX/MANHOLE COVERS TO FG (e.g. METER BOX, VALVE CAN, PULL BOX, MANHOLES)" shall be measured per each on the number of units, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, including, purchasing, hardware, fabrication, excavation, installation, concrete collar (where required), backfill, compaction, disposal of materials, and any other appurtenances, as shown on the Project Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be at the contract unit price per each item adjusted and accepted by the Engineer under the bid item for "ADJUST MINOR UTILITY BOX/MANHOLE COVERS TO FG (e.g. METER BOX, VALVE CAN, PULL BOX, MANHOLES)" and no additional compensation will be allowed.

10-1.56 TEMPORARY PAVING PATCH

The Contractor's operations shall limit the amount of land disturbance and include the performance/installation of all water pollution, erosion and sediment control practices as necessary to minimize or eliminate the discharge of sediment and other pollutants from the project site. Efforts shall be made to prevent disturbed soil movement by both wind and water, and the protection of all water bodies and other sensitive areas. The Contractor's attention is directed to Section 10-1.13, "Water Pollution Control & Temporary BMPs", of these Special Provisions.

All areas located within or immediately adjacent to a street, traveled way, or other paved area where the existing asphalt section is removed in association with the construction of the subject improvement shall be stabilized and protected at the close of each workday. Where there is the potential for erosion and sediment discharge or negative impacts to groundwater, the designated asphalt concrete paving for the excavated areas associated with the project improvements (such as pipelines, culverts, underground concrete structures, manholes, utility vaults, curb and gutter, drainage inlet, sidewalk, etc.) shall be placed immediately following the completion of the work and any curing time limits (all newly placed concrete shall be allowed to cure for a minimum of 5 days prior to any placement of asphalt concrete paving or temporary patch) to minimize the amount of dust generated and erosion caused by stormwater flowing down the street, traveled way, or other paved area.

The Contractor shall minimize cold joints and perform all permanent asphalt paving work continuously, until complete, and in accordance with the corresponding Standard Specifications and Special Provisions stated herein. The Contractors attention is directed to Section 10-1.01, "Order of Work and Preconstruction Conference" and 10-1.11, "Construction Staging and Storage Areas", of these Special Provisions, and the Project Plans, for additional requirements related to progression of the work, time of use, and restoration of designated staging areas and

construction areas. In addition, attention is directed to 10-1.57, "Hot Mix Asphalt Concrete (AC)", of these Special Provisions for additional requirements regarding pavement restoration and other asphalt paving work.

At the Contractors option, to minimize the mobilization costs associated with the permanent asphalt paving work and to produce a better final product, the Contractor may place and compact a temporary patch in the excavated areas identified above. The temporary patch shall be one (1) inch of "cold patch" or "hot mix asphalt" with the remainder to be compacted aggregate base and/or other structure backfill (the aggregate base and/or structural section backfill shall be as designated on the Plans, and as specified in these Special Provisions, and Standard Specifications). Backfill of excavations and placement of temporary patch at the end of each day's work is preferred and shall be completed within a 48 hour period unless otherwise accepted by the Engineer in writing. Without exception, all excavations shall be backfilled and temporary patch shall be in place prior to Saturdays, Sundays, and City recognized holidays, as described in these Special Provisions. Contractor shall maintain temporary patch until final paving has been completed. Upon discovery or as directed by the Engineer, previously installed temporary patch that is damaged shall be repaired that same day.

After completion of all the applicable contract work (or work within a designated construction zone) the Contractor shall sawcut, remove, excavate, and/or grind and profile mill as necessary to remove the temporary patch and all other designated adjacent existing surfaces/asphalt concrete sections (to the required depth) in order to properly grade, compact, and prepare the subgrade and aggregate base areas to receive the permanent asphalt paving as shown on the Project Plans, and as specified in these Special Provisions, Standard Specifications, and as directed by the Engineer.

Optional temporary patching is part of the Contractor's water pollution control program. No separate payment will be made for the work associated with temporary patching and removals. All costs associated with the temporary patching work described herein shall be considered as included in prices paid for the various Contract items of work involved, and no additional compensation will be allowed (*the removal of temporary patch is/will not be included in the measurement or unit cost bid item for removal of existing asphalt concrete pavement that is designated for removal on the Project Plans or as specified in these Special Provisions and the Standard Specifications, regardless of removal method*). The **Contractor shall submit a plan for the temporary patch and/or permanent asphalt paving patch to be reviewed and accepted by the Engineer.** In the event that the Contractor does not submit a plan for review and acceptance, the Contractor shall place the permanent asphalt paving immediately following the completion, and any curing limits, for each item of work as noted herein. This temporary patch option will not be allowed for any work within the Caltrans Right-of-Way without prior approval by Caltrans.

Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as

included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.57 HOT MIX ASPHALT CONCRETE (AC)

Work under this section shall consist of furnishing all labor, materials, tools, equipment, and incidentals necessary for the complete construction of a hot mix asphalt concrete structural pavement section including a complete aggregate base section (per Section 10-1.31, "Aggregate Base" of these Special Provisions), plus any grading, preparation and compaction of all subgrade and structural section (AB and AC) materials as shown on the Project Plans, as specified in these Special Provisions, as described in the City PIES and Standard Specifications, and as directed by the Engineer. All sub-grade and/or sub-base excavation, fill, grading, compaction, and other construction requirements shall conform to the provisions in Section 10-1.27, "Earthwork" of these Special Provisions.

The Contractor shall contact the Engineer upon completion of associated improvements requiring paving, and prior to performing any preparatory work or permanent paving, to schedule a site inspection. The Engineer at the site inspection will delineate the areas requiring any preparatory work and permanent paving as described in this section and other sections of these Special Provisions. No permanent paving shall be performed until the Engineer has clearly delineated the areas requiring paving. Any areas that receive paving outside of the Engineer's delineated area, for whatever reason, the Contractor will bear all extra costs associated with this work, and no additional compensation will be allowed therefor.

The pavement restoration within linear or confined trenching areas (such as pipelines, manholes, utility vaults, junction structures, concrete curb and gutter, etc.) shall be limited to the required widths as shown on the Project Plans and applicable details. In the event the Contractor is required to have a larger width than that shown on the Project Plans/details, the Contractor will bear all extra costs associated with this work, unless prior acceptance is received from the Engineer in writing. Permanent asphalt paving will additionally include areas where less than three (3) feet, in width, of existing pavement remains upon completion of construction, between the tie-in paving limit for improvements requiring pavement restoration or replacement. These areas, as identified by the Engineer, shall be replaced as shown on the details for pavement restoration on the Project Plans.

Shoulders on roadways, and behind curb/curb and gutter, where called for or as shown on the Plans, shall be constructed/re-constructed during road base/shoulder grading (using road base material as shown on the Plans and/or specified in Section 10-1.31, "Aggregate Base" of these Special Provisions), to the same cross-section/slope as the road base, with minimum width and compaction accepted by the Engineer. Attention is directed to Section 10-1.28, "Finishing Roadway/Trail & Finish Grading" of these Special Provisions. Shoulder backing adjacent to new roadway paving/repaving and the edge of other new pavement surfacing shall be to the minimum width and compaction as shown on the Plans or as directed and accepted by the Engineer. Materials and construction for shoulder backing shall conform to the provisions of Section 19-9, "Shoulder Backing" of the Standard Specifications.

The Contractor shall be responsible for raising or lowering all existing frames for manhole covers, valve box covers, utility vault boxes, pull boxes, hand holes, monument covers,

environmental test well covers, etc., to the final paving grade, where applicable, and expenses incurred shall be borne by the Contractor unless noted otherwise on the project plans or in these special provisions. Attention is directed to Section 10-1.55, "Adjust Existing Manholes and Utility Boxes to Grade" of these Special Provisions. Any other arrangements are to be made in the advanced planning stages of the project and accepted by the Engineer.

The Contractor shall be responsible for the cleanup of all asphalt spoils generated from the project. Cleaning out of any paving equipment by spreading of asphalt concrete spoils on unpaved surfaces is not allowed. Diesel fuel spilled onto unpaved areas shall be documented and cleaned up of immediately. During transporting, spreading and compacting, petroleum products such as diesel fuel and kerosene shall not be used as a release agent on trucks, spreaders or compactors in contact with the asphalt concrete.

GENERAL

WORK SUMMARY

- Provide all labor, materials, tools, equipment, services, and incidentals as necessary to perform the work as described in this section. Work includes but is not limited to furnishing, placing, spreading and compacting hot mix asphalt (HMA) to produce a finished flexible paving section as shown on the Drawings, identified in these Special provisions, included in the standard specifications and as otherwise directed by the Engineer.
- The Standard Specifications are incorporated herein except as modified in these Special Provisions. "Hot mix asphalt" and "asphalt concrete" may be used interchangeably in this specification and the Special Provisions and shall be considered to have the same meaning.
- Hot mix asphalt concrete (AC) shall be Type A and shall conform to the provisions in Section 39, "Hot Mix Asphalt," of the Standard Specifications, and these Special Provisions. The grade of asphalt binder to be mixed with aggregate for Type A asphalt concrete shall be PG 64-28 M conforming to the provisions in Section 92, "Asphalt Binders," of the Standard Specifications.
- At the option of the Contractor, and acceptance of the Engineer, the grade of asphalt binder used for patching may be PG 70-10 or PG 64-10 provided at least one layer of asphalt concrete mixed with PG 64-28 M and conforming to these Special Provisions is placed over the patch. Unless otherwise approved by the Engineer, leveling and miscellaneous areas will not be considered as patching.
- Temporary HMA trench patching intended to last one season until the street mill and overlay work occurs in 2023 may be a minimum of 2-inches in depth. The binding oil may be PG 70-10 or PG 64-10 or other Engineer approved binding oil. Placement of temporary HMA trench patching shall be at the Contractor's expense, should the Contractor construct storm drain improvements within the Bonanza Neighborhood (F Street, D Street, or Bonanza Ave) in 2022 and where mill and overlay of roadway pavement sections are specified.

RELATED WORK

- Related work specified in other sections includes, but is not limited to:

- Section 10-1.01, Order of Work and Preconstruction Conference
- Section 10-1.09, Occupational Safety and Health Standards & Trench Shoring
- Section 10-1.10, Lines and Grades
- Section 10-1.13, Water Pollution Control and Temporary BMPS
- Section 10-1.17, Traffic Control
- Section 10-1.18, Maintaining Traffic
- Section 10-1.19, Temporary Traffic Control Systems
- Section 10-1.31, Aggregate Base
- Section 10-1.56, Temporary Paving Patch

DEFINITIONS

- HMA – Hot Mix Asphalt
- RAP - Reclaimed Asphalt Pavement
- Substitution Rate – amount of RAP aggregate substituted for virgin aggregate in (%)

SUBMITTALS

- Submittals shall be in conformance with the Special Provisions.
- Comply with the submittal requirements, per the applicable Caltrans Standard Specifications for materials involved in the work.
- Provide certifications, testing and samples as specified herein and per the applicable Caltrans Standard Specifications for materials involved in the work.
- Certification for asphalt must comply with the Caltrans "Certification Program for Suppliers of Asphalt"
- Certificates of Compliance for asphaltic emulsions must include:
  - Project Name, Contractor, and Supplier.
  - Shipment number and shipment date.
  - Source refinery, consignee, and destination.
  - Type and description of material with specific gravity and quantity.
  - Contract or purchase order number.
  - Signature by the manufacture of the material and a statement that the material complies with the Contract.
- Notify the Owner if you dilute asphaltic emulsion with water. With each dilution submit:
  - Weight ratio of water to bituminous material in the original asphaltic emulsion.
  - Weight of asphaltic emulsion before diluting.
  - Weight of added water.
  - Final dilution weight ratio of water to asphaltic emulsion.

CONTRACTOR MIX DESIGN PROPOSAL

- The Contractor shall submit for the Owner's review and acceptance, a proposed HMA mix design for each HMA mixture to be used in the work before production of that HMA mixture. The Owner will review each complete HMA mix design proposal within 10 working days.
- The HMA mix design including aggregate quality and HMA mix requirement test results shall be no more than one year old when production of the HMA starts.

- Submit HMA mix design under Section 39-2.07, Minor Hot Mix Asphalt of the Caltrans Standard Specifications.
- The Contractor may start HMA production only if the Owner has reviewed and accepted the proposed job mix formula for compliance with the specifications.

CONTRACTOR QUALITY CONTROL PLAN

- The Contractor shall establish, implement and maintain a quality control (QC) plan for HMA work. The QC plan must describe the organization and procedures you will use to:
  - Control the quality characteristics for aggregate, asphalt binder, additives, HMA production, and paving operations.
  - Identify sampling locations.
  - Determine when corrective actions are needed, and action limits.
  - Procedures to implement corrective actions.
- Submit QC plan when submitting the HMA mix design to the Owner for review and acceptance. The Owner will review the QC plan within 10 working days.
- Do not start production of HMA until the Owner has authorized the QC plan.

REFERENCES

- Caltrans Standard Specifications, State of California, Department of Transportation, Standard Specifications, dated 2018; and published revisions thereto. https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications
  - Payment descriptions in the Caltrans Standard Specifications shall not apply.
  - In case of conflict with the Caltrans Standard Specifications, the most stringent specification shall apply.
  - "Department" as stated in the Caltrans Standard Specifications shall be defined as "Owner" for the purposes of these Specifications.
- Applicable ASTM and AASHTO standards.
- A reference within parentheses to a law or regulation is included in the Contract for convenience only and is not a comprehensive listing of related laws and regulations. Lack of a reference does not indicate no related laws or regulations exist.
- Where the version of a referenced document is not specified, use the most recent version in effect on the date of the Notice to Bidders.
- A code not specified as a federal code is a California code.
- An agency or a department not specified as a federal or local agency or department is a California agency or department.

QUALITY ASSURANCE

- Testing Agency: City/Engineer will engage a qualified independent geotechnical engineering and/or material testing agency to perform field quality control acceptance testing.
- Inspection: The Contractor shall coordinate with the City/Engineer during all HMA paving operations to allow for access to the site as often as necessary for the performance of any special inspections and material testing for verification that the specifications are being met for the installation of materials. Frequency of material

testing shall conform to the applicable California Test Methods or equivalent ASTM, ASSHTO test methods.

- The City/Engineer may assure conformance to contract specifications by inspection of the Contractor's procedures, by oversight of the Contractor's quality control inspection and records, and by independent verification sampling and testing during HMA production and construction. Acceptance tests will be performed using the same test methods used for quality control testing.
- Aggregates, asphalt binder or HMA that does not conform to the requirements for aggregate quality or gradation, mixture volumetric properties, and/or density, including density of longitudinal joints, may be rejected.
- The City/Engineer may reject a quantity of HMA that is determined to be defective based on visual inspection.

CONTRACTOR QUALITY CONTROL

- Contractor shall provide quality control, sampling, testing, and inspection during HMA work at a rate sufficient to ensure materials and work conform to the Specifications.
- Conform to the applicable provisions of the Caltrans Standard Specifications for the materials and construction methods involved in the work.
- The Contractor and City/Engineer shall hold a pre-paving conference to discuss the methods of performing the paving work and quality control procedures, including the Contractor's QC Plan.
- The Contractor may witness acceptance sampling and testing. However, the City/Engineer will not be required to notify the Contractor of anticipated sampling schedules or locations and will not delay sampling or testing if the Contractor is unable to attend. The Contractor shall not use samples taken by City/Engineer for acceptance testing, for any testing and submittal as a quality control test result.

PROJECT CONDITIONS AND REQUIREMENTS

- Confine all operations to work / grading limits of the project and prevent damage to natural features and surroundings.
- Comply with all legal load restrictions in the hauling of materials.
- The HMA mix design shall be prepared by a laboratory (or laboratories) whose proficiency has been reviewed and qualified in conformance with the California Department of Transportation's Independent Assurance Program, has been AASHTO accredited, or is otherwise approved by the Engineer. Samples are to be taken under California Test 125.

TOLERANCES

- Determine HMA smoothness using a 12-foot straightedge to meet the requirements of Section 39-2.01A(4)(h), Quality Control of the Caltrans Standard Specifications.

PRODUCTS

HOT MIX ASPHALT

- HMA shall be Type A conforming to the provisions in Section 39-2.07, Minor Hot Mix Asphalt of the Caltrans Standard Specifications.
- The grade of asphalt binder shall be PG 64-28 M conforming to the provisions in Section 92, Asphalt Binders of the Caltrans Standard Specifications.
- The aggregate gradation shall be 1/2-inch or 3/4-inch HMA (per the Plans or applicable bid item) conforming to Section 39-2.02B(4), Aggregates of the Caltrans Standard Specifications.
- Reclaimed asphalt pavement (RAP) may be used as substitute for part of the virgin aggregate in HMA at a substitution rate not exceeding 25 percent of the aggregate blend; if used, specify percent of RAP in the job mix formula. Conform to Section 39-2.02B(5), Reclaimed Asphalt Pavement of the Caltrans Standard Specifications.
- The use of a liquid anti-strip treatment is required for HMA under Section 39-2.07B(4), Liquid Antistrip Treatment of the Caltrans Standard Specifications.
- Changes from one mix design to another shall not be made during the progress of the work unless permitted by the Owner. However, changes in proportions to conform to the approved job formula mix design shall not be considered changes in mix design.

TACK COAT

- Tack coat shall be, at the option of the Contractor, either slow setting asphaltic emulsion, rapid-setting asphaltic emulsion, or paving asphalt. Slow-setting asphaltic emulsion and rapid-setting asphaltic emulsion shall conform to the provisions in Section 9-1.07B(6), “Tack Coat”; 37-3.03B(6), “Tack Coat”; 39-2.01A(3)(j), “Tack Coat”; 39.2.01B(10), “Tack Coat”; 39-1.01C(3)(f) and the provisions in Section 94, "Asphaltic Emulsions," of the Caltrans Standard Specifications.
- Notify the Owner if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not exceed 1 to 1.
- If you dilute asphaltic emulsion, mix until homogeneous before any application.

EXECUTION

GENERAL

- All existing facilities to remain shall be located and protected from damage during paving operations.
- Existing facilities, to be preserved, may be lowered and protected and restored upon completion of the work.
- The Contractor shall be responsible for the cleanup of all asphalt spoils generated from the project. Cleaning out of any paving equipment by spreading of asphalt concrete spoils on unpaved surfaces is not allowed. Fuel or other hazardous material spills shall be documented and cleaned up of immediately.

EXISTING ASPHALT CONCRETE

- Performing work on existing asphalt concrete facilities shall conform to Section 39-3, Existing Asphalt Concrete of the Caltrans Standard Specifications.

- Removal of asphalt concrete pavements by cold planning shall conform to Section 39-3.04, Cold Planning Asphalt Concrete Pavement of the Caltrans Standard Specifications.

PRODUCTION

- The production of HMA shall conform to the applicable provisions of Section 39, Asphalt Concrete and 39-2.07, Minor Hot Mix Asphalt of the Caltrans Standard Specifications.
- Storage or stockpiling of completed HMA mixtures in any manner other than through the use of a batch plant pugmill or storage silo discharging directly into a haul vehicle and discharging of the haul vehicle directly into the paving operation shall not be allowed unless approved by the Owner. Any request to store or handle the HMA mixture in an alternate manner not specifically allowed for in these Specifications or the Standard Specifications shall address temperature control, mechanical and thermal segregation control, and contamination control for any proposed change.

SUGRADE AND TACK COAT

- The subgrade to receive HMA shall comply with the compaction and elevation tolerance specifications for the material involved.
- HMA shall not be placed when the underlying layer or surface is frozen, wet, saturated or pumping, or when weather conditions will prevent proper handling, finishing or compaction of the mixture.
- Subgrade (prepared or existing) must be free of loose and extraneous material. Remove loose particles, dirt, organic matter, and other extraneous material by sweeping, blowers or other appropriate means which shall not damage the subgrade.
- All existing asphalt concrete or concrete structures that will adjoin new asphalt concrete surfaces shall be neat, clean flat surfaces. Existing asphalt concrete at driveways, transition paving, or other joint locations shall be neatly saw cut. If saw cut pavement is damaged prior to paving, the Contractor shall re-cut any damaged portions prior to paving.
- In advance of spreading HMA over an existing base, surfacing or bridge deck, if there is a Contract item for leveling or if ordered by the Owner, HMA shall be spread by mechanical means that will produce a uniform smoothness and texture. HMA (leveling) shall include, but not be limited to, the filling and leveling of irregularities and ruts and changing the cross slope or profile of an existing surface.
- Apply tack coat in conformance with these special provisions as documented in section 2.02 of this section of these special provisions.
- Tack coat shall be applied in advance of placing the HMA only as far as that day's scheduled work or as otherwise directed by the Owner. When asphaltic emulsion is used as tack coat, the HMA shall not be placed until the applied asphaltic emulsion has cured (completely changed color from brown to black).

SPREADING AND COMPACTING EQUIPMENT

- Paving equipment for spreading and rollers for compacting shall conform to Section 39-2.01C(2), Spreading and Compacting Equipment of the Caltrans Standard Specifications.

- A sufficient number of rollers shall be provided to obtain the specified compaction and surface finish; consistent with Contractor's submitted and accepted QC Plan. Rollers shall be sized to achieve the required results. Pneumatic-tired rollers shall be skirted to retain heat in the pneumatic tires.
- When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.01 foot tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same manner the screed was controlled when placing the initial mat.
- If the automatic screed controls fail to operate properly during a day's work, the Contractor may use manual control of the spreading equipment for the remainder of that day. However, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the requirements in this section before starting another day's work.
- The use of equipment that leaves ridges, indentations or other objectionable marks in the HMA shall be discontinued.
- If the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the specifications and tolerances, the paving operations shall be discontinued and the Contractor shall modify the equipment or methods or furnish substitute equipment.

TRANSPORTING, SPREADING AND COMPACTING

- Paving operations shall conform to Sections 39-2.01C, Construction and 39-2.02C, Construction of the Caltrans Standard Specifications.
- HMA shall be placed in such a manner that cracking, shoving, and displacement will be avoided. HMA must be free of segregation, coarse or fine aggregate pockets, or hardened lumps.
- HMA shall be deposited on the roadbed at a uniform quantity per linear yard, as necessary to provide the required compacted thickness without resorting to spotting, picking-up or otherwise shifting the mixture.
- During transporting, spreading and compacting, petroleum products such as diesel fuel or kerosene shall not be used as a release agent on trucks, spreaders or compactors in contact with the HMA mixture.
- Unless otherwise designated on the Drawings or allowed by the Owner HMA shall be spread and compacted in the layers and thicknesses indicated in the following table:

Hot Mix Asphalt Layers and Thickness

Total Thickness Shown on the Plans	Minimum Number of Layers	Top Layer Thickness (Inches)		Next Lower Layer Thickness (Inches)		Other Lower Layers Thickness (Inches)	
		Min.	Max.	Min.	Max.	Min.	Max.
3" or less	1	----	-----	----	----	----	----
3.1" through 3.5"	2	1.5	2	1.5	2	----	----

3.51" through 5.3"	2	2	2.5	2	3	----	----
5.31" or more	*	2	2.5	2	3	2	5

** At least three (3) layers if total thickness is more than 5.31 inches and less than 10 inches. At least four (4) layers if total thickness is 10 inches or more.*

- Layers shall be spread with an asphalt paver, unless otherwise specified or approved by the Owner. Asphalt pavers shall be operated in such a manner as to ensure continuous and uniform movement of the paver.
- Unless otherwise shown in the Drawings or directed by the Owner, additional HMA surfacing material shall be placed along the edge of the surfacing at road connections, private drives or other highway and non-highway facilities, tapered or feathered if necessary, and compacted to form smooth tapered conforms.
- At locations where HMA is to be placed over areas inaccessible to spreading and rolling equipment, the HMA shall be spread by practical means to obtain the specified results and shall be compacted thoroughly to the required lines, grades, and cross sections by means of a plate compactor, pneumatic tamper or equivalent to produce thorough compaction of the layer. Reduce layer thickness as necessary to achieve compaction. Care shall be taken to ensure that adequate temperature for compaction of the HMA is maintained until compaction is complete.
- HMA shall be compacted to not less than 91.0 percent or more than 97.0 percent of theoretical maximum density AND to not less than 95.0 percent of laboratory test maximum density (LTMD) and shall be finished to the lines, grades, and cross sections shown on the Drawings.
- If using a vibratory roller as a finish roller, turn vibrator off for finishing.
- Rolling must leave the completed surface compacted and smooth without tearing, cracking or shoving. The completed HMA surfacing shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities. Ridges, indentations or other objectionable marks left in the surface of the HMA by blading or other equipment shall be eliminated by rolling or other suitable means.

PAVEMENT EDGE TREATMENTS & LONGITUDINAL JOINTS

- Construct pavement edge treatments as shown on the Drawings, under Section 39-2.01C(5), Pavement Edge Treatments of the Caltrans Standard Specifications.
- Longitudinal joints shall conform to the provisions in Section 39-2.01C(4), Longitudinal Joints of the Caltrans Standard Specifications.
- Longitudinal joints may be constructed in any manner that provides for a minimum relative compaction of not less than 89.0 percent of the theoretical maximum density and to not less than 92.0 percent of laboratory test maximum density (LTMD), provided the method(s) employed provide for the geometric, conveyance of public traffic, and safety requirements of the project.
- The Owner may, at their discretion, test the density of the longitudinal joint with a calibrated nuclear density gauge or through the use of 6-inch diameter cores obtained directly on the longitudinal joint.

ACCEPTANCE OF WORK GENERAL

Work determined to be in conformance with the provisions of this Section will be accepted and

paid for at the Contract price per ton for asphalt concrete.

The Engineer may reject a quantity of material that is determined to be defective based on visual inspection.

If the test results for a quantity of asphalt concrete indicate that the requirements of this Section have not been met, the asphalt concrete represented by that failure shall be removed.

MEASUREMENT AND PAYMENT

"REPLACE ASPHALT CONCRETE SURFACING (MILL & OVERLAY, 4-INCH, 1 LIFT – TYPE A, PG 64-28M, 3/4" AGGREGATE)" and "REPLACE ASPHALT CONCRETE SURFACING (MILL & OVERLAY, 3-INCH, 1 LIFT – TYPE A, PG 64-28M, 3/4" AGGREGATE)" and "HMA PAVING – MISC. ROADWAY/DRIVEWAY PATCH REPAIRS (4-INCH, 1 LIFT – TYPE A, PG 64-28, 1/2" AGGREGATE) – [AS DIRECTED OR AUTHORIZED]" shall be measured on a per tonnage basis of hot mix asphalt concrete, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

"HMA PAVING – ROADSIDE AC SWALE, AND F ST DRAINAGE "V" DITCH (3-INCH, 1 LIFT – TYPE A, PG 64-28, 1/2" AGGREGATE)" shall be measured on a per square foot basis of hot mix asphalt concrete, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing and applying tack coat shall be considered as included in the contract price paid for contract items requiring HMA; no separate payment will be made therefor.

When there is a contract item for asphalt concrete (leveling), quantities of asphalt concrete placed for leveling will be paid for at the contract price per ton for asphalt concrete (leveling). When there is no contract item for asphalt concrete (leveling), and leveling is ordered by the Engineer, asphalt concrete so used will be paid for at the contract price paid per unit of asphalt concrete of the type(s) designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

No adjustment of compensation will be made for the elimination, increase or decrease in the quantities of tack coat or miscellaneous AC patch paving required, regardless of the reason for such elimination, increase or decrease. The provisions in Section 9-1.06, "Changed Quantity Payment Adjustments" of the Standard Specifications shall not apply to the items of tack coat or miscellaneous AC patch paving.

The contract unit price per ton paid under the bid item "REPLACE ASPHALT CONCRETE SURFACING (MILL & OVERLAY, 4-INCH, 1 LIFT – TYPE A, PG 64-28M, 3/4" AGGREGATE)" and "REPLACE ASPHALT CONCRETE SURFACING (MILL & OVERLAY, 3-INCH, 1 LIFT – TYPE A, PG 64-28M, 3/4" AGGREGATE)" and "HMA PAVING – MISC. ROADWAY/DRIVEWAY PATCH REPAIRS (3-INCH, 1 LIFT – TYPE A, PG 64-28, 1/2" AGGREGATE) – [AS DIRECTED OR AUTHORIZED]" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for

performing all the work involved in preparation of a mix design, furnishing hot mix asphalt concrete, treatment with hydrated lime or liquid antistrip if necessary, removal of existing asphalt pavement section by cold planning, and constructing an asphalt concrete structural pavement section including a complete aggregate base section where applicable (e.g. trench structural backfill), complete in place accepted by the Engineer, including but not limited to any saw cutting or key-in of existing asphalt concrete, excavation, backfill, aggregate base, grading and compaction of aggregate base, transport, spreading, compacting, tack coat, finishing, correcting all unsatisfactory areas, cleanup, and off-haul and disposal of excess materials and waste debris, as shown on the Project Plans, as specified in these Special Provisions, as described in the City PIES and Standard Specifications, and as directed by the Engineer. The quantity to be paid for will be the tonnage of asphalt concrete placed in the accepted work and no additional payment will be allowed therefor.

The contract unit price per square foot under the bid item "HMA PAVING – ROADSIDE AC SWALE, AND F ST DRAINAGE "V" DITCH (3-INCH, 1 LIFT – TYPE A, PG 64-28, 1/2" AGGREGATE)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in preparation of a mix design, furnishing hot mix asphalt concrete, treatment with hydrated lime or liquid antistrip if necessary, and constructing an asphalt concrete structural pavement section including a complete aggregate base section, complete in place accepted by the Engineer, including but not limited to any saw cutting or key-in of existing asphalt concrete, excavation, backfill, aggregate base, grading and compaction of aggregate base, transport, spreading, compacting, tack coat, finishing, correcting all unsatisfactory areas, cleanup, and off-haul and disposal of excess materials and waste debris, as shown on the Project Plans, as specified in these Special Provisions, as described in the City PIES and Standard Specifications, and as directed by the Engineer. The quantity to be paid for will be the tonnage of asphalt concrete placed in the accepted work and no additional payment will be allowed therefor.

All other paving and asphalt concrete work required on the project, not otherwise identified by the Engineer and paid for under the bid items noted above shall be included in the various contract items of work requiring asphalt concrete surfacing/paving and no additional compensation shall be allowed therefor.

10-1.58 CONCRETE PAVEMENT, CURBS, AND SIDEWALKS (CITY PIES)

Work under this section shall consist of furnishing all labor, materials, tools, equipment, and incidentals necessary for the complete construction of concrete pavement, curbs, gutters, sidewalks, gutter depressions, driveways, island paving, concrete collars, curb ramps, detectable warning surfaces, and textured and colored concrete surfaces, including aggregate base and sub grade preparation as shown on the Project Plans, as specified in these Special Provisions, as described in the City PIES and Standard Specifications, and as directed by the Engineer. Attention is directed to Section 73, "Concrete Curbs and Sidewalks" of the Standard Specifications.

PORTLAND CEMENT CONCRETE

The standard Portland Cement Concrete (PCC) mix design for paving in the City of South Lake Tahoe shall be as follows: PCC shall be fiber reinforced with a 4 inch maximum slump,

minimum 5.5% and maximum 8% air content (air entrainment) and a minimum compressive strength as specified. Place contraction joints at 6-foot intervals and expansion joints at 18-foot intervals. If curb and sidewalk is adjacent to the roadway install 2" PVC snow pole sleeves through the sidewalk at the interface of the sidewalk and curb at expansion joint locations. Sidewalk shall be a minimum depth of 4 inches. Aggregate base minimum depth below curb shall be 8 inches and below sidewalk shall be 6 inches.

GENERAL REQUIREMENTS

The work herein provided for is to be done in accordance with the plans, profiles, cross-sections and general and special provisions on file with the City of South Lake Tahoe Engineering Department and with these specifications, which are intended to cover all items necessary for the complete construction of concrete curbs, gutters, sidewalks, driveways, alley approaches and other concrete structures. No plans may be used unless approved by the Engineering Department.

MATERIAL REQUIREMENTS

A. Portland Cement Concrete-Transit Ready-Mixed

1. Portland Cement Concrete shall be Transit-Ready-Mixed conforming to Standard Specifications ASTM Designation: C-94.

2. The allowable twenty-eight day (28) compressive strength for concrete shall not be less than:

   a. Class A=4000 psi (7 sack minimum) for areas exposed to freeze thaw environments;

   b. Class B=2500 psi (5 sack minimum) for non-exposed areas.

3. The maximum size concrete aggregate shall be 1 inch.

4. The Portland Cement, water, coarse and fine aggregate, shall comply with the applicable ASTM Designations for Portland Cement Concrete.

5. Proportioning of Portland cement, water and coarse and fine aggregate shall be certified by the manufacturer to comply with ASTM Standards for each class specified.

6. Concrete mixers and other equipment determined by the Engineer not to be adequate or suitable for the work shall be removed and suitable equipment provided by the Contractor at their own expense. Pick-up and throw-over blades in the drum of the mixer, which are worn down three-quarter inch (3/4") or more in depth shall be replaced with new blades. The size of batch in truck mixers shall not exceed the rated capacity as determined by the Standard requirements of the Truck Mixer Manufacturers' Bureau. Truck mixers shall be equipped with means by which the number

of revolutions of the drum or blades may be readily verified, and there shall be at least fifty (50) revolutions at mixing speed before any part of the batch is released.

7. The total elapsed time between the introduction of mixing water to the batch depositing the complete mix shall not exceed 90 minutes.

8. Admixtures to prevent segregation, to improve workability, or to accelerate the gain in strength of the concrete may be permitted, provided the admixture material proposed and the proportions of admixture to be used have been accepted and fixed by the Engineer. Admixtures shall not be used without written permission from the Engineer or unless elsewhere provided for in these specifications or in the special provisions. Admixtures shall not be used to replace cement. If the use of calcium chloride is permitted, it shall comply with the Standard Specifications for Calcium Chloride ASTM Designation: D98. Unless otherwise specified or directed by the Engineer, calcium chloride shall be added at the rate of two percent (2%) by weight of the cement. Calcium chloride shall be dissolved in water and then be introduced with the mixing water.

9. Should the Contractor be permitted to use admixtures with the concrete for any purpose for his own benefit, he shall furnish such admixtures and incorporate them in the concrete mix at his own expense and no additional allowance will be made therefor.

10. Air entraining agents may be used, subject to addition of cement, in accordance with the Standard Specifications. The amount of water required for the proper consistency of concrete shall be determined by the method as described as ASTM Designation: C143. The amount of the slump shall be twelve inches (12”) minus the height after subsidence. The allowance for slump shall be not more than four inches (4”). The amount of water added at the mixer shall be regulated in accordance with the free water in the aggregates and the requirements for workability within the limits of the slump set forth above. The amount of water, including the free water in the aggregates, shall not exceed six and one-half (6-1/2) gallons per sack of cement in Class A concrete, seven (7) gallons per sack of cement in Class B concrete, or seven and one-half (7-1/2) gallons per sack of cement in Class C concrete.

11. Test Specimens may be taken by the Engineer or Inspector at any time deemed advisable from the transportation unit at the point of discharge and tested in conformance with the Standard Method of Test for Compressive Strength of Molded Concrete cylinders, ASTM Designation: C39, and Test Method No. California-521.

B. Expansion Joint Material

1. Prefabricated asphalt impregnated expansion joints, or equal, of three-eighth inch (3/8") thickness shall be used as shown on the plans and accepted by the Engineer and complying with ASTM Designation: D1751.

C. Curing Compound

1. Use approved curing compound conforming to the Standard Specification ASTM Designation: C309 and accepted by the Engineer.

CONSTRUCTION METHODS

A. Subgrades for Concrete Structures

1. The subgrade shall be constructed true to grade and cross-section, as shown on plans, or as specified by the Engineer or his authorized representative. The subgrade shall be thoroughly watered, rolled or hand tamped until hard and solid, before placing concrete. All adobe or soft and spongy material shall be removed to a depth as specified and the resulting void shall be filled with earth, sand or gravel, free of any vegetation or other deleterious material and of a quality that will pack when moistened. The material shall be thoroughly watered and rolled or tamped in layers not to exceed eight inches (8"), until a firm and solid foundation is secured. The entire subgrade shall be tested for grade and cross-section by means of a template extending the full depth and width of the curb, gutter or sidewalk and supported between side forms. The subgrade and forms shall be thoroughly watered in advance of placing concrete and allowed to dry to a damp condition. Compaction shall have a relative density of ninety-five percent (95%) under curbs, sidewalks, gutters and driveways, and other structures. The work shall comply with all the requirements of the Standard Specification for Subgrade.

B. Concrete Forms

1. The width of the forms for the combined curb, gutter and sidewalk shall be not less than the full thickness of the sidewalk on the outside edge of the sidewalk, not less than the full height of the curb face on the outside of the curb, and not less than the full thickness of the gutter on the outside edge of the gutter.

2. Timber forms, if used, shall not be less than one and one-half inches (1-1/2") thick after being surfaced. Warped forms and forms not having a smooth, straight upper edge shall not be used.

3. Rigid forms shall be provided for all curb returns except that benders or thin plank forms, rigidly placed may be used for curbs and curb returns where there are grade changes in the returns or where the central angle is such that a rigid form with a central angle-of ninety degrees (90) cannot be used.

4. Curb, gutter and sidewalk forms shall be carefully set to alignment and grade and to conform to the dimensions on the plan. Forms shall be held rigidly in place by the use of iron stakes at intervals not to exceed four feet (4'). Clamps, spreaders, and braces shall be used where required to insure rigidity in the forms.

5. The form on the front of the curbs shall not be removed in less than two (2) hours after the concrete has been placed. In no event shall the form be removed while concrete is sufficiently plastic to slump upon removal of form.

6. All forms shall be cleaned thoroughly each time they are used and coated with light oil as often as necessary to prevent the concrete from adhering to them.

7. Forms for the structures shall comply with all provisions of the Standard Specifications.

C. Expansion Joints

1. Pre-cast asphalt impregnated expansion joints, or equal, of three-eighth inch (3/8") thickness and of the same size and shape as those specified for the individual construction of curbs, gutters and sidewalks shall be fastened with staples or other accepted type fastenings, into one unit to conform to the shape of the cross-section of the combination curb, gutter and sidewalk. The expansion joint shall be set flush with the face and to the full depth of the curb, gutter and sidewalk. They shall be placed at right angles and perpendicular to the forms at intervals of not more than eighteen feet (18'). Expansion joints shall also be required at each end of a curb return, utility box, and at each end of constructed combination.

D. Concrete Placement

1. All concrete shall be of the class specified.

2. Any concrete that has had water added to the batch for more than 90 minutes shall be rejected and not placed in any structure. An interval of more than 45 minutes between any two consecutive batches or loads, or a delivery and placing rate of less than eight (8) cubic yards of concrete per hour shall constitute cause for

shutting down work for the remainder of the day and, if so ordered by the Engineer or Inspector, the Contractor shall make, at his own expense, a construction joint at the location and of the type directed by the Engineer in the concrete already placed.

3. Concrete shall be placed in the forms for curbs, gutters, sidewalks, driveways, alley approaches, and other structures, directly from the truck mixer, or as accepted by the Inspector in a manner which will not permit segregation of the concrete aggregates. Concrete shall be placed in the forms in layers not to exceed six inches (6") in depth until the forms are filled to the top. Each layer shall be thoroughly graded to remove all rock pockets, or concrete may be compacted by means of a mechanical vibrator accepted by the Engineer. After tamping and floating, the proper section and grade shall be line and straightedge checked to assure the designed finished line; grade and elevation will result in adequate drainage.

4. Test specimens may be taken by the Engineer or Inspector at any time deemed advisable from the transportation unit at the point of discharge and tested in conformance with the Standard Method of Test for Compressive Strength of Molded Concrete Cylinders, ASTM Designation: C39, and Test Method No. California 521.

5. Concrete placement for structures shall also comply with the Standard Specifications.

6. All concrete shall be protected from damages at the Contractor's expense.

E. Concrete Finish

1. Sidewalks

The surface of the sidewalk shall be finished with a fine hair push broom drawn over the surface transverse to the line of traffic. Water, if necessary, may be applied lightly to the surface immediately in advance of brooming. Before brooming, the surface of the sidewalk shall be marked at right angles to the curb line and at a maximum of six-foot (6') intervals. The mark shall be cut two inches (2") deep with a pointed trowel and then use a double-edged tool which will make a groove one-quarter inch (1/4") in depth with one-eighth inch (1/8") rounded edges and insure a free movement weakened plane at the joint. Markings shall coincide and line up with adjoining curb markings, if any. The sidewalk shall also be edged with a suitable tool. The marking and grooving pattern shall be varied in such a way to include marks off the corners of any tree wells or other items constructed within the

sidewalk. Uncontrolled cracking will not be acceptable. When sidewalk to be constructed adjoins an existing sidewalk with a toweled smooth finish, the finish of the sidewalk to be constructed shall conform to the finish of the existing sidewalk unless otherwise specified by the Engineer. All blemishes caused by the marking tool, edging tool, or any other blemish shall be removed by smooth toweling the surface prior to finishing with a broom. The finished sidewalk shall be true to grade so that when a straight edge ten feet (10') in length is laid upon the surface of any point except at grade changes, the surface shall at no point vary more than one-eighth inch (1/8") and the finished surface shall be free from blemishes.

2. Curbs

Prior to the removal of the forms, the surface shall be edged with an accepted edging tool giving a corner radius of one-half inch (1/2").

The curb shall be given a smooth finish with a steel trowel, free from humps, sags, blemishes or other irregularities. When a straight edge ten feet (10') in length is laid on the top, low line or face of the curb, the surface shall not vary more than one-eighth inch (1/8") from the straight edge except at grade changes or curves.

The top and front of the curb shall be marked at right angles to the curb line and at a maximum of six-foot (6') intervals. The mark shall be cut two inches (2") deep with a pointed trowel and then use a double-edged tool which will make groove one-quarter inch (1/4") radii to the surface of the curb and insure a weakened plane at the mark. Markings shall coincide and line up with adjoining sidewalk markings, if any. Uncontrolled cracking will not be acceptable. After steel toweling and marking the front and top of the curb, it shall be given a final fine brush finish with the brush strokes parallel to the top of curb line.

When the top and face of the curb are finished and the specified time lapsed, the back form of the curb shall be removed and the back of the curb shall be finished the same as the top and face, to a depth of not less than two inches (2") below the curb top.

3. Gutters

After tamping, the gutter shall be finished with a float to true grade from humps, sags, blemishes and other irregularities. When a straight edge ten feet (10') in length is placed upon the surface at

any point, except at grade changes, the surface shall at no point vary more than one-eighth inch (1/8”). The surface of the gutter shall be marked the same as, and conform to, the markings on the curb. The gutter shall be edged on the outside edge with an accepted edging tool having a corner radius of one-half inch (1/2”).

4. Driveways and Alley Approaches

The finish surface of the sidewalk portion of the driveway shall be as per (1) above. The approach or apron portion shall have a fiber broom finish transverse to the line of traffic. The curbs and gutter portions shall be finished as per (2) and (3) above.

5. Concrete structure finishes shall comply with the Standard specifications.

F. Curing Concrete

1. Use pigmented curing compound in accordance with the Standard Specifications. The curing period shall be for eight (8) days. Care shall be exercised to avoid damage to the seal during the curing period. Should the seal be broken or damaged before expiration of the curing period, the Contractor shall immediately apply liquid membranes over the damaged portions at his own expense.

2. Traffic shall not be permitted to pass over concrete structures or any loads imposed thereon in less than ten (10) days after the concrete has been placed.

G. Contractor’s Name Stamping

1. The Contractor shall stamp his name and the date (year) on all work done by him once on each job. The letters shall not be less than three-quarters of an inch (3/4”) in height and of a proportional width. They must be set into the work to a depth of not less than one-quarter inch (1/4”).

H. Responsibility for Work

1. The Contractor shall repair at his own expense any damage to curbs, gutters, walks or other structures, caused by him in the performance of the work. Any construction or work performed not conforming to these specifications shall be removed and replaced at the Contractor's expense, and any damage caused by failure on the part of the Contractor for not properly protecting said construction, shall also be the Contractor's responsibility.

I. Thickness Deficiency

1. Payment for concrete which is deficient in thickness of not more than 0.05 feet will be adjusted in compliance with the Standard Specification. Concrete which is deficient in thickness of more than 0.05 feet will be removed in compliance with the Standard Specification.

J. Ramping Curbs and Sidewalks

1. All curbs and sidewalks must be accessible to and usable by the physically handicapped. The laws requiring this are in Section 4450, Chapter 7, Division 5 of Title 1 of the California Government Code and Section 19956.5 of the California State Health and Safety Code.

The following criteria shall be used as a guideline:

Minimum Acceptable	
Slope of Ramps	1:12
Width of Ramps at Top	42"
Width of Ramp at Gutter Line	42"
Transition Slope at Curb Face (X-Slope)	1:12
Lip at Gutter	1/2" (maximum)

2. Ramps should be constructed with a heavy broom finish transverse to the axis of the ramp in order to indicate a change of texture for blind persons and to make them as non-slip as possible. Ramps should have no abrupt changes in elevation or angle of slope. The number of ramps at each corner ideally should be two (2); one adjacent to each beginning of curb return.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

10-1.59 PAVEMENT TRAFFIC STRIPING AND MARKINGS

Traffic striping and markings shall conform to the provisions in Section 84-2, “Traffic Stripes and Pavement Markings”, of the Standard Specifications, these Special Provisions, and City PIES. Additionally, all traffic lane stripes and markings installed in association with the project, as show on the plans, shall be in conformance with the California Manual on Uniform Traffic Control Devices, current addition.

Various contract items for this project include temporary traffic control systems, and the removal

of sections of roadways and other paved areas. Any existing traffic striping and markings including but not limited to lane lines, edge lines, center lines, stop bars, crosswalk and limit lines, parking lot lines, and pavement marking arrows and words that are partially or completely destroyed or damaged during construction by the Contractor's operations shall be replaced in accordance with the temporary traffic control plan (during construction) and with the Project Plans, Standard Plans, City PIES, Project Permits, Standard Specifications, these Special Provisions, and as directed by the Engineer (after completion of construction).

Upon completion of the project improvements, and prior to installation of final traffic striping and traffic markings, all temporary traffic striping and traffic markings shall be removed from the project area, so that the proposed (as shown on the project plans) traffic striping and markings can be installed. Traffic striping and traffic markings shall be removed by grinding the asphalt concrete or concrete surfaces to completely and thoroughly remove all traffic striping and traffic markings. The grinding shall additionally be minimalized as much as possible, to the shallowest depth possible and of the finest grain/course possible so as to preserve the existing pavement and concrete surface to prevent future damage to the surfaces. No installation of new traffic striping and markings shall be performed until the project site is accepted by the Engineer. The Contractor shall submit a removal plan to the Engineer for review, comment and acceptance prior to completing any of said work.

Based on location within the state or city public right-of-way and direction from the Engineer, all permanent/final pavement traffic striping, markings, and markers shall be in conformance with the applicable State or City standard specifications/plans, and these Special Provisions.

Application of any temporary traffic striping, markings, and/or markers shall be as shown on the Project Plans and the Contractor’s submitted and accepted Traffic Control Plan. All such temporary traffic striping, markings, and/or markers shall conform to the applicable provisions found in these Special Provisions and the Standard Specifications.

Paint for traffic stripes and pavement markings within the City Right-of-Way shall be solvent-based traffic paint. Provide a high-performance, low VOC, fast dry, solvent-based traffic paint conforming to minimum requirements for AASHTO M 248 Type F. Traffic paint must be without lead, chrome, and other heavy metals as defined by the EPA.

All traffic stripes and pavement markings shall include glass beads conforming to Section 84-2.02B, “Glass Beads” of the Standard Specifications.

Provide submittals in conformance with Section 84-2.01C, “Submittals” of the Standard Specifications. Traffic paints and marking materials shall be tested and the manufacturer shall provide the Owner with a Certificate of Compliance in conformance with the Standard Specifications. The certificate shall certify that the paint complies with the specifications and that paint manufactured to the same formulation and process has previously passed State testing. A list of manufacturers that have produced paint meeting State specifications is available from the Transportation Laboratory. (Material supplied by manufacturers other than those that have manufactured approved paint will require complete testing.)

Placement and installation of pavement striping and markings shall be per the Project Plans,

these Special Provisions, manufacture's recommendations, and the California Manual on Uniform Traffic Control Devices, current addition and Section 84-2.03, "Construction" of the Standard Specifications.

Do not apply pavement stripping/markings until the Engineer has verified layout, colors and placement. Contractor is responsible for coordination with the Engineer and must provide a minimum of three (3) working days' notice prior to scheduled verification site meeting.

Many solvent-based traffic paints may not be applied to "fresh" asphalt pavement or seal coats. Allow new pavements and surfaces to cure for the minimum recommended age, per the paint manufacture requirements.

Protect pavement markings from damage and wear during remainder of construction period. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

Measurement and Payment

"TRAFFIC STRIPING / MARKINGS" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per each paid for the "TRAFFIC STRIPING / MARKINGS" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the permanent traffic striping and markings complete in place, including submittals, measurements and layouts, any required temporary traffic control operations, placement of required temporary traffic control striping and traffic markings, removal of all conflicting existing traffic striping and traffic markings, sweeping and surface preparations, placement of permanent traffic striping and markings, curing and finishing, and other incidentals, as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

Application of any temporary traffic striping, markings, and/or markers in conformance with the Contractor's submitted and accepted Traffic Control Plan shall not be measured nor paid for as part of any permanent/final traffic striping, markings, or markers. Any temporary traffic striping, markings, and/or markers are considered as included in the prices paid under the bid item "TEMPORARY TRAFFIC CONTROL" and no additional compensation will be allowed.

10-1.60 RECORD DRAWINGS

The Contractor shall keep accurate records on a set of project black line prints (24 inches x 36 inches) of all additions and deletions to the work and of all changes in location, elevation, and character of the work not otherwise shown or noted on the Project Plans. The Owner will furnish up to three (3) sets of full-size black line prints for record drawings plans at no cost to the Contractor.

Record drawings plans shall be provided to the Engineer for acceptance within one (1) calendar

month after substantial completion of the project, as defined by the Engineer. The Contractor will be required to provide record drawings at the conclusion of construction. The record drawings shall detail the construction efforts completed by the Contractor. Release of retention monies will not occur prior to submittal and acceptance of the record drawings. One (1) complete set of full sized (24x36) hard copy record drawings shall be provided each year with changes to the original Contract work shown in red color, including revision clouds, clearly marked and delineated. All redline changes and details to be shown on the record drawings plans shall include, but not be limited to, difference in quantities of the original plans vs. actual installation (as appropriate), modifications to the location and elevations of public utility and storm drainage facilities, any utility relocations, any signage or traffic control devices, and any other modifications, additions or adjustments to any other facilities not shown or as modified on the Project Plans.

Record drawings plans shall be signed and dated by the Contractor or the sub-contractor that actually constructed the facility. In addition, company names of the Contractor and sub-contractors shall be added to the Title Sheet of the record drawings. Should the Contractor not provide this information to the Engineer in the time specified in this section, or to the acceptance of the Engineer (record drawings do not note all changes to the project) the Engineer will not accept the record drawings, retention shall not be released on the project, the record plans will be returned to the Contractor and the Contractor shall re-submit the record drawings to meet the requirements of this section to the acceptance of the Engineer.

Measurement and Payment

The cost of record keeping to provide the requested information for these record drawings plans and all work associated with preparing accurate record drawings plans shall be considered as included in the various Contract items of work, and no separate payment will be made.

END OF SECTION 10-1

10-2 REVEGETATION TREATMENTS

10-2.01 GENERAL

The Contractor shall request that treatment types and boundaries are located by the City of South Lake Tahoe (City) prior to progressing with the work. All revegetation work shall be performed by a qualified landscape contractor licensed in the State of California (C-27).

The revegetation work shall consist of willow, Woods' rose, sod salvage and replacement, woody material processing, topsoil salvage and replacement, seedbed preparation, seeding, processed woody material placement and/or wood chips / tub grindings mulch application, hydraulic applications of recycled paper and tackifier, and coir netting installation. All revegetated areas shall be maintained for two years following completion of work.

Temporary Erosion Control may be required for all exposed soils at finish grade, stockpiles, staging areas and other barren locations where construction activities are suspended for more than 14 days. This shall consist of the application of recycled paper mulch at 1,000 lbs./acre and tackifier at 150 lbs./acre.

Related sections of work include Section 10-1.22, Clearing and Grubbing, and Section 10-1.27, Earthwork of these Special Provisions.

10-2.02 SITE PREPARATION AND GRADING

Soil disturbance shall be minimized and limited to those areas that require treatment. All existing vegetation within the project limits not designated for removal shall be protected. The Contractor shall replace any vegetation seriously damaged at their expense.

All compacted soils in the project area shall be loosened as needed to a depth of six inches to achieve 85% and less compaction, unless this will result in surface exposure of rocks greater than one inch in length, as directed by the City. Do not till; loosen with rippers, discs, or other suitable equipment that will not disturb paved surfaces.

Revegetation shall progress in an order submitted by Contractor and as approved by the City.

10-2.03 REVEGETATION TREATMENT LOCATIONS

Behind Curb, Miscellaneous Disturbance

De-compact soils. Hand broadcast Revegetation Seed Mix 1, incorporate to cover 1/4-1/2 -inch. Apply processed vegetation or wood chips / tub grindings to cover seeded surfaces to achieve 85% cover and a depth of 1/2 -inch (one layer deep).

Greenbelt Basins and Reconfigured Helen Ave. Basin

Salvage existing roses and willows (materials flagged and/or authorized) and re-plant following finish grading as directed by the City. Process woody vegetation with a brush hog, masticator or other method approved by the City. Stockpile this material for future use as mulch. Salvage wetland sod to an average depth of eight inches and re-plant following finish grading. Salvage to a depth of at minimum six inches non-cohesive herbaceous vegetation that cannot be salvaged

intact as topsoil and organic matter. Stockpile, maintain, re-apply and incorporate to finish grade following finish grading. For all 'Greenbelt' area basins, **over excavate to accommodate salvaged organic/topsoil material: do not off-haul.** Seed all bare areas with Revegetation Seed Mix 2. Install coir 40/400 netting and anchor with biodegradable hard wood stakes.

Bonanza Basin(s)

Process woody vegetation with a brush hog, masticator or other method approved by the City. Stockpile this material for future use as mulch for Behind Curb and Miscellaneous Disturbances. Salvage the top six inches of topsoil and organic stockpile on site in an area approved by the City. If stockpiled more than 14 days, apply Temporary Erosion Control. Following finish grading, de-compact soils and apply salvaged topsoil, incorporate with discs, tines, or other approved equipment. Hand broadcast Revegetation Seed Mix 3, incorporate to cover to a depth of ¼ - ½ inch. Hydraulically apply recycled paper mulch at 2000 lbs./acre with tackifier at 200 lbs./acre. Install coir 40/400 netting on basin slopes and low flow channels and anchor with biodegradable hard wood stakes.

Margaret/D Street Basin

Process woody vegetation with a brush hog, masticator or other method approved by the City. Stockpile this material for future use as mulch for Behind Curb and Miscellaneous Disturbances. Salvage at minimum the top six inches of topsoil and organic matter and stockpile on site in an area approved by the City. If stockpiled more than 14 days, apply Temporary Erosion Control. Following finish grading, de-compact soils and apply salvaged topsoil, incorporate with discs, tines, or other approved equipment. Hand broadcast Revegetation Seed Mix 2, incorporate to cover ¼ - ½ inch. Hydraulically apply recycled paper mulch at 2000 lbs./acre with tackifier at 200 lbs./acre. Install coir 40/400 netting on basins slopes and anchor with biodegradable hard wood stakes.

James/Eloise Vegetated Swale

Salvage sod and re-plant to finish grade prioritizing cohesive material at the channel inlet. All organic matter and topsoil that is not cohesive shall be salvaged and replaced in the channel to finish grade. Install coir 40/400 in a shingle pattern started at the outlet and working toward the inlet. Continue the netting under all structural material such as riprap. Irrigate to ensure vigorous sod establishment.

10-2.04 REVEGETATION TREATMENT TYPES

The following revegetation treatment types will be applied as shown on the Project Plans, and as directed by the Engineer.

- **TT1** Organic Matter and Topsoil Salvage and Replacement
- **TT2** Sod Salvage and Replacement
- **TT3** Woody Vegetation Salvage and Processing
- **TT4** Willow and Rose Salvage and Replacement

- **TT5** Seeding (Mixes 1, 2, or 3 respectively identified as TT5-1, TT5-2, TT5-3)
- **TT6** Hydraulic Mulch Application (recycled paper mulch with tackifiers)
- **TT7** Mulch Application (of processed woody vegetation [TT3], and/or wood chips / tub grindings)
- **TT8** Coir 40/400 Netting Installation

10-2.05 SUBMITTALS

The Contractor will be required to submit to the City material samples or labels for the following materials. The Contractor should submit a proof of purchase/orders for materials within 30 days of the contract award to the C-27. Proposed substitutions must be submitted in writing for written approval by the City.

1. Revegetation Seed Mixes 1, 2, and 3
2. Wood Chips / Tub Grindings (sample and written guarantee of availability from supplier)
3. Recycled Paper Mulch
4. Tackifier
5. Coir Netting and Stakes
6. Equipment for Material Salvage
7. Irrigation methodology and schedule

10-2.06 MATERIALS

Seed. All seed shall conform to all laws and regulations pertaining to the sale and shipment of seed required by the California Food and Agricultural Code of 1982, Regulations of 1983, and the Federal Seed Act. Seed shall be TRPA-approved species. Seed shall be from native, high-elevation sources (>5000 ft.) to the greatest extent possible. All seed must be tested within 12 months of application date. Submit original seed tests by lot number to the City 30 -days prior to application to allow for written approval prior to mixing and subsequent placement. Seed tags must reflect the most recent test date. Deliver all seed to the project site in sealed, tagged bags. Crop seed shall not exceed 0.25% of the pure live seed specified. Weed seed shall not exceed 0.15% of the pure live seed specified and shall not include any seed of the following species:

- Cheatgrass (Bromus tectorum);
- Russian thistle (Salsola tragus);
- Sweet blossom clovers (Melilotus officinalis, M. alba); and
- Tansy mustard (Descurainia pinnata).

Seed tags shall show the following information:

- Scientific name
- Common name

- Lot number
- Percent purity
- Percent germination, including hard and dormant seed
- Percent weed seed
- Origin

Submit requests for substitute species, and/or varieties in writing. Written approval from the City is required for all requested substitutions.

Table 1. Revegetation Seed Mix 1 (Locations: Behind Curb, Miscellaneous Disturbance)

Botanical Name	Common Name/Variety	PLS lbs./acre
Achillea millefolium	yarrow	0.10
Elymus trachycaulus	slender wheatgrass 'Revenue' or 'Pryor'	3.00
Eriogonum umbellatum	sulfur buckwheat	1.00
Eschscholzia californica	California poppy	0.50
Festuca brevipila	hard fescue, 'Durar'	3.00
Ipompsis aggregata	scarlet gilia	0.50
Linum lewisii	Lewis flax, 'Maple Grove'	1.00
Lupinus lepidus	Pacific lupine	3.00
Pensetmon strictus	Rocky Mtn. penstemon, 'Bandera'	0.25
Poa secunda	Sandberg bluegrass 'Sherman'	2.00
Total		14.35

Table 2. Revegetation Seed Mix 2 (Locations: Greenbelt Basins and Reconfigured Helen Ave. Basin, Margaret/D St. Basin, James/Eloise Ave. Vegetated Swale)

Botanical Name	Common Name/Variety	PLS lbs./acre
Achillea millefolium	yarrow	0.10
Artemisia tridentata ssp. vaseyana	Mtn. big sagebrush	0.50
Bromus carinatus	California brome, 'Bromar'	2.00
Elymus elymoides	squirreltail	2.00
Elymus glaucus	blue wildrye, 'Stanislaus'	3.00
Elymus trachycaulus	slender wheatgrass 'Revenue' or 'Pryor'	3.00
Geum macrophyllum	big-leaved avens	0.50
Hordeum brachyantherum	meadow barley, from 6,000' and higher	2.00
Juncus balticus	Baltic rush	0.10
Lupinus lepidus	Pacific lupine	2.00
Lupinus polyphyllus	Tahoe lupine	2.00

Penstemon rydbergii	whorled penstemon	0.50
Poa pratensis	Kentucky bluegrass	2.00[1]
Potentilla gracilis	slender cinquefoil	0.50
Sidalcaea oregana	checker mallow	0.50
Total		20.70

Table 3. Revegetation Seed Mix 3 (Locations: Bonanza Basins)

Botanical Name	Common Name/Variety	PLS lbs./acre
Achillea millefolium	yarrow	0.10
Achnatherum occidentalis	western needlegrass	1.00
Artemisia tridentata ssp. vaseyana	Mtn. big sagebrush	0.50
Elymus elymoides	Ssuirreltail	3.00
Elymus trachycaulus	slender wheatgrass 'Revenue' or 'Pryor'	3.00
Eriogonum umbellatum	sulfur buckwheat	1.00
Linum lewisii	Lewis flax 'Maple Grove'	0.25
Lupinus lepidus	Pacific lupine	3.00
Poa secunda	Sandberg bluegrass 'Sherman'	2.00
Purshia tridentata	antelope bitterbrush	3.00
Wyethia mollis	mule's ears	0.50
Total		17.35

Processed Woody Vegetation. Native mulch shall be processed from cleared vegetation on the site, including woody and herbaceous vegetation and chippings from slash of trees to be salvaged or removed. Use a skid steer with a front mounted commercial mower or other approved method to process shrubs and herbaceous vegetation. Produce processed material that is between 1/2-inch and 2-inches in length, and not less than 1/2 -inch in width and 1/8 -inch in thickness. Chips shall be at minimum equal to Caltrans specification 20-2.08. At least 95% by volume of chips shall conform to the sizes specified. Stockpile material as directed for use as native mulch following seeding.

Salvaged Topsoil and Organic Matter (TSOM). Salvaged topsoil and organic matter consist of a mixture of soil, vegetation, and other organic matter salvaged from the upper layer of the existing soil that typically is rich in organic matter and vegetation and usually distinct in color from deeper layers of soil. For this project, any unconsolidated bulk material mixture consisting of roots and soil shall be considered topsoil, and organic material that cannot be moved in a contiguous manner as sod shall be salvaged and re-applied as organic matter. TSOM shall be salvaged from the work areas as shown on the Drawings. Salvage to a depth of six inches. Stockpile in a suitable location approved by the City.

[1] Local collections only

Salvaged Wetland Sod. Sod shall be salvaged from the work areas as shown on the Drawings. Harvested sod shall consist of above ground and below ground plant materials including leaves and roots, and the soil bound by the root mass.

Lift sod from the sub-grade in using machinery equipped with a front-end bucket or otherwise approved apparatus.

Reduce handling and storage time so that excavation and reapplication is concurrent as much as practicable. Storage time shall not exceed 30 days.

Use low ground pressure equipment and trailered tank or equipment as approved in the submittals to limit compaction and to water sod prior to lifting. Several passes may be necessary to achieve a reading of five on a scale of 1 - 10 on a Lincoln Soil Moisture meter or an approved moisture meter to a depth of 10 inches, or per visual approval by the City.

Stockpile this initial material, where approved by the City and adjacent to the salvage area. Stored sod shall be placed with roots down and edges snugly adjoining adjacent sections for a maximum duration of two weeks. Stored sod shall not be stacked. The Contractor is responsible for providing adequate moisture to the sod during the interim storage period and is responsible for maintaining healthy material until it is re-planted.

Contractor shall stake areas of sod to be harvested from the site as shown on the Drawings for approval by the City. Remove in three ft. x three ft. sections, resulting in clean, vertical edges. Sod shall be scalped from the original ground surface to a depth of no less than eight inches, as measured from the root crown.

Salvaged Willows and Roses. Salvage native willow clumps and woods roses as shown on the Salvage Plans in the Drawings and/or as marked in the field. Remove and re-plant all material concurrent with construction as much as practicable.

Transport in the bucket of an excavator, backhoe, or other suitable equipment. Maintain in a cohesive, moist unit during transport.

Willow clumps and roses may be stored for up to 30 days. If stored, excavate a basin to the depth of the root ball plus six inches below grade to enhance watering efficiency and moisture retention. Locate these temporary storage areas as directed and approved by the State. Place root wads in the excavated hole and cover with excavated soil up to the root crown; water thoroughly.

Prior to removal, prune willows and roses so that branches include two to three nodes, but do not exceed six inches in length. Cuts shall be clean, leave no frayed bark, and be made inch above the node.

Carefully remove plants by excavating around the root zone with a backhoe bucket, or other approved equipment. As much of the root ball as feasible shall be removed intact. Prune damaged roots. Burlap may be used to wrap and protect the root zone during transport.

Wood Chips / Tub Grindings. Material shall be manufactured from clean conifer wood. The particle size of the chips shall be between ½-inch and two inches in length and not less than 1/2 -

inch in width and 1/4 -inch in thickness. Wood chips shall be at minimum equal to Caltrans specification 20-2.08. At least 95% by volume of wood chips shall conform to the sizes specified. This material shall augment site-processed woody vegetation (TT3) material as needed. The City shall approve material prior to application.

Recycled Paper Mulch. Recycled paper mulch consists of degradable green-dyed 100% recycled material produced from newsprint, chipboard, corrugated cardboard, or a combination of these materials. Material shall be free from weeds or other foreign matter toxic to seed germination.

Tackifier. Material shall be of an organic, plant-derived substance containing psyllium or guar gum, or a combination thereof such as M-Binder or approved equal. Material shall form a transparent three-dimensional film-like crust permeable to water and air and containing no agents toxic to seed germination.

Coir Netting and Stakes. Netting shall be 100% coir fiber twine with a weight of 11.8 oz/SY (400 g/sq.m.), 30 inches thick, (7.6 mm), 6.5 feet (2m) x 166 feet (50m) in length, and 65% open area of weave (40 or 400 or product equal).

Stakes shall be 12 inches in length, manufactured from a hardwood (Eco-STAKE or equivalent).

10-2.07 INSTALLATION OF TREATMENTS

The Contractor shall notify the City no less than 72 -hours in advance of revegetation work and shall not begin the work until prepared treatment areas have been inspected and approved. All work shall take place in the fall and prior to October 15th unless otherwise approved by the City.

Preparation of Seed Beds. All compacted soils shall be thoroughly loosened to a depth of up to six inches with rippers, tines, or other equipment approved by the City and shall not damage concrete curb or asphalt.

TSOM Placement. Over excavate as needed and place to depths shown on the Drawings or to a minimum depth of four inches and to match adjacent elevations and as directed by the City. Incorporate to a depth of six inches with discs, harrows, or other equipment approved and directed by the City.

Salvaged Sod Installation. Water surfaces prior to placement as directed. Over-excavate areas for installation to a 10-inch depth as needed so crowns of sod are at finish grade. Plant into moist soil such that edges snugly adjoining adjacent sections. Chink with native topsoil so that the edges of the sod are well covered. Final elevation of sod crowns shall match the plan elevation. Thoroughly water sod. Sod shall be maintained in a moist, healthy condition until established.

Apply Revegetation Seed Mix 2 over any bare areas and where cover by placed sod cover is less than 100%.

Salvaged Willow and Rose Installation. Plant where shown on the project plans and as verified by the City or their representative.

Planting holes may not be prepared more than eight hours prior to plant removal from storage site. Holes shall be excavated 12 inches below the root zone and 12 inches wider on both sides of the root mass. Loosen soils in the bottom and along the sides of the hole and place the plant in the hole. Backfill with the excavated moist soil so that the root ball is two to four inches below existing grade. Tamp soil and thoroughly water immediately following planting.

Seeding. All seeding shall be in the fall prior to permanent snow cover and frozen ground and prior to October 15th unless otherwise approved by the City. Seed shall be uniformly broadcast with hand-held seeders or approved equal over prepared areas and lightly raked, to incorporate to a depth of ¼ - ½ inch with chain linked fence, a spring toothed harrow, or other approved method. Seed shall not be left uncovered more than 24 -hours unless otherwise approved by the City. Seeding shall not occur under conditions that would allow the seed to become windborne (wind speed greater than five mph).

Coir Netting Installation. On slopes in all basins, install blankets from the top to the bottom of the slope(s), unless otherwise directed. Excavate a six-inch key trench at the toe or top of all slopes. Overlap blankets six inches and stake with 12-inch hard wood stakes, on an average of two stakes per square yard in a diamond pattern. Anchor blankets in trenches with the hard wood stakes on two-ft. centers, backfill the trench and compact loose soil. Do not anchor blankets in a toe-of-slope trench.

For vegetated swales start at the outfall end of the channel working upstream to the inlet, overlapping netting in a shingle pattern as described above. Continue the netting under riprap and as field directed. Extend the netting one ft. beyond the top of bank and anchor directly into the soil (no key trench).

For the Greenbelt basins south of the existing Helen Ave. Basin place the netting from top to top of slope and over salvaged sod, and as field directed.

Mulching. Evenly apply site processed and stockpiled woody vegetation as available and/or clean wood chips / tub grindings over miscellaneous disturbed areas including staging areas and behind the curb treatments following seeding to a depth of approximately 1/2 –inch (one layer) to achieve 85% cover where specified. Do not apply in the treatment basins.

Applying Recycled Paper Mulch and Tackifier (TT6, and Temporary Erosion Control). Apply recycled paper mulch and tackifier under suspension unless otherwise approved. Use a hydroseeder with a paddle wheel agitator and adequate water to achieve homogeneous slurry. Evenly apply under non-windy conditions (<five mph).

Mix in accordance with the following:

Recycled Paper Mulch:	1,000 lbs./acre (temporary erosion control) 2,000 lbs./acre (Bonanza, Margaret, D Street basins)
Tackifier:	150 -lbs./acre
Water:	As needed

10-2.08 MAINTENANCE

Maintain all areas for two years so that there is no evidence of erosion, such as rills or sheet erosion. Maintain all transplanted sod in a healthy, vigorous state for the duration of the project. The maintenance period begins upon substantial completion of the project as accepted by City.

The Contractor may apply supplemental hand watering (e.g. hose/nozzle from a water wagon, water truck or other approved source) in order to meet performance standards, and help establish revegetation treatments and transplanted sod. Maintenance may include re-application of seed and mulches.

During the 2 -year period all sites shall be kept free of all noxious and invasive weeds at all times as defined by Cal IPC for El Dorado County (https://www.cal-ipc.org/solutions/wmas/el-dorado-wma/) and the Lake Tahoe Basin Weed Coordinating Group (http://tahoeinvasiveweeds.org/weeds/priority.php) The City will identify weeds requiring immediate removal. If at any time it is deemed that proper maintenance is not being performed, the countdown for the two-year maintenance period shall be stopped and not resumed until the project is brought up to the specifications and proper maintenance is resumed.

10-2.09 PERFORMANCE STANDARD AND ACCEPTANCE

Revegetated areas will be inspected by the City at completion of installation and accepted subject to compliance with specified materials and installation requirements. Following two full growing seasons after treatment, Contractor shall be responsible for 85% cover by mulch and/or seeded species such that there is no significant evidence of rills, or sheet erosion, and 100% survival and vigorous growth of all transplanted sod. Contractor shall notify the City when re-treatments take place.

If adequate coverage is not achieved, the Contractor may be required to re-apply seed, and/or mulch. The City or its authorized representative, upon Contractor's request, will make final inspection and acceptance at the conclusion of the maintenance period, two full growing seasons following completion of the revegetation work. Provide the City notification at least 10 working days before requested inspection date.

10-2.10 PAYMENT

"REVEGETATION TREATMENT, TYPE 1 (ORGANIC MATTER AND TOPSOIL SALVAGE AND REPLACEMENT)" and "REVEGETATION TREATMENT, TYPE 3 (WOODY VEGETATION SALVAGE AND PROCESSING)" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract lump sum price paid for the "REVEGETATION TREATMENT, TYPE 1 (ORGANIC MATTER AND TOPSOIL SALVAGE AND REPLACEMENT)" and "REVEGETATION TREATMENT, TYPE 3 (WOODY VEGETATION SALVAGE AND PROCESSING)" contract items shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the

Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REVEGETATION TREATMENT, TYPE 4 (NATIVE WILLOW AND ROSE SALVAGE AND REPLACEMENT)" shall be measured on a basis per each, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per each paid for the "REVEGETATION TREATMENT, TYPE 4 (NATIVE WILLOW AND ROSE SALVAGE AND REPLACEMENT)" contract item shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REVEGETATION TREATMENT, TYPE 2 (SOD SALVAGE AND REPLACEMENT)" and "REVEGETATION TREATMENT, TYPE 5 (SEEDING MIXES 1, 2, OR 3 RESPECTIVELY IDENTIFIED AS TT5-1, TT5-2, TT5-3)" and "REVEGETATION TREATMENT, TYPE 6 (HYDRAULIC MULCH APPLICATION - RECYCLED PAPER MULCH WITH TACKIFIERS)" and "REVEGETATION TREATMENT, TYPE 7 (MULCH APPLICATION - PROCESSED WOODY VEGETATION [TT3], AND/OR WOOD CHIPS / TUB GRINDINGS)" and "REVEGETATION TREATMENT, TYPE 8 (COIR 40/400 NETTING INSTALLATION)" shall be measured on a basis per square yard across the plan surface, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract unit price per square yard paid for the "REVEGETATION TREATMENT, TYPE 2 (SOD SALVAGE AND REPLACEMENT)" and "REVEGETATION TREATMENT, TYPE 5 (SEEDING MIXES 1, 2, OR 3 RESPECTIVELY IDENTIFIED AS TT5-1, TT5-2, TT5-3)" and "REVEGETATION TREATMENT, TYPE 6 (HYDRAULIC MULCH APPLICATION - RECYCLED PAPER MULCH WITH TACKIFIERS)" and "REVEGETATION TREATMENT, TYPE 7 (MULCH APPLICATION - PROCESSED WOODY VEGETATION [TT3], AND/OR WOOD CHIPS / TUB GRINDINGS)" and "REVEGETATION TREATMENT, TYPE 8 (COIR 40/400 NETTING INSTALLATION)" contract items shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

"REVEGETATION MAINTENANCE (2-YEARS)" shall be measured on a lump sum basis,

complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract lump sum price paid for "REVEGETATION MAINTENANCE (2-YEARS)" contract item shall include full compensation for furnishing all labor, materials, tools, equipment, re-treatments and other incidentals necessary for to conform with the Contract Documents, inclusive of all provisions of this Section, complete and in place as shown on the Project Plans and Standard Plans, and as specified in the Special Provisions, City PIES, the Standard Specifications, as applicable, and as required in the Project Permits, and as otherwise may be directed by the Engineer, shall be considered as included in prices paid pursuant to the Agreement for the various Contract items of work involved, and no additional compensation will be allowed therefor.

END OF SECTION 10-2

10-3 POTABLE WATER FACILITIES

10-3.01 RELOCATE WATER SERVICE LATERAL, AND WATER FACILITIES

Attention is directed to Sections 5, "Control of Work" and 15, "Existing Facilities" of the Standard Specifications, and to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

Existing water service laterals, meters, valves and other water facilities that may conflict with installation of the project improvements will require relocation. Contractor shall relocate all water facilities as shown on the Project Plans or as directed by the Engineer. **All water utility related construction materials and methods, disinfection requirements, and testing and inspection shall conform to the requirements, standard specifications, and standard details of the South Tahoe Public Utility District (District) and the related Sections found elsewhere in these Special Provisions.** The Contractor shall coordinate all potable water utility work with the District.

Contractor shall notify the District a minimum of 48 hours in advance of work affecting water facilities. Contractor shall coordinate with the District and notify the affected property owner/s and residents at least two (2) weeks prior to any planned relocations and disruptions to service.

Water, sewer and storm drain crossings shall conform to the "criteria for the separation of water mains and sanitary sewers" of the State of California Department of Health Services.

Potable water main, water service lateral, water meter, and water valve locations and depths shown on the plans are approximate only. Contractor shall assume that each parcel is served by a water service. Where proposed storm drain pipe/structure and existing water pipe cross, as shown on plans or as marked by Underground Service Alert (USA), Contractor shall pothole water lines to a minimum depth of twelve (12) inches below bottom of proposed storm drain pipe/structure. If conflict exists and is not shown on plans Contractor shall notify Engineer immediately. All costs of potholing efforts for water services and mains shall be borne by the Contractor and no separate payment shall be made, unless noted elsewhere in these Special Provisions.

All water valves, meters, or other water main system facilities directly affected by the relocation of any water main shall be modified and/or relocated to fit and shall be considered as included in the prices paid for the associated water main relocation and no additional payment will be allowed. The Contractor shall construct any trench resurfacing per details shown on the Plans.

The Contractor shall be prepared and make all provisions as necessary to provide for a vactor truck or other acceptable equipment, to drain portions of and/or collect any residual waters from the water system, and to prevent any spills and maintain a clean and safe working area. Water Pollution Control and discharge of all collected waste waters shall be in compliance with the SWPPP, Project Permits and District requirements. Any discharge to an existing sewer manhole is prohibited without explicit approval from the District.

Based on information provided by the District (verification by the Contractor is required) existing valves on the subject water main(s) are located within the vicinity of the designated water main relocations, which can be utilized to facilitate isolation of the subject work area. In addition the exact number and location of services that may be impacted as part of the designated water main(s) relocations has not been determined. The District has advised the City, upon proper notification and coordination from the Contractor, the District will provide the efforts and facilities necessary to provide for temporary water supply to the affected services for the duration of the water main relocation work. Should the Contractors operations be delayed, for whatever reason, as a result of the relocation of potable water lines and any necessary coordination with the District, no additional contract time or compensation will be allowed.

The following time constraints, requirements, and notifications shall be adhered to during all applicable portions of the work for any relocation of water mains:

- Contractor to schedule any water main shutdowns with District a minimum of two (2) weeks in advance.
- Contractor to provide District with a 48-hour notice of any shutdown request
  - Shall include notification to South Lake Tahoe Fire Department for any impacts to fire hydrants or other fire protection apparatus.
- Contractor to post all affected residences and businesses with door hangers– posted 48 hours prior to shut down.

Work under this item shall include repair and/or replacement of any applicable components of the potable water system that are removed, relocated, or damaged as part of this work. The subject water system shall be returned to its pre-existing or proposed condition shown on the Project Plans, for a sound, complete and fully operational potable water system in conformance with all the requirements of the District. Any components of the existing water system that is removed from service may not be reused without prior acceptance from the Engineer and District.

Measurement and Payment

"UTILITY SERVICE LATERAL REPLACEMENT (BY CONTRACTOR) – EX. DOMESTIC WATER SERVICE LATERAL (STPUD)" shall be measured per each on the number of facilities, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to perform all the work involved in constructing a water service lateral or main relocation that may conflict with the project improvements, complete and in place, including but not limited to all new pipe, fittings and hardware, excavation and disposal, bedding, backfill, associated surface improvements, disinfection, and performance testing, not otherwise provided for, as shown on the Project Plans, as specified in the Special Provisions, City PIES, Standard Specifications, as required in the Project Permits, and as directed by the Engineer, shall be considered as included in the price paid per each for the bid item "UTILITY SERVICE LATERAL REPLACEMENT (BY CONTRACTOR) – EX. DOMESTIC WATER SERVICE LATERAL (STPUD)" and no additional compensation will be allowed therefor.

10-3.02 DOMESTIC WATER FACILITIES

Conform to STPUD Standard Specifications and Standard Details for all work on public utility water facilities under the authority of STPUD.

END OF SECTION 10-3

10-4 SANITARY SEWER FACILITIES

10-4.01 RELOCATE SEWER SERVICE LATERAL, AND SEWER FACILITIES

Attention is directed to Sections 5, "Control of Work" and 15, "Existing Facilities" of the Standard Specifications, and to Sections 10-1.09, "Occupational Safety and Health Standards & Trench Shoring", 10-1.27, "Earthwork", and 10-1.29, "Rock Fracture and Removal", of these Special Provisions for requirements regarding trenching and shoring, structure excavation, and backfill.

Existing sanitary sewer service laterals, cleanouts, and other sewer facilities that may conflict with installation of the project improvements will require relocation. Contractor shall relocate all sewer facilities as shown on the Project Plans or as directed by the Engineer. **All sewer related construction materials and methods, and testing and inspection shall conform to the requirements, standard specifications, and standard details of the South Tahoe Public Utility District (District) and the related Sections found elsewhere in these Special Provisions**. The Contractor shall coordinate all sewer utility work with the District.

Contractor shall notify the District a minimum of 48 hours in advance of any work affecting sewer facilities. Contractor shall coordinate with the District and notify the affected property owner/s and residents at least two (2) weeks prior to any planned relocations and disruptions to service.

Water, sewer and storm drain crossings shall conform to the "criteria for the separation of water mains and sanitary sewers" of the State of California Department of Health Services.

Sanitary sewer main, service lateral, valve, cleanout, and manhole locations and depths shown on the plans are approximate only. Contractor shall assume that each parcel is served by a sewer service. Where proposed storm drain pipe/structure and existing sewer pipe cross, as shown on plans or as marked by Underground Service Alert (USA), Contractor shall pothole sewer lines to a minimum depth of twelve (12) inches below bottom of proposed storm drain pipe/structure. If conflict exists and is not shown on plans Contractor shall notify Engineer immediately. All costs of potholing efforts for sewer services and mains shall be borne by the Contractor and no separate payment shall be made, unless noted elsewhere in these Special Provisions.

The Contractor shall be prepared and make all provisions as necessary to provide for a vactor truck or other acceptable equipment, to drain portions of and/or collect any residual sewage waste from the sanitary sewer system, and to prevent any spills and maintain a clean and safe working area. Water Pollution Control and discharge of all collected waste waters shall be in compliance with the SWPPP, Project Permits and District requirements. Any discharge to an existing sewer manhole is prohibited without explicit approval from the District.

The Contractor shall be responsible for the design, installation, construction, operation, maintenance and removal of any temporary sanitary sewer bypass system as required for completion of the contract work. Where applicable to the work, the Contractor shall submit a detailed Temporary Sanitary Sewer Bypass Plan (including all necessary diagrams/exhibits, and pump equipment data sheets if applicable) to the Engineer and STPUD for review and

acceptance prior to commencement of any construction activities that may require bypass of an existing sanitary sewer main.

Work under this item shall include repair and/or replacement of any applicable components of the sanitary sewer system that are removed, relocated, or damaged as part of this work. The subject sanitary sewer system shall be returned to its pre-existing or proposed condition shown on the Project Plans, for a sound, complete and fully operational sanitary sewer system in conformance with all the requirements of the District. Any components of the existing sewer system that is removed from service may not be reused without prior acceptance from the Engineer and District.

Measurement and Payment
"UTILITY SERVICE LATERAL REPLACEMENT (BY CONTRACTOR) – EX. SANITARY SEWER SERVICE LATERAL (STPUD)" shall be measured per each on the number of facilities, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals as necessary to perform all the work involved in constructing a sewer service lateral relocation that may conflict with the project improvements, complete and in place, including but not limited to all new pipe, fittings and hardware, excavation and disposal, bedding, backfill, associated surface improvements, and performance testing, not otherwise provided for, as shown on the Project Plans, as specified in the Special Provisions, City PIES, Standard Specifications, as required in the Project Permits, and as directed by the Engineer, shall be considered as included in the price paid per each for the bid item "UTILITY SERVICE LATERAL REPLACEMENT (BY CONTRACTOR) – EX. SANITARY SEWER SERVICE LATERAL (STPUD)" and no additional compensation will be allowed therefor.

10-4.02 SANITARY SEWER FACILITIES

Conform to STPUD Standard Specifications and Standard Details for all work on public utility sanitary sewer facilities under the authority of STPUD.

END OF SECTION 10-4

CONSTRUCTION PROGRESS DOCUMENTATION

DOCUMENT 01300 - CONSTRUCTION PROGRESS DOCUMENTATION

ARTICLE 1

1.01 DEFINITIONS

A. **Baseline Schedule** - The Contractor's initial CPM Progress Schedule presenting an orderly and realistic plan for completion of the entire Work of the Project. When accepted by the City's Project Manager, the Contractor's Baseline Schedule becomes the initial version of the Official Progress Schedule.

B. **CPM Progress Schedule** - The Contractor's Progress Schedule prepared in Critical Path Method ("CPM") precedence format using the scheduling software required by Section 01300.2.01, "Scheduling Software."

C. **Official Progress Schedule** - The Contractor's Progress Schedule and all revisions and updates thereto, accepted by the City, in accordance with the requirements of the Contract Documents.

D. **Progress Schedule** - The Contractor's schedule prepared in accordance with the requirements of the Contract Documents.

E. **Recovery Schedule** – Contractor's detailed schedule indicating how Contractor intends to recover lost time.

F. **Revised Official Progress Schedule** – Contractor's written request to revise the current version of the Official Progress Schedule. If the City accepts the Contractor's request to revise the Official Progress Schedule, it becomes the new current version of the Official Progress Schedule.

G. **Short Interval Schedule** - The Contractor's four-week schedule showing the past week, the week submitted, and two weeks thereafter. The Short Interval Schedule must correlate with the current version of the Official Progress Schedule and reference the appropriate activity numbers. The Short Interval Schedule must indicate the actual start and finish dates of all activities on the Official Progress Schedule that are started or finished during the time period encompassed by the Short Interval Schedule.

H. **Network Window** - Also know as "fragnets" or "hammocks", Network Windows must be provided as needed to "explode" a section of the Official Progress Schedule to show the effects of proposed changes or delays to the schedule.

ARTICLE 2 - PRODUCTS

2.01 SCHEDULING SOFTWARE

A. If the Notice to Bidders states that Contractor is required to submit a CPM Progress Schedule, Contractor must use the most current version of MS Project planning software to produce the CPM Progress Schedule.

B. If the Notice to Bidders states that Contractor is *not* required to submit a CPM Progress Schedule, Contractor may use any commercially available scheduling software.

C. If requested by the City, Contractor, at its sole expense, shall provide the City with a full and current software license to enable the City to access any schedule submission of Contractor on City computer hardware.

ARTICLE 3 - EXECUTION

3.01 CPM PROGRESS SCHEDULE

A. General Requirements

1. When indicated in the Notice to Bidders, Contractor must submit a CPM Progress Schedule per 01300.2.01.A.

2. Personnel preparing CPM Progress Schedules must be qualified and experienced in preparing CPM schedules and must be capable of producing the schedules and reports required by this Section.

3. Contractor must use scheduling software as required by Section 01300.2.01, “Scheduling Software” or as otherwise authorized by the City.

4. Contractor must provide City with three (3) copies (plots) of each schedule submission and electronic copies of the schedule data files on Compact Disks (CDs). The CDs must be permanently labeled to indicate the contents of the CD and include the submittal number and data date.

5. The Project Time for completion of the entire Project and the Milestone times must adhere to the start and finish times stated in the Contract Documents, unless Contractor formally requests and City's Authorized Representative approves in writing earlier (advanced) time(s) of completion. Approval of such request shall be at City's discretion and must be in the form of a Change Order.

6. Float Time is not for the exclusive benefit of either Contractor or City. Contractor must **not** include contingency activities.

7. Failure of the Official Progress Schedule to include an element of

the Work required for performance of this Contract, or inaccuracy in Official Progress Schedule, will not relieve Contractor from responsibility for accomplishing all the Work required and will not constitute grounds for delay.

8. Failure of Contractor to substantially comply with requirements of this Section 01300 will constitute a failure by Contractor to prosecute Work with such diligence as will ensure its completion within Contract Time(s) and may be considered grounds for termination or other remedy by City pursuant to terms of this Contract.

3.02 BASELINE SCHEDULE

A. Within ten (10) calendar days from the official date for the commencement of Work as stated in the Notice to Proceed, Contractor must submit a Baseline Schedule presenting an orderly and realistic plan for completion of the entire Work of the Project including consideration of and compliance with all Milestones, activity sequencing, activity durations, and other scheduling restrictions imposed by the requirements of the Contract Documents. The Baseline Schedule submittal must include three (3) schedule prints (plots) and corresponding electronic data files on Compact Disks (CDs). The CDs must be permanently labeled to indicate the contents of the CD and include the submittal number and data date.

B. The Baseline Schedule submission must include and/or comply with the following minimum requirements:

1. Provide a time scaled CPM schedule in precedence format.

2. Show the plan for completion of the Work for each Milestone within the time(s) specified. Each activity must be coded to its corresponding Milestone.

3. Provide a list identifying all imposed constraints (restraints). Activity constraints must be limited to constraints imposed by the Contract Documents unless otherwise specifically approved in writing by the City's Project Manager.

4. Activity Calendars (the activities identified below, if applicable to the project, should be included in the Baseline Schedule):

a. Indicate all activity calendars used.

b. All activity calendar(s) must identify workdays, holidays, and shift work (by trade).

c. All activity calendar(s) must include:

i) All work hour restrictions including but not limited to CEQA requirements, anticipated weather delays, and restriction imposed by local governmental agencies.

ii) All workday activity calendars must have the same holidays unless approved in writing by the Project Manager.

iii) All activity calendars must cover entire Contract Time.

iv) The global seven-day/week activity calendar must have no non-workdays.

5. All completion Milestones required by the Contract Documents must be shown on the specific Milestone completion date(s) identified in the Contract Documents and must be attached to a seven-day/week activity calendar. The seven-day/week activity calendar must have no non-workdays.

6. Include dependencies (relationships) and logic ties between activities.

7. Open-ended activities are not permitted.

8. Unless otherwise approved in writing by City's Project Manager, no single activity on the schedule shall have a duration longer than fifteen (15) workdays, except for fabrication, procurement, Punch List, and equipment commissioning (run-in) activities.

9. Activity durations shall be the total number of actual days required to perform each activity. The consideration of weather impact on completion of the Work must be included in the associated activity calendar and not included in individual activity durations.

10. No single activity shall have more than one Subcontractor responsible for its performance.

11. For Subcontractor activities, include a responsibility code for each activity corresponding to the Subcontractor responsible for performing the Work.

12. Unless otherwise specifically Approved in writing by the City's Project Manager, if the start of an activity depends on the City's acceptance of a Submittal(s), identify as two (2) separate preceding activities the preparation and review of the Submittal(s).

13. Do not schedule activities that are dependent on Submittal acceptance or material delivery to start earlier than the expected approval or delivery dates.

14. Identify as separate activities procurement of major equipment and materials.

15. Identify as separate activities the installation of all City furnished items, if any.

16. Include activities for Contractor completion certification for each Milestone and Project Final Completion.

17. Show the number of days needed by the Contractor to correct deficiencies in the completed Work (punch list durations) after receipt of punch list from City.

18. Include interface flags for all points of coordination with the work of other contractors engaged by City at the Project Site.

19. The data/status date for the Baseline Schedule must be the first day of the Contract Time as stated in the Notice to Proceed (NTP).

20. Show each Milestone required by the Contract Documents as independent. Do not tie (link) milestones together.

21. All Milestones required by the Contract Documents must be shown on the specific Milestone completion date identified in the Contract Documents and must be attached to a seven-day activity calendar.

22. Include a Project start milestone for the NTP.

23. Unless otherwise requested by the Contractor and approved in writing by the City's Project Manager, the activities, durations, and logic that appear in the City accepted Preliminary Contract Schedule must remain unchanged in the Baseline Schedule submission.

24. Activities must be included for all required reviews, approvals, permits, and inspections performed by or issued by regulatory agencies.

25. Activities must be included for final submission of Record Documents (including As-Built Drawings) and other key closeout activities.

C. If requested by the City, Contractor shall obtain from its subcontractors, on their company letterhead, a statement certifying he/she has reviewed the Contractor's Baseline Schedule and it accurately represents:

1. The subcontractor's plan for their portion of the Work

2. The planned durations for the subcontractor's activities

D. City's Project Manager will review the Baseline Schedule submission for conformance with the requirements of the Contract Documents. Within twenty-one (21) calendar days after receipt, City's Project Manager will accept the Baseline Schedule or will return it with comments. If the Baseline Schedule is returned with comments, Contractor must revise the schedule to incorporate the comments and resubmit within seven (7) calendar days.

3.03 OFFICIAL PROGRESS SCHEDULE

A. The City accepted Baseline Schedule becomes the initial version of the Official Progress Schedule.

B. The Official Progress Schedule must not be revised without the prior written Approval of the City's Project Manager.

3.04 MONTHLY UPDATE OF THE OFFICIAL PROGRESS SCHEDULE

A. Contractor must submit a monthly update to the Official Progress Schedule. All updates must be submitted with three (3) prints (plots) of the Updated Official Progress Schedule and corresponding electronic date files on compact disks (CDs). The CDs must be permanently labeled to indicate the contents of the CD and include the submittal number and data date.

B. The submission of the Updated Official Progress Schedule must coincide with the submission the monthly progress payment request.

C. The Updated Official Progress Schedule must include:

1. Contractor’s estimated percentage complete for each activity not yet complete.

2. Actual start/finish dates for each activity.

D. The Updated Official Progress Schedule must not include:

1. Added or deleted activities

2. Changes to the network logic

3. Any other changes, revisions or modifications of any kind

E. City's Project Manager will meet with Contractor at the Project Site to verify the Contractor's estimate of the percentage complete for each activity not yet complete. If agreement cannot be reached on the actual progress for any activity, determination of City's Authorized Representative will be used.

3.05 SHORT INTERVAL SCHEDULE

A. If requested, an updated Short Interval Schedule (SIS) must be submitted to the City.

B. The SIS must be submitted throughout the entire Contract Time.

C. The SIS must be a four-week schedule and include the past week, the week submitted, and two weeks thereafter.

D. The SIS must contain sufficient detail to evaluate daily progress and manpower/equipment loading and must correlate with the current version of the Official Progress Schedule and reference the appropriate activity numbers.

E. The SIS must indicate all planned and actual tests and inspections.

F. The SIS must indicate the actual start and finish dates for each activity on the Official Progress Schedule that started or finished during the time period covered by the Short Interval Schedule.

3.06 RECOVERY SCHEDULE

A. If any activity falls more than fourteen (14) calendar days behind schedule, or at any time upon City's request, Contractor must submit a Recovery Schedule within seven (7) calendar days indicating how Contractor intends to make up the lost time. The form and detail of the Recovery Schedule must be appropriate to explain and display how Contractor intends to reschedule delinquent activities to regain compliance with the Contract Time(s). Submit three (3) copies (plots) and corresponding electronic data files on Compact Disks (CDs). The CDs must be permanently labeled to indicate the contents of the CD and include the submittal number and data date.

B. If the City's Authorized Representative accepts the Contractor's Recovery Schedule, Contractor must submit a Revised Official Progress Schedule revision, and the Revised Official Progress Schedule must be based on and limited to the modifications indicated in the Recovery Schedule and accepted by the City's Authorized Representative.

3.07 TIME EXTENSIONS

A. Contractor must submit three (3) copies and corresponding electronic data files on CDs of a Time Impact Analysis (TIA), also referred to as a detailed network window, for each delay giving rise to the Contractor's

request for an adjustment of Contract Time, indicating the impact of the delay on the Contract Time. The CDs must be permanently labeled to indicate the contents of the CD and include the submittal number and data date.

B. The TIA must be based on the Updated Official Progress Schedule in effect at the time the delay or impact first occurred and shall be submitted for review in accordance with the Contract Documents within fifteen (15) calendar days after the initial request for an extension of Contract Time by the Contractor (or as otherwise required pursuant to the Contract Documents or as directed by the City). Time extensions will not be granted unless substantiated by analysis of the Updated Official Progress Schedule that preceded the alleged delay, and, further, not until the project float is zero. If the Contractor fails to submit a TIA within the aforementioned time period, then the Contractor shall be deemed to have agreed that there is no time impact, and that the Contractor has irrevocably waived its rights to seek an adjustment of Contract Time.

C. Each TIA shall provide information justifying the request for an adjustment of Contract Time and indicate with specificity the extent and duration of the adjustment requested for each specific change or alleged delay. Each TIA shall be in a format acceptable to the City's Project Manager, and shall include, but not be limited to, the following data:

1. A fragmentary CPM type network (fragnet) illustrating how the Contractor proposes to incorporate the change or alleged delay into the current Updated Official Progress Schedule; and

2. Identification of all activities and logic in the current Updated Official Progress Schedule that is/are proposed to be amended due to the change or alleged delay, all activities that are/will be affected by the proposed change or alleged delay, and all effects on the Contract Time, together with engineering estimates and other appropriate data justifying the requested adjustment of Contract Time.

D. The TIA shall be determined on the basis of the date or dates when the change or changes were issued, or the date or dates when the alleged delay event(s) commenced. The status of the project and TIA shall include event time computations for all affected activities, including, but not limited to, work around sequencing, or recovery options to maintain the current contract completion date.

E. TIAs provided in order to demonstrate the time impact upon the overall project and the time for completion shall be accomplished at no additional cost to the City.

F. If the City's Authorized Representative Approves a request to adjust the Contract Time, a Change Order extending the Contract Time will be issued.

G. City is not obligated to consider any request to adjust Contract Time unless the request(s) is/are made in accordance with the requirements of the Contract Documents.

END OF DOCUMENT 01300