

Construction Manual



SANDAG

Construction Manual

Construction Division
Department of Mobility Management and Project Implementation

Issued Date: June 2019

Revision Record

Revision No.	Date of Revision	Revisions Made (Chapters-Sections Numbers)
01	March 15, 2017	Chapter 1, Section 1-5 Chapter 3, Section 3-12 Chapter 5, Sections 5-1 and 5-5 Chapter 7, Sections 7-1 and 7-3
02	December 2017	Chapter 7, Section 7-3
03	June 2019	Chapters 1 – 7, Appendices (replaces all previous editions)
04	December 2020	Chapter 5, Section 5-5.8
05	December 2022	Chapter 4, Appendix 4-1

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Chapter 1

Introduction

Construction Division
Department of Mobility Management and Project Implementation



SANDAG Construction Manual

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1-1 INTRODUCTION

1-1.1 Purpose

When applying SANDAG policy to the administration of construction contracts, knowing how to not only interpret contract documents and plans, but also apply engineering experience and judgment is extremely important. The SANDAG Construction Manual cannot replace this valuable experience and judgment.

The purpose of this manual is for it to be used as a resource for to provide procedural guidance for all personnel engaged in contract administration. This manual is a guide, not a compilation of mandatory instructions. Unless guiding language is explicitly mandatory, personnel are expected to perform in accordance with the guidance in this manual within the resources allotted for construction contract administration. The resident engineer has the primary role of contract administration and is in responsible charge for administration of the contract. The assistant resident engineer (inspector) has the primary role of field inspection of the contractor's quality of work. The resident engineer coordinates with inspectors to determine appropriate priorities for testing and inspection of work quality based on contractor-proposed order of work for the shift. A contract may have one or more inspectors assigned and each may have one or more activities to inspect as part of their daily responsibilities. There is no contractual requirement to provide full time inspection of any activity; inspectors may not be on site from start to end of contractor operations, and they may be required, due to staffing levels, to rotate inspection activities among their assigned work areas during the work shift or as work progresses. The provisions herein for contract inspection are only applicable when the inspector is present and observing a particular contractor operation and recognizes the issue as it develops or after completion of the work.

This manual establishes policies and procedures for the construction phase of SANDAG projects; however, it is not a contract document. It imposes no obligations or requirements on contractors. Resident engineers and other SANDAG personnel who administer SANDAG contracts must never attempt to use this manual as a substitute or supplement to the specifications and other contract requirements nor does it relieve personnel from their professional duties, obligations, and responsibilities. Similarly, the guidance in this manual does not relieve the contractors from its obligation and responsibility for their means and methods, quality control (QC), and compliance with contract requirements.

1-1.2 Scope

This manual covers topics in two general areas:

1. Policies and procedures related to the duties of the SANDAG construction personnel, which includes internal policies and procedures for the following areas:
 - Organization
 - Safety
 - Public relations/communications
 - Coordinating with other SANDAG entities and outside agencies and organizations
2. Construction contract administration, which includes the following areas:
 - Making timely and accurate contract payments
 - Ensuring and documenting the contractor's compliance with contract requirements

This manual uses Section 1-9 of the SANDAG Special Provisions and current industry practices as the basis for contract administration instructions and guidelines. Before attempting to apply these instructions and guidelines, the resident engineer must have a thorough understanding of the specifications and other contract requirements. This manual also contains references to other publications and documents, including SANDAG manuals and publications. However, SANDAG has made a concerted effort to minimize any repetition of information found in other publications.

1-1.3 Changes/Revisions to the Manual

The SANDAG principal construction engineer issues revisions to this manual to account for changed policies and procedures. Be alert for new or revised specifications to the current manual guidelines for contract administration. As specifications, practices, procedures, and policies change, revisions will be issued. It is the construction management team's (CMT) responsibility to be aware of the information contained within this manual and understand the guidance and direction provided, especially regarding required actions.

If there is any question about anything written in this manual, the CMT should discuss with the SANDAG construction manager assigned to the project. If the construction managers need further guidance, they will bring any questions to the SANDAG principal construction engineer.

This is a living document and will get updated periodically, as necessary.

1-2 SANDAG ORGANIZATION

1-2.1 General

SANDAG serves as the Metropolitan Planning Organization and the Regional Transportation Planning Agency for the San Diego region, which allocates Transportation Development Act funds, and develops the long-range transportation plan for the region. SANDAG develops the Regional Transportation Plan to implement a long-range vision for buses, Trolley, rail, highways, major streets, bicycle travel, walking, goods movement, and airport services. SANDAG also administers *TransNet*, the local half-cent sales tax for transportation improvements in San Diego County.

On September 20, 2002, Senate Bill 1703 (Peace) consolidated the planning and capital project development responsibilities for San Diego County to SANDAG, which were previously held individually among the various local transit agencies. SANDAG is designated as the agency responsible for planning and capital project development, while the local transit agencies, Metropolitan Transit System (MTS) and North County Transit District (NCTD), and remain as transit system operators responsible for the operations and maintenance of their systems. As such, SANDAG is responsible for ensuring that project planning, preliminary engineering, environmental documents, final design, construction, startup, and testing are executed in accordance with established schedules and budgets and in conformance with the project delivery guidelines of SANDAG, funding agencies, and other pertinent federal and state regulations. Funding agencies may include the Federal Railroad Administration (FRA), Federal Transportation Administration (FTA), Federal Highway Administration (FHWA), or Caltrans, among others, and differ on a project-by-project basis.

1-3 CONSTRUCTION ORGANIZATION

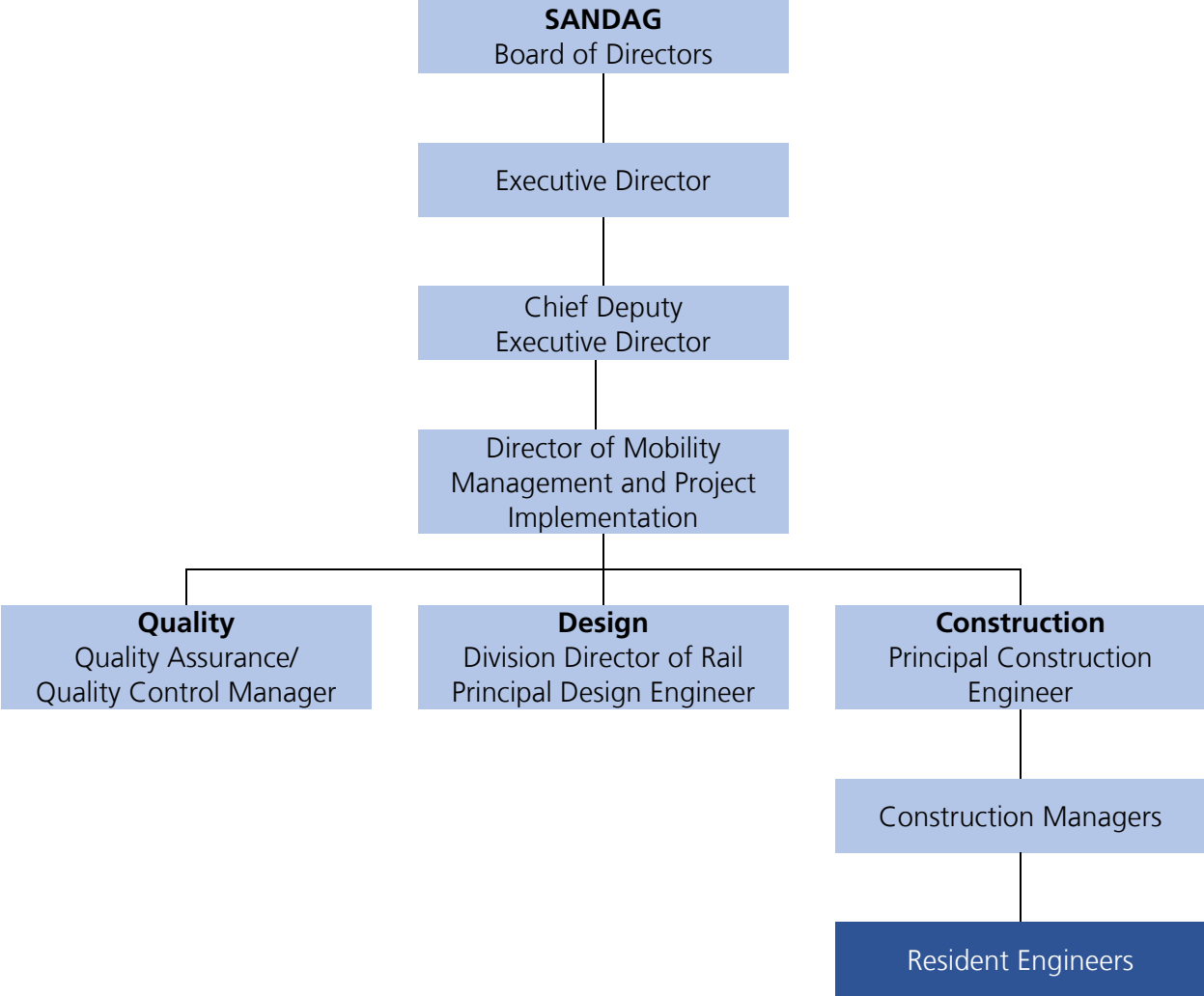
1-3.1 General

In accordance with the Government Code, the powers and duties of SANDAG include constructing transportation systems. The San Diego Regional Transportation Consolidation Act consolidates under SANDAG the planning, programming, project development, and construction activities of various transportation agencies in San Diego. This code authorizes SANDAG to enter into those contracts that are required for SANDAG to perform its duties. The Board of Directors has delegated to the Executive Director various responsibilities for administering construction contracts. In turn, the Executive Director has delegated many of these responsibilities to the director of Mobility Management and Project Implementation (MMPI). In addition, the majority of SANDAG construction contracts receive federal aid. Consequently, federal regulations take precedence over state law and SANDAG policy.

1-3.2 SANDAG’s Construction Organization

The following are the responsibilities of various personnel in the engineering and construction division. Figure 1-A details the SANDAG construction organization.

Figure 1A



1-3.2.A SANDAG Board Of Directors

The Board is composed of mayors, council members, and County supervisors from each of the region's 19 local governments, listed below:

The cities of:

- Carlsbad
- Chula Vista
- Coronado
- Del Mar
- El Cajon
- Encinitas
- Escondido
- Imperial Beach
- La Mesa
- Lemon Grove
- National City
- Oceanside
- Poway
- San Diego
- San Marcos
- Santee
- Solana Beach
- Vista
- and County of San Diego

Supplementing these voting members are advisory representatives from:

- Caltrans
- Imperial County
- MTS
- Mexico
- NCTD
- San Diego County Water Authority
- Port of San Diego
- Southern California Tribal Chairmen's Association
- U.S. Department of Defense

The Board annually elects a Board Chair to serve a one-year term. Board members serve at the discretion of their individual agencies. The Board established five Policy Advisory Committees responsible for policy direction and review, including the Transportation Committee, which advises Board on major policy-level matters related to transportation, and the *TransNet* Independent Taxpayer Oversight Committee, which monitors *TransNet* spending.

1-3.2.B SANDAG Executive Office Headed by the Executive Director

Executive Office

The Executive Office is led by the Executive Director, who is appointed by the Board, and is responsible for overall administration and management of all SANDAG activities. [SANDAG Board Policy No. 017, Delegation of Authority](#), specifies the authority of the Executive Director. The delegation of authority by Executive Director in the administrative policy further details the authorities specified in Board Policy No. 017.

Executive Director

The Executive Director is assisted in managing the above tasks by the executive office staff, consisting of the Chief Deputy Executive Director, principal management internal auditor, executive assistants/clerks of the board, general counsel, principal legislative analyst, chief economist, principal planner for transportation demand management, and the communications director. The Executive Director, along with the executive office staff members and directors of the seven departments oversee and direct the management of all SANDAG staff and projects. Other SANDAG departments, supporting the agency include: the Executive Office (Legal, Communications, and Legislative Affairs), Administration Department (Contracts and Procurement), Communications Department, Finance Department (Financial Programming and Project Control), Land Use and Transportation Planning Department (Land Use Planning and Coordination, Transit Planning), Mobility Management and Project Implementation Department, Operations Department (Transportation Demand Management), Data, Analytics, and Modeling Department, and the *TransNet* Department.

1-3.2.C Director of Mobility Management and Project Implementation

The director of MMPI leads the program to deliver quality transportation products and services and is responsible for the following:

- Establishing the construction branch's direction, definition, guidelines and objectives
- Developing and using performance measures to determine program efficiency and effectiveness

1-3.2.D Mobility Management and Project Implementation – Division Director of Rail

The division director of rail oversees the engineering and design of all capital projects and is responsible for the following:

- Overseeing the highway, transit, and rail project development, design, and construction projects.
- Overseeing the SANDAG transportation system monitoring activities and assisting project sponsors to ensure that projects are completed on time and within budget.
- Overseeing and participating in the development and administration of the budget; identifying and securing funding sources and grant revenues to support agency activities; directing the forecast of additional funds needed for staffing, equipment, materials, and supplies; directing the monitoring of and approve expenditures; directing the preparation of and implementation of budgetary adjustments as necessary.
- Overseeing quality assurance (QA)/QC, system safety, and security and risk management.

1-3.2.E SANDAG Principal Design Engineer

Within the SANDAG engineering division, the principal design engineer is responsible for the following:

- Developing budgets and scheduling for the entire rail improvements program and miscellaneous capital projects.
- Providing technical support to the SANDAG project managers (PMs) and SANDAG corridor directors through the use of on-call consultants.
- Supporting the PMs and corridor directors in the development of scope, fee estimates, and review of deliverables from consultants in specialized technical fields such as systems engineering.

1-3.2.F SANDAG Principal Construction Engineer

Within the SANDAG construction division, the principal construction engineer is responsible for the following:

- Developing and improving program performance measures.
- Providing reviews to document the understanding and application of processes for administering contracts.
- Providing expert assistance on complex and sensitive contract administration issues.
- Planning and directing the activities of the construction division.
- Budgeting for personnel and other resources as necessary to administer contracts and provide for the work's integrity and safety.
- Obtaining and providing training for all activities related to contract administration and construction engineering.
- Ensuring construction branch complies with statutory requirements, SANDAG directives, and division of construction objectives.
- Recommending revisions to the policies and procedures outlined in this manual to the director of MMPI.
- Managing the consultant construction management contracts.
- Coordinating construction activities with the design branch, transit operators, and other local agencies.
- Approving or recommending approving a resident engineer's recommendation for contract change orders and time extensions.

The principal construction engineer and staff collaborate with the construction industry and other stakeholders to improve the administration of construction contracts.

1-3.2.G Construction Manager

Construction managers are responsible for the following:

- Counseling resident engineers on SANDAG policies.
- Validating that SANDAG construction contracts are administered fairly, and in good faith.
- Advising resident engineers on complex and sensitive issues in construction contracts.
- Ensuring that materials and completed work comply with plans, specifications, and design criteria.
- Ensuring that the maintenance of project records complies with this manual.
- Ensuring the performance of all safety-related activities.
- Ensuring compliance with regulations and specifications related to labor and civil rights.
- Collaborating with the design PMs on constructability reviews and providing assistance on construction matters.
- Assisting design PMs with, or individually, developing construction management consultant task orders.

- Ensuring that the practice of civil engineering on assigned contracts complies with the Professional Engineer’s Act.

1-3.3 The Construction Management Team Organization

The number of personnel required on a contract varies with the circumstances involved. A resident engineer may be assigned to a single contract or may be assigned as resident engineer over several contracts. Field office assistants, assistant resident engineers, and other support personnel are assigned as necessary. It is important that SANDAG obtain maximum efficiency on the project with a minimum number of personnel. This expectation means that all SANDAG personnel and consultants assigned must have adequate training for the work being done.

Personnel furnished by engineering consultants may be assigned to the project as resident engineers. The SANDAG construction personnel assigned as task order manager must be familiar with the terms of the engineering consultant contract. The task order manager also must monitor the performance of the consultant personnel.

1-3.3.A Resident Engineer

Under the general direction of the SANDAG construction engineer, the resident engineer is responsible for contract administration and construction engineering of all assigned projects. As a SANDAG representative, the resident engineer acts within the authority of the following:

- Authority of Engineer section of the Special Provisions
- This manual
- Any other applicable administrative instructions

The SANDAG construction manager is the resident engineer’s counselor on the intent and application of any portion of the contract. On complex or sensitive construction issues, the resident engineer and construction manager should consult with the construction engineer.

A licensed professional engineer must be responsible for the engineering integrity of a construction project. The resident engineer, as SANDAG’s designated person in charge, must be a licensed professional engineer in the State of California, as defined by the Professional Engineer’s Act.

Selecting a person to act as resident engineer is dependent upon the following:

- Work’s magnitude and complexity
- Type of work
- Degree of independent control and direction to be exercised

The resident engineer must thoroughly study the assigned project, becoming familiar with all its facets analyze the plans, estimates, and preliminary quantity calculations, and determine if the estimated quantities cover all work items contemplated. If the resident engineer discovers any major discrepancies, the engineer must take appropriate action. The resident engineer also must thoroughly study the requirements of environmental commitments and permits, including pollution and erosion control plans.

For work within railroad right-of-way (ROW), the resident engineer also must be familiar with the American Railway Engineering and Maintenance of Way's Manual for Railway Engineering, Portfolio of Trackwork Plans, and Communications & Signals Manual of Recommended Practices. The recommended practices described within the manuals and plans have been developed to assist the railroads and railroad industry in establishing policies and practices relative to the subjects, activities, and facilities covered in the documents, with the aim of assisting them engineer and construct railway plans which will have inherent qualities of uniform design methods promoting safe, efficient, and economical operations, as well as low maintenance costs.

The resident engineer must be familiar with FRA's requirements described in 49 Code of Federal Regulations Subtitle B Chapter II, FRA, Department of Transportation, and can be viewed at the government publishing office website.

The resident engineer also must be familiar with California Public Utilities Commission (CPUC) requirements described in the CPUC General Orders and can be found on the CPUC's website.

The resident engineer is responsible for project controls. If it becomes apparent at any time that the probable unobligated balance of funds, with due regard for the amount of work remaining, is not sufficient to complete the project, the resident engineer must bring the situation to the SANDAG construction manager and the SANDAG PM. To permit contract expenditures to overrun allotted funds seriously reflects on the resident engineer's ability to manage the project. For the procedure for obtaining additional funds, see [Obtaining Additional Funds](#) section in [Chapter 5](#) of this manual. (Note: additional funds may not be available. It is imperative for the resident engineer to understand the limitations of the budget assigned to the project.)

Once assigned, the resident engineer should remain on the project until its completion, including the completion of all project documents, administrative matters, and close-out and archiving of the construction files and field office.

1-3.3.B Structure Representative

The structure representative must inspect, document, and resolve changes, claims, and field test materials for all structure work on a project and acts within the authority of the following:

- Applicable Standard Specifications
- Applicable Bridge Construction Standards
- Other applicable administrative instructions

The person responsible for the structural integrity of a construction contract must be a licensed professional engineer. If the structure representative is not licensed, that person must defer to the resident engineer any decisions and actions that constitute the practice of civil engineering, as defined by the Professional Engineer's Act.

1-3.3.C Assistant Resident Engineer

The assistant resident engineer must ensure the performance of assigned work complies with the requirements of the plans, Standard Specifications, and Special Provisions. The responsibilities of the position include the following:

- Ensuring the contractor complies with all contract requirements
- Performing, or calling for, required tests to ensure work quality
- Keeping complete, accurate, and concise records of the work and quantities

- Keeping the resident engineer informed of work progress and problems
- Responding to any contractor questions about plans and specifications (the assistant resident engineer must not direct the contractor's work, but must immediately notify the contractor when work is not in compliance)
- As a representative of SANDAG, acting professionally at all times
- Working effectively by knowing construction methods and inspection techniques

1-3.3.D Office Assistant

The office assistant must maintain complete and accurate project records. These records may include the following:

- Monthly progress pay estimates
- Extra work reports
- Contract change orders
- Labor and equipment records
- Project correspondence
- Personnel records

When these duties do not result in full-time work, the office assistant may be assigned to check quantity calculations. Once assigned, the office assistant should remain on the project until its completion.

1-3.3.E Specialists and Coordinators

The complexity of many SANDAG projects has resulted in the use of many specialists and coordinators. These include the following:

- Railroad track specialist
- Railroad signals and systems specialist
- Materials and plant specialists
- Weights and measures coordinators
- Survey coordinators
- Labor compliance and civil rights personnel
- Project safety coordinator
- Traffic handling, signing, and electrical specialists
- Landscape specialists
- Environmental construction liaison
- Storm water coordinator
- Schedule analysts
- Claims engineers

In the absence of a SANDAG policy on any specific job problem, the authority of the resident engineer will prevail over that of a specialist or coordinator.

1-4 PUBLIC RELATIONS/COMMUNICATIONS

1-4.1 General

The subject of public relations/communications can be divided into the following categories:

- Internal relations among SANDAG personnel
- Relations with the contractor
- Relations with operators, utility companies, and other public agencies
- Relations with the public
- Relations with the media and traveling public

1-4.2 Relations Among SANDAG Personnel

1-4.2.A *The Resident Engineer and SANDAG*

Communication is a two-way responsibility. Resident engineers should adequately inform the construction manager and PM (or task order manager if a consultant resident engineer) of facts so they are not surprised and learn about project events from outside sources. Conversely, good management practice requires that the construction manager and PM keep the resident engineer informed of decisions affecting the administration of a construction project. Communication has failed whenever a resident engineer first hears about an issue or a SANDAG decision from outside sources.

1-4.3 Relations with the Contractor

In communicating with the contractor and the contractor's personnel, it is important that the resident engineer take a clear position. It is far better to start on a basis of administering the contract firmly in accordance with the plans and specifications than it is to address a situation later in the contract's life caused by laxity.

The employees assigned to construction must have a thorough knowledge of the plans and specifications governing the contract. This should promote good relations with the contractor's personnel. If the resident engineer and assistant resident engineers demonstrate thorough knowledge of the plans and specifications, it is more likely the contractor's personnel will respect the resident engineer's judgment in cases where contract interpretation becomes an issue. A satisfactory relationship between SANDAG and the contractor generally results from good communication between the resident engineer and the contractor's designated representative.

Contract administration involves several attributes. Ideally, the resident engineer and assistant resident engineer should be experienced, resourceful, and considerate, in addition to having a thorough knowledge of the specifications and the work to be done.

There are two types of specifications: method and QA. Method specifications list explicit materials, equipment, and construction requirements; whereas, QA specifications contain statements of required results that focus on the desired quality level of the finished product and are less restrictive as they do not specify the contractor's means and methods for achieving the final result.

Method specifications are more restrictive as to the contractor's options. Deviations from specified methods require contract change orders. Deviations also must provide equal or better results while preserving the contract's integrity.

1-4.4 Relations with Operators, Public Agencies, and Utility Companies

Good relations with internal and external stakeholders will have a beneficial effect in completing a construction project within scope, schedule, and budget. Pre-construction discussions that may affect utility companies, local agencies, and communities should involve all stakeholders.

The resident engineer should make early personal contact and establish a good working relationship with staff of affected utility companies and other agencies. Such agencies may include: MTS, NCTD, Caltrans, local school districts, local municipal agencies, permitting agencies, law enforcement organizations, utility companies, local community groups, and any other government agency or local group with interest in the project. Early personal contact with staff from these agencies and groups will acquaint them with upcoming construction operations and will enable them to have input and schedule their work or services to the best advantage of all concerned.

1-4.5 Relations with the Public

Another important part of public relations is courteously dealing with the people living or working near the project.

By courteously listening to and addressing questions and concerns the resident engineer can generate good faith with the general public or individuals.

Construction operations (for example, absolute working windows, temporary closures of streets and driveways, and construction noise, especially at night) may have an impact on residents and businesses adjacent to the project. Informing people living and working near the project about the reason for, and the duration of, the activity will go a long way toward a higher degree of acceptance and tolerance. Timely notice is important. Also consider rescheduling construction activity around major businesses or public events.

The necessity for residential relocations should be considered during constructability reviews and, if necessary, discussed at project development team meetings.

If nighttime noise levels become an issue during construction, and temporary relocation of residents is not addressed in the project files, contact the SANDAG construction manager for guidance.

The resident engineer must work closely with the SANDAG public information office (PIO) to determine how information should be shared with the public. Start public relations/communication early. The fullest possible cooperation of the contractor's organization should be solicited to achieve good public relations most effectively. The resident engineer and the contractor's designated representative can assure people living and working in the area that inconvenience noise and dust will be kept to a minimum.

1-4.6 Relations with the Media and Traveling Public

In general, the SANDAG public outreach (PO)/PIO shall manage interaction with the general public. Working with SANDAG staff, as well as outreach staff working directly for the contractor, the PO/PIO team will gather information from the project team and determine the best methods for outreach. PO/PIO staff members will participate in construction meetings and have regular contact with the construction team.

When construction information must be conveyed to large numbers of users (including those who commute regularly along a particular corridor and those who use the corridor only occasionally), contact the appropriate PO/PIO staff person early in the project. The most satisfactory method for the PO/PIO to make full use of the press, radio, internet, social media, and television to publicize the upcoming work. The PO/PIO also will employ email lists and other methods to reach out to stakeholders and members of the public who have expressed interest in the project.

The PO/PIO also will consider issuing press releases and may contact members of the local press before the job starts to inform the media how they can contact the proper person for information throughout the contract and invite them to tour the project with the resident engineer. In special cases, SANDAG may prepare and distribute pamphlets to users who are delayed as they pass through construction. If the traveling public outside of San Diego County will be affected, the PIO and construction engineer must be advised directly.

Personnel working on the project who may come in contact with members of the public (who may ask questions about ongoing work or anything related to the project) should work with PO/PIO staff to identify best means for interacting with members of the public. Any members of the press who approach staff working on the project should immediately be politely referred directly to the SANDAG PO/PIO staff person assigned to the project.

Project personnel should always keep in mind that they are representatives of SANDAG. As such, they are expected to conduct themselves in a manner that will command respect and be a credit to SANDAG.

1-5 FACILITIES AND EQUIPMENT

1-5.1 General

This section provides guidelines for the acquisition and the care of facilities and equipment used in SANDAG construction field operations.

1-5.2 Resident Engineer Offices

Offices for the resident engineers must be secured and charged against the project budget. It shall be the SANDAG construction manager's responsibility to work with the SANDAG PM and construction engineer on determining the best manner in which to secure necessary office space. Any rent and other items and services included in the cost of resident engineers' offices can be charged to the Construction Management line item, or the Construction line item when the resident engineer field office is included as part of the actual construction contract. When an office is used for more than one project, appropriately prorate the charges.

Carefully select the field office location. Consider security and avoid areas such as residential neighborhoods where the field office may not be welcomed.

1-5.2.A Commercial Office Space

Generally, secure commercial office space only for large or multi-stage projects. The process to secure approval of a lease for commercial office space may take extra time. It may be necessary to work with the SANDAG ROW consultants and the SANDAG Office General Counsel to negotiate the lease for any commercial office space. It also may be appropriate to secure this space as part of a construction management consultant task order. If it is included as part of a construction contract, commercial office space may be an option that may be proposed by the construction contractor.

1-5.2.B SANDAG/Other Agency Facilities

Space in SANDAG or other agency facilities, such satellite offices or transit operator maintenance facility buildings, may be available for resident engineer offices. If it is deemed appropriate, the construction manager may contact the facilities manager of the other agency to determine if office space is available.

1-5.2.C Trailers

Where land is available, you may lease commercial office trailers for resident engineer offices. Lease commercial office trailers in the same way you would lease commercial office space, except that coordination with ROW consultants or SANDAG's Office of General Counsel may not be required. Trailers may be secured as part of the actual construction contract, or as part of the construction management consultant task order, as with commercial office space.

1-5.2.D Maintaining Resident Engineers' Offices

The resident engineer must maintain both the interior and exterior of the project office. When more than one resident engineer occupies an office, they must jointly decide on the maintenance responsibilities.

Each member of the resident engineer's staff must routinely maintain neatness in the field facility. This responsibility includes picking up papers, keeping desktops neat, filing papers, and hanging maps.

For janitorial work, you may use service contracts and have it be included as part of a construction management task order, or have it included as part of the construction contract. Lease agreements for commercial office space may already include a janitorial service. The use of janitorial services does not preclude construction administration personnel from light housekeeping between service periods.

Each Resident Engineer's field office should display a sign that identifies the office as a SANDAG facility.

Note: If equipment is procured as part of a task order under Other Direct Costs and is more than \$500, it should have a SANDAG asset tag on affixed to it and be kept in an inventory list in the appropriate category of the contract project files. These assets must be returned to SANDAG at the end of the project or disposed per Disposition of Assets section in this chapter.

1-5.2.E Field Office Utilities/Service Contracts

For utility connections to the field office, there are multiple ways in which this task can be executed. The work can be tasked to the contractor through a contract change order, executed to a construction management task order, or be done commercially by the utility service company through a purchase order/service contract as stated in the SANDAG Procurement Manual.

1-5.3 Care of Equipment

Resident engineers and staff are responsible for the proper care and operation of assigned or purchased equipment. Complete an inventory no less than once a year and reconcile all discrepancies.

Resident engineers must maintain current information on equipment assigned to them and must properly document the disposal or movement of equipment in accordance with the procedures detailed herein. Report new equipment purchases to the construction engineer prior to purchase. All purchases of equipment through a task order must be approved prior to the purchase by the construction manager and/or task order manager.

When a member of the resident engineer's staff is not present, always keep the field office locked. Commercial security systems may be warranted for a field office. You can use project funds to obtain a security system, or a security system may be included in the rental cost for commercial office space. Annual service to fire extinguishers in SANDAG facilities is required.

1-5.4 Automotive Equipment

The principal construction engineer assigns vehicles to SANDAG personnel. The task order manager will determine the use of vehicles for all consultant personnel for each project.

1-5.5 Operation of SANDAG Vehicles

SANDAG employees, or any other individual who is operating a SANDAG vehicle, must adhere to chapters 4 and 13 of the SANDAG Employee Handbook whenever operating a SANDAG vehicle.

1-5.6 Reporting Losses

If theft, burglary, pilferage, or damage by vandalism occurs, immediately notify the local law enforcement authorities, giving full details as you know them and complete descriptions of the damaged or missing articles. The construction engineer and construction manager also shall be notified and will advise the resident engineer of any further action.

1-5.7 Disposition of Assets

The resident engineer must follow [SANDAG Board Policy No. 028, Asset Ownership and Disposition](#), for disposing equipment or assets with a unit purchase value of \$5,000 or more.

For equipment or assets with a unit purchase value between \$500 and \$5,000, consult with the construction manager for proper disposition. The construction manager should write a memo to the principal construction engineer documenting the disposal of equipment in compliance with this policy.



Chapter 2

Safety

Construction Division
Department of Mobility Management and Project Implementation



SANDAG Construction Manual

Chapter 2 – Safety

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2-1 INTRODUCTION

Employers must comply with occupational safety and health standards established by federal and state laws. These laws require all employers to provide a safe place of employment, reasonably free from danger to life or health, and to maintain a written Injury and Illness Prevention Program (IIPP).

The SANDAG IIPP is included as a supplemental policy within the SANDAG Employee Handbook. It outlines the roles and responsibilities of employees for the purpose of preventing workplace injuries and illnesses. Construction site employees carry additional responsibilities beyond those of other employees at SANDAG. The IIPP includes a separate part that is specific to the construction site and operations staff section.

Federal Highway Administration requirements and the contract's Special Provisions establish compliance with safety regulations as a contract requirement. Employers must enforce compliance with all safety regulations and Special Provisions through the use of administrative procedures.

On projects that use Federal Transit Administration (FTA) funds, construction personnel also must be guided by the requirements of the Project Management Plan; Safety and Security Management Plan as required by FTA Circular C 5800.1 and 49 Code of Federal Regulations (CFR) 633; and FTA's State Safety Oversight Program as administered by the California Public Utilities Commission.

Construction management consultants and resident engineers shall notify the SANDAG construction manager of any injuries or accidents that occur on the job site or field office and are to follow their own companies' IIPP, safety policies, and procedures. All consultants are to follow their respective safety manuals and/or IIPP as they relate to performing work for SANDAG and shall perform their duties in conformance with this chapter.

2-2 DUTIES AND RESPONSIBILITIES

The following describes the responsibilities for safety on SANDAG construction projects.

2-2.1 Principal Construction Engineer

The principal construction engineer must ensure that construction personnel are adequately trained on the basics of construction safety and is responsible for the following:

- Acting as the SANDAG initial contact with the local Division of Occupational Safety and Health Administration (OSHA), except for emergencies involving imminent hazards.
- Administering the SANDAG construction safety training program and structuring the training program to meet the agency's needs. This training must take place at a frequency established within the SANDAG IIPP. Safety training will include orientation training for employees at the time of their first assignment to construction. Employees returning to construction following an absence of five years or more also must receive safety orientation training.
- Be accountable for the performance of employees under their supervision. Their reviews of employee safety programs should be documented.

2-2.2 Construction Safety Coordinator

The construction safety coordinator (CSC) must act as technical advisor and coordinate the SANDAG administration of the contractors' compliance with safety requirements. The CSC may be a member of the construction management team (CMT). The CSC's responsibilities also include:

- Depending upon the scope of the project, be familiar with various construction procedures, equipment, railroad safety requirements, and construction zone traffic management, and also be able to recognize and anticipate unsafe conditions created by a contractor's operation.
- Understanding contract special provisions and specifications along with the California OSHA (Cal/OSHA) regulations. Cal/OSHA is the state-enforcing agency for safety regulations.
- Recognizing unsafe conditions created by a contractor's operation.
- Making unannounced site visits to ongoing construction projects on a routine and rotating basis. The CSC also must respond promptly to requests from the resident engineer or other SANDAG staff to visit projects to review project safety concerns.
- Collaborating with the resident engineer about specialized contract work, such as full road closures and unusual or complex operations including blasting and confined space operations. The CSC must visit projects periodically to observe the contractor's overall efforts, answer questions, or look at specific areas when the engineer requests it. The frequency of the visits will depend upon the type and complexity of the work. When requested by the resident engineer, the coordinator must make additional visits; however, during the life of shorter contracts, one visit may be sufficient.
- Writing a report of each project site visit; giving the resident engineer the original report and copies to the principal construction engineer and construction manager for review and follow-up.
- Serving as an advisor for the construction safety portion of the preconstruction conference. If not taking part in the discussion, the CSC must be involved in reviewing the specifications and determining which specific safety areas to discuss with the contractor.

2-2.3 SANDAG Construction Manager

The construction managers should review construction projects to verify that the resident engineer is monitoring the contractor's construction safety program.

The construction manager should review the CSC's safety audit report and confirm that the resident engineer addresses, adequately closes, and documents the items mentioned in the safety audit report.

The construction manager confirms that all deficiencies in the field are abated, signs the safety audit report, and sends it back to the CSC for review and signature.

Construction managers are responsible for the performance of employees under their supervision.

They coordinate necessary training and tools to protect their employees from hazards, advise, correct, and reprimand employees for repeated safety violations, and should document their training.

2-2.4 Resident Engineer

The resident engineer verifies that the contractor complies with all aspects of the contract, including the applicable Construction Safety Orders. In doing so, the resident engineer also is responsible for the following:

- Identifying an unsafe condition and the specific contract provisions or regulations involved. Unsafe conditions must be brought to the contractor's attention as soon as possible. Under no circumstances should the resident engineer instruct the contractor on how to correct a deficiency, either orally or in writing.
- Assigning a project safety coordinator, if needed.
- Involving the CSC in specialized contract work such as full road closures, blasting operations, confined space operations, multi-crane pickups of large loads, or other unusual or complex contractor operations; and consulting with the CSC to interpret Cal/OSHA regulations.
- Informing the CSC how unsafe conditions identified in the safety review report were resolved; and completing written documentation of the review and abatement results and filing it with other project documents.
- In a special safety report using the assistant resident engineer's daily report, documenting the construction safety activities of both the contractor and SANDAG project personnel, at least weekly, completing this report and filing it in the Safety section of the project records.
- Using normal contract administration procedures, verify that the contractor complies with SANDAG contract requirements and Title 8 safety orders.
- Develop a project-specific Code of Safe Practices (COSP) document for SANDAG employees and consultants addressing all operations in the project for each contract and all contractor operations. Make it accessible to SANDAG employees and consultants in the field and confirm all project personnel have read and signed it. Keep the COSP in a conspicuous location at the job site office. Refer to the Caltrans Division of Construction Code Safe Practices section of the Caltrans Construction Manual (Section 2-106A) for additional guidance on developing a COSP. A baseline COSP document is on the Caltrans Division of Construction website: <http://www.dot.ca.gov/hq/construc/safety/>
- Discuss project safety at the preconstruction conferences and document safety discussions in the project files throughout the duration of the project. Cover the following items:
 1. Address new Cal/OSHA regulations that might be applicable to the contract, such as those regarding heat illness prevention; contractors need to train their workers to identify heat illness and implement a heat illness prevention plan.
 2. Discuss requirements for contractors to make available the safety data sheets (SDS) for chemicals or construction materials used on the construction site so that SANDAG employees and consultants can determine their potential risk from contractor use of products requiring SDS and verify that SANDAG employees and consultants have safe access. The SDS may require provisions for eyewash stations, respirators, and other devices.
 3. Railroad contractor safety training
 4. Discuss other safety work situations requiring safe practices, such as blasting operations, work in confined spaces, personal protective equipment, backup alarms, rollover protective structures, traffic control, and access to elevated work.

- Before starting work, confirm that contractors do the following:
 1. Submit an IIPP to the resident engineer, as required in the contract Special Provisions.
 2. Present a safety training program
 3. Submit permits required before starting certain work, such as trenches or excavations 5 feet or deeper in which any person is required to descend; demolition over 36 feet in height; falsework erection and scaffolding in excess of 36 feet in height; confined spaces; or mining and tunneling.
- During the course of work, ensure that contractors do the following:
 1. Report disabling or fatal accidents and all Cal/OSHA-recordable injuries to the resident engineer.
 2. Notify the resident engineer immediately if Cal/OSHA arrives on the project for a site visit; as the site owner, SANDAG staff needs to participate in all Cal/OSHA site visits.

2-2.5 Project Safety Coordinator

The resident engineer may delegate safety responsibilities to an assistant who will act as the project safety coordinator. This delegated work will usually be in addition to other assigned duties but may be full time on large contracts. The project safety coordinator acts as a safety advisor to SANDAG project personnel. The project safety coordinator must monitor and document the contractor's compliance with safety requirements, keep the resident engineer informed, and is responsible for the following:

- Monitoring ongoing operations on the job site daily and checking for the contractor's compliance with contract safety requirements.
- Informing the contractor, orally and in writing, of any operation or activity that does not comply with SANDAG contract requirements or Cal/OSHA regulations. Providing reference to the contract Special Provisions or the specific regulation violated.
- Preparing a weekly project safety report and filing it in Category 6, Safety, of the project records.

2-2.6 Project Staff

SANDAG does not intend to have the resident engineer and the project safety coordinator do all monitoring of the contractor's construction safety activities. All construction personnel must consider the safety of the operations in conjunction with their normal inspections. Inspectors – closest to and most familiar with the field operations are responsible for the following:

- Being familiar with construction zone traffic management, Cal/OSHA regulations, transit owner or rail owner's safety requirements, SANDAG safety policies, and specifications. Using Caltrans Form CEM-0606 or equivalent to ensure everyone complies with safety regulations and specifications.
- Routinely monitoring and documenting contractor compliance with contract safety requirements. A proactive approach to safety will help eliminate misunderstanding and avoid conflicts with the contractor.
- Requesting assistance from the project safety coordinator or CSC when an unsafe condition is observed or if uncertain about a regulation's requirements.

2-3 MANAGING SAFETY HAZARDS

In carrying out the SANDAG responsibilities for ensuring safety compliance as a contract requirement, use the following guidelines.

2-3.1 Imminent Hazards

Imminent hazards are dangerous conditions that, if not corrected, would likely result in an accident causing severe or permanently disabling injury, or causing death. When an imminent hazard is found to exist or when the contractor permits repeated occurrences of a hazardous condition, the resident engineer is responsible for taking the following steps:

- Advising the contractor verbally of the condition and the need for immediate correction.
- Removing all SANDAG and consultant employees from the hazardous exposure.
- If the contractor complies, documenting the incident in the project's safety report with appropriate references in the resident engineer's daily report.
- If the contractor does not comply, temporarily suspending the affected operation. Confirm the suspension order in writing to the contractor.
- Documenting the incident and the action taken in the resident engineer's daily report.
- Notifying the owner operator (North County Transit District [NCTD], Metropolitan Transit System [MTS], Caltrans, or others) if there is a high probability that it may impact operations. Chapter 18 of NCTD's System Safety Program Plan requires that if train operations are affected, then Station O must be notified.

Whenever it is necessary to suspend a contractor's operation, notify the CSC, resident engineer, and the SANDAG construction manager. Verify that all contractual remedies to address the contractor's safety issues have been exhausted and documentation fully prepared and filed before considering notifying Cal/OSHA. Involve the CSC as a checker in the process to verify nothing was overlooked. Notify the principal construction engineer of the actions taken. Safety reports, giving all details leading up to the suspension, and copies of orders by the resident engineer, Cal/OSHA, or both, must be placed in the Safety section of the contract files.

2-3.2 Serious Hazards

Serious hazards are work conditions that if not corrected could result in a disabling injury and possibly death or develop into an imminent hazard. When a serious hazard is found to exist, the resident engineer should take the following steps:

- Advise the contractor verbally of the condition and the need for timely correction; if appropriate, set a compliance deadline.
- Remove all SANDAG and consultant employees from the hazardous exposure.
- If the contractor fails to provide timely correction, consider ordering a temporary suspension of the affected operation; confirm the suspension order with written notice to the contractor.
- Document the incident in the project's safety report with appropriate references in the resident engineer's daily report. Document the unsafe work condition, discussions with the contractor, and how and when the unsafe condition was corrected.

2-3.3 Minor or Non-Serious Conditions

Minor or non-serious conditions are ones that could result in minor injuries or might be classified as a minor threat to health. When a non-serious or minor condition is found to exist, the resident engineer should take the following steps:

- Advise the contractor verbally of the condition and the need for correction.
- Document the incident in the project's safety report.
- Protect SANDAG and consultant employees from exposure.
- If the contractor fails to correct the condition or permits a repeated occurrence, notify the CSC.

2-4 DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

This section provides an overview of the organization of Cal/OSHA, its enforcement powers, and Cal/OSHA inspections.

2-4.1 Authority and Responsibility

The law requires Cal/OSHA to enforce safety orders and to promote safe workplaces and practices. Cal/OSHA achieves this function through three separate agencies, a rule-making function, an enforcement function, and an independent appeals board, described as follows:

- The Occupational Safety and Health Standards Board (Standards Board) adopts, amends, and repeals the safety orders. Both state and federal law require that these safety orders be no less restrictive than the federal OSHA safety orders.
- Cal/OSHA is responsible for administering the safety orders as adopted by the Standards Board.
- Citations issued by Cal/OSHA for violations may be appealed to the Occupational Safety and Health Appeals Board for a hearing and, in rare instances, then appealed to a superior court.
- To allow Cal/OSHA to accomplish its mission, the California Labor Code gives Cal/OSHA the authority to enter and inspect any place of employment to ensure that the contractor is observing safe conditions and practices. If necessary, this right of entry can be enforced with a warrant.

2-4.2 Citations and Civil Penalties

Cal/OSHA has the duty to issue citations if unsafe conditions or work practices are documented during an inspection. Civil penalties are proposed consistent with the severity of the violations cited. The amount of the penalty is determined by procedures established in the regulations.

Public agencies are not exempt from these penalties.

Violations – classified as regulatory, general, severity, willful, or repeat – result in monetary penalties. Failing to abate hazards or making false statements also mandates penalties.

Under the multi-employer liability clause, Cal/OSHA has authority to cite all employers at a multi-employer work site. Cal/OSHA identifies an exposing, creating, controlling, or correcting employer (defined in the following section) for each unsafe condition found. It bases employers' degree of responsibility on their awareness of the condition, the foreseeability of the condition, and reasonable steps they take to protect employees.

In addition to receiving the civil penalties noted above, SANDAG, consultant, and contractor managers can be held criminally responsible. To be held criminally responsible, the manager must knowingly or negligently allow a serious violation, repeatedly violate the safety orders, or directly refuse to correct a known unsafe condition. Criminal penalties can be as severe as six months to one year in jail and may include fines.

Occasionally, Cal/OSHA will issue an informational memorandum when a condition, or potential condition, is encountered in which no employee has been exposed, but if an employee were to be exposed, a safety violation would exist. Violations of an informational memorandum are always classified as willful violations.

2-4.3 Classes of Employers

California recognizes four different types of employers, any of which can be cited by Cal/OSHA for safety violations. This classification can result in more than one employer being cited for the same violation. The California Labor Code identifies these employer categories:

1. Exposing Employer – The employer whose employees were exposed to the hazard.
2. Creating Employer – The employer who actually created the hazard.
3. Controlling Employer – The employer who was responsible by contract or through actual practice for the safety and health conditions on the work site, as well as the one who had the authority for ensuring the hazardous condition was corrected.
4. Correcting Employer – The employer responsible for correcting the hazard.

SANDAG may be considered the exposing employer if Cal/OSHA observes that a SANDAG employee is exposed to a hazard and the employee failed to remove themselves from exposure to the hazard or ask the contractor for correction to provide safe access to the work. The same would apply to a consultant and their employee. Taking a proactive role in addressing and documenting safety and communicating it to the contractor would help create a common understanding and, emphasize the safety priorities of SANDAG.

2-4.4 Procedures During Division of Occupational Safety and Health Inspections

This section describes what takes place during a Cal/OSHA inspection and what resident engineers and their assistants should do during a Cal/OSHA inspection.

2-4.4.A Elements of a Cal/OSHA Inspection

Every Cal/OSHA inspection has three elements, the opening conference, the walkthrough inspection, and the closing conference, described as follows:

1. Opening Conference – The Cal/OSHA inspector requests the highest level of on-site management, makes introductions, and states the reason and purpose of the inspection. The inspector asks questions about the employer, such as the size of the organization, number of employees on site, addresses and phone numbers, and other information. The inspector also may ask about the employer's IIPP, emergency contact numbers, and the addresses of the medical facilities closest to the job site. The inspector asks for permission to make a walk-through site inspection and invites the employer to join the inspector.

2. Walk-Through Inspection – The inspector will tour the site observing the work in progress, the condition of the site, and the work practices being followed. The inspector may interview employees about the training, work procedures, and protective equipment. During the inspection, the inspector may take photographs and measurements. If it is a post-accident investigation, the inspector identifies and interviews witnesses and may request contact information, such as names, addresses, and phone numbers. The inspector notes violations observed and findings which may result in a citation during the closing conference.
3. Closing Conference – After completing the walk-through inspection, the inspector meets with managers, supervisors, and employee representatives to discuss the violations and proposed citations. The inspector bases citations on the observations and manager, supervisor, and employee statements. The inspector may hold this conference immediately after the walk-through inspection or defer it. Although this conference is usually conducted in person, the inspector may conduct it on the phone.

2-4.4.B Participation in the Inspection

As a matter of good business practice, SANDAG will cooperate and participate with Cal/OSHA. SANDAG employees are not required to make any statement that may be harmful to their interests or those of SANDAG. In the event of an inspection, do the following:

Opening Conference – Notify the CSC that Cal/OSHA is planning to make an inspection. If the CSC is not available, notify the IIPP administrator and construction manager of the pending inspection. If the CSC can arrive in a reasonable length of time, request that the walk-through inspection be delayed pending their arrival. The resident engineer or representative must participate in the inspection and the construction manager also should participate.

Walk-Through Inspection – Participate in and document the inspection. Record what areas were inspected, who was interviewed, and what violations the Cal/OSHA inspector mentioned. For SANDAG records, take the same photographs and make the same measurements as the Cal/OSHA inspector.

Closing Conference – The resident engineer must participate in the closing conference, and the construction manager or another representative (other than the resident engineer) also should participate. If the CSC or his delegated representative is not present, request that the closing conference be delayed until one of them can attend.

2-4.4.C Procedures if Citations are Received

If citations are received either by personal delivery or by mail, take the following actions:

- Notify the SANDAG IIPP administrator and the construction manager that the citations have been served.
- Fax or email a copy of the citation to the principal construction engineer.

The SANDAG IIPP administrator, with assistance from the SANDAG general counsel, will decide on who will work with the resident engineer to resolve the citations, depending upon who it was issued to.

2-5 SPECIFIC SAFE PRACTICES

Every employee has the responsibility to be informed of and follow the specific policies and practices discussed in their employer's IIPP. The resident engineer and assistant resident engineer must never operate the contractor's equipment. The contractor's own equipment operators should operate equipment during inspections. The SANDAG construction management personnel must not instruct the contractor's employees in equipment operation. The resident engineer must be very careful in this area because the contractor may interpret suggestions as the engineer's direct orders. Construction management personnel must also not adjust the contractor's equipment or ride on equipment other than that designed for personnel transportation or as required to inspect specific features of the work.

2-5.1 Code of Safe Practices

CCR Title 8, Construction Safety Order 1509, Injury and Illness Prevention Program, requires that every employer adopt a written COSP. If unique contract safety items are not addressed in the COSP, consult with the CSC to have additional COSPs prepared for the project and included in the project file. If the contractor has developed a project-specific COSP item that they request SANDAG amend into its COSP, consult with the CSC.

Cal/OSHA safety orders require that every employer adopt a written code of safe practices. The resident engineer must verify that this code is prepared for every project. Pay particular attention to verify that the code includes project-specific items as well as those portions of the contractor's code that affect SANDAG employees and consultants. The project file should contain documentation that all employees and consultants have read and understood the COSP.

2-5.2 Safety Meetings

2-5.2.A Tailgate Safety Meetings for Field Personnel

Cal/OSHA safety orders require tailgate or toolbox safety meetings. In compliance with Section 1509(e) of the Construction Safety Orders and the SANDAG IIPP, all employees who are regularly assigned to construction, maintenance, surveys, field traffic operations, drilling crews, etc., shall attend a "tailgate" safety meeting at least every ten working days. Attendance at these safety meetings is mandatory. Additionally, supervisors shall conduct safety meetings with employees when they are first hired, or when a new process, chemical, or procedure is introduced, or a new or previously unrecognized hazard is identified.

Resident engineers or SANDAG construction managers should conduct a tailgate safety meeting with all employees who are new to the project to discuss the project and potential safety issues that might arise due to contractor operations.

Tailgate safety meetings should be project-specific. Topics to discuss might include: upcoming work; specialty work, such as crane critical picks and confined space entry; review of incidents; or the most recent project safety audit.

Under Cal/OSHA safety orders, contractors and subcontractors are required to hold their own tailgate safety meetings for the benefit of their own employees.

The scheduled date, time, and location of a tailgate safety meeting shall be announced as early as possible beforehand to ensure that the maximum number of employees can attend.

During the meetings, employees should be encouraged to discuss health and safety issues and inform the supervisor of any concerns that are perceived as a workplace hazard and/or a potential workplace hazard. Employees should be encouraged to make suggestions about safety training or to request specific safety training for themselves.

Employees should be encouraged to discuss “near-miss” incidents. It should be understood that near-miss incidents are incidents that did not result in contact, injury, or damage; and they are indicators that the operation or activity being performed/conducted may require a change or adjustment to prevent or eliminate the likelihood of injury or damage.

2-5.2.B Responsibility for Safety Meetings

It is the resident engineer’s responsibility to communicate to their field office personnel all safety information that is necessary to complete their job duties in a safe manner. To accomplish this, the resident engineer is responsible for:

- Doing everything within their control to ensure a safe workplace for their employees.
- Ensuring that field personnel are aware of the need to comply with the SANDAG and their employer’s health and safety policy, procedures, and work practices.
- Discussing health and safety matters, and encourage open discussions of personnel concerns, including a safe and secure work environment.
- Discussing safe practices anytime it appears that a field office staff person is not following safety policies, procedures, and work practices.

To encourage a free-flow of ideas regarding improving safety, the resident engineer should take every opportunity to exchange ideas on safety and accident prevention with field office personnel, commend them for their efforts to perform their jobs safely, and invite personnel to discuss safety suggestions. Resident engineers should review and consider all personnel suggestions and implement or arrange to implement them whenever possible.

If a safety suggestion is beyond the authority of the resident engineer, he/she should arrange to have the suggestion reviewed by the SANDAG construction manager for consideration and implementation.

The resident engineer shall have a discussion with personnel, prior to beginning work, when a new job duty or process is introduced. They will instruct personnel on how to recognize hazards, discuss specific procedures for avoiding injury, and discuss first aid procedures in the event of an injury. Resident engineers shall document these discussions as part of the regularly scheduled safety meeting.

2-5.2.C Documenting Safety Meetings

The SANDAG Construction Safety Report Form (Figure 2-1) satisfies the requirement of documenting safety meetings. Part 1 of the form includes a section to identify specific routing procedures (actions and distribution). It also includes space to record the date, location, names of employees in attendance, and topics discussed. Additionally, there is space to record information about suggestions for correcting unsafe conditions, and/or work practices, other health and safety concerns, and the resident engineer’s comments.

2-5.2.D Monitoring the Safety Meeting Process

The construction manager is responsible for monitoring that safety meetings have been conducted by resident engineers. Monitoring procedures shall include a review of previous construction safety reports and ensure that appropriate actions are taken to correct any alleged unsafe conditions or acts in a timely manner. To ensure that construction safety reports are monitored:

- The resident engineer is responsible to send the Construction Safety Report to the construction manager for review.
- The SANDAG construction manager is responsible for reviewing the Construction Safety Report for content, scope, and corrective action.

The principal construction engineer may, at his/her option, arrange to have the Construction Safety Report routed to them for review.

2-5.2.E Correcting Deficiencies

All alleged unsafe conditions and/or acts that are reported shall be investigated and corrected in a timely manner. The resident engineer shall determine if the situation can be handled routinely or if the condition is crucial and requires immediate action.

If the recommended corrective action is beyond the ability of the resident engineer, the construction manager shall be consulted, and an appropriate action plan shall be jointly developed to ensure that alleged or actual unsafe condition(s) are corrected in a timely manner. If the problems and/or deficiencies identified are beyond the ability or scope of responsibility of the resident engineer or construction manager, they shall take necessary action to inform appropriate levels of management to correct the problem.

2-5.2.F Routing Safety Meeting Reports

Upon completion of the safety meeting, the resident engineer shall follow the action and distribution section of Construction Safety Report form by:

- Completing and signing the form.
- Retaining and posting one copy.
- Sending original to construction manager for review.
- Posting a copy of the completed report in a conspicuous place near the work area for employees to read. The posted copy should be replaced by that from the next scheduled safety meeting.

2-5.3 High-Visibility Garment

The following are required for all SANDAG staff and consultants during field operations:

- For daytime use, a Class 2 garment is required, its attached label must identify the garment as Class 2 and should clearly state that it is an ANSI 107-2015 garment.
- For nighttime use, a Class 3 or equivalent garment is required.

2-6 SAFETY PRECAUTIONS FOR THE PUBLIC IN CONSTRUCTION AREAS

Construction sites receive many visitors, including non-construction staff from SANDAG; personnel from federal, state, and local agencies; property owners or business owners; and members from the media. All visitors not associated with the contractor should follow SANDAG personal protection equipment requirements and construction COSP, unless their employer's COSP is more stringent. The resident engineer should have reasonable personal protective equipment (PPE) available to visitors on site.

Resident engineers and assistant resident engineers should monitor for potential hazards to the general public and work with the contractor to take reasonable precautions to exclude the public from the construction area. Provide fencing, if practical, and "No Trespassing" signs at sites that have potential dangers. Document the site perimeter conditions and measures taken via pictures and/or video on a regular basis.

2-7 HAZARDOUS WASTE

If unanticipated, potentially hazardous waste is encountered on the project, notify the appropriate consultant or contractor immediately. The appropriate firm will assign an individual who will advise and may assist in the disposal procedures and also may suggest extra safety measures that the resident engineer can take to protect the public and workers.

See the [Environmental](#) chapter of this manual for additional guidelines for dealing with hazardous waste.

2-8 PERSONNEL PROTECTIVE EQUIPMENT

All personnel (including SANDAG employees, consultants, and other parties) will wear PPE while present on any job site and must comply with Cal/OSHA regulations. The resident engineer will monitor all personnel on the site for correct PPE. PPE requirements may vary based on the type of project unique to specific roadway, railway, or transit hazards. If in the right-of-way (ROW) of any System Operator (SO), then the SO's requirements must be followed. The contractor's safety plan will identify PPE requirements for their personnel, which both the resident engineer and contractor's safety representative will monitor throughout the project.

2-9 RAILROAD SAFETY

2-9.1 Operations Safety Program

The SO conducts its operations under the auspices of a System Safety Program Plan (SSPP). The SSPP is a master plan document that represents a comprehensive safety program for rail operations within its service area. During all phases of construction activity, safety standards and practices for major public works projects shall be upheld, and the public shall not be exposed to extraordinary safety hazards in compliance with the SSPP. The CMT needs to be aware of the contents of the SSPP when construction operations are conducted in the vicinity of MTS and NCTD rail facilities. To obtain a copy, contact the construction manager.

2-9.2 Railroad Safety Training

Any individual performing work on SANDAG projects that will be working on or near NCTD or MTS tracks is required to be properly trained on the specific Roadway Worker Protection (RWP) procedures of the SO in conformance with Part 214 of Title 49 of the CFR.

In addition to being RWP certified, all persons on railroad ROW must display a valid safety sticker on their hard hat that was issued after passing the RWP Course. When on NCTD ROW, all persons must have in their possession the NCTD Contractor Safety Training Manual, RWP Manual, and timetables either on the person or in their vehicle.

During the preconstruction meeting, safety brochures, if available, for each of the train and/or light rail transit organizations involved should be handed out to all contractors and subcontractors.

The names and phone numbers of the contacts to arrange for their employees' railroad safety training also should be distributed. This information also should be included in the project Special Provisions. It is the contractor's responsibility to see that all of their employees and their subcontractor's employees are properly trained. It also is the responsibility of the resident engineer and anyone else on the CMT involved with the work to arrange to be trained and to ensure that these safety procedures for the project are followed.

2-10 RAILROAD FLAGGING

NCTD and MTS have different flagging requirements. The resident engineer must check with the construction manager before the preconstruction meeting to confirm current flagging process.

2-10.1 NCTD Flagging

NCTD requires flagmen any time personnel work in the railroad ROW or work on non-railroad property near or adjacent to the Foul Zone of ROW with the potential to impact railroad operations or infrastructure or foul the track. For additional details, please refer to: <http://www.gonctd.com/working-around-the-rails#rowss>

NCTD requires the use of Bombardier to provide flagging services and signal mark-outs for SANDAG projects within the NCTD railroad ROW.

Bombardier has developed a flagging request procedure where the CMT will communicate requests to Bombardier to provide flagging or signal mark-out services. The contractor shall complete a MOW/MOS Support Services Request Form (see [Appendix 2-2](#) for this form) and submit to the CMT 21 days prior to beginning new work. SANDAG will develop and maintain a proposed annual flagging personnel utilization schedule (updated quarterly), which shall be submitted to Bombardier.

If a contractor's work has the potential to foul the tracks, then the appropriate on track protection shall be present.

2-10.2 MTS Flagging

Flagging is required anytime work is within 15 feet of track, including airspace or as deemed necessary by Trolley personnel. Complete and fax San Diego Trolley, Inc. (SDTI) Flagperson/Right-of-Way Work Request form (see [Appendix 2-1](#) for this form) to MTS and SDTI a minimum of three business days prior to anticipated work day. Billing will be directly from SDTI to the permittee and is separate from the permit fee.

See [Appendix 2-1](#) for Flagperson/Right-of-Way Work Request and Red Tag/ Traction Power Removal Request forms.

2-11 TRAFFIC SAFETY

For projects that are within Caltrans ROW, construction personnel must follow the policies and procedures of Chapter 2, Safety and Traffic, Section 2, Traffic, of the Caltrans Construction Manual. For projects within Caltrans or local agency ROW, construction personnel must follow the California Manual on Uniform Traffic Control Devices.

The SANDAG use of the Caltrans Construction Zone Enhancement Program (COZEPP) may be included in the cooperative agreement or encroachment permit. If there is no provision for COZEPP, SANDAG may enter into its own separate agreement with the California Highway Patrol.

All closures on state highway facilities require notification to the Caltrans oversight engineer and District Transportation Management Center. The encroachment permit's general provisions require 7 to 14 days advance notice before initiating a shoulder, ramp, or freeway closure, or any activity that may cause a traffic delay. Also, in effect are the notifications requirements of this manual and the contract.

Projects that are within the jurisdiction of local agency traffic will be required to follow the conditions of the traffic control permit. Refer to any relevant interagency agreements for detailed information on other agency's permit requirements.

2-12 MAJOR CONSTRUCTION INCIDENTS/ACCIDENTS AND REPORTING

2-12.1 General

This section provides guidelines for reporting and dealing with accidents and major incidents on construction projects. This chapter also discusses special reporting for a serious occupational injury, illness, or fatality connected with any employment activity. Should SANDAG personnel supervise a construction manager consultant employee's work on a day-to-day basis, they must record the injury or illness.

2-12.2 Reportable Accidents and Incidents

Below are descriptions of accidents and construction incidents to report to the SANDAG principal construction engineer.

2-12.2.A Accidents

Report accidents that:

- Resulted in any property damage over \$5,000.
- Resulted in serious injury to or death of a contractor's employee.
- Involved serious injury to or death of a SANDAG or a consultant employee.
- Involved serious damage to equipment owned by transit operators, railroad operators, SANDAG, a consultant, or the contractor.
- Resulted in the serious injury or death of a member of the public in the construction zone or were influenced in any way by construction related activities, conditions, equipment, or personnel.
- Were catastrophic or have received wide media coverage.
- Involved errant vehicles entering the active work zone.
- Involved vertical or horizontal clearance issues.
- Had no injuries but had a high potential for being fatal or disabling. These accidents include:
 - Falsework or guying system failures
 - Overturned cranes
 - High-voltage power line contacts
 - Trench excavation or shoring failures
 - Gas or fuel line fire or explosions
 - Hazardous utility breaks
 - Collisions with structures under construction or their supporting falsework that cause displacement of a major member
 - Any incident that has the likelihood of disrupting transit service

2-12.2.B Unusual or Extraordinary Construction Occurrences to be Reported

Unusual or extraordinary construction occurrences are reportable incidents that may not be classified as accidents such as:

- Disasters that result in major damage to a transit or railroad operator-owned or maintained facility or project work.
- Situations that result in the evacuation of the project, the immediate area, or both.
- Any other events that affect the SO facility or project work and may generate media coverage.
- Encounters of previously unknown hazardous waste on a construction project.
- A hazardous spill within construction project limits.
- Any incident causing major traffic, transit, passenger rail, or freight rail service delays.

2-12.3 Guidelines

For all accidents occurring in construction zones, the resident engineer should take sufficient photographs or video to document the conditions that existed at the time of the accident, including all signing and traffic control features that may have been in effect at the time of the accident. Depending on the nature and severity of the accident, additional documentation may be required. For additional information on accident investigation and documentation, consult the IIPP administrator. All construction personnel, including consultants, responding to major incidents in construction zones are responsible for completing the following:


- Taking appropriate action without jeopardizing public or employee safety.
- Documenting all incident details, paying special attention to traffic controls set up and the contractor's activity at the time of the incident. Take pictures of the job site along the incident location and file them with the incident details in the Safety section of the project file.
- Providing timely and accurate information to management to document the extent of the incident and identify major issues and current actions.
- In the event of a closure or restriction, restoring the transportation facility to full operation as quickly as possible.
- Mitigating the effect on the public or the project caused by unusual or extraordinary occurrences.

Report hazardous waste encounters and hazardous spills as outlined under Section 6, in Reporting Procedures. For more information on the procedures to follow in the event of hazardous waste encounters or hazardous spills, see the [Unknown Hazards Procedures](#) in [Chapter 6](#) of this manual.

2-13 CONTRACTOR'S SAFETY PLAN

The resident engineer shall verify that the contractor's safety plan is submitted within the time limit prescribed in the contract and meets the objectives outlined in the Special Provisions and Cal/OSHA regulations. The resident engineer, per the Special Provisions, will provide copies to the principal construction engineer of the contractor's emergency procedures. The resident engineer will verify the contractor is conducting weekly "tool box" safety meetings and collect the documentation for the principal construction engineer. This document is subject to a quality audit if deemed necessary. The resident engineer will approve the contractor's safety representative, which is to be proposed within the time limit prescribed in the contract.

Figure 2-1

<p>SANDAG • SAN DIEGO ASSOCIATION OF GOVERNMENTS CONSTRUCTION SAFETY REPORT SDG-0601 (REV 11/2009)</p> 	<p>CONSTRUCTION FIELD OFFICE</p>																			
<p>1. TYPE OF REPORT</p> <p> <input type="checkbox"/> PROJECT SAFETY REVIEW <input type="checkbox"/> PUBLIC SAFETY <input type="checkbox"/> SANDAG EMPLOYEE SAFETY <input type="checkbox"/> CONTRACTOR EMPLOYEE SAFETY <input type="checkbox"/> OFFICE SAFETY MEETING <input type="checkbox"/> TAILGATE SAFETY MEETING </p>																				
NAME	TITLE	DATE																		
NAME	TITLE	DATE																		
NAME	TITLE	DATE																		
<p>2. DISCUSSION <i>(List Inspection Findings or Safety Topics Discussed)</i></p>																				
<p>3. ACTIONS TAKEN <i>(List Corrective Actions or Recommendations)</i></p>																				
<p>4. SUPERVISOR'S COMMENTS <i>(List comments, instructions, etc.)</i></p>																				
<p>5. SIGNATURES OF EMPLOYEES PRESENT <i>(Attach sheet for additional signatures, if needed)</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">PRINT NAME/SIGNATURE</td> <td style="width: 33%;">PRINT NAME/SIGNATURE</td> <td style="width: 33%;">PRINT NAME/SIGNATURE</td> </tr> <tr> <td>PRINT NAME/SIGNATURE</td> <td>PRINT NAME/SIGNATURE</td> <td>PRINT NAME/SIGNATURE</td> </tr> <tr> <td>PRINT NAME/SIGNATURE</td> <td>PRINT NAME/SIGNATURE</td> <td>PRINT NAME/SIGNATURE</td> </tr> <tr> <td>PRINT NAME OF RESIDENT ENGINEER</td> <td>DATE</td> <td>SIGNATURE OF RESIDENT ENGINEER</td> </tr> <tr> <td>PRINT NAME OF CONSTRUCTION ENGINEER</td> <td>DATE</td> <td>SIGNATURE OF CONSTRUCTION ENGINEER</td> </tr> <tr> <td>PRINT NAME OF SAFETY OFFICER</td> <td>DATE</td> <td>SIGNATURE OF SAFETY OFFICER</td> </tr> </table>			PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME/SIGNATURE	PRINT NAME OF RESIDENT ENGINEER	DATE	SIGNATURE OF RESIDENT ENGINEER	PRINT NAME OF CONSTRUCTION ENGINEER	DATE	SIGNATURE OF CONSTRUCTION ENGINEER	PRINT NAME OF SAFETY OFFICER	DATE	SIGNATURE OF SAFETY OFFICER
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ORIGINAL - CONSTRUCTION OFFICE	YELLOW - PROJECT FILE	PINK - BULLETIN BOARD																		
<p>ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (619) 699-1900 or TTY (619) 699-1904 or fax (619) 699-1905.</p>																				

Appendix 2-1: SDTI/MTS Flagperson, Right-of-Way Work Request and Red Tag/Traction Power Removal Request Forms

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(SANDAG Projects Only)

San Diego Trolley, Inc.

FLAGPERSON / RIGHT-OF-WAY WORK REQUEST

Complete form and email to: FlagRequest@sdmts.com

Work which involves personnel or equipment within 15 feet of the nearest rail of any active track must have SDTI supplied flagpersons for the duration of the work. Cost of flagpersons shall be borne by the party requesting the work. The requester will be responsible to contact SDTI Assignment Office at 619.595.4956 no later than 24 hours prior to beginning of work for all cancellations and may be subject to SDTI labor reporting costs incurred in failure to do so. For further questions call 619.595.4907 or 619.595.4945.

All work crew personnel entering within MTS Right of Way limits must have a valid MTS Roadway Worker Safety Program Certification.

Company to be billed: _____

Billing Address: _____

SANDAG Contact: Name: _____ Phone: _____

ROE Permit MTS Doc Number: _____ CIP/JOC# (if app): _____

SANDAG Contract # (if app): _____ SANDAG W/O # (if app): _____

The requesting party must obtain a valid Right of Entry permit from MTS and attach a copy of the permit with any submitted work request form. Depending on the nature of the work, SDTI may request a meeting with the requestor prior to approving the work request.

This Work Request form MUST BE FILLED OUT COMPLETELY AND RETURNED TO SDTI A MINIMUM OF 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF THE WORK.

If power removal is necessary for work a separate RED TAG/CLEARANCE REQUEST form must be submitted.

Name of requestor: _____ Date: _____

Company at work site: _____ Phone: _____

Business address: _____

Location of work: _____

Description of work: _____

Type of equipment used: _____

Supervisor at work site: _____

Number of Flagpersons requested: _____ Number of Watchpersons/Lookouts requested: 1

Table with 8 columns (Day, Sun, Mon, Tue, Wed, Thu, Fri, Sat) and 4 rows (Date, Start Time, End Time, Work Time).

Work located next to: Both Main Tracks ___ Eastward Main (Outbound) ___ Westward Main (Inbound) ___

WORK CREW PROTECTION REQUIRED:

ADVISORY: Work activity will occur 1) solely on station platforms or, 2) on SDTI Right-of-Way but men and equipment will remain more than ten (10) feet from the nearest rail of any active track at all times.

PROTECTION: Sufficient clearance exists for the safe movement of personnel and equipment; train approach visibility exists to ensure train and work crew safety; a Right-of-Way Work Request Form is submitted to request a Watchperson/Lookout and an ADVISORY notice on the Train Operating Clearance.

RESTRICTION: Work activity will occur or have the potential to foul within ten (10) feet from the nearest rail of any active track and be protected by flagperson(s) and slow zone with entrance/exit discs.

PROTECTION: Train speed must be restricted due to work site conditions; limited clearance for the safe movement of personnel and equipment; train approach visibility is limited; a Right-of-Way Work Request Form is submitted to request a Watchperson/Lookout, Flagperson(s) and a slow order (TEMPORARY RESTRICTION) on the Train Operating Clearance.

SDTI USE ONLY table with 8 columns and 1 row for Flagperson & report time.

Rev. 02/2015 Received by: _____ Date: _____



San Diego Trolley, Inc.

SANDAG Projects (Only)
RED TAG / TRACTION POWER REMOVAL REQUEST
 Complete form and email to: RedTagRequest@sdmts.com

This Work Request form **MUST BE FILLED OUT COMPLETELY AND EMAIL RETURNED TO SDTI A MINIMUM OF 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF THE WORK.**

Company to be billed: _____
 Billing Address: _____
 SANDAG Contact: Name: _____ Tel: _____
 ROE Permit MTS Doc Number: _____ CIP# (if app): _____
 SANDAG Contract # (if app): _____ SANDAG W/O # (if app): _____

The requesting party must obtain a right of entry permit from MTS prior to filling out the Red Tag Request and attach a copy with this request. Depending on the nature of the work, SDTI may require a meeting with the requestor prior to approving the work request. For further questions call 619.595.4907 or 619.595.4945.

CONTRACTOR NOTE: SDTI Maintenance will require approximately thirty (30) minutes at start of work window to secure traction power after last train is clear, and thirty (30) minutes prior to end of work window to restore traction power prior to the first train. Actual time required may vary based on work limits and location.

If work will occur within 15 feet from nearest rail of any active track for trolley or freight trains a separate FLAGPERSON/RIGHT-OF-WAY WORK REQUEST form must be filled out.

Name of requestor: _____ Date: _____
 Company at work site: _____ Phone: _____
 Business address: _____
 Location of work: _____
 Description of work: _____
 Type of equipment used: _____
 Supervisor at work site: _____ Cell Phone: _____
 Special Operating Requirements: _____

Day:	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Date							
Start Time:							
End Time:							

Men and equipment must be able to clear track for freight train or any other extra train unless approved otherwise. If necessary to remove one or both main tracks from service for full duration of work window, indicate below:

Request for track to be removed from service: Both Main Tracks _____ Eastward Main (Outbound) _____ Westward Main (Inbound) _____

SDTI USE ONLY			
SUBSTATIONS TO BE DE-ENERGIZED: _____			
TAG/LOCK _____	TAG/LOCK _____	TAG/LOCK _____	TAG/LOCK _____
TAG/LOCK _____	TAG/LOCK _____	TAG/LOCK _____	TAG/LOCK _____

Received by: _____ Date: _____
 APPROVED (TRANS): _____ APPROVED (MOW): _____

Rev 081513

Appendix 2-2: MOW/MOS Support Services Request Form

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Attachment 1 - MOW/MOS SUPPORT SERVICES REQUEST FORM

This form must be completed in its entirety to obtain Support Services from Bombardier. Support Services must be requested at a minimum of 21 days in advance of the requirement and approval is subject to the availability of resources. The MOW/MOS service will be scheduled by the Bombardier Coordinator who will notify the contractor by e-mail with the proper information.

For **Flagging Service** please send the completed form to ralph.godinez@rail.bombardier.com, and for **Signal Service only**, send completed form to Stephen Neighbor at stephen.neighbor@rail.bombardier.com.
For cancellation: Contact Ralph Godinez at 760-975-9692 or ralph.godinez@rail.bombardier.com

NAME OF CONTRACTOR		NCTD PERMIT NO:			
PROJECT NAME		PO NUMBER (IF APPLICABLE)		LOCATION OF WORK – MILEPOST(S)	
PERSON IN CHARGE AT WORKSITE		CELL NUMBER:		MEETING LOCATION WITH MOW/MOS PERSON	
SCOPE OF WORK:					
REQUEST FOR:	MOW FLAGGING (CHECK) <input type="checkbox"/>		WITH FORM B: (CHECK) <input type="checkbox"/>		
	MOS SIGNAL (CHECK) <input type="checkbox"/>		WITH FORM B: (CHECK) <input type="checkbox"/>		
EQUIPMENT TO BE USED:					
WORK GROUP #1	NO. OF EMPLOYEES IN WORK GROUP	WORK GROUP #2	NO. OF EMPLOYEES IN WORK GROUP	WORK GROUP #3	NO. OF EMPLOYEES IN WORK GROUP
COMMENTS:					
FLAGGING			SIGNAL		
DATE:	TIME:	# of FLAGGERS	DATE:	TIME:	# of SIGNAL

EMPLOYEE IN CHARGE (EIC) WILL MAKE FINAL DETERMINATION OF FLAGGING /SIGNAL PROTECTION NEEDED AT EACH WORK LOCATION.

CONTRACTOR'S SIGNATURE: _____ **DATE:** _____

BOMBARDIER APPROVED: _____ **DATE:** _____

MAILING ADDRESS: 3700 MARITIME WAY, OCEANSIDE, CA 92056



Chapter 3

General Provisions

Construction Division

Department of Mobility Management and Project Implementation



SANDAG Construction Manual

Chapter 3 – General Provisions

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3-1 INTRODUCTION

3-1.1 Scope

Each section in this chapter corresponds to one of the first nine General Provisions sections of the Special Provisions. This chapter contains guidelines and procedures for administering these sections, and it also includes guidelines and procedures for topics within the scope of the Special Provisions sections 1 through 9, but not specifically covered by them.

3-1.2 Purpose

The purpose of this chapter is to ensure that the Special Provisions are enforced and administered uniformly for all SANDAG contracts by providing and establishing guidelines and procedures for administering contracts.

As with the entire manual, this chapter is not part of the contract and places no burden or obligation on the contractor, and it is not a substitute for reading and understanding the General Provisions. It is, however, necessary reading for resident engineers and others who assist and support resident engineers in contract administration. This chapter answers many frequently asked questions about the procedures for administering contracts.

3-2 DEFINITIONS AND TERMS

The Definitions and Terms section of the Special Provisions defines terms, abbreviations, and symbols used for units of measurement in the project specifications and bid item list.

Resident engineers and others preparing contract documents like contract change orders (CCOs) and correspondence must be familiar with the terms and symbols and use them correctly.

3-3 BID REQUIREMENTS AND CONDITIONS

The Bid Requirements and Conditions section of the Special Provisions covers bid requirements and conditions that apply to a contractor bidding on a project. [SANDAG Board Policy No. 024, Procurement and Contracting – Construction](#), governs the competitive bidding process to be utilized by SANDAG for all projects. SANDAG construction personnel must be familiar with this section of the Special Provisions and the SANDAG Procurement Manual, including the contractor’s responsibilities and options both before and after bids have been opened.

3-3.1 Communication with Bidders

SANDAG issues Invitations for Bid (IFBs) electronically via the SANDAG website. Firms that download the IFB are placed on an electronic planholder list. Personnel must refrain from downloading the IFB from the SANDAG website to help prevent bidders or potential bidders from seeking additional information from personnel that would provide a competitive advantage. The engineering project coordinator will provide electronic and hard-copy IFBs to appropriate non-bidders for reference during the bidding process.

All communications with potential or actual proposers shall be through the contracts analyst or Office of General Counsel in order to reduce the likelihood of any unfair advantage in the competitive process.

To protect the integrity of the bidding process, no bidder must be given a real or perceived advantage over any other bidder. The design consultant, construction field management personnel, or other non-designated SANDAG personnel must never respond directly to bidder inquiries. If you are contacted by a potential bidder, you may direct them to the SANDAG website or to the contracts analyst, but you must never answer a bidder's question that comes directly to you. Bidders must post their questions through the SANDAG website. The SANDAG contracts analyst will provide those questions to the SANDAG engineering project coordinator. The engineering project coordinator will review all questions and distribute technical questions from bidders to the project designer and to the resident engineer. The resident engineer should assist in answering bid questions. The following guidelines are to be followed:

- Refer directly to the plans, specifications, and other provisions of the contract. Quote specific sections of the Special Provisions, as well as specific sheet numbers and details on the plans.
- Should it be determined that a bidder's question results in the need to make a change per addendum, the answer will start with "See Addendum No. XX. This section (or plan sheet) has been changed." Do not explain in the answer to the question what the bidder should read directly in the addendum.
- Ensure conclusive responses. If an inquiry cannot be answered conclusively by directly referring to the contract provision and requires some measure of amplification, the SANDAG construction manager, the SANDAG project manager (PM), and on occasions, the design engineer shall consult to develop the most appropriate response. In such cases, give special emphasis to assessing the need for an addendum. Before giving a response that involves inquiries regarding construction methods, obtain direction from the SANDAG construction manager. Routinely route inquiries and proposed responses through appropriate support and construction functions. Before the pre-construction conference, the engineering project coordinator shall forward all inquiries and responses to the resident engineer responsible for administering the project.
- Rarely respond with, "Please bid per the current contract documents" However, such responses may be appropriate depending on the scope of the particular issue, the timing of the bidder inquiry, and other factors.

3-3.2 Disclosure of Constructions Estimates

The IFB will state the engineer's estimate for construction, without the SANDAG construction contingency in the total. Until bids are opened, the engineer's estimate of the cost of each contract item, supplemental fund allocation, contingency fund allocation, SANDAG-furnished materials allocation, and any other portion of the project estimate are not public information. If changes are made per addendum and such changes increase or decrease the engineer's estimate, the designer of record will provide the revised estimate to the engineering project coordinator to be included in the addendum.

3-3.3 Protest

The SANDAG protest administrator will be responsible for making copies of protests and supporting documents, providing brief descriptions, basis of agreement, status, and, if the project has Federal Transit Administration (FTA) funding, informing the FTA regional/associate administrator of potential appeals.

[SANDAG Board Policy No. 016, Procurement of Services](#), and [Board Policy No. 024](#) define the procedure for protests for the procurement of all service and construction contracts.

3-4 AWARD AND EXECUTION OF CONTRACT

3-4.1 General

The Award and Execution of Contract section of the Special Provisions outlines the requirements for award and execution of the contract.

The contracts analyst prepares and processes the documents necessary to award or reject a project. If the value of the construction is over \$5,000,000, SANDAG recommends award of the contract or rejection of bids to the Board of Directors for final approval (if the construction value is under \$5,000,000, it does not go to the Board for approval).

The SANDAG construction division is responsible for administration of the contract and generally assumes this responsibility at the time of award. Administrative details are covered under the [Work Before Contract Execution – Limited Notice to Proceed](#) section of this chapter.

3-5 SCOPE OF WORK

3-5.1 Intent

The contractor must construct the project in accordance with the contract, including ordered changes. Be as familiar as the contractor is with the work to be done, and the commonly accepted practices, customs, and terminology used in the work.

Use professional judgment when dealing with problems arising from ambiguity or apparent conflict in the plans and specifications.

3-5.2 Use of Materials Found on the Job Site

Designated selected material takes precedence over the contractor's request for the use of materials found on the job site.

The specifications provide that the resident engineer's approval is necessary for the contractor to use materials from within the planned slopes and grade lines. Written authorization is required for the use of materials outside the planned slope and grade lines. Approval for the use of materials found on the job site will be given in writing from the resident engineer, but written authorization to use materials outside of planned lines and grades must be by contract change order.

The authorization for excavation outside the planned slopes and grade must be justified as a benefit to SANDAG. Under no circumstances should such work be authorized if it in any way adversely affects the appearance or function of the planned project.

The contract documents permit that unless the use of designated, select materials are required as provided in the Technical Specifications, the contractor, with the approval of the resident engineer, may use materials in the proposed construction such as stone, gravel, sand, or other material suitable as may be found in excavation. Caltrans Form CEM-4102, Material Inspected and Released on Job or equivalent, will be filled out accordingly by the inspector and signed off by the resident engineer. The resident engineer may elect to consult with the design engineer with the approval of the SANDAG construction manager as to a particular material's suitability. If approved by the resident engineer and substantiated by test results that the material meets the requirements of the contract documents, materials found on site may be used by the contractor for use in the work. The contractor must perform all testing required by the contract documents and the resident engineer to evaluate the material's acceptance. The resident engineer may perform additional Quality Assurance (QA) testing independent of the contractor's testing. For tracking of sampling and testing performed, the resident engineer shall use and maintain tracking logs, as provided in these procedures, on a daily basis indicating the current status of all sampling and testing action items including contractor test results, QA test results, non-compliant tests, or work.

The resident engineer shall have paper and electronic copies of testing logs and reports available so that SANDAG can review them.

3-5.3 Changes

Project plans, specifications, and other bid documents define the scope of the contract and describe the details for the construction and completion of the whole work contemplated.

Section 3.3 of [Board Policy No. 024](#) states: "Except in an emergency, or in the case of a justifiable sole-source procurement, a change order shall not be awarded without competitive bidding where the amount of such change order exceeds 25 percent of the price of the original or altered contract, or the change order is out of the original scope. All change orders that conflict or potentially conflict with the Board-adopted policies shall be brought before the board for decisions."

Limit changes to those required to complete the work as contemplated at the time the plans and specifications were approved. If a change must be made, formalize it by executing a change order. Discuss with the contractor all elements of that change, including the method of compensation and the effect on contract time. During the discussion, develop full agreement, identify elements that require negotiation or identify elements that could lead to protest. Ensure the contractor accurately understands all the elements of the change.

Analyze all proposed changes for environmental considerations, for obligations or commitments to other agencies, input from facility owner-operator, and for effects on the orderly completion of the entire contract. When a project nears completion, evaluate carefully the effects of changes on the contract's time of completion. Changes ordered near the contract's completion could disrupt the contractor's schedule and costs. They also could substantially delay the public's use of the facility and disrupt the planned use of the facility.

3-5.3.A Procedure and Protest

The contractor may protest the terms or conditions of an approved CCO. The protest must be made in accordance with the requirements in the Procedure and Protest section of the Special Provisions. The protest must be concerned solely with compensation or time.

Moreover, no basis exists for protesting the requirement to perform the added or revised work because the specifications require the contractor to perform ordered work.

The specifications allow the resident engineer to order work before the approval of a CCO providing for that work; however, an approved CCO should be issued as soon as possible. If the contractor does protest the CCO, the sooner the protest is made, the sooner the issue can be addressed and resolved.

3-5.3.B *Extra Work*

Extra work desired or performed, but not included in the original contract. Extra work is not a payment method. Refer to the [Payment](#) and [Control of Work](#) sections of this chapter for a discussion of payment methods for extra work.

Use the specifications' definitions of the various bid items if the changed work is extra work. If the changed work is the same as items included in the contract, make payment at the bid item price.

If the changed work can be defined as bid items, but the unit cost differs materially, make payment under the provisions of the Changes in Character of Work section of the Special Provisions rather than for the entire added work as extra work.

Changed work becomes a part of the contract when added by an approved change order. The contractor bears the same responsibility for this changed work as for any other work performed under the contract.

3-5.3.C *Changes in Character of Work*

Before work can be considered "changed in character," the engineer must have ordered a change to the plans or specifications. If such an ordered change materially increases or decreases the unit cost of a contract item, then a change in character has occurred. Changes in character of work are not to be confused with "differing site conditions." For a discussion of differing site conditions, see the [Control of Work](#) section of this chapter.

When calculating the adjustment for a change in character of work, the original bid price bears no relation to the adjustment unless it can be demonstrated that the bid price actually represents the cost of the work. The [Contract Change Orders](#) section in [Chapter 5](#) of this manual contains examples of calculations and sample CCOs.

3-5.4 *Detours*

The contract plans may include detour plans required for public traffic or rail traffic passing through the project. Pay for the construction of these planned detours, detour bridges, temporary signing, and other traffic control devices at contract item prices. The cost of repairing damage to detours caused by public traffic will be paid for as extra work.

If it is necessary to construct detours or detour bridges for the use of the public or rail traffic that are not provided for in the project plans and specifications, CCOs must provide for these detours. For design details, you may consult with the SANDAG PM if necessary. In all cases, the owner–operator of the facility traffic unit must concur with detour design and signing provided for by a CCO.

3-5.4.A *Use of Local Streets and Roads*

Use of local streets and roads to detour public traffic requires agreements or other arrangements to be made with the owner–operator of the facility. When the use of roads for detours is included in the project plans, arrangements will be made during the plans, specifications, and estimates phase. When contract changes require the use of local streets and roads, contact the PM for assistance in making the proper arrangements with the owner–operator.

3-5.5 Final Cleaning Up

The Final Cleaning Up section of the Special Provisions requires the contractor to clean up the work site.

Before recommending relief from maintenance or acceptance of the contract, ensure the contractor meets all the requirements for cleaning up the site. Note: It is important to get concurrence from the owner–operator with the final cleanup.

3-6 CONTROL OF WORK

3-6.1 General

The Control of Work section of the Special Provisions details how contract work will be controlled.

The proper performance of the contractor and the engineer ensures control.

Ensure the contractor provides quality control over the work. During the manufacture of products and the execution of the project, the contractor performs all actions necessary to ensure that the work has the required attributes. The engineer performs quality assurance by sampling, testing, and inspecting the work to determine if the characteristics conform to the contract requirements. For additional information on quality assurance and controls, refer to the Quality Assurance and Controls chapter of this manual.

3-6.2 Authority of Engineer

The term “engineer,” as used in the Authority of Engineer section of the Special Provisions, means the SANDAG director of Mobility Management and Project Implementation (MMPI) acting through authorized representatives. The authorized representatives must act in accordance with the SANDAG policies and procedures and, in the absence of written instruction, must exercise judgment within their span of control and ability. The Definitions section of the Special Provisions defines the term “engineer.”

The engineer will focus on the details (means) and methods of performing the work only if one or more of the following conditions exist:

- The details and methods of performing the work are specified
- The essential attribute or end result cannot be measured
- Public safety or convenience is involved

Otherwise, the details and methods must be left to the contractor’s discretion.

3-6.2.A Resident Engineer

The resident engineer, subject to delegation of authority within SANDAG, is the authorized representative of the engineer on the project; therefore, contacts and correspondence should be between the contractor and the resident engineer.

At the beginning of the project, the resident engineers must report their assignments to all interested parties, including the SANDAG principal construction engineer, by submitting a resident engineer’s Report of Assignment.

Good working relationships between the resident engineer and the contractor encourage an effective, efficient project and can minimize misunderstandings and disputes.

3-6.3 Plans, Working Drawings, and Submittals

SANDAG will provide, at no cost to the contractor, up to 20 conformed copies of the specifications, 2 full-size copies of the plans, and 20 11×17-inch double-sided reference copies of the plans, plus electronic PDFs of these documents. These copies will be provided by the SANDAG engineering project coordinator at the beginning of the project. Additional copies requested by the contractor will be at the contractor's expense.

3-6.3.A Working Drawings

The contract requires working drawings for both permanent work and temporary work be submitted to the engineer as specified in the contract, or as required by the engineer for approval before any work involving the drawings is performed. It is critical the engineer review the working drawing and provide a response in accordance with the specifications. Whenever possible, the engineer shall respond sooner. All working drawings and review periods shall be included in the Contractor's Critical Path Method (CPM) Schedule whenever a CPM is required.

3-6.3.B Submittals

The technical specifications identify all submittals required for the contract. Within 45 calendar days after the first working day (or the amount of time identified in the contract), the Contractor shall submit a list of required technical submittals with a schedule of when the submittals must be made in order to meet the construction schedule. The submittals and review period also shall be included in the CPM whenever a CPM is required. The engineer shall coordinate the review and response of submittals with the SANDAG PM to ensure that the appropriate submittals are forwarded to the design engineer for input.

3-6.3.C Site Copy of Plans, Specifications, and As-Builts

The contractor is responsible for keeping one copy of all contract documents, contract drawings, specifications, shop drawings, submittals, as-builts, and change orders on site in an organized manner and making them available to the engineer. The resident engineer should conduct a periodic review to see if these documents are being maintained by the contractor as defined in the specifications.

The final as-builts shall become the property of SANDAG and shall be submitted by the contractor in accordance with the contract. Upon receipt of redlined as-builts, the resident engineer should follow the guidelines outlined in the [As-Built Plans](#) section in [Chapter 5](#) of this manual.

The drawings along with the operations and maintenance manual shall be submitted to the applicable operator and entered into the document control library.

3-6.3.D Trenching Excavation Safety Plans

For each location, the contractor must submit a specific plan describing how workers will be protected from the hazards of ground caving in. The Construction Safety Orders of the Division of Occupational Safety and Health shall apply to all excavations. Simply stating that the Construction Safety Orders will be followed does not constitute a plan.

3-6.3.E Conformity with Contract Documents and Allowable Deviations

If the engineer decides it is an allowable deviation and it results in changes to contract documents, the engineer shall implement change through a change order.

3-6.3.F Coordination and Interpretation of Plans, SANDAG Special Provisions, and Caltrans Standard Specifications

The Coordination and Interpretation of Plans, SANDAG Special Provisions, and Caltrans Standard Specifications section of the Special Provisions requires the following:

- Project plans govern over standard plans
- Standard plans and project plans govern over the Caltrans Specifications
- The project Special Provisions govern over both the Standard specification and the plans
- [Board Policy No. 024](#) prevails over any conflicting provision of the Contract

3-6.4 Order of Work

If the plans or special provisions do not contain a specified sequence of operations, contractors may select their own schedules, provided the planned order of work meets any dates specified for completion and openings of portions of the work to traffic.

Occasionally, the contractor may submit a proposed modification of the specified order of work that will be more satisfactory for the work's operation. If, in the resident engineer's opinion, SANDAG will benefit as much or more by adopting this proposal as it would under the specified plan, the contractor's plan may be implemented with a contract change order requested by the contractor. SANDAG must receive a monetary adjustment if the contractor has any reduced costs from the change. Also, a contractor may benefit if a change is proposed and accepted under a change order for a cost-reduction incentive. See the [Cost-Reduction Incentive](#) section of this chapter and the Cost-Reduction Incentive section of the Special Provisions.

The resident engineer must recheck the specified plan of operations during the work's progress. Changes in circumstances may necessitate altering the planned sequence and schedule. Stage construction often is a part of the contract on major projects, and revised progress schedules may be required as the stages of work develop.

3-6.5 Superintendence

As required by Superintendence section of the Special Provisions, contractors including those in a joint venture, must name in writing one authorized representative. Resident engineers must insist contractors meet this requirement promptly. In case of disagreement among the contractors' representatives, the resident engineer can then contractually refuse to deal with more than one representative.

3-6.6 Lines and Grades

The Lines and Grades section of the Special Provisions typically requires the contractor to establish the lines and grades necessary to satisfactorily complete the specified work. When the lines and grades are established by the contractor, the necessary survey datum information will be included as part of the project plans.

3-6.7 Inspection

The resident engineer and assistant resident engineers have a primary duty to obtain compliance with the specifications and plans within the tolerances specified in these documents. When tolerances are not specified, the engineer must use judgment in determining the allowable deviation consistent with the usage of the trades involved.

The Inspection section of the Special Provisions requires the contractor to provide the engineer safe access for inspection to work pertaining to contract items or work included on approved CCOs. The engineer must take full advantage of this access. Rarely can an engineer inspect work from the seat of a vehicle.

Cal/OSHA establishes standards for safe access to work, and SANDAG enforces them under the Safety and Health Provisions section of the Special Provisions. When the contract specifies that the cost for access is included in various items of work, no separate payment is allowed.

Approved CCOs do not include the cost of providing access for inspection related to extra work or other changed work. The contractor's costs for inspection on extra work or other changed work may be billed as separate compensation on extra work bills. Costs should be billed to the nearest tenth of an hour. When contractor's bill inspection costs for access on changed work with other extra work, they should bill only the increased cost of providing inspection and not all of the inspection access costs under the original item work.

3-6.8 Removal of Rejected and Unauthorized Work

The Removal of Rejected and Unauthorized Work section of the Special Provisions specifies the contractor's responsibility for rejected or unauthorized work.

Unauthorized work includes excavation outside planned slopes and below the grading plane. Unless an approved contract change order authorizes such excavation, do not permit it.

The [Defective Materials](#) section of this chapter discusses the rejection of material that fails to meet specified requirements. Rejected material must be removed and replaced or remedied in some other manner. When rejected material is remedied, it may remain in place only when the engineer gives written approval. In most cases, this approval requires a contractor-requested CCO. For instance, a CCO would be necessary to approve a contractor's proposal to remedy out-of-specification aggregate base by adding additional aggregate to material deposited previously. A CCO in this situation is necessary because the remedy requires a change in the specifications. However, the engineer's written approval is not required when the remedy is specified, such as the remedy for damaged galvanizing of pipe or guardrail.

For all material used in the work, make the payment in accordance with the specifications. As an alternative to removal and replacement, do not allow defective material to remain in place without contract payment. Any such action must be provided by an approved contract change order unless otherwise permitted by the specifications.

3-6.9 Equipment and Plants

The Equipment and Plants section of the Special Provisions requires each piece of equipment to have a number stamped or stenciled upon it. The identifying number should be further referenced to the license plate issued for the piece of equipment. This additional reference is especially important in the case of tractor and trailer combinations where the tractor may pull different trailers on separate occasions.

The engineer must use the identifying numbers to keep records of working and idle time for both the equipment and operators, including, among other items, contract items, extra work, move-in and -out, and plant erecting. Some items of work will require more complete records than other items. The resident engineer must determine which items of work need these records and how much detail will be necessary. Records of this kind are also required for costs when the quantity of certain contract items runs over 125 percent, or under 75 percent, of the estimated quantity.

3-6.10 Alternative Equipment

In lieu of specified equipment, the Alternative Equipment section of the Special Provisions provides for the use of new or improved equipment subject to satisfactory performance as determined by the engineer.

CCOs must cover all modifications under the Alternative Equipment section. Do not adjust cost for such changes.

3-6.11 Differing Site Conditions

When a differing site condition occurs or unforeseen material that is hazardous waste is encountered, the Differing Site Conditions section of the Special Provisions provides recourse for SANDAG and the contractor. When a differing site condition arises, the resident engineer should discuss with the SANDAG construction manager and geotechnical engineer of record if applicable.

Below are two types of differing site conditions that exist, followed by the procedure to recover damages or savings for a differing site condition claim.

3-6.11.A Type One

Type One consists of sub-surface or latent physical conditions materially different from those indicated in the contract information about the site made available to bidders prior to the deadline for submitting bids such as:

- The log of test borings
- Other records of geotechnical data obtained by the SANDAG investigation of sub-surface conditions
- The “materials information”
- Other records of data to the extent they were available to the contractor prior to the opening of the bids
- An examination of site conditions above ground

3-6.11.B Type Two

Type Two consists of unknown physical conditions of an unusual nature that are materially different from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract.

3-6.11.C Procedure

For the contractor to recover damages for a differing site condition claim, the following conditions must be met:

Before the bid, the contractor, to the extent they are granted access, must investigate the site as required by the Examination of Plans, Specifications, Contract, and Site of Work section of the Special Provisions and carefully examine the following items:

1. Plans
2. Specifications
3. “Materials information”
4. Log of test borings
5. Other records of geotechnical data, such as cores and other physical data, obtained by the SANDAG investigation of subsurface conditions
6. Other records of data to the extent they were available to the contractor

The conditions encountered must either be materially different from those represented by the bid documents or other records of data available to the contractors before bid, and a site investigation or be materially different from those normally encountered or inherent in the industry.

- The contractor must provide the resident engineer with written notice of the conditions before disturbing them

- The resident engineer must investigate the conditions and determine if they differ materially and cause an increase or decrease in the cost or time to do the work and provided the contractor a written response
- If the contractor disagrees with the engineer, he/she must proceed with the work and file a written protest of the engineer's decision

The resident engineer must remain alert to the possibility that a differing site condition may result in a credit to SANDAG. If such a condition is encountered, the resident engineer must promptly notify the contractor in writing.

Differing site conditions are not considered "changes in character" because the conditions do not result from ordered changes. However, determine and give compensation or credit due for differing site conditions in the same manner as you would for changes in character. For how compensation is made for changes in character, see the [Contract Change Orders](#) section in [Chapter 5](#) of this manual.

3-6.12 Character of Workers

The Character of Workers section of the Special Provisions covers the issue of character of workers. In addition, [SANDAG Board Policy No. 004, Rules of Procedure for Board of Directors, Policy Advisory Committees, and Other Legislative Bodies](#), [SANDAG Board Policy No. 007, Equal Employment Opportunity \(EEO\) and Disadvantaged Business Enterprise \(DBE\) Programs](#), and [Board Policy No. 024](#) call for a work environment with zero tolerance for violence, threats, harassment, and intimidation. These policies also apply to any subcontractor or employee of a contractor in their dealings with SANDAG personnel. SANDAG may discharge a worker from the project for engaging in any of the above-mentioned activities.

Discuss the decision to remove a worker with the worker's supervisor before issuing a directive to do so. The contractor may request reinstatement of the worker. If requested, the SANDAG construction engineer will meet with the resident engineer, the contractor's authorized representative, and, at the contractor's discretion, the affected worker. The reason for removal and the contractor's request for reinstatement are discussed at the meeting.

None of these procedures affects the authority of the resident engineer to direct the removal of a worker from the project.

3-6.13 Final Inspection

As a project's completion approaches, the resident engineer must schedule appropriate reviews prior to contract acceptance.

Maintain a record of the final inspection in the resident engineer's daily report. The record should state something along the following lines:

"I made a final inspection of the project today and determined that all contract work has been completed."

Or;

"(Name) made the final inspection today and concurred that all contract work has been completed."

Time the final inspection so that the recommendation for contract acceptance will not be delayed pending the inspection. Before the final inspection, give the contractor a written list of items needing attention.

3-6.13.A Work for Owner-Operator

When any work performed under the contract is for facilities not owned by SANDAG, such as for Metropolitan Transit System (MTS) and North County Transit District (NCTD), it is necessary to obtain concurrence of these entities in the acceptability of the work.

SANDAG must arrange a joint-field inspection with the owner or agency. In writing and in advance, usually 30 days or as agreed upon with the owner–operator of the facility, notify the owner or agency when the facility will be ready for final inspection. Time the inspection so that concurrence for acceptance is available at the time of recommending to the director of MMPI the relief from responsibility for maintenance or acceptance of the contract. However, do not withhold recommendations for acceptance or relief merely because an outside agency will not concur.

The letter notifying the owner or agency of readiness for inspection should include the following:

- A reference to the agreement
- A statement that the inspection is to determine whether work is in compliance with plans, the agreement, or both
- The date of the inspection
- A request that when an inspection reveals no deficiencies, the agency’s authorized representative responsible for performing the inspection will confirm in writing that the agency agrees to accept the work
- A statement that failure by the agency to inspect or confirm acceptance in writing will be deemed acceptance of the work as constructed

If the size or complexity of the work warrants such an action, an agency representative and the resident engineer should make a preliminary joint inspection to correct minor deficiencies before the final inspection described above.

The resident engineer must record, in writing, preliminary and final joint field inspections, noting what actions were necessary to complete the work to the satisfaction of the agency representative. If the agency representative is satisfied with the completeness, but declines concurrence in writing, record this situation.

SANDAG may already have a Memorandum of Understanding (MOU) or an agreement with another agency that defines the responsibilities of the respective agencies when it comes to accepting work. As an example, per the SANDAG–NCTD Master MOU Addendum 18, NCTD will:

- Provide track inspections, flagging services, and busing during construction paid for by the project
- Be responsible to preserve the mitigation and site in accordance with the permitting agencies requirements for property they are in ownership of
- Be the operational coordinator with COASTER, Amtrak, BNSF, etc.
- Notify the SANDAG director of MMPI of emergency repair work
- Inform customers of progress and construction impacts

3-6.14 Cost-Reduction Incentive

SANDAG encourages contractors to develop and implement innovative approaches to construction projects. When new approaches result in construction cost-savings, SANDAG and the contractor may share the savings in construction cost. The Cost-Reduction Incentive section of the Special Provisions specifies the method and procedure for sharing construction cost-savings. A contractor's proposal made in accordance with the Cost-Reduction Incentive section is called a cost-reduction proposal.

The special provisions may allow for the contractor and engineer to organize and participate in a "value analysis" workshop. The workshop's purpose is to identify value-enhancing opportunities that would reduce the total project cost, time of construction, or traffic congestion. Items identified in the workshop could be developed into cost-reduction proposals.

The Cost-Reduction Incentive section applies only to the actual cost of construction. Savings in construction engineering, maintenance, operations, safety, and traffic services, among other items, are not eligible for sharing with the contractor.

3-6.14.A Procedure

Handle cost-reduction proposals using the following procedure:

- After discussing the merits of a potential cost-reduction proposal with the resident engineer, the contractor may submit a written proposal for approval. The initial written proposal may be preliminary in nature, but for SANDAG to evaluate the anticipated cost savings or other value enhancement, the proposal must provide enough of the information required by the Cost-Reduction Incentive section of the Special Provisions. Thus, the proposal must include information regarding the following:
 1. Any construction effects related to staging, right-of-way (ROW), or environment
 2. Any required permits or permit modifications
 3. Maintenance or enhancement of essential functions or characteristics of the project such as service life, reliability, economy of operation, ease of maintenance, desired appearance, conformity to design, safety and other applicable standards, and the time within which the engineer must decide on the proposal
- The resident engineer must coordinate the SANDAG evaluation of the written proposal by the date requested by the contractor.
- Consider the following factors in determining whether a proposal is acceptable, and do not include any cost benefit resulting from these factors in the actual computation of net savings in construction costs:
 1. Any engineering, environmental, legal, or administrative considerations making the proposal impractical or unacceptable
 2. The relationship of net savings to the cost of evaluating and implementing the proposal
 3. Any total benefit to the public, including construction savings or reduced engineering costs
 4. Improved operations
 5. Reduced maintenance

6. Improved safety and traffic service or other values that clearly favor the proposal

Compute a cost-reduction proposal's net savings because of the changed work in accordance with the methods detailed in the Changes in Character of Work section of the Special Provisions. The net savings must result from the difference in the actual cost of doing the work in accordance with the contract plans and specifications as originally planned and the actual cost of doing the work based on designs, methods, labor, equipment, and materials as changed by the proposal. In determining the net savings, exclude from consideration the contractor's engineering and other costs incurred in preparing the proposal. Also exclude the SANDAG cost of evaluating the proposal, including any portion of this effort the contractor paid for.

- If the submitted proposal appears acceptable, but the SANDAG anticipated engineering costs are high, the contractor must stipulate in writing a willingness to share such costs before the proposal will be evaluated further. This willingness must be stipulated whether or not the proposal is ultimately adopted. Such a letter from the contractor provides SANDAG with the authority to deduct engineering costs from progress payments. To record the SANDAG engineering costs, proceed as follows:
 1. Notify the SANDAG PM that all time spent evaluating the proposal is to be tracked separately from other project costs. This would include time spent by consultants.
 2. After executing the change order for the cost reduction proposal, do not charge construction engineering as time spent evaluating the proposal.
 3. In conformance with the Cost-Reduction Incentive section of the Special Provisions, you may deduct from progress payments a portion of the SANDAG engineering costs for evaluating the cost-reduction proposal. Use the following method to determine the deduction. If the SANDAG engineering costs (a) exceed the SANDAG share (b) of the total computed net savings, deduct the difference (a minus b) from progress payments. Inform the contractor of the reason for any deductions.
- If the submitted proposal provides for a substantial benefit to the public, but no net savings, the engineer may still proceed with issuing a CCO based on public benefit. However, the CCO would not be written as a contract change order for a cost-reduction proposal but as an engineer-requested CCO.
- If the resident engineer determines that a preliminary written proposal is acceptable and the SANDAG construction engineer concurs, then SANDAG will notify the contractor and he/she may submit a complete proposal. The proposal must contain all information required by the Cost-Reduction section of the Special Provisions. This information must be in sufficient detail to enable a final review and approval. The information provided should answer all questions that arose from the SANDAG review of the preliminary proposal. It must also include applicable calculations, revised plans, and revised specifications.
- In accordance with the Cost-Reduction Incentive section of the Special Provisions, prepare a CCO to authorize the cost-reduction proposal. Carefully consider the CCO's clauses covering payment to the contractor. In the CCO, resolve all compensation and other issues related to the proposal. Before starting the authorized work, the contractor must execute, and the engineer must approve, the CCO.

3-6.15 Notification to Utility Owners

The resident engineer shall confirm with the contractor that underground service alert has been alerted. This is particularly important for high-risk facilities such as underground gas lines and electrical lines.

3-6.16 Maintaining Rail Traffic

It is the resident engineer's duty to verify the Contractor's work does not interfere with the normal operations of MTS or NCTD. The requirements of this section may need to be adjusted depending upon whether the work performed is on MTS or NCTD facilities.

It will be the resident engineer's duty to verify the contractor follows all requirements of NCTD's Policy No. 23. NCTD's Policy No. 23 establishes some basic requirements for railroad construction scheduling and management. NCTD's Board Policies can be found at gonctd.com/policies/.

The master construction calendar for the entire line maintained by NCTD will be analyzed to keep as many projects in construction at one time as practical, while simultaneously limiting the impacts to railroad operations and maintenance and on-time performance schedules. This analysis may result in construction projects being scheduled and phased differently than originally planned to keep service disruptions to a reasonably acceptable level.

Per NCTD Policy No. 23, NCTD is required to maintain a calendar of the slowdowns and closures with input from SANDAG projects for planning their operations. At 90 percent design, every project must formally agree in writing on the slowdowns and closures for construction. These closures should avoid the period from April to September unless otherwise approved from NCTD.

The PM is responsible for obtaining agreement with NCTD on the need for slowdowns and closures for the project per the terms outlined in the SANDAG–NCTD Master MOU, SANDAG–NCTD MOU Addendum 18, and NCTD Board Policy No. 23.

Per SANDAG–NCTD MOU Addendum 18, projects must request Absolute Work Windows three months prior and will receive approval two months prior.

3-6.17 Maintaining Vehicular Traffic

This section provides specific requirements for the Contractor to follow in addition to Public Convenience and Public Safety sections of the Special Provisions and the Construction Area Traffic Control Devices section of the Caltrans Standard Specifications. These requirements should be brought to the contractor's attention as part of the pre-construction meeting and then monitored for compliance during construction.

3-6.18 Traffic Control Plans

The resident engineer will monitor and ensure the contractor's traffic control plans has been approved by the governing agency or agencies prior to any construction being done. The resident engineer shall review any encroachment permits and discuss with the agencies affected to understand their expectations. The review and approval process for traffic control plans should be included in the contractor's CPM schedule.

Below are some basic guidelines and general considerations for traffic control plans prepared by the contractor.

The following instructions usually apply more to the planning and design phase of a project. They are included here to help provide construction personnel with some basic concepts for safe and efficient traffic flow through a construction project. Use these guidelines when it is necessary to make changes in traffic control plans during construction.

- Whenever possible, permit traffic continued undiminished use of the existing facilities.
- When such use is not possible, accommodate traffic by ensuring a continuous roadway throughout the length of the project. To ensure this continuous roadway is achieved, use one or a combination of the following:

1. The existing unmodified highway
 2. The newly constructed highway or portions of it
 3. Interim constructed facilities
 4. A detour where traffic is diverted over a temporary roadway
 5. Allowing traffic to pass through the work in progress
- Ensure the temporary roadway is engineered to the highest standards practically possible. Apply the same type of design considerations as those incorporated into the new construction. These considerations include the following:
 1. Geometrics of alignment and roadway section
 2. Surface of the traveled lanes and shoulders or marginal areas
 3. Pavement markings and other delineations
 4. Barrier and guardrail
 5. Signals and lighting
 6. Signing
 - Show the design of the temporary roadway in the traffic control plan.
 - Make safety and convenience the first design consideration. Economy will be a factor only as it is necessary to obtain balance between benefits and resources. By itself, cost must not be a primary limiting factor.

3-6.19 Partnering

The Partnering section of the spec book will be included for construction projects over \$5,000,000. Partnering is simply a way of conducting business in which two organizations make long-term commitments to achieve mutual goals. SANDAG is committed to making partnering the way we do business. The resident engineer is encouraged to implement partnering when a specification is included. When the contractor declines to participate in partnering, the resident engineer is to consult with the SANDAG construction manager and construction engineer and determine if additional steps are needed with the contractor to encourage them to participate in partnering.

The cost of the professional facilitator and the expense of the meeting will be reimbursed to the contractor by use of a CCO. The cost of participating in the partnering meeting by the contractor will not be reimbursed by CCO.

3-6.20 Removal of Asbestos and Hazardous Substances

Follow the requirements of the Special Provisions and work with the SANDAG consultant expert on what needs to be done when disposing of asbestos and hazardous substances. See the Environmental chapter of this manual for more information on hazardous waste.

3-6.21 Quality Control

This section outlines the requirements of the Contractors Quality Control (CQC) Plan. For details on the responsibility and how to implement it, see the Quality Assurance and Controls chapter of this manual.

3-7 SYSTEM CONFIGURATION MANAGEMENT, ACCEPTANCE, TESTING, AND COMMISSIONING

3-7.1 General

The resident engineer shall verify that the contractor prepares and submits for approval by the Construction Manager Configuration Management, Acceptance Testing, and Commissioning plans prior to any work being accomplished on traction power, overhead contact, communications, or railroad signaling systems.

The plan(s) shall describe Configuration Management Control, Acceptance Testing, Commissioning, and Safety procedures to be followed by all personnel while the system is under control of the contractor to ensure that all configuration changes are recorded and that the work is performed in a deliberate method to ensure the highest level of safety. The resident engineer shall manage the contractor and their QA signal engineers and inspectors to ensure that the signaling system configuration is documented in conformance with the requirements described in: (a) the California Public Utilities Commission (CPUC)-accepted SANDAG and Regional Transit Agency (RTA) Configuration Management Plan; (b) Code of Federal Regulations (CFR) (49 CFR parts 234.201, 236.1, 236.18 and 236 subpart H); (c) contract documents; and (d) other requirements described in this manual.

At least nine months prior to placing new processor-based signal and train control equipment in operation on a line operated by heavy rail freight or passenger trains, the resident engineer shall initiate discussions with RTA regarding the need to revise the RTA's Railroad Safety Program Plan and Product Safety Plan to incorporate new Processor Based Signal and Train Control Systems in accordance with 49 CFR 236 subpart H and provide all necessary technical information needed by the RTA to update their plan to ensure the informational filing is developed, submitted, and acknowledged by the Federal Railroad Administration (FRA) associate administrator for safety within the timeframes identified in the code.

A minimum of three months prior to installing updated or new Processor-Based Signaling and Train Control Systems software into controllers, the resident engineer/CMC shall ensure that the software revisions are authorized or in the process of being developed and submitted for approval for installation in accordance with the RTA's software management control plan and 49 CFR 236.18, Software Management Control Plan.

The contractor in conjunction with the construction management team shall develop a comprehensive testing program to verify that all elements of the system provided in construction, procurement, and installation will be safe and conform to configuration management, regulatory, and contractual requirements. The ultimate objective of the start-up and testing program is to bring together all the requirements for final testing, verification of the start-up readiness, and compliance with government regulations for revenue operation.

Testing procedures and test records will follow the RTA's System Operator's (SO's) guidelines and standard reporting formats. The SO will be responsible for regulatory filings, revisions to the SO's own rules governing operations and maintenance, and notices to the public regarding any service changes.

Based on previous large SANDAG projects, the configuration management program shall be an active ongoing process during construction. The development of the start-up testing and commissioning program should begin not less than 12 months prior to completion of construction. The actual testing program should start not less than six months prior to the start of revenue operation. The start-up testing and commissioning program is administered by the start-up and testing manager, who is a member of the CMC. The CMC start-up and testing manager is assisted by the SANDAG construction manager and the resident engineer. Meetings are held with the Rail Activation Committee (RAC) to address issues and problems associated with start-up. Personnel from SANDAG, the SO, the CMC team, and the CPUC are members of the RAC.

3-7.2 System Configuration Management and Safety Certification

System configuration management and safety certification is the process that verifies that safety-related requirements are incorporated into the project. One of the primary objectives of the RTA's System Safety and Security Program's System Safety and Program Plan and Safety Certification Plan is to verify and certify safety standards are met or exceeded in the design, construction, and start-up of the project.

The SANDAG rail transit projects are subject to the safety oversight of the CPUC and the RTA and are required to be safety-certified by SANDAG and the RTA prior to the start of revenue service. The responsibility for safety certification resides with the SANDAG director of MMPI and RTA's safety management.

3-7.3 Responsibilities

The construction manager will provide safety coordination and oversight during start-up and systems testing and pre-revenue testing. SO will operate and maintain the project upon commencement of revenue service. The SO's head of operations (e.g. Vice President of Operations) is responsible for notifying the SANDAG design consultant of changes to the system design that are needed to assure the completed systems elements function properly when integrated into the system during normal, abnormal, and emergency conditions. The CMC start-up and testing manager is responsible for confirming in writing that the SO's head of operations is completely satisfied with the system prior to contract acceptance.

3-7.4 Safety Certification Program Plan

The Safety Certification Program Plan for each project, developed by SANDAG verifies that the critical safety items and activities are identified and satisfactorily completed prior to final safety certification. The SANDAG director of MMPI is responsible for implementation of the safety certification program. Upon successful completion of all required pre-revenue service testing and training, designated managers of the SO and SANDAG will certify via the Safety Certification process that the system is ready for revenue service and the SANDAG Executive Director recommends final certification to the CPUC.

Copies of all system certification documents shall be submitted to SANDAG. Documents showing the final latest configuration of the track, signaling, catenary, traction power, train location, electronic messaging, fiber optic network, closed circuit television, compressed natural gas, traffic signaling, or other system identified shall be submitted to the SANDAG construction manager so that the overall system configuration management of the SO can be updated to reflect the final condition.

3-7.5 Rail Activation Committee

The RAC is an ad hoc committee initiated each time that a major phase of rail development occurs. A key objective is to assure that all operating issues have been adequately addressed during the start-up phase, including successful testing and training for all systems and components and turnover of all maintenance manuals, warranty documentation, and keys. Membership is comprised primarily of staff from the SANDAG engineering department and the SO, as well as selected project consultants. Responsibility for administration of the RAC lies with the resident engineer-designated CMC coordinator.

The CMC will assign an engineer, approved by SANDAG, to administer the RAC. This engineer shall have experience in the start-up and testing of complex systems including rail systems, preferably light rail systems. The RAC engineer will develop a list of installation verification tests and start-up tests. The RAC engineer shall schedule RAC meetings and maintain meeting notes and action item lists.

The RAC engineer will review the system safety certifications to assure required safety certification elements are in place prior to testing or are included within the rail activation testing. The list will include the party to perform the test, the parties to witness the test, the results of the test, and a log of retests until full acceptance. A separate test sign-off sheet will be used to document test results. The RAC engineer shall develop a schedule for completing the test. The schedule shall be approved by the RAC.

The RAC engineer will develop test procedures for each test for RAC approval. The RAC may delegate responsibility for approval of any test procedure to a subset of RAC members. Test procedures shall contain at least the party performing the test; parties witnessing the test; pretesting safety procedures; a list of other prerequisite tests and space for verification of completion; detailed test procedures; acceptance criteria; and a sign-off sheet for acceptance and retests with space for the testing the party, witnesses, date, and time.

The RAC will generally include the following members, but would change depending upon the nature of tests remaining to complete:

- SANDAG/design consultants, systems engineering, PM, quality manager, SANDAG construction manager, general construction consultant, signal consultant
- SANDAG/CMC – RAC engineer, resident engineer, and systems construction engineer/signal engineer
- SO – SO's head of operations (e.g., Vice President of Operations), engineering liaison, superintendent of maintenance, assistant superintendent of track and wayside, assistant superintendent of transportation, assistant superintendent of signals, and other as designated by SO.

In addition, contractor representatives and representatives from the CPUC, Caltrans, state, city fire departments, and others may participate in start-up activities coordinated through the RAC.

3-7.6 Quality

While individual systems elements may be judged as acceptable, the entire system must work together: signals and track switches; vehicles and traction power; station communications; and central control. The systems start-up program establishes that the resident engineer, start-up manager, contractor/manufacturer, SANDAG, and SO have inspected specific portions of the systems elements prior to assuming control and responsibility of portions and/or the entire system.

The CMC is responsible for verifying that the required inspection and testing of materials are in conformance with the quality and acceptance criteria of the plans and specifications.

3-7.7 Training

After the system has been turned over to the SO for operator training and revenue training, all personnel, including the contractor and the construction manager's staff, will follow the SO's flagging procedures. Training for owner-furnished equipment, such as fare vending machines, traction power substations, and communications equipment, shall be included, as needed, in the contract specifications.

3-7.8 Operating and Maintenance Manuals, Warranties, and Guaranties

The project specifications will identify the preparation and submittal of operating and maintenance manuals, warranties, and guaranties for the equipment utilized under the contract. Based upon the project specifications, a submittal log shall be developed by the CMC to track the submittal and acceptance of these items. Copies of the operating and maintenance manuals, warranties, and guaranties will be turned over to the operator, SO, at the conclusion of the project.

3-8 CONTROL OF MATERIALS

3-8.1 General

The service life of a properly designed facility depends on the construction method and quality of materials used in the construction of the proposed improvements. The resident engineer must ensure that materials used in the work comply with specifications. This section presents some general guidelines for ensuring that specifications are met. More specific instructions are covered in the Quality Assurance and Controls chapter of this manual.

The SANDAG resident engineer as determined by the QA Plan provided by the CMC will assign inspectors for materials that require inspection during manufacture or at the source of supply. Resident engineers must obtain a properly completed "Notice of Materials to be Used" form or some other acceptable form from the contractor, which lists the contractor's sources of materials and the location at which those materials can be inspected. Review this form to ensure that all expected materials are included.

Do not allow any material to be incorporated into the work until the required evidence or certificate of inspection has been received and until the field inspection has been completed at the job site.

3-8.2 SANDAG Furnished Materials

The SANDAG-Furnished Materials section of the Special Provisions describes the conditions under which the contractor can receive SANDAG-furnished materials. The resident engineer's duties related to these materials include the following:

- Review the Special Provisions for materials to be furnished. For materials manufactured specifically for the project, such as signs, check to ensure they will be available when the contractor requests.
- Obtain the contractor's written request for all SANDAG-furnished materials. Retain a copy of the request in the project file.
- Ensure the contractor signs a receipt for the materials when they are delivered. Retain a copy of the receipt in the project file.
- If SANDAG-furnished materials are damaged or lost, deduct a sufficient amount from the contractor's monthly estimate to cover the estimated cost of repair or replacement, pending such repair or replacement.
- Ensure the return of SANDAG-furnished material that has not been used in the work.

3-8.3 Surplus and Salvaged Material

Minor differences between quantities of material required to complete the planned work and quantities shown in the bid item list or shown in quantity summaries on the contract plans are normal operating differences. SANDAG is not liable for a surplus of material resulting from these operating differences.

If the final quantity of an item is less than 75 percent of the quantity in the bid item list, include any actual loss due to excess material in the costs as computed in accordance with the Decreases of More Than 25 Percent section of the Special Provisions. Do not make any allowance for material the contractor keeps.

SANDAG recognizes that certain materials or manufactured items required for the planned construction may be unique and not useable by the contractor, the supplier, or for other projects or customers. If such materials or items become surplus by reason of an ordered change, resulting in a direct and unavoidable loss to the contractor, such loss must be compensated. Determine compensation on the basis of actual cost as provided in the Eliminated Items section of the Special Provisions. The guidelines below describe how to dispose of material that the contractor cannot economically dispose of.

Base a determination to salvage items made surplus by ordered changes on economic benefit to SANDAG or a stakeholder(s), conservation of the energy and materials required to fabricate the items, or both. Base economic benefit on the following:

- The item's condition is adequate to perform its function satisfactorily. Damage does not necessarily make an item unsuitable for salvage. SANDAG or a stakeholder(s) have the capability to repair some items, so investigate this approach before deciding to dispose of a damaged item. Also consider repair costs when determining the cost-effectiveness of salvaging.
- The value equals or exceeds the difference in the cost of salvaging (including hauling) and the cost of removal and disposal.

Additionally, an item should be salvaged if it meets one or more of the following conditions:

- It is a stock item with a definite, foreseeable use. Stock items include all items that SANDAG or an operator(s) normally uses.
- It is not a stock item but can be put to immediate use or has a definite, foreseeable use. This classification would include items that can be reinstalled in the immediate project or could be installed on future projects.
- It is part of an electrical installation owned jointly with another agency, and the other agency requests its salvage.
- It can be used immediately for some other beneficial purpose.

Before the delivery of potentially salvageable items, make arrangements with the SANDAG construction manager and operator representative. Materials should not be salvaged until such arrangements are made.

3-8.4 Defective Materials

The Defective Materials section of the Special Provisions provides for the rejection and removal of material that does not meet specification requirements. Except for material that is permitted to remain in place under the specifications, reject material represented by a test result not meeting the specified requirement. See the [Removal of Rejected and Unauthorized Work](#) section of this chapter for guidelines on removal of rejected and unauthorized work.

3-8.5 Trade Names and Alternatives

When trade names are used to designate required products, the contractor may furnish other products that are of equal or better quality. Consult with the designer of record and SANDAG PM in making decisions about the acceptability of substitutes.

3-8.6 Certificates of Compliance

For a discussion about certificates of compliance, refer to the Materials Accepted on the Basis of a "Certificate of Compliance" subsection in Chapter 6 of the Caltrans Construction Manual.

The Foreign Materials section of the Special Provisions includes the requirements for using foreign materials. When specified in the contract documents, a certificate of compliance from the manufacturer (not the contractor) showing compliance with Buy America requirements must accompany all relevant materials/items incorporated into any projects subject to Buy America. The resident engineer must verify receipt of the required certificates of compliance and mill test reports.

3-8.6.A Buy America Requirements

The Buy America requirements contained within the United States Code apply to all projects subject to Buy America. The specific code and corresponding regulations, when applicable, differ depending upon the source of the Federal funds. The Federal Highway Administration (FHWA), FTA, and FRA each have their own specific requirements that will be reflected in the Contract Special Provisions. A discussion of the Buy America requirements is included in the preconstruction conference for any projects subject to Buy America. More information on Buy America can be found in the later [Buy America](#) section of this chapter.

The contractor will furnish and install only the appropriate materials in projects subject to Buy America that are in conformance with the provisions of the coinciding code. To be considered a domestic material, all manufacturing processes must take place domestically. If a domestic product is taken out of the United States for any process, it becomes a foreign source of material. The manufacturing process for steel and iron products is considered complete when the product is ready for use in items such as fencing, posts, and girders. It could also be considered complete if the material could be incorporated as components of a more complex product through a further manufacturing process, as is the case for a traffic signal head.

3-8.6.A.1 Resident Engineer Approval of Minimum Use Requirements – FHWA-Funded Projects Only

Buy America requirements do not apply to a minimal use of iron and steel materials incorporated in the work provided that all foreign source items do not exceed one tenth of 1 percent (0.1 percent) of the total contract cost, or \$2,500, whichever is greater. Before incorporating any foreign steel materials into the work, the contractor must submit documentation of the quantity and value of any foreign steel to the resident engineer. Review the documentation to determine if it supports the minimum use rule before allowing the material to be incorporated into the project. If the minimum use rule applies, approve the exception in writing. This applies as a one-time total exemption for each contract, not for each purchase. File the documentation, exceptions, and a running total of the value of foreign iron and steel allowed under the minimal use allowance under Category 41, Report of Inspection of Materials. Foreign steel materials that exceed the minimal Buy America requirements cannot be designated as non-participating and therefore require a waiver.

3-8.6.A.2 Federal Approval of Waivers

SANDAG does not have the authority to waive the Buy America Provisions in projects subject to Buy America without approval from the FHWA, FTA, or FRA.

The California FHWA division administrator may grant waivers only upon receiving concurrence from FHWA headquarters in Washington D.C. Approval or denial may take several months. Similar procedures exist for FTA and FRA approvals. In either case, the approval or denial may take several months.

The contractor must submit the following information to the resident engineer when requesting a waiver to Buy America requirements:

- A detailed description of the waiver item
- Item cost – obtained from the manufacturer or supplier
- The country of origin for the product

- The reason for the waiver

The resident engineer must provide the following information when preparing a waiver request for the federal engineer:

- The contractor's waiver submission
- Federal aid project number, description, and location
- Analysis of redesigns using alternate or approved equal domestic product for the project

Federal approval of the waiver is required prior to allowing relevant foreign materials/items into the project. Allowing relevant foreign materials/items into any projects subject to Buy America without a federally approved waiver can result in the loss of all federal funds for the project.

3-8.7 Foreign Materials (Out of Country)

Sections 49, 51, 55, 56, and 75 of the Caltrans Standard Specifications include reductions in payment for fabrication at some distance from Sacramento and Los Angeles. In addition, some special provisions may modify the amount to be deducted. Deduct the appropriate amount, applying it as an administrative deduction on estimates that include payment for the item. This deduction should be made in whole, when appropriate. However, if the deduction is rather large, the resident engineer has the option to deduct incremental amounts until the full deduction is made. The requirements of this section shall be incorporated into the CQC Plan. The resident engineer will be responsible for review this section and ensuring the contractor has clearly addressed in their CQC Plan.

3-8.8 Local Materials

The Local Materials section of the Special Provisions covers the requirements for the use of local materials and the resident engineer's responsibility for testing the materials.

The Possible Local Material Sources section of the Special Provisions requires the contractor to execute certain documents when obtaining materials from property owners with whom SANDAG has arranged the use of such materials. The resident engineer can obtain an example of this document from the SANDAG PM/construction manager for execution. An example of these documents titled "Supplemental Materials Site Agreement (1) and (2)." Samples of agreement (1) and agreement (2) follow:



Supplemental Materials Site Agreement (1)

Contract No.: _____

Corridor: _____

Date: _____

To: _____

SANDAG Director
SANDAG
401 B Street, Suite 800
San Diego, CA 92101

Dear _____

In accordance with Section 6-2.01, Local Materials of the Special Provisions, here is the agreement for using the materials source for the subject Contract, as required before removal of said materials:

WHEREAS, Contractor has entered into Contract No. 500XXXX with SANDAG, for the performance of work _____ on road _____, and;

WHEREAS, SANDAG has entered into an agreement, with _____ for the obtaining of materials from the property described in said arrangement.

NOW THEREFORE, pursuant to the terms of said arrangement and of said Contract No. 500XXXX, Contractor hereby agrees to comply with all terms and conditions of said arrangement between SANDAG and said property owner and further agrees to hold said property owner harmless from all claims for injury to persons or damage to property resulting from Contractor's operations on owner's property.

Date: _____

Contractor by

Authorized Agent: _____

Title: _____

Original: SANDAG Director
cc: SANDAG director, contractor, property owner, and resident engineer



Supplemental Materials Site Agreement (2)

Contract No.: _____

Corridor: _____

Date: _____

To: _____

SANDAG Director
SANDAG
401 B Street, Suite 800
San Diego, CA 92101

Dear _____

In accordance with Section 6-2.01, Local Materials of the Special Provisions, here is the agreement for using the materials source for the subject Contract, as required before removal of said materials:

WHEREAS, Contractor has entered into Contract No. 500XXXX with SANDAG, for the performance of work _____ on road _____ and;

WHEREAS, pursuant to the authority of said Contract, _____ Contractor and _____, Owner, have entered into an agreement under which Contractor may obtain materials from Owner's property.

NOW THEREFORE, Engineer pursuant to said Contract No. XXXXXXX, Contractor and Owner hereby notify the department that materials obtained by Contractor from Owner's property will be obtained pursuant to the agreement between the Contractor and Owner and not pursuant to the arrangement between the department and Owner, dated _____, (year) and Owner specifically agrees that the department is hereby released from any and all obligations to Owner under the department's said arrangement with the Owner.

Date: _____

Owner: _____

Date: _____

Contractor by

Authorized Agent: _____

Title: _____

Original: SANDAG Director
cc: Construction engineer, property owner, and resident engineer

The special provisions may require the contractor to obtain materials from a specified source. It may be necessary for the contractor to process the material as indicated in the special provisions to produce acceptable materials from this source.

If the resident engineer determines that the specified local material source can no longer be used for any reason, designate an alternative local material source for the balance of the material. Pay for the costs associated with the change in material source as extra work.

3-8.8.A Public Interest Determination

Whenever local materials will be removed from mandatory sources, the resident engineer must write a public interest determination if the project includes federal FHWA financing. Mandatory sources include sources within the owner-operator's ROW but outside the project's limits. Normally, the resident engineer makes the determination before advertising. The purpose of a public interest determination is to establish clearly that a mandatory material source will serve the public interest, versus simply public or private property.

Certain designated sites do not require preparation of a public interest determination if they meet all of the following criteria:

- The designated site was identified and included in the project's environmental studies and documents during project development.
- The site was identified as and included in the materials handout during the bidding as a designated site.
- Agreements for use of the site were negotiated with the site's owner.

Occasionally it becomes necessary to obtain additional embankment material from outside the local area even though the contract does not allow the contractor to import non-local material because there is no item for "imported borrow." Thus, the contract does not have an item for "imported borrow." Under these circumstances, it is normal practice for SANDAG to locate an alternative source for this material.

In accordance with the Public Contract Code, aggregate sources must comply with the Surface Mining and Reclamation Act of 1975 (SMARA). Refer to the Environmental chapter of this manual for further information on SMARA requirements.

For FHWA-funded projects, if the CCO directs the contractor to obtain material from the chosen SANDAG source, the FHWA considers the source mandatory. The FHWA then requires written approval of a public interest determination before approval of the contract change order.

At a minimum, the public interest determination, written by the resident engineer, must include the following:

- The reason the chosen source is the most economical. If the determination is not based on economy, other reasons such as public safety or convenience must be included.
- The alternatives considered.
- The effect on the value of the material site.

All such sites are subject to compliance with SMARA. Mining operations determined to be in compliance are listed on the AB 3098 SMARA Eligible List. This list can be obtained from the Department of Conservation's website: consrv.ca.gov/omr/SMARA%20Mines/ab_3098_list/Pages/Index.aspx.

Also see the Surface Mining and Reclamation Act to determine if the proposed materials site is exempt from SMARA.

The FHWA must then approve the resident engineer's determination.

3-8.9 Testing

The Standard Specifications and Special Provisions contain references to the standards and tests of the American Association of State Highway and Transportation Officials (AASHTO), American Railway Engineering and Maintenance-of-Way (AREMA), FRA, CPUC, and the American Society for Testing and Materials (ASTM). The resident engineer shall ensure as part of the QA Plan submitted by the CMC that the requirements from the referenced document are incorporated.

Whenever samples are taken from materials sites, the resident engineer must ensure the samples are representative of material being used. Degradation and segregation may occur in aggregates between the processing operation and their incorporation in the work. The resident engineer cannot assume that material satisfactorily tested at the source or at the processing plant still is satisfactory at the job site. To ensure specification compliance, test at the frequencies shown in the specifications as the material is being incorporated into the work.

If a test result fails to meet the specified value for contract compliance, the result should be treated just like any other failing test result. However, if the contractor writes a request, the resident engineer may consider leaving the material in place and applying the specified deduction, if the specifications allow. The contractor's written request, along with documentation for reasons for leaving the material in place and the contractor's actions, is sufficient for the contract records. A CCO accepting out-of-specification material is not required in this case because the specifications provide the procedure for acceptance.

The CQC Plan and construction management Quality Assurance Plan (QAP) must include that the resident engineer is informed promptly of test results that indicate unacceptable or borderline work. The test results must remain in the project files for ready accessibility.

When fraudulent tests or inspection reports are suspected, discuss the situation with the SANDAG construction manager. Contact an independent qualified materials and testing lab for assistance in evaluating the reports. Retest the material represented by suspect tests, as appropriate. If after investigating, fraud is still suspected, the SANDAG principal construction engineer provides the facts in writing to the SANDAG director of MMPI.

3-8.10 Testing by Contractor

The contractor must be satisfied at all times that the quality of materials entering the work and the work performed, regardless of who supplies the materials or performs the work, will meet the contract requirements. For acceptance of materials or work, resident engineers shall not exclusively rely upon any tests the contractor performs to control the work. Perform and record acceptance tests as required by the [Quality Control Objectives and Responsibilities](#) section in [Chapter 4](#) of this manual. All the elements of this section must be included in the CQC Plan. The resident engineer must verify these elements are included prior to approving the plan.

3-9 LEGAL RELATIONS AND RESPONSIBILITY

3-9.1 Laws to be Observed

According to the specifications, the contractor must be familiar with and comply with all laws, regulations, and ordinances that affect the labor, materials, or conduct of the work. However, the specifications do not intend or require that the resident engineer exercise police enforcement power. If the engineer learns that the contractor has violated a work-related law or regulation, the engineer must bring the matter to the contractor's attention in writing.

3-9.1.A Reporting Apparent Attempts at Fraud on Construction Contracts

Resident engineers are confronted occasionally with situations where contractors or their subcontractors or suppliers attempt to obtain improper additional payment.

These matters may differ in magnitude and intent, and minor situations may be resolved satisfactorily at the project level. However, certain fraudulent acts, such as presenting false weight certificates, padding the number of loads of a commodity delivered, tampering with scales, or falsifying test or inspection reports, may require special investigation and appropriate action. Such investigations are confidential and begin with a discussion between the resident engineer and the SANDAG construction manager. To request a special investigation, write a memo to the SANDAG principal construction engineer.

3-9.1.B Labor Code Requirement and Fair Labor Standards Act

For the resident engineer's duties with regard to Labor Code requirements and the Fair Labor Standards Act, see the Employment Practices chapter of this manual.

3-9.1.C Contractor's Licensing Laws

According to the specifications, all contractors and bidders must be licensed at the time of award. For bidders and prime contractors, the SANDAG contracts division verifies compliance with the specifications at the time of award. If you become aware that a prime contractor or subcontractor is not licensed for the work being performed, notify the California Contractors State License Board after consulting with the SANDAG construction manager. See the Employment Practices chapter of this manual.

3-9.1.D Vehicle Code

In any areas open to public traffic within the project's limits, the contractor is not exempt from Vehicle Code requirements. Equipment that fails to comply with the Vehicle Code must not be operated on detours or any other roadway open to public traffic.

3-9.1.D.1 Weight Limitations

Except for special conditions described in the Load Limitations section of the Special Provisions, all equipment hauling materials over roads or streets open to public traffic to, from, or within the project must comply with weight limitations required by the Vehicle Code. To enforce weight limitations for overloads hauled over public roads and streets, follow the procedure outlined below. The permitted tolerance described below is selected to make SANDAG actions compatible with routine enforcement procedures used by the California Highway Patrol (CHP). Here is the procedure to follow:

- The assistant resident engineer receiving a weight slip indicating an overload may accept a load that is not more than 90 kilograms (kg) over the legal gross weight. However, advise the contractor immediately that if the violation continues, SANDAG will refuse to accept such loads and will notify the applicable enforcement agency, local agency, or CHP.
- When a weight slip indicates that a load is more than 90 kg over the legal gross weight, reject the load and notify the local enforcement agency or CHP that overloads are being hauled.
- Prohibit rejected material from being used in the work unless the load is reduced to or below the legal maximum weight (not including the tolerance) and is again weighed to establish a new weight.
- Record the identification of rejected weight slips in the daily report.

The objective of the above procedure is to discourage hauling overloads. Minor variations in the above procedure are acceptable provided the objective is met.

3-9.1.E Trench Safety

The Caltrans Trenching and Shoring Manual provides technical guidance for analyzing designs of trenching and shoring systems. It also contains information regarding California's legal requirements for trench safety. AREMA Manual, Part 28, Temporary Structures for Construction, provides technical guidance for analyzing designs of trenching and shoring systems near a railroad. Both are good resources for the resident engineer to reference when reviewing trenching submittals by the contractor.

3-9.1.F Falsework Erection or Removal

Detailed instructions for reviewing falsework for bridges or other major structures are contained in the Caltrans Office of Structure Construction's Falsework Manual. When the erection or dismantling of falsework is over or adjacent to a traveled way, project personnel must do the following:

- Before the erection or removal of falsework, determine the exact method of operation the contractor proposes to use.
- If any possibility exists that a material or equipment failure or human error could endanger the public, ensure traffic is rerouted or temporarily stopped during critical portions of the erection and removal operations.

Normally, the contract will provide necessary detours or other restrictions, such as the time of day when certain operations may be performed. In the absence of specific contract requirements, require the contractor to take the necessary measures in accordance with the Public Safety section of the Special Provisions.

3-9.1.G Air Pollution Control

See the [Air Pollution Control](#) section in [Chapter 6](#) of this manual.

3-9.1.H Water Pollution and SANDAG Storm Water Specifications

See the [Water Pollution Control](#) section in [Chapter 6](#) of this manual.

3-9.1.I Use of Pesticides

The resident engineer's duties include ensuring the contractor complies with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations, and other agencies that govern the use of pesticides.

3-9.1.J Sound Control Requirements

See the [Noise Control](#) section in [Chapter 6](#) of this manual.

3-9.2 Load Limitations

The Load Limitations section of the Special Provisions permits overloads within the project limits under certain conditions. The special provisions also may provide conditions under which the contractor may haul overloads. However, the contractor must provide any necessary protective measures and repair any damage resulting from overloads.

3-9.3 Safety and Health Provisions

The contractor must conform to all Division of Occupational Safety and Health standards and policies and regulations of Affiliated Agency or Property Owners operating Light Rail Transit and freight trains. See [Chapter 2](#) of this manual for guidelines for administering the contract's safety requirements.

3-9.4 Contractor's Safety Plan

The resident engineer will ensure the contractor submits their proposed Safety Representative's résumé within five days of execution of contract and two copies of the contractor's safety program with seven days of Notice to Proceed (NTP). The resident engineer will review and ensure the Safety Program contains all the elements outlined in the Special Provisions. The resident engineer will ensure the contractor is following his safety plan during construction and conduct safety reviews to verify on an ongoing basis.

3-9.5 Public Convenience

The following five sections provide guidelines for enforcing the provisions in the Public Convenience section of the Special Provisions and contain discussion of other topics related to the passage of public traffic through construction projects.

3-9.5.A Convenience of the Public and Public Traffic Including Rail Traffic

The contractor has a contractual obligation to provide for the convenience of the public and public traffic including rail traffic. The Public Convenience section of the Special Provisions requires that operations be conducted in such a way as to prevent the least possible obstruction and inconvenience to the public and railroad operations. The public consists of anyone passing through or affected by construction operations, including pedestrians and residents, as well as vehicular and rail traffic.

The resident engineer must ensure the contractor has made adequate provisions for public convenience when the specifications leave the manner of providing for convenience to the contractor's discretion. The resident engineer also must ensure the contractor does not unnecessarily delay or interfere with traffic for the contractor's own benefit or convenience.

The "least possible obstruction and inconvenience" will always depend on judgment. What is permissible should be that which is accepted as good practice in the industry, complies with the specifications, and does not materially diminish the degree of convenience and free passage through the area that existed before construction. For instance, do not accept a trench that lies adjacent to a traffic lane for the entire length of the project and that was excavated just to suit the contractor's convenience. A length of trench sufficient to accommodate an orderly and workmanlike progression of operations is reasonable. Likewise, it is physically impossible to carry on a series of operations between an existing roadway and adjoining properties that have access to the roadway without temporarily disrupting the access. However, whether permanent or temporary, restore the access as soon as possible without waiting for the work to be completed past all the adjacent access points.

The intent of the Public Convenience section of the Special Provisions is to ensure public convenience, not a minimum construction cost. Frequently, the contractor can achieve both through careful planning and skillful operation.

3-9.5.B Contingency Plans for Roadway or Railroad Facility

The special provisions for contracts that allow lane closures or railway shutdowns require the contractor to prepare a contingency plan for reopening. The contractor's contingency plan must include two elements:

1. A critical path analysis of the operation. This analysis must include a detailed review of each segment of the operation, including placing and removing traffic control.
2. Actions to be taken if the operation is not proceeding as planned and needs to be terminated early. Early termination can consist of either stopping the contractor's operation so that lanes can be reopened within the specified time limits or stopping the contractor's operation to reopen the lanes before the time specified for reopening.

When an operation is terminated before the time the specifications allow because of circumstances beyond the contractor's control, consider granting time, compensation, or both, within the terms of the contract. If the operation is terminated before completion of the planned work because of circumstances within the contractor's control or because of equipment breakdown, do not allow compensation and charge a working day as appropriate.

3-9.5.C Maintenance and Improvement of Passageway through Construction

Normally, paved detours will be provided for the passage of public traffic during construction. On low-volume roads where the cost of detour construction is unreasonably high, the contract may provide for traffic to pass through the work during the grading and structural section operations. The [Public Convenience](#) section in this chapter specifies the responsibility of the contractor for providing reasonably smooth and even surfaces for passage of public traffic through the work. This section also specifies the SANDAG responsibility for paying for the cost of maintaining the surface that would carry public traffic. Any ordered construction to provide improved conditions for the convenience of the traveling public is considered to be detour construction and is paid for as provided in the Detours section of the Special Provisions. Also, any ordered construction or improvement of facilities required for pedestrians or the resident public, not otherwise provided for in the contract, is to be paid for in a like manner.

3-9.5.D Relief from Responsibility for Damage by Public Traffic

Only in some cases will SANDAG pay to repair damage to completed permanent facilities caused by public traffic. The Public Convenience section of the Special Provisions covers such exceptions. Completed permanent facilities are any features constructed by the contractor that will become a permanent part of the project. SANDAG will not pay for damage to temporary facilities, such as falsework and forms.

The facility need not be 100 percent complete for the contractor to be compensated, but it must be functional. SANDAG must not pay for damage from public traffic to facilities that are not considered functional yet. For instance, guardrail posts, guide marker posts, or a bridge still supported by falsework would not be considered functional. However, for a concrete barrier that only requires a specified light abrasive blast finish, SANDAG may pay for damage caused by public traffic because the barrier is functional.

The specification for relieving the contractor of responsibility for damage to completed permanent facilities only applies when a section of surfacing or the deck of a structure has been completed and opened to public traffic. Such relief is also dependent on the resident engineer's written order.

Here are some guidelines for administering the specification:

- Whenever the resident engineer orders the pavement or deck of a structure opened to public traffic, the contractor is relieved of responsibility for damage to the completed permanent facilities caused by public traffic. The contractor will be relieved of responsibility whether the opening to public traffic occurs before the scheduled opening time, occurs as the natural sequence of events, or occurs as the result of a contract specification. The contractor will be relieved of responsibility for damage to completed permanent facilities caused by public traffic whether traffic is placed on new alignment not previously used by traffic or new resurfacing opened after daily closures. Compensation for damage caused by public traffic is appropriate if the completed surfacing consists of an asphalt concrete base or leveling course.
- If the contractor requests an opening ahead of the normal schedule, the following applies:

1. When the opening does not conform to the specified order of work, it must be covered by a contract change order approved by SANDAG, in accordance with [Contract Change Orders](#) section in [Chapter 5](#) of this manual. If SANDAG will not compensate the contractor for damage to completed permanent facilities, the CCO must state this fact.
 2. When the opening does not conform to the specified order of work, the resident engineer will normally base approval or disapproval of the CCO on an evaluation of the benefit to public traffic. If the benefit is substantial, it is appropriate to approve the CCO and compensation in accordance with the Public Convenience section of the Special Provisions. If measurable benefits accrue to the contractor, ensure the CCO provides a credit to SANDAG.
 3. If the benefits to public traffic are borderline or negligible, it is appropriate to approve the CCO under the condition that the contractor be responsible for damage caused by public traffic. The contractor must acknowledge the condition in writing. Again, if measurable benefits accrue to the contractor, include a credit to SANDAG in the CCO.
 4. If good reason exists for doing so, the resident engineer can refuse to approve a proposed opening.
- Except as provided for in the Relief from Maintenance and Responsibility section of the Special Provisions, SANDAG will not relieve the contractor from responsibility for damage to completed permanent facilities if the contractor never does the following:
 1. Moves public traffic from the existing traveled way
 2. Places public traffic on new pavement
 - When the contractor temporarily routes public traffic closer to the facilities than the traffic will be after completion of the work, the contractor will be relieved of responsibility for damage to the completed permanent facilities caused by public traffic. For example, SANDAG will relieve the contractor of responsibility if damage occurs to a completed guardrail at the edge of the shoulder when public traffic temporarily is placed on the shoulder to facilitate construction.

3-9.5.E Maintenance within Construction Limits

Existing rights-of-way (ROWs) that currently are maintained by an owner–operator must almost always continue to be maintained by the owner–operator. A clear understanding must exist between the maintenance area supervisor or area superintendent and the resident engineer about which portions of the facility will continue to be maintained during the project’s construction. The resident engineer should consult with the SANDAG construction manager to determine the best solution on a case-by-case basis.

3-9.6 Public Safety

The contract must bear all expenses associated with those devices primarily intended to protect traffic from hazards arising because of the contractor’s operations. Typical items classified as public safety devices include barricades, signs, and lights placed to guard the public against damage. The contractor must protect traffic from falling rocks, falling trees, collision with equipment (whether idle or in operation), open trenches, and other excavations.

Some of the factors affecting public safety include the disposition, placement, movements, and actions of workers and equipment and the placement and handling of materials.

Under the specifications, the engineer can point out the contractor's failure to carry out any of the specification requirements. The specifications do not relieve the contractor of the cost of protecting the public simply because the engineer has or has not called attention to an unsafe situation.

3-9.6.A Clearance and Bridge Permit Rating Changes

The following guidelines apply to situations where temporary changes exist in vertical or horizontal clearance for vehicular or rail traffic or where temporary changes exist in bridge permit ratings. For bridges within the Caltrans ROW the resident engineer is to follow the Caltrans Construction Manual. For railroad or bridges owned by local agencies, the resident engineer is to follow the applicable agency guidelines, including the FRA and CPUC General Order Requirements.

The following guidelines apply to situations where permanent changes exist in vertical or horizontal clearance for vehicular or rail traffic or where permanent changes exist in bridge permit ratings. For bridges within the Caltrans ROW the resident engineer is to follow the Caltrans Construction Manual. For railroad or bridges owned by local agencies, the resident engineer is to follow the applicable agency guidelines.

3-9.6.B Use of Explosives

The resident engineer should notify the owner-operator of the facility well in advance of any use of explosives. Specifically, when blasting within 200 feet of railroad tracks or structures, notice is to be provided, including location, date, time, and approximate duration. This information is to be shared with the construction engineer, PM, and public relations representative from SANDAG.

3-9.7 Preservation of Property

The contract makes the contractor responsible for the preservation of all property involved in the project, including what is not in sight. The engineer must be diligent in determining and pointing out the existence of such property that SANDAG has knowledge of, especially that which is not in sight. For information about locating and protecting underground utilities, see the [Utility and Non-Highway Facilities](#) section of this chapter.

The plans and specifications may require that certain trees, shrubs, and other vegetation be preserved. Ensure that the contractor is aware of all plant life to be saved.

Also, ensure that the contractor does all that is required under the contract to protect and preserve property. However, the contractor's responsibility includes only what is necessary to protect against damage by the construction activity. If any permanent protection is ordered, such as rubble tree wells in the planned slope, pay for this work as you would for any other ordered additional work.

3-9.8 Indemnification and Insurance

The contractor's obligation for insurance is contained in various sections of the Special Provisions, beginning with "Insurance Policies," which stipulates the type of insurance documents required; "Execution of Contract," which requires contractors to submit those insurance documents at the time the contract is executed; and "Indemnification and Insurance," which states the contractor's responsibility to indemnify SANDAG and to carry liability insurance without allowing it to lapse.

Per [SANDAG Board Policy No. 015, Records Management](#), Section 4, "The project manager(s) for a project and Contracts and Procurement personnel shall maintain centralized files for each project or procurement... including certificates of insurance. "Files should not contain records that are not needed for future use or reference such as preliminary drafts, working papers, or notes that have been superseded and are 60 days old, or 'housekeeping' memoranda or email."

Per [Board Policy No. 024](#), Section 2.1.4, "SANDAG contractors shall be required to provide Workers' Compensation Insurance to their employees in accordance with the provisions of Section 3700 of the Labor Code. Prior to commencement of work, the contractor shall sign and file with SANDAG a certification of compliance."

Note that SANDAG uses a third-party electronic database where contractors will be notified when any of their insurance policies need renewal (current vendor as of July 2018 is named MyCOI). This electronic process will assist the construction manager and resident engineer in monitoring and maintaining updated insurance documents. Should the resident engineer have any questions on contractor's insurance, the SANDAG contracts and procurement analyst for the project must be contacted.

The resident engineer nor anyone from the construction management team has the ability to waive any insurance requirements of the contract. All insurances must be maintained as per the contract, for the duration of the contract. If a request for insurance waiver is received, submit to the SANDAG construction manager to discuss for the SANDAG decision.

3-9.9 Title VI Compliance

Employment practices are outlined in the Title VI and Non-Discrimination Law Compliance section of the Special Provisions, [Board Policy No. 024](#) (Section 2.1), and [Chapter 7](#) of this manual.

Per [Board Policy No. 024](#), "the contractor shall comply with the EEO requirements set forth by Title VI of the 1964 Civil Rights Act on any project where federal funds are included."

The SANDAG Special Provisions outline that the contractor must comply with the nondiscrimination policies within. The contractor must not discriminate against subcontractor including material procurement and equipment lease. All books, records, accounts, etc. pertaining to this compliance will be provided to the recipient or FTA as appropriate. The recipient may withhold payment or suspend or terminate the contract as appropriate in the event of noncompliance. The resident engineer will verify that the contractor is in compliance with these requirements and notify the SANDAG principal construction engineer if the contractor appears to be violating Title VI requirements.

3-9.10 Standard Equal Employment Opportunity Requirements

Employment practices are outlined in the Special Provisions Standard Equal Opportunity Employment Requirements section, [Board Policy No. 007](#), [SANDAG Board Policy No. 017](#), [Delegation of Authority](#), and [Board Policy No. 024](#) (Section 2.1), Procurement Manual, (Section 038), SANDAG Labor Compliance Manual, and [Chapter 7](#) of this manual.

SANDAG requires all projects utilizing federal funds certify compliance with the Equal Employment Opportunity federal requirements of Title VII of the Civil Rights Act of 1964, as amended, and any implementing requirements FTA may issue. Further, this requirement must be extended to SANDAG contractors who have more than 50 employees. [Board Policy No. 017](#) governs and ensures that SANDAG complies with the requirements for equal employment to receive FTA funding.

Together, the director of Administration, Contracts and Procurement Division, PMs, director of MMPI with the assistance of the SANDAG principal construction engineer are responsible for monitoring and ensuring all projects implement the EEO program. The Small Business Development Division and Contracts and Procurement Division shall ensure fair and full utilization of Disadvantaged Business Enterprises (DBEs) in the procurement of contracts for all project phases. The Small Business Development Division is responsible for monitoring data about DBE/Underutilized DBE and non-DBE contractors/subcontractors. SANDAG PMs are responsible for contractor and construction management consultant contracts and implementing DBE requirements by including DBE clauses in task orders for contractors and construction management consultant during the procurement process. SANDAG principal construction engineer shall ensure that all consultants and contractors are in compliance with DBE clauses stated in the task orders for their subconsultants.

Per [Board Policy No. 007](#), contractors and consultants are required to have EEO policies in place forbidding discrimination. All SANDAG requests for proposals, requests for qualifications, and invitations for bids will contain language encouraging participation by DBE consultants, contractors, and subcontractors. Consultants and contractors awarded contracts with DBE Program goals will be required to submit Employment Utilization Reports with their invoices and/or a DBE Final Utilization Report with their final invoice. All successful consultants and contractors will be notified of their obligations under the EEO Program in their contracts with SANDAG.

Per [Board Policy No. 024](#), “the contractor shall comply with the EEO requirements set forth by Title VI of the 1964 Civil Rights Act on any project where Federal funds are included.” The resident engineer must verify compliance of this provision.

The SANDAG Special Provisions outline that the contractor must not discriminate against minorities or female employees/applicants including any subcontracts. The contractor must document all affirmative actions with the contractor designated official. All records provided by contractor will be evaluated by the resident engineer. The goal for minority participation in each trade is 16.9 percent and for 6.9 percent for female participation regardless of whether the work is or isn’t federally assisted (note: this goal is not to be confused with a DBE commitment on a project). Within ten days of award, the contractor must notify the director of the Office of Federal Contract Compliance Programs in writing of subcontracts exceeding \$10,000. Any violation may result in suspension, termination, or cancellation of contract or subcontracts. The resident engineer will verify the contractor is in compliance with these requirements and notify the SANDAG construction manager of any potential violations.

3-9.11 Assurances and Contractors Obligations

Employment practices are outlined in section 7-2.3 of the Special Provisions, [Board Policy No. 024](#) (Section 2.1), and [Chapter 7](#) of this manual.

The SANDAG Special Provisions again require that the contractor or subcontractor not discriminate and follow the requirements of 49 CFR Part 26 for U.S. Department of Transportation (U.S. DOT)–assisted contracts. Failure to meet this provision may result in termination of contract. Subcontractors must perform the work and supply of materials for which they are listed in the Bidder DBE Information and Designation of Subcontractors form. Contractor shall submit, for each DBE identified after contract execution, a written confirmation from the DBE acknowledging that it is participating in the Contract for a specified value, including the corresponding scope of work. The contractor is responsible for verifying and monitoring the eligibility certification status of its DBE subcontractors and suppliers during the term of the Contract. The resident engineer will verify the contractor is in compliance with these requirements and notify the SANDAG construction manager of any potential violations. Any violation may result in termination of contract as deemed by SANDAG.

3-9.12 Buy America

Buy America Provisions are outlined in Section 7-2.09 of the Special Provisions. Section 165 of the Federal Surface Transportation Act of 1982 set forth the Buy America requirements. FTA has implemented this policy under Section 165 (49 CFR 661). Final assembly for rolling stock also must occur in the United States. Additionally, rolling stock procurements are subject to the pre-award and post-delivery Buy America audit provisions set forth in 49 U.S.C. § 5323(m) and 49 CFR part 663. Section 3.2.15 of the FTA Best Practices Procurement Manual further defines the requirements of what is considered Buy America on steel, iron, manufactured products, construction contracts, and rolling stock.

FTA-funded projects require any iron, steel, or manufactured product to be produced in the United States, with few exceptions. Per the FTA Best Practices Procurement Manual, if the violation is discovered after award, the contractor remains responsible for performing the contract, including satisfying the Buy America requirements. A typical resolution is to permit the contractor to substitute a different product that meets the specifications including the Buy America requirement at the contractor's expense. In rare instances, FTA may approve a public interest waiver allowing the noncompliant product to be used.

Spending authorized under FRA-Passenger Rail Investment and Improvement Act (PRIIA) is subject to the Buy America provision of 49 USC § 24405(a) in which steel, iron, and manufactured goods used in the project must be produced in the United States. Amtrak also is required to adhere to a domestic spending preference. Either 49 USC § 24305 or 49 USC § 24405 may apply to Amtrak projects, depending on the source of funds. 49 U.S. C. §24405(a) applies when Amtrak is operating under a grant or performing a contract for another grantee applying 49 U.S.C. §24405(a). However, 49 U.S.C. § 24305(f) applies when Amtrak is spending from its own capital grant. The resident engineer will verify the contractor is in compliance with these requirements and notify the SANDAG construction manager of any potential violations.

FHWA-funded projects fall under the ruling of 23 U.S.C. § 313 and 23 CFR 635.410, which, similar to FTA, also dictates Buy America compliance on steel, iron, and steel or iron components of manufactured products on a project. The FHWA's 1983 final Buy America regulations waive the application of Buy America to manufactured products that do not include steel and iron components.

The resident engineer will verify the contractor is in compliance with these requirements through formal written surveillances of the contractor's material receiving reports, certified material test reports, Buy America Affidavits, etc., and notify the SANDAG construction manager of any potential violations.

3-9.13 Cargo Preference – Use of U.S. Flag Vessels

Contractor requirements are outlined in Section 7-2.10 of the Special Provisions, 46 CFR Part 381, and 46 U.S.C. Section 55305.

3-9.14 Debarred Bidders

The debarred bidders process is outlined in Section 7.2.11 of the Special Provisions, [Board Policy No. 016](#), and [Board Policy No. 024](#).

[Board Policy No. 016](#) discusses the provisions for consultants, while [Board Policy No. 024](#) discusses the provisions for contractors.

3-9.15 Audit and Inspection of Records

Audit and inspection of records procedure is outlined in sections 7-2.12, 8-1.11, 9-1.5.C, and 9-1.10.B of the Special Provisions requiring the contractor to retain records for at least three years after final closeout.

3-9.16 Access Requirements for Persons with Disabilities

Access requirements for persons with disabilities are outlined in Section 7-2.15 of the Special Provisions. The Special Provisions require SANDAG (resident engineer) to inform the contractor of all disabled regulations.

SANDAG and its contractors must comply with all applicable requirements of the Americans with Disabilities Act of 1990, as amended; the Rehabilitation Act of 1973 Section 504, as amended; the FTA Section 16, as amended, and the following regulations and amendments thereto:

- U.S. DOT regulation, Transportation Services for Individuals with Disabilities, 49 CFR 37
- U.S. DOT regulation, Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance, 49 CFR 27
- U.S. DOT regulation, Americans with Disabilities Accessibility Specifications for Transportation Vehicles, 49 CFR 38
- Department of Justice regulation, Nondiscrimination on the Basis of Disability in State and Local Government Services, 28 CFR 35
- U.S. DOT regulation, Nondiscrimination on the Basis of Disability Public Accommodations and in Commercial Facilities, 28 CFR 36
- General Service Administration regulation, Accommodations for the Physically Handicapped, " 41 CFR Subpart 101-19
- EEO Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act, 29 CFR 1630
- Federal Communications Commission regulation, Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled, 47 CFR 64.F
- FTA regulation, Transportation for Elderly and Handicapped Persons, 49 CFR 609. 0

3-9.17 Disadvantage Business Enterprises Race – Neutral Participation and Contractor’s Race-Neutral Disadvantaged Business Enterprise Reporting Requirements (Post-Award)

Employment practices are outlined in the Audit and Inspection of Records, DBE, and Contractor’s DBE Reporting Requirements (Post-Award) sections of the Special Provisions and Section 2 of [Board Policy No. 024](#), Section 038 of the Procurement Manual, SANDAG DISCO Program Manual, and the [Disadvantaged Business Enterprise](#) section in [Chapter 7](#) of this manual.

SANDAG (resident engineer) will monitor Purchase Orders and contracts on an ongoing basis to assure compliance with the applicable DBE program(s).

3-9.18 Retention for Suits or Claims for Damages

Retention for Suits or Claims for Damages are outlined in the Retention for Suits or Claims for Damages section of the Special Provisions.

SANDAG (resident engineer) may retain money due to the contractor until suit disposition has been made but must give the contractor 30 days’ notice. SANDAG also may retain at any time money sufficient to cover claims per Section 9000 et seq. of the Civil Code.

3-9.19 Disposal of Material Outside the Railway or Highway Right-of-Way

When required to execute documents related to disposal sites, the contractor should use agreements similar to those shown earlier in this section for material sites, with the wording modified to indicate disposal sites instead.

Do not allow the contractor to dispose of material outside the ROW until the contractor has met all the requirements in the Disposal of Material outside the Railway or Highway Right-of-Way section of the Special Provisions. When these requirements have been met, give the contractor written permission for disposal sites not covered by an agreement between the property owner and SANDAG.

When disposal of material on a property outside the highway ROW is not covered by an agreement between the property owner and SANDAG, request the contractor to provide an Agreement for the Authorization between a contractor working on SANDAG project facilities and a real property owner for the placement of construction related material for approval by SANDAG Office of General Counsel.

After the contractor and property owner complete an agreement and obtain all necessary permits, licenses, and environmental clearances, the contractor must submit the signed agreement to you for approval. Provide written approval to the contractor for the disposal of the material after review and verification of the adequacy of the contractor's agreement, necessary permits, licenses, and environmental clearances submitted.

The agreement between the contractor and the property owner regarding disposal of material outside of the ROW is not required for the disposal of waste material to a commercial landfill or treatment facility. To verify the permit status of the landfill or treatment facility, access the California Water Resources Control Board or Department of Toxic Substances Control websites: waterboards.ca.gov/water_issues/programs/#permit and dtsc.ca.gov/HazardousWaste/.

Alternatively, contact the facility to obtain a copy of the facility's permit.

Approval of the disposal of materials outside the highway or railroad ROW guards against disposal that would harm the trackway or the highway or cause environmental damage, disposal site damage, or unsightliness.

3-9.20 Relief from Maintenance and Responsibility

When the contractor considers that all of the work, or any designated portion of the work (as described in Relief of Maintenance & Responsibility section of the Special Provisions) has reached final completion, the contractor may request relief from maintenance in writing to the resident engineer.

For completed roadways or railways, the specified length of 0.3 miles is the minimum practical length of completed main roadway or railway upon which a recommendation can be made for relief from maintenance and responsibility. However, shorter units of completed work, such as on-ramps, off-ramps, frontage roads, or approaches to undercrossings and overcrossings, also may be eligible for relief from maintenance and responsibility. Do not recommend relief from maintenance and responsibility on 0.3-mile sections containing exceptions within that length unless you provide a valid reason presented with and supporting the recommendation.

Exceptions, if any, must be defined by longitudinal sections of highway or railway or certain specified areas. For example, it is unacceptable to recommend relief from maintenance for a total project except for the inlet ditch to the right of stations 20 to 25. It is acceptable to recommend relief for the total project except for stations 15 to 27 (the section of highway or railway that could be affected by the uncompleted ditch to the right of stations 20 to 25).

The following describes what constitutes a bridge or other structure of major importance:

- For purposes of relief from maintenance and responsibility, a bridge is as defined in Definitions and Terms section of the Special Provisions. A structure will be considered a bridge if it is so identified in the plans or other portions of the contract.
- Other structures that are to be considered of major importance are culverts in excess of 6.5 feet diameter or of approximate equivalent area.
- A facility not meeting the above criteria will be considered of major importance only if its final cost exceeds 5 percent of the original total bid for contract items (including mobilization).

Projects with noncontiguous locations may be accepted location by location provided the work at each requested location is completed in all aspects. Noncontiguous areas of work outside of the ROW on major projects also may be accepted, provided that the procedures outlined in the [Work for Owner–Operator](#) section of this chapter have been followed.

Relief from maintenance and responsibility relieves the contractor of responsibility for repair of damage from the elements. Before recommending any request for relief from maintenance and responsibility, determine that the requested work will not be damaged as a result of incomplete adjoining work. For instance, a roadway or railway section may be complete while an upstream culvert remains incomplete. Water flowing past the uncompleted culvert may damage a portion of the requested roadway or railway section.

Before recommending relief from maintenance and responsibility, analyze each situation critically to determine if it qualifies in all respects. The project’s proper completion must not be jeopardized by indiscriminate recommendations for relief from maintenance and responsibility. Once the contractor is relieved from maintaining and protecting a portion of the work, the contractor cannot be required to do more work on it except by agreement or to remedy defective work or materials.

If you have any doubts about the requested area’s eligibility, deny the contractor’s request for relief from maintenance and responsibility. Inform the contractor in writing so no doubt exists as to the status of the contractor’s request and the nature of uncompleted work. The Special Provisions clearly state that the portion of work must be complete in all respects before it becomes eligible for relief from maintenance and responsibility.

For landscape projects, a special provision usually is included to allow the granting of relief from maintenance and responsibility for items not directly connected with plant establishment work or highway planting and irrigation systems. Under the Special Provision, relief from maintenance and responsibility could be granted for typical items of work, such as asphalt concrete placed as island paving or sidewalks and seal coats placed on islands, curbs, and fences. In many cases, these items would not have a direct bearing on the success or failure of plant establishment, and it is unreasonable to require the contractor to maintain these items.

However, to be consistent with the policy for non-landscape contracts, this type of relief from maintenance and responsibility will not be granted item by item, but only for an entire group of items. Any item that protects the planting or is involved in plant establishment should not be submitted for relief from maintenance and responsibility. Items typical of this category include planter boxes, sprinkler systems, header boards, or mesh.

Relief from maintenance and responsibility denotes recognition of completed work. Therefore, any recommendations for this action on work for other public agencies or owners also require their concurrence. Before recommending relief from maintenance and responsibility on such portions of the work, complete the procedures outlined in the [Work for Owner–Operator section](#) of this chapter. In the communication recommending relief, include a statement that the agency authorities concur, or in the absence of such concurrence, include a justification for relief. The resident engineer will draft the memo and letter and send it to the engineering project coordinator to finalize and get SANDAG approvals.

[Board Policy No. 024](#) denotes that the Executive Director is delegated authority to grant relief from maintenance in writing to the contractor and is to report such actions on contracts over \$25,000 to the Board. The report to the Board is prepared by the engineering project coordinator, so it's imperative that the resident engineer work with that person so that all actions are captured and reported. SANDAG Supplemental Policies further delegate the authority for this action to the director of MMPI.

3-9.21 Acceptance of Contract

Per [Board Policy No. 024](#), SANDAG will, upon written application by the contractor, accept the entire work on major construction contracts, provided that the work has been completed, in all respects, in accordance with the contract plans and specifications.

The SANDAG Executive Director has delegated the authority to accept such work on behalf of the Board to the director of MMPI and shall report to the Board all acceptances over \$25,000.

In determining whether to accept the entire work on major construction projects, these procedures should be followed:

1. The contractor shall request acceptance in writing.
2. Concurrence with the request by the SANDAG resident engineer shall be in writing to the Executive Director and include these findings: (1) that the contract has been completed in accordance with the plans and specifications; (2) a statement as to the financial condition of the contract; and (3) a statement as to whether the contract was completed on time or with an apparent overrun.
3. Should the SANDAG Executive Director shall accept the action, they shall report the findings to the Board.

3-9.21.A Third-Party Involvement

The resident engineer will coordinate, as required and appropriate, with the third parties (utilities, railroads, cities, etc.) as applicable for inspection and acceptance of the project or portion thereof. SANDAG–NCTD Master MOU and SANDAG–NCTD MOU Addendum 18 outline the procedures to be followed for relief and acceptance activities with NCTD and MTS including the responsibility for as-builts, warranties, spare materials/parts, other operators, and inspection. Upon acceptance, third parties will accept control and maintenance of those portions of the project lying within its right-of-way but will not relieve the contractor of defective work per the Relief of Maintenance and Responsibility section of the Special Provisions.

Per [SANDAG Board Policy No. 022, Utility Agreements and Relocation](#), utility companies are responsible for acceptance of that portion if it was agreed a SANDAG contractor would perform such work.

The resident engineer will coordinate all third-party inspections for final acceptance of the work and associated punch lists, sign-off documents, meetings, and inspections required. Items on any punch list developed that involve a third party will require sign-off of that punch list item by an authorized representative of the third party.

3-9.21.B Contractor Responsibilities

The contract documents stipulate that when all of the work, or any designated portion of the work covered under the Contract, has reached final completion, the contractor shall inform the resident engineer in writing. This will initiate the acceptance procedures for all or a portion of the work. It is at this time that the contractor's quality control (QC) organization should have a preliminary punch list developed of items that are deficient or incomplete. That contractor QC list of work requiring correction should be provided to the resident engineer for inclusion in the overall punch list issued by the resident engineer on behalf of SANDAG. The contractor also will be invited and will be present during any future punch list inspections arranged by the resident engineer.

3-9.21.C Resident Engineer Responsibilities

The resident engineer will promptly perform any testing, inspections, prepare punch lists, or other tasks required to recommend to SANDAG acceptance of the work. The contract documents stipulate that acceptance shall be final and conclusive except for latent defects, fraud, or such gross mistakes as may amount to fraud or with regard to the SANDAG rights under the warranty provisions of the contract documents.

The resident engineer will perform the tasks required to recommend final inspection and acceptance of the work only after the contractor notifies the resident engineer in writing of such a request. Per the Quality Control section of the Special Provisions, the resident engineer will review all pertinent quality test and inspection records at the completion of the project and add these to the project files.

Prior to performing the inspection to assist in composing the punch list (refer to the [Punch List Development and Tracking](#) section in this chapter), the resident engineer should invite all third parties involved (cities, utilities, railroad, etc.), as well as the contractor's QC authorities, to participate in the inspection. After the inspections are completed, the resident engineer should secure the contractor's punch list, as well as any punch-list items or comments from the third parties, incorporate them into one punch list and distribute a master punch list to the contractor for correction with all other interested parties copied for information.

The contractor shall proceed immediately to correct or replace rejected, deficient, unsatisfactory, incomplete, or unacceptable work.

As the contractor's work progresses to complete any unfinished work or correct any deficient or noncompliant work noted in the punch lists, inspections will be jointly performed by the resident engineer, the contractor's QC authorities, and any applicable third party for agreement and sign-off, until all items have been corrected. Only at that time will the resident engineer consider work items on the punch lists to be completed and satisfactory for acceptance of the work. These inspections to confirm completion of punch list items may be initiated by the resident engineer, or at the request of the contractor.

The resident engineer shall develop a means for tracking completed work and documenting the condition of that completed work to assure the contractor protects the completed work until final closeout of the contract and final acceptance of the work by SANDAG releasing the contractor of responsibility. Unless the contract contemplates completion and acceptance of a designated portion of the project work prior to final acceptance, acceptance of the work typically is performed at the completion of all work for the project.

The resident engineer shall use their logging document to assist in tracking work which has been:

1. Completed by the contractor and pending the final acceptance process.
2. Completed by the contractor at the written request of SANDAG and completed the process of final inspection, punch-listing, and final acceptance for a portion of the work.

This acceptance process will require cooperation by the contractor, and the resident engineer shall communicate the importance of the procedure to both the contractor and SANDAG in preparing for final acceptance and closeout of the project.

3-9.21.D Early Acceptance of Work Completed

Unless directed by SANDAG, portions of work as completed will not be accepted as final until completion of all of the work for the project. However, the contract documents provide for acceptance by SANDAG of a portion of the project work if requested by the contractor, and SANDAG may request a portion of the work to be completed and retains the right to direct the contractor to complete a portion of the work at a time different than that specified in the contract or reflected in the currently approved progress schedule.

Such direction will be in writing. If such direction modifies the amount of compensation or time required for the completion of the Work, a change order will be issued. The following will apply if SANDAG accepts, pays for, takes title to, and occupies the portion of the work accepted:

1. The contractor will be relieved of maintenance responsibility for that portion of the work.
2. The contractor's warranty on that portion of the work will commence to the extent indicated in the partial acceptance documents.

SANDAG retains the right to direct the contractor to complete a portion of the work at a time different than that specified in the contract or reflected in the currently approved progress schedule, prior to final acceptance of all of the work. Such acceptance shall relieve the contractor of maintenance responsibility for that portion of the work and shall commence the contractor's warranty period on that portion of the work.

It should be noted that this situation, acceptance of a portion of the work, will occur only if the contractor has been notified/directed in writing and a CCO has been issued and approved by both SANDAG and the contractor. If this has not occurred, then all work will be accepted as a whole at the completion of all work on the project by the contractor.

The contractor may perform and complete a section of work in the course of constructing the project—a storm drain system, for example—but final acceptance will not be issued by SANDAG because all of the project work has not been completed.

In the case of incrementally completed work, the resident engineer shall inspect the work and document it in writing and with digital photographs/video to assure the work is completed in accordance with the plans, document the condition at the time of completion, report on whether it is generally acceptable, and note any deficiencies discovered during this inspection. That inspection is effectively a pre-acceptance/pre-punch list inspection of the work, which should be viewed as a tool to assist in the final punch list inspection and the final acceptance of the work and used to document the condition of the work at the time the contractor completed it.

Any incomplete work or deficiencies noted during this inspection should be delivered to the contractor in writing by a letter for incomplete work or by the issuance of a Non-Conformance Report for more serious deficient work issues.

All documentation for the inspection shall be filed to ensure it is available at the time of inspections conducted for the purpose of Final Acceptance. The work item status shall also be logged into the Work Pending Final Acceptance Log to allow for tracking of the work items completed and pending final acceptance, as well as for use during the monthly progress payment.

The contract documents require the contractor to protect completed portions of the work until final acceptance by SANDAG. SANDAG will determine, upon a recommendation from the resident engineer, and after its review of the project work, that all work is complete. The contract documents provide that the contractor shall take prompt action at its expense to remedy or repair any and all damage sustained to work that is partially or wholly complete and has not yet been accepted by SANDAG. Portions of the project work may be indicated to be completed in stages or phases and are placed into service for vehicular and rail traffic and pedestrians. The contractor will be relieved of responsibility for normal weathering and normal usage of features of work placed into service and used for vehicular and rail traffic and pedestrians.

3-9.21.E Punch List Development and Tracking

The resident engineer shall develop the punch lists for final acceptance of the work in cooperation with the contractor and any applicable third parties (cities, utilities, railroad, etc.). The punch list format shall be developed by the resident engineer in accordance with the requirements of these procedures and shall be approved for use by the SANDAG construction manager before implementation.

The resident engineer shall develop a process for tracking the progress of various individual punch lists and reporting the status of the punch list process to the SANDAG construction manager, as requested.

When entering an item into the punch list, the descriptor should be as descriptive as possible without being too lengthy. The description should provide both a location and a description of the deficiency and issue being noted. The description should allow the contractor to accurately locate the deficient or incomplete item of work without further assistance.

A punch list shall not contain any work items that are known by the resident engineer to be extra work items. Any work that is recognized during the punch list inspections as being extra work required for the resident engineer or a third party to recommend a “completed” status of the project shall first be issued to the contractor as a change directive or change order before it is included on a punch list. The resident engineer shall first obtain concurrence by SANDAG before issuance of any change directive or other direction to the contractor that could be interpreted as an order to proceed with additional work, during the final inspection and punch list phase of the project.

The resident engineer may distribute copies of the punch lists but shall always maintain the original copy with the signatures of all parties (resident engineer/contractor/third parties) for sign-off of the punch list items. The resident engineer also shall be responsible for tracking the punch list to completion until all items are verified as completed and acceptable by a sign-off signature.

A punch list item is not considered completed and signed-off until the work is completed by the contractor, or resolved by other means, and all parties (including third parties as applicable) who participated in the final inspections have signed off on that item as being acceptable. An item of work cannot be accepted by the resident engineer until the item is signed-off and accepted by all inspecting parties. Third-party utility, railroad, or property owners will only be required to sign off on items that will be owned and operated/maintained by the third party. There may be instances where the third party, particularly a city, has agreed in advance that SANDAG and its resident engineer is authorized to inspect and accept the work on its behalf. The resident engineer shall clarify the roles of any third parties prior to starting the punch list process by review of third-party agreements and discussion with the third parties, including, but not limited to, the SANDAG–NCTD Master MOU and SANDAG–NCTD MOU Addendum 18.

3-9.21.F Resident Engineer Recommendation for Final Acceptance of Work

When all punch-list work is completed, and all parties have signed off that the work is acceptable, the resident engineer shall inform the contractor of SANDAG’s acceptance of the work. The PM will inform the railroad of acceptance in writing per SANDAG–NCTD Master MOU and SANDAG–NCTD MOU Addendum 18.

The contract documents provide that after SANDAG has accepted the work, the contractor will be relieved of the duty of maintaining and protecting the accepted work and will not be required to perform any further work, and the contractor will be relieved of its responsibility for injury to persons, property, or damage to the work that occurs after formal acceptance by SANDAG. The contract documents stipulate that such final acceptance of the work shall not relieve the contractor from responsibility for errors, improper fabrication, nonconformance/noncompliance in regard to a contract requirement, latent defects, or for deficiencies within the contractor's control. All warranties begin with the date of final acceptance and must be submitted to third parties per applicable agreements.

Final acceptance of all of the work or the particular discrete portion deemed complete will occur after successful completion of all testing, corrections of deficiencies, sign-off of all punch list items by all applicable parties, and the resident engineer's determination that the work conforms in all respects to all of the requirements of the contract documents. The resident engineer shall inform the SANDAG construction manager of the completion of all of the items required to be completed under the terms of the contract documents, shall recommend to the SANDAG construction manager and construction engineer that the work should be accepted, and shall recommend the acceptance date providing the appropriate documents as outlined in [Board Policy No. 024](#), including the contractor's request for a letter of concurrence, financial status of contract, and a schedule evaluation.

The resident engineer shall prepare the contract acceptance memo addressed to the director of MMPI ([Appendix 3-2, Sample 1](#)) and draft the contract acceptance letter that goes to the contractor ([Appendix 3-2, Sample 2](#)). The resident engineer shall provide an electronic version (e.g., PDF) of the executed acceptance recommendation memo along with an electronic editable version (e.g., Word) of the draft acceptance letter to the SANDAG engineering project coordinator. The engineering project coordinator will then finalize the acceptance memo and letter, get applicable approvals, and process the letter to send. Once signed, the engineering project coordinator will send the original to the contractor via certified mail, with copies to the contracts file, the PM, resident engineer, and construction manager team for the construction files.

Please note that relief from maintenance and contract acceptance are Board-reportable actions and **must** be reported to the Board in a timely manner. To assist in this, it is important these documents get to the SANDAG engineering project coordinator so they can be tracked and promptly reported to the Board.

3-9.22 Rights in Land and Improvements

Generally, the contractor may use the defined limits of work for purposes that are reasonably necessary to perform the required work. The contractor has no right to make use of the property or to allow others to use it when such use is not reasonably necessary to perform the required work. For example, residency trailers must not be placed within the defined limits of work, although one trailer may be allowed for yard security purposes. Prohibit any use of a SANDAG-defined limit of work that conflicts with the above requirement. Discuss unusual or complicated situations with the SANDAG construction manager.

As stated in the Rights in Land and Improvements section of the Special Provisions, the contractor may enter into a rental agreement with the owner-operator of the facility to use property outside of the project limits.

3-9.22.A Non-operating Right-of-Way (Airspace)

Usable property under bridges or viaducts or other property that cannot be sold as excess, but can be leased, is classified as non-operating ROW (also known as "airspace"). When the use of an airspace parcel is not part of the contract and a contractor later requests such use, the contractor must negotiate a lease for the parcel with the owner-operator of the facility. All normal provisions requiring insurance and parcel protection will be enforced.

3-10 PROSECUTION AND PROGRESS

3-10.1 Subcontracting

Contractors can use subcontractors on their projects provided the subcontractor and the prime contractor comply with the applicable contract specifications and with state and federal laws and regulations.

When projects use subcontractors, the resident engineer must focus primarily on the following:

- Always knowing which subcontractors are working on the project.
- Ensuring that listed subcontractors have a valid public works contractor registration number before they begin work and maintain their registration through project duration.
- Verifying subcontractors are licensed.
- Of the contract amount, verifying that prime contractor performs at least 30 percent or the percentage allowed by the special provisions.
- Ensuring that listed subcontractors are not improperly removed or replaced.
- Verifying the prime contractor achieves the subcontracting level pledged to meet requirements of the DBE, and small business when the contract was awarded. For more information on the DBE subcontracting requirements, the [Disadvantaged Business Enterprise](#) section in [Chapter 7](#) of this manual.
- Ensuring adherence to the provisions of the Public Contract Code.

In the same manner as for other contractual obligations, construction personnel must review the contract and administer the subcontracting provisions.

3-10.1.A Amount of Work Subcontracted

The Subcontracting section of the Special Provisions requires that the prime contractor perform no less than the percentage of work specified in the contract using the contractor's own organization.

The percentage of work subcontracted is calculated for first-tier subcontractors only. A contractor's organization must include only workers employed and paid directly by the prime contractor and only equipment owned or rented by the prime contractor, with or without operators. Any material purchased by the contractor will only be counted towards the 50 percent of the original total contract price if the material is installed by the contractor with his own forces.

3-10.1.B Calculating the Amount of Work Subcontracted

The contractor must submit a subcontracting request, stating what portion and dollar amount of an item will be subcontracted. The resident engineer must verify the amount. Any rational method of determining the amount will be acceptable.

To ensure that the contractor is not requesting approval for a subcontractor other than those listed in the bid documents, the resident engineer must check the DBE and small business commitment listings and the list of subcontractors. If a discrepancy is noted, the resident engineer must advise the contractor and ask for an explanation. The resident engineer must not approve the subcontracting request until the contractor provides an acceptable explanation.

3-10.1.C Subletting and Subcontracting Fair Practices Act

3-10.1.C.1 Subcontracting in the Bidding Process

Sections 4100 through 4114 of the Public Contract Code are called the Subletting and Subcontracting Fair Practices Act and apply to SANDAG construction projects. This act is designed to prevent prime contractors from “bid shopping” for subcontractors after bids are opened and the low bidder is known.

This act requires that subcontracted work in excess of 0.5 percent of the contractor’s bid amount, or in the case of bids, or offers for the construction of streets or highways, including bridges, in excess of 0.5 percent of the contractor’s bid amount or \$10,000 (whichever is greater), must be listed in the prime contractor’s bid proposal. When a prime contractor fails to list a subcontractor in its bid, the law requires that the prime contractor must perform the work with its own forces. The prime contractor may not add an unlisted subcontractor by requesting a substitution. The only exceptions to this rule are when a change order caused a deviation in the work (Public Contract Code 4107 [c]), or there is a public emergency or necessity which has been documented as required by Public Contract Code 4109.

For building projects such as a maintenance station, or other off-highway project, all subcontracted work in excess of 0.5 percent of the contractor’s bid amount must be listed.

The resident engineer must ensure that the listed subcontractor performs the work or that the contractor complies with the act regarding substitution.

Listed subcontractors can be substituted only if the procedures in the act have been followed.

3-10.1.C.2 Substitution Process

To replace a subcontractor listed in the bid documents, the prime contractor must submit a written request based on the reasons identified in Public Contract Code Section 4107:

- When the subcontractor listed in the bid, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract for the scope of work specified in the subcontractor’s bid and at the price specified in the subcontractor’s bid, when that written contract, based upon the general terms, conditions, plans, and specifications for the project involved or the terms of that subcontractor’s written bid, is presented to the subcontractor by the prime contractor.
- When the listed subcontractor becomes bankrupt or insolvent.
- When the listed subcontractor fails or refuses to perform the subcontract.
- When the listed subcontractor fails or refuses to meet the bond requirements of the prime contractor, as set forth in Public Contract Code Section 4108.
- When the prime contractor demonstrates to SANDAG that the name of the subcontractor was listed as the result of an inadvertent clerical error. This reason can only be used within two days of bid opening, and for an inadvertent clerical error pursuant to Public Contract Code Section 4107.5.
- When the listed subcontractor is not licensed pursuant to the Contractor’s License Law.
- When SANDAG determines that the work performed by the listed subcontractor is substantially unsatisfactory and not in substantial accordance with the plans and specifications or that the subcontractor is substantially delaying or disrupting the progress of the work.

- When the listed subcontractor is ineligible to work on a public works project, pursuant to Section 1777.1 or 1777.7 of the Labor Code.
- When SANDAG determines that a listed subcontractor is not a responsible contractor.

For more detail on the authorized reasons for substituting listed subcontractors, see Sections 4107 and 6109 of the Public Contract Code.

If the listed subcontractor is a DBE firm see the [Disadvantaged Business Enterprise](#) section in [Chapter 7](#) of this manual for additional details.

When the prime contractor requests a substitution, proceed as follows:

- The resident engineer must send a written notice to the listed subcontractor by certified mail, overnight mail, or faxed confirmation of the prime contractor's request to substitute the subcontractor and the reasons for the request. The notice must provide the subcontractor with five working days to submit a written objection to the substitution. Please provide a copy to SANDAG construction manager and PM.
- If the listed subcontractor does not file a timely written objection, the resident engineer must approve the substitution. The resident engineer must approve the new subcontractor, following the guidelines under the [Procedure for Approval or Acknowledgment of Subcontractors](#) section of this chapter. If the removed subcontractor's firm was a listed DBE or small business refer to the [Disadvantaged Business Enterprise](#) section in [Chapter 7](#) of this manual for additional information.
- If the listed subcontractor submits timely written objections to the substitution, SANDAG must conduct a hearing. Normally, the hearing officer is the SANDAG principal construction engineer. The prime contractor and the subcontractor objecting to the substitution must receive written notice of the hearing a minimum of five working days before the hearing is conducted. The written notice should include a request that any substantiating documents be provided before the hearing. See the following section for more information on hearings.

3-10.1.C.3 Hearing Process for Substitution Violations

The intent of the substitution hearing is for both parties to have the opportunity to explain to the hearing officer why a substitution should or should not occur. Substitution hearings should be informal.

3-10.1.C.3.a Before the Substitution Hearing

- Documents should be obtained from both parties to substantiate the reason(s) for substitution.
- Review all information submitted by both parties. If the hearing officer believes legal or other assistance may be required during the substitution or hearing process, he/she shall arrange for such assistance as appropriate.
- The hearing officer must develop a line of questioning to ensure that sufficient evidence exists on which to base a decision about the request.

3-10.1.C.3.b During the Substitution Hearing

- Tape or video recording can be used to assist in taking notes; however, it is not required.
- The hearing officer should allow each party sufficient time to present its position and offer a counter argument on the substitution request. Any additional supporting information presented by either party should be listed in the notes of the hearing.

3-10.1.C.3.c After the Substitution Hearing

- The hearing officer will issue written findings and a decision on the substitution request. As soon as possible after the hearing, the prime contractor and the objecting subcontractor must receive a copy of the decision by certified mail return receipt.

3-10.1.C.4 Violations of the Subletting and Subcontracting Fair Practices Act

The following presents typical examples of some of the more common violations of the Subletting and Subcontracting Fair Practices Act by a prime contractor:

- Subcontracting work in excess of the threshold requirements that was not listed as subcontracted work.
- Using a subcontractor that was not listed.
- Substituting subcontractors without the consent of SANDAG.
- Performing work that a subcontractor was designated in the bid documents to perform.

If these or any other violations occur, proceed as follows:

1. Discuss the apparent violations with the SANDAG construction manager and the SANDAG labor compliance staff or the labor compliance consultant.
2. If the SANDAG construction manager and labor compliance staff/consultant agree that an apparent violation has occurred, the resident engineer and SANDAG construction manager should consult with the SANDAG Office of General Counsel for guidance on how to proceed.

3-10.1.D Procedure for Approval or Acknowledgment of Subcontractors

The resident engineer has the responsibility of approving non-DBE subcontractors on federally funded projects or acknowledging subcontractors on state- and SANDAG-financed projects.

In general, approving or acknowledging subcontractors is necessary only for first-tier subcontractors.

3-10.2 Beginning of Work

This section covers the subject of when the contractor begins work. The contract normally requires the contractor to begin work on a project within 15 calendar days after receiving notice the NTP. The special provisions may modify the 15-day requirement. The NTP will specify the first chargeable workday.

The resident engineer must determine when to record the beginning of work, based on judgment and experience. For example, setting up signs might be the only work underway. If conversations with the contractor indicate movement toward pursuing the work, the setting up of signs is sufficient to indicate the beginning of work. Record the date the contractor begins work on the weekly Statement of Working Days and in the resident engineer's daily report.

Record SANDAG's actions toward encouraging the contractor to begin work. Discussion notes from the pre-construction conference or other conversations with the contractor provide the necessary records. If a contractor fails to begin work by the specified time, remind the contractor of this failure under "Remarks." Send a separate letter with an additional reminder.

When resident engineer decides that failure to begin work will result in unsatisfactory progress, discuss the situation with the SANDAG construction manager.

3-10.2.A Work Before Contract Execution – Limited Notice to Proceed

After the contractor has executed and returned the contract to SANDAG, the contractor, after submitting the specified notice, may enter the site and begin operations provided certain criteria have been met.

A contractor cannot start work on-site before the execution of the contract, all insurances are in place, and an NTP has been issued.

When a contractor wants to start work after they have executed the contract but before SANDAG has executed full contract execution, call the SANDAG contract analyst and discuss with the CM and engineering project coordinator to determine whether it is in the best interest of SANDAG to issue a Limited NTP (LNTP).

An LNTP from SANDAG is not to exceed \$250,000 per [Board Policy No. 024](#). The LNTP must incorporate the same terms stated in the [Beginning of Work](#) section of this chapter that apply after the contractor has returned the executed contract documents to SANDAG but before the time of the contract's approval. In addition, the LNTP must include the following:

- A statement that the contractor is responsible and liable for any personal injury or property damage resulting from the work.
- The requirements for cooperation contained in the Special Provisions and in the Cooperation and Coordination section of the Special Provisions. The terms of the LNTP should include notice that the contractor may be working on the site concurrently with others performing utility relocation, ROW clearance work, or other construction operations and that the work of the others will take precedence over the contractor's operations.
- When obvious conflicts are apparent, an LNTP should not be issued.
- The limits of the area in which work will be performed.
- The operation or operations to be performed.
- A statement that the contractor will comply with the requirements of the contract plans, the Caltrans Standard Specifications, the project's special provisions, and any order of work specified in these documents.
- A statement that the contractor's operations will not deprive property owners of access.
- A requirement to provide an adequate bond, or cash deposit, to cover the work contemplated before starting any work. The amount should be the same as for other types of work, as covered in the SANDAG Procurement Manual.
- A reference to the contract's water pollution control requirements.

When extra work must be a first order of work, it should be performed under a prior authorization, as covered in the [Contract Change Orders](#) section in [Chapter 5](#) of this manual. After the executed contract documents have been delivered as specified, contract change orders may be approved in the normal manner.

SANDAG must not process requests for relief from maintenance or for contract acceptance until after the contract's approval.

3-10.3 Progress Schedule

When the special provisions require a progress schedule, the resident engineer must make every effort to obtain a reasonable schedule at the beginning of the contract. Any communication regarding the progress schedule must be recorded in the daily report. Notify the contractor in advance if a progress payment will be withheld for failure to submit a satisfactory schedule.

Schedules should do the following to satisfy general specification requirements:

- Separate the major items into activities that are likely to become the controlling operation or operations.
- Accurately show progress of the work, determine controlling items of work, and analyze time impacts from contract changes or work delays.
- Be consistent with contract time requirements.
- Display milestones such as placing traffic on detours or new pavement and beginning new phases of the work in staged construction.
- Meet the requirements of the Special Provisions CPM Specifications.

Based on the project dollar the SANDAG Special Provisions will require the contractor to submit a progress schedule using the CPM. These special provisions will contain all the requirements for such a schedule. The resident engineers are encouraged to utilize CPM schedulers to support the review of the contractor's schedule.

3-10.4 Temporary Suspension of Work

Temporary suspension of work covered under the Temporary Suspension of Work section of the Special Provisions falls into two general categories.

The contractor's failure to carry out orders or to perform any provision of the contract. Any letter ordering such a suspension must include references to applicable sections of the specifications and, if possible, state the conditions under which work may be resumed.

1. Such action is taken only after careful consideration of all aspects of the problem.
2. Unsuitable weather or conditions unfavorable for the suitable prosecution of the work. This type of suspension may result from anticipated heavy traffic because of a holiday or a special event.

- a. Suspension of an item or operation

A suspension that affects one or several items may be ordered. Usually this suspension is used when either the work or the public will be affected adversely by continued operation.

Although this type of suspension is an option available only to the engineer, consider the contractor's opinion on such a suspension.

- b. Suspension of the entire project

In areas subject to severe weather, it is permissible to suspend an entire project if this action is considered to be in the best interest of SANDAG. However, the engineer's authority to suspend is limited to the reasons stated in Temporary Suspension of Work section of the Special Provisions. When an entire project is suspended for reasons that do not fall under the scope of Section 8-1.05 of the Special Provisions, the suspension must have the contractor's concurrence.

During any suspension, advise the contractor of the conditions under which maintenance will be performed.

During a suspension require the contractor to perform the necessary work to provide for public convenience or public safety.

When the reason for a suspension no longer exists, or when favorable conditions are expected soon for resuming work, the resident engineer must notify the contractor in writing. The letter must state the date when working days are expected to be resumed and must allow sufficient time to permit the contractor to remobilize the necessary labor and equipment. A period of ten working days is considered reasonable.

The resident engineer must forward to the SANDAG construction manager and PM copies of the letters notifying the contractor of suspension and resumption of work.

Because of an ordered suspension of work, the contractor may be due additional compensation, contract time, or both, that was not provided for elsewhere in the specifications.

The specification allowing such compensation applies only to situations where the work is suspended for an unreasonable period. A one-day suspension because of vehicle or rail traffic generated by a planned major event is not unreasonable. However, a suspension resulting from an unplanned major incident could be reason for granting additional compensation, time, or both.

3-10.5 Time of Completion

This section discusses the method of tracking contract time and uses the terms “days,” “working days,” and “controlling operation.” The Definitions and Terms section of the Special Provisions defines “days.” The Time of Completion section of the Special Provisions defines “working days” and “controlling operation.” However, the contract’s special provisions may modify the definition of working days.

The total time allowed for completion of a contract is a specified number of working days. The computed date for completion of a contract is the date of the last working day. On most projects, situations arise that extend the date for completion beyond the computed date for completion. This extension is called the “extended date for completion.”

The computed date for completion can be extended in two ways:

- A day that normally would be charged as a working day is not charged. The number of working days remains the same. The result of this situation is that the “computed date for completion” is extended by one working day. This method of extending the date for completion is used when work is suspended or when working days are not charged for the reasons given in paragraphs (b) and (c) in the Time of Completion section of the Special Provisions.
- The number of working days in the contract is increased, resulting in an extension of the date for completion. However, the actual working day or days on which an event occurred that resulted in an extension of time are charged as working days. This method of extending the date for completion is called a time extension. Reasons for time extensions are specified in the Liquidated Damages, Right-of-Way Delays, and Utility, Non-Highway, and Non-Railway Facilities sections of the Special Provisions.

3-10.5.A Weekly Statement of Working Days

SANDAG anticipates all construction contracts will use a web-based construction management software.

The resident engineer must use a Weekly Statement of Working Days form similar to Caltrans form CEM-2701 to report the status of contract time to the contractor.

As soon as possible and no later than the middle of the following week, forward the original statement to the contractor and file another copy with the project records. When working days are not being charged because of a work suspension, the weekly statement does not need to be submitted until working days are charged again. The first weekly statement after resumption of work will show the total suspension days to date.

If a nonworking day is granted because of requirements in the Maintaining Traffic section of the Caltrans Standard Specifications, state the reason as “traffic restriction” in the “Remarks” section of Form CEM-2701.

When completing the form certain consideration needs to be made for the following situations:

- A temporary short-term suspension for reasons such as anticipated heavy traffic for an event or holiday must be noted in the Weather, Weather Conditions, or Other Conditions section and explained in the Remarks section. Do not show any charges for working or nonworking days. Include the suspension day in the Days Contract Suspended to Date line under the Computation of Extended Date for Completion section.
- In the column Working Days No Work Done on Controlling Operation, record any working day on which no work is done on the project or on the controlling operations. If the resident engineer knows the reasons for lack of work, the resident engineer should note them in the Remarks section and on the resident engineer’s daily report.

Procedure for approval of another day:

- Under the Remarks section acknowledge the receipt of a letter from the contractor requesting a time extension.
- Forward the contractor’s letter to the SANDAG construction manager with a cover letter containing the following information:
 1. Number of days requested and the contractor’s justification for the request
 2. Cause of delay
 3. Statement describing the controlling operation(s) delayed and the duration of the delay
 4. Resident engineer’s recommendation
 5. Supporting data
- The construction manager will note approval, if appropriate, on the resident engineer’s letter and return a copy to the resident engineer or notify the resident engineer of other steps to be taken.
- If the time extension is approved, the resident engineer will enter it on the Weekly Statement of Working Days as an approved extension with a statement under the Remarks section of the form.

The director of MMPI must approve “other days” granted after the completion of the final weekly statement of working days.

3-10.5.B Progress of Work

Whenever the contractor fails to prosecute the work adequately, the resident engineer must notify the contractor of the apparent lack of progress. If the resident engineer judges that the work on the original schedule will not be completed by the original due date, the resident engineer must request that the contractor submit a revised schedule showing how the balance of the work will be carried out. Whenever the resident engineer believes the contractor’s bonding company should be notified of unsatisfactory progress, advise the SANDAG construction manager of the reasons supporting such an action. If appropriate, the SANDAG construction manager will initiate the notification.

3-10.6 Liquidated Damages

The Liquidated Damages section of the Special Provisions covers various items such as director's days, time extensions, and shortage of materials. "Liquidated damages" is defined in the Definitions and Terms section of the Special Provisions and is also referenced in the Beginning of Work, Time of Completion, and Liquidated Damages section of the Special Provisions.

3-10.6.A Overrun in Contract Time

If the Extended Date for Completion on the final Weekly Statement of Working Days contains a date before the date of the contract's completion, an apparent overrun has occurred, see the sections below on how to proceed.

3-10.6.A.1 Case One

SANDAG intends to assess liquidated damages for the overrun shown on the final Weekly Statement of Working Days. Enter the deduction for liquidated damages into the project records and proceed with the proposed final estimate.

3-10.6.A.2 Case Two

SANDAG intends to change the status of time from that shown on the final "Weekly Statement of Working Days" by time due on contract change orders. Time extensions resulting from CCOs should have been resolved before the contract's completion in accordance with instructions covered elsewhere in this manual. For those instances where extenuating circumstances result in unresolved time for CCOs after completion, complete all deferred-time CCOs, enter the data into the project records, enter any remaining deductions for liquidated damages into the records, and proceed with the proposed final estimate.

3-10.6.A.3 Case Three

SANDAG intends to change the status of time from that shown on the final "Weekly Statement of Working Days" as a result of "other day" time extensions still under consideration on the date of the contract's acceptance. Obtain concurrence for making such changes from the SANDAG construction manager. Report the recommended disposition of each item of unresolved time in a form sufficiently clear and complete that no interpretation or further explanation is needed. Upon receipt of the recommendations, the SANDAG construction manager will advise the director of MMPI of what the intended action will be.

Include a status of contract time in a form similar to the following:

	Calendar Date	Working Days or Numbered Days
First working day (from Notice to Proceed)	7-20-18	853
Working days specified in contract		140
Computed date for completion	2-13-19	993
Total time extensions, contract change order, final Form CEM-2701 or equivalent		5
Total time extensions, other, final Form CEM-2701 or equivalent		15
Nonworking days, final Form CEM-2701 or equivalent		45
Additional contract change order days (if applicable)		14
Additional time extensions recommended (if applicable)		10
Extended date for completion	6-20-19	982
Date contract completed	6-20-19	882
Remaining Overrun		0

After the disposition of overruns has been determined, SANDAG will advise the contractor directly.

Place copies of all memoranda in the project files to serve as the record of final disposition of overruns.

For any unresolved overrun in time, show a deduction to assess liquidated damages on the proposed final estimate. If the contractor objects to this assessment, follow the claim procedures outlined in the [Disputes](#) section in [Chapter 5](#) of this manual.

3-10.6.A.4 Case Four

When the final quantities of individual contract items have exceeded 125 percent of the quantity in the bid item list, not as a result of ordered changes, SANDAG may recommend the director's approval of a commensurate time extension. Such a recommendation is subject to all of the following provisions:

- Time is allowable only to the extent that each item was considered to be controlling.
- Any time extension is applicable only to the excess above 125 percent of the bid item list.
- The maximum allowable time extension for each item cannot exceed the amount of time determined by applying normal production rates to the increased quantity of the item involved.

Time extensions for reasons other than those specifically enumerated in the contract are made at the discretion of the director and are to be deferred until completion of the contract. When the director grants additional days at this stage, the days are referred to as "director days." Forward requests for director days to the SANDAG construction manager together with resident engineer's recommendation and reasons. The request should contain sufficient information and justification to allow the construction manager to justify the approval of the director days. The director days are approved by the director of MMPI. Do not record these director days on the Weekly Statement of Working Days.

3-10.6.B Shortage of Material

The Liquidated Damages section of the Special Provisions strictly defines and limits a shortage of materials for which a time extension may be granted. Before a time extension may be granted, several determinations must be made:

- Whether a timely notice of delay exists.
- The contractor's notice of delay, whether a protest of a Weekly Statement of Working Days or a separate letter, must be received no later than five days after the material shortage first caused the work delay.
- The effect on the controlling item of work.

If the delay does not affect the controlling item of work, advise the contractor accordingly in writing. If the contractor requests to be allowed to substitute the unavailable material with available material, the resident engineer must seek assistance from those responsible for the design. CCOs are to be processed as contractor-requested changes.

- Whether the materials, articles, parts, or equipment are standard items.

Standard items are produced to meet the specifications of such industry-wide organizations as the AASHTO, ASTM, the American Wood-Preservers' Association, the American Institute of Steel Construction, and the U.S. Department of Agriculture, among others. The fact that the SANDAG Special Provisions refer to these standards does not alter the item's status.

Standard items include those that are listed in a catalog and are available for immediate delivery and also items that are normally shelf items available for purchase at supply houses. Items that are manufactured only upon order are not standard items even if included in a catalog.

Time extension days will generally be recorded as "other days."

3-10.7 Right-of-Way Delays

The Right-of-Way Delays section of the Special Provisions covers provisions relating to ROW delays. The contract contains these provisions from the Special Provisions.

Resident engineers must monitor the progress of any work that may cause a ROW delay. To avoid or mitigate the effects of delays, initiate action such as the following:

- Adequately perform all duties related to the engineer as covered in [the Utility and Non-Highway Facilities](#) section of this chapter.
- Initiate requests to the SANDAG utility coordinator to modify agreements that would allow the contractor's forces to perform work under contract change order. The Utility, Non-Highway, and Non-Railway Facilities section of the Special Provisions covers such work by the contractor.
- Initiate any changes in the order of work that would eliminate or mitigate a ROW delay, provided that any cost involved would not exceed the estimated cost resulting from a delay. If a ROW delay occurs, take the following actions:
- Determine the length of the delay.
- Make a list of the equipment that will be affected by the delay. Attempt to get agreement from the contractor regarding the list's accuracy.
- Estimate the cost of the delay using the method specified in the Right-of-Way Delays section of the Special Provisions.

- Estimate the cost of removing the affected equipment from the project and returning it when the delay is over.
- Compare the costs and choose the most cost-effective option. If the contractor removes the equipment, but the cost for doing so is higher than leaving the equipment on the project, pay only the delay cost for idle equipment.
- If the contractor does not remove the equipment, attempt to determine how the contractor intended to use the delayed equipment. Review the progress schedule to determine if the contractor intended to use the delayed equipment full time or if the contractor intended some idle time. Use this estimate of time when determining delay costs.

3-10.8 Utility and Non-Highway Facilities

3-10.8.A General

A resident engineer must be assigned to coordinate and inspect utility relocation that is being done to clear the ROW before construction and assumes primary responsibility for coordinating and inspecting this kind of utility relocation. Either the resident engineer or an assigned assistant resident engineer must make all contacts with utility facility owners to schedule work and coordinate with the contractor's operations. The SANDAG PM working through its ROW consultant is responsible for making changes to the Notice to Owner forms and to ROW agreements. The SANDAG PM will make all decisions about financial liability between SANDAG and owner for utility work.

3-10.8.B Duties of the Resident Engineer

The resident engineer must perform the following duties:

- Review all documents about utility relocation work, including the Notice to Owner, encroachment permits, special provisions, contract plans, and correspondence about utilities not shown on the plans.
- Check the location of proposed or existing utility installations for possible conflicts with proposed construction.
- For possible conflicts, compare all facilities with available plans. Also, spot-check survey marks at critical locations for possible conflicts. Require changes where necessary.
- Include utility owners in preconstruction conferences with the contractor. On larger projects with a number of utility relocations, it is advisable to schedule a separate meeting for each owner. In these meetings, discuss the following items:
 1. Special provision requirements
 2. The contractor's schedule as it affects relocation work, project safety, and traffic control
 3. Any potential problems

Keep records of such meetings and confirm any decision through letters to all parties.

- Before allowing any change in the planned location of a utility facility or any excavation to determine the location of underground utility facilities, ensure such action complies with the agency responsible for the ROW and adjacent utilities.

- Keep records of utility relocation work on the assistant resident engineer's Daily Report or something similar. When inspection is full-time, keep the records as complete as possible for the following:
 1. Number of workers
 2. Equipment description
 3. Hours worked
 4. Materials salvaged
- When inspection is part-time, record all detail consistent with observed activity. At a later date, the SANDAG PM may request these records to verify the utility owner's final bill.
- Keep the contractor advised of any utility work that will require a change in the contractor's operations. Keep detailed records of any alleged or actual ROW delays related to utilities.
- The contractor is required to notify the resident engineer, in writing, of discovery of any underground facility not indicated on the plans or in the special provisions. In the absence of such written notification from the contractor, you should document the location of the underground facility and include this documentation in written confirmation with the contractor.
- Whenever the contractor has not received prior indication of an existing facility, change orders, including the repair of any accidental damage, will be considered for approval. However, SANDAG will not pay for the repair of any accidental damage caused by negligence after the contractor was notified of the existence of a utility facility.
- Whenever underground facilities are discovered that are not in the plans or the special provisions, the various parties involved need to be consulted so an agreement with the utility owner about satisfactory protection before the SANDAG contractor begins any physical work. If the contractor must protect the utility facility, prepare a change order to cover the payment for such work. Protection work, as used in contract administration, must include any work necessary to ensure the utility's service, reliability, or both, and continue at approximately the same level as before any disturbance from construction operations. This work may include exploration to find exact locations, placement of barricades or warning devices, shoring, or even temporary bypass facilities or permanent relocation. However, this protection work will not include facility repairs for damage resulting from negligent equipment operation around properly protected facilities.
- Notify the SANDAG PM immediately of any utility facility that is in conflict with the planned work. Follow up the notification in writing, including drawings or plan sheets showing the location of the existing facility, the affected work, recommended action, and the estimated date when the conflict will begin to affect the contractor's operations and time of completion. The SANDAG PM, through the design consultant, must arrange any relocation work necessary to resolve the conflict.
- Determine whether facilities shown on the plans or specifications are being adequately protected from damage as required by the contract. Notify the contractor in writing of any inadequacies.
- When judging the extent of compliance the specifications require, take into account the type of facility involved. Consider such things as the consequence of a potential accident. When these consequences involve life and limb, do not permit work in such areas unless the contractor has made physical checks of the facility location. When working around hazardous facilities, do not assume takeoffs from plans (either those from SANDAG or those from an owner) are accurate.

3-10.9 Termination for Default

The Termination for Default section of the Contract Special Provisions list under what situations may terminate for default. It is important that the SANDAG resident engineer coordinate with the SANDAG principal construction engineer (who shall coordinate with the SANDAG Office of General Counsel) and adhere to the following steps when considering termination for default.

1. If the contractor fails to perform any of the provisions of the contract, or so fails to make adequate progress, send the contractor a letter and notify them; they have ten days to correct.
2. If the contractor fails to correct consult with SANDAG principal construction engineer and by memo, provide the following:
 - a. Reason for termination
 - b. Worked performed
 - c. Work yet to be performed
3. If agreed that we should terminate, consult with the SANDAG Office of General Counsel and contracts and begin the termination process.

3-10.10 Termination for Convenience

Section 4412 of the Government Code covers contracts terminated for convenience in the best interest of SANDAG. The SANDAG construction manager must ensure that all necessary steps are taken in handling contracts terminated for SANDAG's convenience. To ensure the special handling of these types of terminated contracts, identify all internal correspondence related to them with the words "Convenience Termination" under the job's file reference. To initiate contract termination, the resident engineer must write a letter to the SANDAG construction engineer stating the reasons for requesting the termination. The letter should include:

- Reasons for the termination
- Work performed
- Work yet to be performed
- Any information pertaining to the advertisement date of the new contract

If the SANDAG principal construction engineer concurs, the resident engineer will discuss this with the SANDAG Office of General Counsel and with the director of MMPI. If all are in agreement the director of MMPI will prepare a letter to the contractor terminating the contract.

The contractor will be paid all reasonable costs as computed according to the Termination of Contract section of the Special Provisions. An audit of the contractor's cost records is normally required to resolve compensation issues. After contract acceptance, payments can be made in accordance with the Final Payment and Claims section of the Special Provisions.

3-10.11 Termination of Contract

When the majority of the contract work has been completed, it is normally not the preferred alternative to terminate the contract. Instead, it is preferred to delete the remaining work by CCO, accept the contract, and provide additional payment to the contractor, if necessary, in accordance with the Adjustment of Overhead Costs section of the Special Provisions. See the Termination of Contract section of the Special Provisions for details.

3-10.11.A Federal-Aid Contracts

For full oversight and state-authorized federal-aid contracts, the resident engineer must contact the SANDAG construction manager to obtain concurrence from the appropriate federal representative, from either FTA, FHWA, or others, on the termination of a contract. Refer to the Code of Federal Regulations, Title 23, Part 635 (23 CFR 635.125).

3-11 MEASUREMENT AND PAYMENT

3-11.1 General

This section covers measurement and payment of bid item work and change order work, partial payments, and payment to the contractor after contract acceptance.

The contracts provide the following methods to make the payment for all work performed:

- Payment for bid item work at unit prices. The contractor establishes the fixed prices of the bid items included in the contract. Fixed prices of bid items should not be confused with the costs to produce the work. Loss of profit, damage, repair, cost escalation, or other unanticipated changes of item costs are the sole responsibility of the contractor unless specifically provided for in the contract.
- Adjustments to contract prices (known as adjustments in compensation).
- Payment for change order work. Before payment can be made for change order work, the resident engineer must issue an approved change order as described the [Contract Change Orders](#) section in [Chapter 5](#) of this manual. The methods specified for paying for change order work are bid item prices, force account, agreed price, and specialist billing.
- Deductions and withholds are temporarily or permanently from monies due under the contract.

3-11.2 Measurement

Contract work, as bid on by the contractor, is typically measured and paid for as bid items. Bid items are measured for payment as units. The unit for each bid item is shown in the Bid Item Lists as “unit of measure.” Bid items may be measured by units of count, length, area, volume, weight, or lump sum. The Bid Item List also includes the estimated quantity of each bid item. Resident engineers and assistant resident engineers must determine, by measurement and calculation, the quantities of the various bid items actually performed by the contractor.

In some other cases, contract work, such as a lump sum contract, may be measured and paid for in some other manner.

3-11.2.A Method of Measurement

Check the “measurement” or “measurement and payment” clauses in the Special Provisions for the required method of measurement for each bid item. Use the specified method to measure quantities. For more information about measuring quantities for specific bid items, see Construction Details chapter of the Caltrans Construction Manual (Chapter 4).

A change in the unit or the method of measurement changes the contract. Do not change the unit or the method of measurement unless the change is provided for in a CCO.

3-11.2.B Accuracy

Measure and calculate bid item quantities to a degree of accuracy consistent with the unit price of the item. Give early consideration to the accuracy desired so that all personnel on a given project will measure and calculate uniformly. The general rule is to measure to a degree of accuracy that, when calculated, the resulting value will be accurate within 0.2 percent to 0.5 percent. A \$50,000 item should be measured and calculated to result in payment accurate within about \$100.

3-11.2.C Source Documents

Enter measurements and calculations for bid item quantities on permanent record sheets that are commonly referred to as "source documents." Include on each source document the appropriate bid item number, the location of installation (if applicable), the necessary measurements and calculations, and the name of the person preparing the document. Check source document calculations independently and enter the name of the checker on the document.

Check source document calculations as soon as possible, preferably before the quantity is entered on a progress pay estimate. Always check them before entry on the proposed final estimate. Whenever possible, measure, calculate, and check bid item quantities as the work on a bid item is completed. Resident engineers must assign responsibility for checking calculations to assistant resident engineers in the same manner that other project responsibilities are assigned.

Enter into the system for progress payment the quantities from the source documents. For a description of the progress payment process, the [Project Records and Reports](#) section in [Chapter 5](#) of this manual.

3-11.2.D Audit Trail

State the source of any figure, calculation, or quantity shown on the source document. For instance, a quantity may be the result of a field measurement, scale weights, a count, or a calculation based on planned dimensions.

Create a clear and easily followed trail for the total pay quantity in the proposed final estimate back to the first measurement or calculation for each bid item.

Consider organizing source documents for each bid item so an easily followed audit trail exists. Category 48, Contract Item Quantity Documents, in the [Organization of Project Documents](#) section in [Chapter 5](#) of this manual describes the numbering system to be used for source documents for other bid items.

3-11.2.E Weighing Equipment and Procedures

The following sections describe the duties and responsibilities of the people involved in weighing and measuring materials, and procedures for ensuring accurate weighing and measuring.

3-11.2.E.1 Personnel

The process of determining bid item quantities by weighing and metering includes the following personnel:

- The resident engineer
- Assistant resident engineers

In addition to SANDAG personnel, the following people also are involved in the weighing and metering process:

- County sealers of weighing and measuring devices
- Private scale technicians performing California Test 109, Test for Weighing and Measuring Devices

3-11.2.E.2 Responsibilities

All SANDAG personnel must be alert for conditions that contribute to failure to obtain the accurate weight and measurement of materials. The sections below describe the typical duties and responsibilities for ensuring compliance with the specifications for weighing and measuring.

3-11.2.E.2.a Resident Engineers

The resident engineers are responsible for the following:

- Ensuring accurate weighing and measuring through adequate inspection.
- Routinely determining that proper weighing procedures are used.
- Ensuring that the spot-checking of weighing procedures is recorded in daily reports.
- Requiring the contractor to correct any malfunctioning weighing or measuring device.
- Ensuring accuracy, ordering the resealing and retesting of scales and meters as often as necessary.
- Determine when Weighmaster Certificates are to be used. Order the use of Weighmaster Certificates except when the number of loads is very small, or conditions preclude that proper weighing procedures be used. In the daily report, record the reasons for not using Weighmaster Certificates.

3-11.2.E.2.b Assistant Resident Engineers

Assistant resident engineers act for the resident engineer and, depending on the authority delegated to them, are responsible for the following:

- Observing the installation of scales installed primarily for use on a given project. Deciding whether such scales and appurtenances meet the requirements of the specifications.
- Inspecting and observing the general condition of all scales used on the project.
- If a seal is not valid, requiring the contractor to have the scales tested before use.
- Witnessing scale testing. Determining that the scales have been tested to the capacity for which they are being used on the project.
- Whenever a scale is moved, overhauled, or shows obvious deficiencies, requiring the scale to be restored to normal operating condition and then retested.
- Observing the weighing of materials, visiting the scale house or plant periodically.
- Spot-checking tare and gross weights to see that weighmasters are using the correct tare. Ensuring the weigh master is licensed for the scale location.
- Observing all meters that are required under the contract and ensuring they have been tested and sealed.
- Collecting Weighmaster Certificates at the point of delivery. A SANDAG representative should be present at the work site to collect Weighmaster Certificates. Signing or initialing the Weighmaster Certificates to indicate that the represented material was used in the work.

When certified summary scale sheets are used and Weighmaster Certificates are not used, verify that material shown on the summary sheets has been used in the work. Do this verification by using a tally sheet, a spread record, or a random check. In the daily report, record that the material has been used in the work and the type of verification method. Sign the summary scale sheets to certify that the represented material, less any material deducted from the total, was used in the work.

Return to the contractor a copy of any Weighmaster Certificates or scale sheets representing loads or partial loads that are not to be paid for. On the Weighmaster Certificates or scale sheet, indicate the quantity of material not included for payment. Retain a copy for the project records. When a determination is made to reduce the quantity, advise the contractor's foreman or superintendent of the amount and reason for the reduction.

In the daily report, note the reduction and the name of the contractor's employee who you advised of the reduction.

3-11.2.F Final Payment of Items

The Final Pay Items section of the Special Provisions defines and specifies the procedure for calculating pay quantities for final pay items.

3-11.3 Force Account

The force account method, used to determine payment for extra work, consists of adding up the calculated/ negotiated markups to the actual cost of labor, equipment, and material used to perform the extra work.

The Force Account Payment section of the Special Provisions specifies the force account method of payment. The [Contract Change Orders](#) section in [Chapter 5](#) of this manual contains examples of CCOs with payment for extra work at force account.

Normally the contractor will use labor and equipment that is on the site and used for work in progress. The change order usually will specify materials to be used in the extra work. However, before the work begins, the resident engineer should discuss with the contractor the labor, equipment, and materials to be used. The resident engineer can avoid misunderstandings and inefficiencies by knowing the resources to be used ahead of time. After the work is performed, SANDAG must pay the contractor for material used and at the appropriate rates for the number of hours that labor and equipment was used.

3-11.3.A Authorization to Force Account Payment

On the authorizing CCO, always show the amount to be paid for extra work at force account as an estimated amount. For the format for CCOs see the [Contract Change Orders](#) section in [Chapter 5](#) of this manual. Payment can be made for extra work in excess of the estimated amount shown on the CCO up to 100 percent of the estimated amount or \$15,000, whichever is smaller. To authorize any additional payment, use a supplemental CCO.

3-11.3.B Force Account Records

On daily reports, record observations and inspections of extra work in progress in sufficient detail to provide a reasonable basis for agreement on payment. Records must be original, not a copy from other documents.

Include the following information when appropriate to the method of payment for the work:

- Description of work performed. This description must be consistent with the description of extra work authorized by the change order.
- Time and date of inspection.

- The change order number.
- Location of work.
- Types of labor, equipment, and materials used.
- Estimated hours worked.
- General measurement or amount of work accomplished.

Make entries on the day of observation. If clarifying reports are necessary to cover work not previously reported, state the facts as known and date the clarifying report as of the day it is written.

The daily report must also contain a reference to any known off-site work.

When extra work is performed at force account, decide whether the magnitude of the work warrants the full-time presence of an assistant resident engineer. An assistant resident engineer assigned full-time must include in the daily report the number of hours actually worked at the site.

When an assistant resident engineer is assigned only part-time, daily reports must present only known facts. On the daily report, record that inspection was "intermittent." A typical entry might read as follows:

Hours reported on the report dated June 26, 2018, entry based on one inspection during the day. Later found out that crew and equipment worked whole shift instead of half shift (add the date of the supplemental entry and sign the entry).

Include notations concerning decisions to allow or deny payment for work that may be in dispute or not considered a legitimate part of extra work. Similarly, prepare a supplemental daily report if it is later found that the number of hours or labor and equipment was substantially different than recorded on the original daily report. Such a supplemental daily report might read as follows:

June 28, 2018, 10:15 a.m. – Change Order No. 17 – Placing Riprap Lt. of Sta. 500.
Crew of two laborers and foreman with a D-6 crawler tractor with side-boom and operator laid about 150 sq. ft of salvaged rubble riprap. Estimate crew and tractor worked about four hours.

3-11.3.C Tentative Agreements

Do not give copies of daily reports to the contractor's personnel. Do not permit the contractor's personnel to sign or initial daily reports. However, at the earliest possible time, reach tentative agreement on extra work details. With the contractor's foreman, discuss labor, equipment, and materials at the end of each day, or no later than the morning following the day that extra work was performed. Good communication at this time will help to prevent misunderstanding and arguments over details at a later date.

Use a SANDAG tentative agreement form. On this form, tentatively agree to and list hours of labor and equipment and quantity of material used in extra work at force account for each change order each day. The form must state that the labor, equipment, material, and time worked are acceptable for progress payment purposes. In this way, use of the form does not preclude subsequent audit and adjustment.

3-11.3.D Markup for Subcontracted Work

The Work Performed by Contractor section of the Special Provisions includes an administrative markup for the prime contractor when a subcontractor performs the work.

When an engineer's cost analysis is based on force account, using rates as specified in the contract, include a markup in the calculation of the work performed by a subcontractor in the following situations:

- Changed and extra work at the agreed price in accordance with the Extra Work section of the Special Provisions.
- Work performed before item elimination in accordance with the Eliminated Items section of the Special Provisions.
- Bid item adjustment due to increased or decreased quantities in accordance with the Increases of More Than 25 percent and Decreases of More Than 25 Percent sections of the Special Provisions.
- Change in character adjustment in accordance with the Changes in Character of Work section of the Special Provisions.

3-11.3.E Owner-Operated Equipment

The Owner-Operated Equipment section of the Special Provisions specifies the method for paying for owner-operated equipment, except dump trucks, on a force account basis. Determine the operator's hourly rate of pay in accordance with the Owner-Operated Equipment section of the Special Provisions. To determine the correct rate, request assistance, if necessary, from the SANDAG labor compliance consultant.

3-11.3.F Billing for Extra Work at Force Account

The following are the procedures for billing for extra work at force account:

The contractor must use daily extra work reports on forms furnished by SANDAG covering extra work under each CCO each day that extra work is performed.

Field construction personnel must do the following when reviewing extra work bills:

1. Compare extra work bills against daily extra work reports and tentative agreements, if they are used. Make this comparison to verify the correctness of the contractor's billing and to avoid the possibility of a duplicate payment for the same work. For a discussion of daily extra work reports and tentative agreements, see the [Extra Work](#) and [Tentative Agreements](#) sections of this chapter.
2. The contractor must include everything to be paid for on the extra work bill. Do not add any items even though you know them to be legitimate charges. Instead, call the omission to the contractor's attention. The contractor may submit a supplemental extra work bill to include the omitted items.
3. Delete items for which the contractor is not entitled to payment.
4. You may correct hours for labor and equipment downward, but not upward.
5. Do not correct wage rates that the contractor has submitted. Return any extra work bill with incorrect wage rates to the contractor. Note that SANDAG must pay for extra work at the same wage rate paid by the contractor. Do not refuse to pay a particular wage rate because it is above the prevailing wage rate.
6. Correct equipment rental codes that are obviously in error or reject the reports. Ensure the rental codes shown are for the equipment that was used.
7. The person, whether a contractor or SANDAG employee, who makes corrections to an extra work bill must sign (not initial) and date the corrected extra work bill.
8. Maintain a log of extra work bills received and rejected.

The resident engineer must sign the extra work bill to authorize payment for extra work. The resident engineer's signature accepting an extra work bill for progress payment certifies that payment is in accordance with contract requirements and established administrative procedures.

3-11.3.G Labor

For the specification for paying for labor at force account, see the Work Performed by Contractor section of the Special Provisions.

A "labor surcharge" is included in the cost of labor. The Caltrans Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership) book in effect at the time the work is performed contains the labor surcharge percentage. One general rate applies to most crafts, and the book contains several higher rates for certain crafts. The resident engineer must determine the correct surcharge percentage to be used and verify that the percentage has been entered on the extra work bill.

At times a superintendent or owner acts as a working foreman or an equipment operator or works at some other craft. In such situations, make payment on a "value received" basis. Payment will be made for owners or supervisory personnel at the proper rate for the work performed. For example, pay for a superintendent acting as a foreman on force account work at the normal hourly rate for a foreman. Do not prorate the superintendent's weekly or monthly salary to an hourly rate. In paying for a superintendent on force account work, make the payment on a functional basis and not on a position or classification basis.

On some projects, a superintendent or PM directs the activities of several foremen or one or more general foremen who directly supervise the foremen. The general foremen are sometimes referred to as superintendents, such as grading superintendents or paving superintendents. This change in nomenclature does not change the functional nature of these positions. They are general foremen or foremen and are not considered to be supervisory or overhead personnel. Make payment at the actual hourly rate paid by the contractor when such personnel function as foremen on force account work.

When paying for salaried personnel, do not authorize force account payment for overtime hours unless the contractor has an established practice of paying overtime to salaried personnel. The usual case is that the weekly or monthly salary covers the number of hours required by the work.

The Special Provisions allow for payment of the actual subsistence and travel allowances paid by the contractor.

Pay per diem and travel allowances on force account only when the contractor is paying these allowances on contract item work.

When seven-day subsistence is included in labor contracts in lieu of per diem and travel time, subsistence will be paid for the entire period involved if the workers are employed full time on force account.

When workers are employed on both force account work and contract item work in the same day, prorate subsistence payments and travel allowances between the contractor and SANDAG. Base the prorated amount on the first eight hours worked. Do not pay per diem for time worked after the first eight hours in any one day.

3-11.3.H Material

Payment for material purchased for force account work must be supported by a copy of the vendor's invoice whenever possible. If no individual invoice is available, as in the case of materials taken from contractor's stock, a copy of the mass purchase invoice may be used as support. If no invoice is available to support unit purchase prices, submit a statement with the extra work bill. In the statement, explain how the unit prices were verified. Any invoice the contractor submits must represent the material used.

3-11.3.1 Equipment Rental

For equipment used for extra work paid on force account, see the Equipment Rental section of the Special Provisions. The following sections are guidelines for paying for equipment rental.

3-11.3.1.1 Equipment Selection

The resident engineer must approve equipment for use on force account work. Before giving approval, determine whether available and suitable equipment is already at the job site or whether equipment not at the job site is required. For example, a piece of equipment on the job site that can perform a given operation satisfactorily may be larger than necessary. Determine if it will be economical to use the oversized equipment at its rate or to obtain equipment of the proper size. Obtaining equipment not on the job site necessitates payment for move-in and move-out expenses and for minimum rental periods. See the Equipment Not on the Work section of the Special Provisions. The determination also may be based on other factors, such as public safety and the urgency of the work.

Availability of equipment on the job site can be determined by using daily diaries, progress schedule, and other contractor-provided information. When there is no contractor-owned equipment available for use and only rented equipment is available on the job site, the engineer may approve the use of the rented equipment at the rental invoice price in accordance with the Equipment Rental section of the Special Provisions. If both contractor-owned and rented equipment on the job site are suitable and available for use, the contractor-owned equipment should be used.

Some equipment includes accessories as an integral part of the basic machine. When accessories are an integral part of the machine, the rates in the Caltrans Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership) book indicate that the accessory is included in the quoted rate. Do not make deductions for accessories on such integral equipment. For unusual situations, consult with the SANDAG construction manager.

3-11.3.1.2 Equipment Rental Rates

The Caltrans Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership) contains rates for most of the equipment used on SANDAG projects. To establish rates that are not listed in the Caltrans Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership) book or on the website, use the following procedure:

- Obtain a complete description of the equipment, including the manufacturer, model number, horsepower, size or capacity, and accessory equipment.
- If the equipment is nonstandard or unusual, request the following data from the contractor:
 1. Type of equipment (such as segmented, self-propelled, rubber-tired roller, telescoping hydraulic crane, or articulated)
 2. Trade name
 3. Model and serial numbers
 4. Year manufactured
 5. Size, capacity, or both
 6. Type and amount of power
 7. Whether crawler, rubber-tire, or other
 8. Manufacturer or distributor (if local, give address)
 9. Initial cost of the basic machine and attachments

10. Operating requirements, costs, or both, if available or unusual
 11. Name of owner
- Transmit this information to the SANDAG construction manager. The SANDAG construction manager will obtain a rental rate, codes, and effective time period. Use this document as the authority to pay the rate established.
 - The contractor must be advised of the codes so that its billings can include them.
 - For equipment not on the work, and in special circumstances, the Caltrans Standard Specifications and Special Provisions permit a rate to be paid that is in excess of the rate listed in the Caltrans Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership) book. When the contractor proposes a rental rate in excess of the listed rate, ensure the equipment meets all the conditions listed in the Equipment not on the Work section of the Special Provisions. The higher rate will constitute a change to the contract and must be established by a contract change order. Use the following procedures to determine the rate:
 1. Obtain a written statement from the contractor. The statement must include the proposed rate and the justification that Equipment not on the Work section of the Special Provisions requires.
 2. Decide whether the conditions of use and ownership of the equipment meet all the specified criteria for payment of the higher rate.
 3. Submit a contract change order that provides for the proposed rate. State in the CCO whether the table titled Equipment Rental Hours is applicable. The table appears in the Equipment Not on the Work section of the Special Provisions. If the equipment is used for bid item work, use the normally established rental rates for the entire time the equipment is used for extra work. Include in the CCO a clause similar to the following: "In the event this equipment is subsequently used on contract item work, this rate is void."
 4. Include justification for approval in the contract change order memorandum and attach the contractor's letter.

3-11.3.1.3 *Time in Operation*

Field engineers must determine the rental time to pay for equipment in accordance with the Equipment on the Work section of the Special Provisions.

In general, consider equipment to be in operation when all of the following conditions exist:

- The equipment is at the site of the extra work or being used to perform the extra work.
- The equipment is not inoperative due to breakdown.
- The force account work being performed requires the equipment.

Use the following examples as guidelines for determining rental time to be paid for equipment.

- An air compressor is at the site for eight hours on a force account operation. It is used for only a few periods during the eight hours, but it is impractical to use it on other work during the standby periods. Pay for the compressor and all accessories used intermittently for the entire period. The engine does not have to be running continuously during the period to qualify for payment. If the air compressor also was used on contract item work intermittently, prorate the eight hours between the extra work and the item work.
- An air compressor is at the site for eight hours. It is used for the first two hours, but after those hours, it is no longer needed. Pay the rental for only two hours whether the contractor chooses to remove it or chooses to leave it at the site of the work. Apply the same reasoning if the time of operation occurred at any other time of the day. In this example, if a pavement breaker was needed intermittently for two hours and a tamper intermittently for two hours, pay two hours for each tool. If the pavement breaker is needed for the first hour and the tamper for a second hour, pay one hour for each. Advise the contractor when equipment is no longer needed at the site. In the daily report, record this notice and the time.
- A skip loader is used to load dump trucks. The operation is not balanced because one of the dump trucks broke down. However, the resident engineer allows the operation to continue because it is critical. The skip loader is used only about one-half time intermittently during the shift. Make payment for the loader for the entire shift. In a situation such as this one, the resident engineer must try to do whatever is necessary to balance the operation. When balancing cannot be achieved, the resident engineer must decide whether suspending an operation is more economically feasible than allowing it to continue.

Sometimes two pieces of equipment perform extra work at force account, yet the work does not require full-time use of both. In such instances, it is appropriate to approve, but not order, the use of only one operator for both pieces of equipment. Determine the rental time in the same manner as if each piece of equipment had a full-time operator and was used intermittently.

On extra work at force account, pay the same time for a foreman's pickup truck that you would pay for the foreman.

3-11.3.1.4 Equipment Not on the Work

In general, the contractor schedules extra work paid for on a force account basis and uses equipment available on the project. However, circumstances may require use of equipment not at the site that must be brought in especially for the extra work. The resident engineer must make decisions regarding the type of equipment and scheduling its use. The Equipment Not on the Work section of the Special Provisions specifies the requirements for paying for the use of such equipment. This specification does not apply when the contractor uses equipment for any bid item work. Change any previous payment as "equipment not on the work" to payment as "equipment on the work" when such equipment is used for bid item work.

Order the equipment removed from the project, pay move-out and possible subsequent move-in costs, or continue paying for the equipment during a suspension in extra work. Perform a cost analysis to determine the most cost-effective alternative. Temporary removal of the equipment to the contractor's shop or a storage area off the project is not removal from the project. To end payment for the equipment, the resident engineer must order its removal.

3-11.3.1.5 Dump Truck Rental

The Dump Truck Rental section of the Special Provisions specifies the method for paying for dump truck rental on a force account basis and covers both renting owner-operated dump trucks and renting dump trucks from a truck broker.

The resident engineer must establish the hourly rate to be paid for dump truck rental. The actual hourly rate paid by the contractor or the truck broker may be the established rate if it is consistent to rates paid for the same trucks on other work. For help in establishing hourly rates, compare with rates paid for similar equipment on other SANDAG work.

3-11.3.I.6 Standby Time

Pay standby charges for commercial delivery at the invoice rate.

3-11.3.J Work Performed by Special Forces

The Work Performed by Special Forces or Other Special Services section of the Special Provisions allows extra work to be performed by a specialist subcontractor that neither the contractor nor its current subcontractors can perform. In general, specialists are to be used only for minor portions of the work. The special provisions also allow for the specialist work to be paid for by invoice if itemized billing is not the established practice of the specialist's industry.

Do the following when considering the use of specialists:

- Before work begins, decide whether the work is normally done by any of the contractor's forces. The contractor's forces include any firms or organizations performing contract bid item work, including subsidiaries of such firms or organizations and subsidiaries of the contractor. Subsidiaries of a subcontractor are considered to be a part of the subcontractor's organization. If you decide that the contractor's forces can perform the work expediently, require billings in accordance with the Work Performed by Contractor section of the Special Provisions, or negotiate an agreed price to establish a payment basis.
- Allow the contractor to hire a specialist only if an established firm with established rates would do the work.
- SANDAG must establish procedures to pre-approve specialist billing. Specialist billing must not be used to circumvent competitive bidding or the normal force account method for determining payment.

3-11.4 Adjustments in Compensation

A payment adjustment is a monetary increase or decrease applied to the unit price of a bid item. The adjustment is a change to the contract and must be made by change order. Payment adjustments are either unit adjustments to the unit price of a bid item or they may be a lump sum increase or decrease applied to a bid item.

Do not pay for adjustments in compensation until change orders authorizing the adjustments have been approved.

If you anticipate that adjustments in compensation in accordance with the Increased or Decreased Quantities and Changes in Character of Work sections of the Special Provisions will result in decreases in final payment, withhold an amount sufficient to cover the value of the decrease.

For more discussion about determining payment adjustments, refer to the [Contract Change Orders](#) section in [Chapter 5](#) of this manual.

3-11.4.A Increased or Decreased Quantities

When the total pay quantity of a bid item varies from the bid item list by more than 25 percent, the variation may be the result of more or fewer units than shown in the bid item list required to complete the planned work. The variance may also result from ordered changes or a combination of both of these factors.

When the variation does exceed 25 percent, adjust the compensation in accordance with the section titled “Increased or Decreased Quantities” of the Special Provisions, or document in the contract records the reason for not making an adjustment in compensation. When the accumulated increase or decrease in bid item units shown on a contract change order exceeds 25 percent of the bid item list, the overrun or underrun must be acknowledged and provided for in the current contract change order. Provide for this overrun or underrun through one of the following options, whichever is applicable:

- Adjust the contract price in accordance with the terms of the contract.
- Defer any adjustment in compensation due to the overrun or underrun.
- State in writing that the bid item is not subject to adjustment. See the [Contract Change Orders](#) section in [Chapter 5](#) of this manual for a discussion and examples of CCOs providing for adjustments in compensation resulting from increased or decreased quantities.

3-11.4.A.1 Increases of More than 25 Percent

It is usually appropriate to defer adjustment if work on the bid item has not been completed. Additional contract change orders may be affecting the quantity, or the number of units required to complete planned work may not be known. However, as soon as unit costs and final quantities can be reasonably determined, calculate any required unit adjustment and provide for it through a contract change order. When work on the bid item is completed, apply the unit adjustment to the total number of units in excess of 125 percent of the bid item list.

Unless requested by the contractor in writing, the engineer does not have to adjust the contract price of an item if the bid item cost of the work in excess of 125 percent of the bid item list is less than \$15,000. However, before exercising this right, ensure SANDAG will not gain any economic benefit from an adjustment. On the other hand, make an adjustment if it would decrease cost, and the amount of the decrease would exceed the cost of making the adjustment.

3-11.4.A.2 Decreases of More than 25 Percent

If a contract item underruns the quantity in bid item list by more than 25 percent, inform the contractor in writing as soon as work on the item has been completed. Unless the contractor requests an underrun adjustment in writing, no adjustment will be made.

3-11.4.A.3 Eliminated Items

The Eliminated Items section of the Special Provisions applies only to bid items eliminated in their entirety. Advise the contractor as soon as it is known that an item will be eliminated. SANDAG will not be responsible for costs incurred for material ordered after notification.

In the CCO providing for the elimination of a bid item, ensure it covers the disposition of surplus material.

3-11.5 Progress Payment

The Partial Payments section of the Special Provisions requires SANDAG to make an estimate of work completed each month. Such estimates are designated as progress pay estimates. Each progress pay estimate must include payment for work completed up to and including the 20th day of the month. Include payment for change order bills that are submitted timely. Also include payment for extra work performed at agreed price and payment adjustments. Billing for this work must be submitted by the resident engineer during the pay period in which the work was performed.

In order to pay the contractor fairly, the construction management team must keep documentation of the amount of work that the contractor performs. Show all quantities submitted for payment on source documents. The estimate must reflect the totals on the source documents. A source document is defined as the basic document executed to record or calculate quantities, percentages of lump sums, or extra work for payment. Refer to the [Source Documents](#) section of this chapter. For the various contract bid items, spreadsheets that describe the approximate quantity of work must be prepared daily when work is performed. The quantity shown on the estimate for a bid item must agree with the sum of the quantities to date on all of the source documents for that item. For partially completed work, the quantity to be used for a contract pay item shall be adjusted as shown in [Contract Items](#) section of this chapter. Other portions of the monthly payment, such as deductions/withholds, retention, and extra work, shall be handled as shown in the [Measurement and Payment](#) section of this chapter. A monthly estimate and payment must be made if any amount of money is due the contractor.

The [Materials on Hand](#) section of this chapter goes into great detail on how materials on hand are to be administered. It should be noted that the contractor must fill out a Request for Payment for Materials on Hand form and submit it to the resident engineer each month to be eligible for any payment for materials on hand on the current monthly progress payment. It should be noted that payment for materials on hand can be made only for materials specifically listed as eligible in the Special Provisions.

The Payment Schedule section of the Special Provisions states that payments are made to the contractor monthly and also describes the monthly payment period (e.g., the second Friday of the month to the second Thursday of the following month). Each month, the resident engineer is responsible for preparing an accurate progress pay estimate for all work performed by the contractor since the last payment. By approval, the resident engineer verifies that the quantities are correct, and that data submitted conforms to the policies of SANDAG. The resident engineer must submit the progress pay estimate to the SANDAG principal construction engineer by Wednesday following the end of the pay period. The contractor will be paid not more than 30 calendar days after the establishment by SANDAG of a written estimate pursuant to the Partial Payments procedures described in this chapter.

The progress pay estimate consists of the following documents: Progress Payment Voucher, Construction Progress Chart, Summary of Work Breakdown Structure Numbers, Schedule of Extra Work, and Bid Item Pay Estimate. Other documents to include are any stop notices, release of stop notices, invoices for deductions made, Bid Item Status, CCO Status, CCO Summary, DBE Participation (for the previous month), and Monthly Employment Utilization (for the previous month).

3-11.5.A Contract Items

Include all contract item work completed satisfactorily in accordance with the contract in partial payments.

Do not include for partial payment, preparatory or organizational work, such as assembling equipment, shop work, falsework, forming, or crushing or stockpiling of aggregate (unless provided for in the special provisions). Do not pay for material placed or installed for which you have not obtained the required evidence of acceptability.

For items bid on a unit basis, include in progress payments work substantially complete. Withhold a sufficient number of units to cover the value of the incomplete incidental work. In each case, a source document must be on file showing the details of the quantity's determination.

Reference to intermediate source documents for items that are bid on a unit basis with a fixed final pay quantity, such as structure concrete (bridge) and bar reinforcing steel (bridge), to show how partial payment was estimated. Withhold units of work to cover the value of incomplete incidental work. Base the withheld amount on a force account analysis or other reasonable analysis of the remaining incidental work.

For work that includes an item for "furnishing," make no payment for furnishing until all contract requirements have been met, including acceptability of the material and delivery to the project. However, payment may be made for materials on hand, as covered below, for items that qualify and are listed in the special provisions.

For lump sum items, pay a percentage of the lump sum bid price as work progresses or agreed upon schedule of values. Consider using, for this calculation, the ratio of the number of working days an item of work has been in progress divided by the estimated total number of working days required to complete the item work. Be aware that such a simplified method might not reflect the value of the work actually completed. Attempt to reach an equitable agreement with the contractor for the basis of determining progress payments on lump sum items.

If any work or material on hand paid for on a previous monthly estimate loses value through loss, damage, or failure to function, deduct units representing the lost value from the following monthly estimate.

Another example is storm damage requiring repair or replacement in accordance with the Contractor's Responsibility for the Work and Materials section of the Special Provisions.

Do not pay for item work added by change order until the change order is approved. However, payment for contract item overruns that are not the result of a change in the contract may be included in the monthly estimate.

3-11.5.B Schedule of Values

A schedule of values may be required for specific lump sum bid items as specified in the special provisions.

3-11.5.C Extra Work

Do not pay for extra work until the CCO is approved.

3-11.5.D Interest on Payments

The specifications provide for interest to be paid on late progress payments, payments after acceptance, extra work payments, and claim payments.

Keep a log of the dates when extra work bills are received, rejected, and resubmitted. In a timely manner, process all extra work bills, and fully document reasons for returning or not paying extra work bills.

Make any necessary interest payments for late payments by CCO as adjustment in compensation at lump sum.

3-11.5.E Materials on Hand

Pay for acceptable materials on hand provided that all specified conditions have been met. Follow the procedure described below:

- The contractor must initiate payment by submitting a properly completed request for payment on hand. Make no payment for any material if the contractor has not requested payment on an acceptable form (e.g., Caltrans Form CEM-5101). The contractor must submit a request one week before the end of the estimate period for each estimate. Each request must represent the current status of materials on hand at the time the request is made. Do not honor a request if it does not represent the actual amount on hand.
- Upon receipt of a request for payment for materials on hand, the resident engineer must check that it is filled out properly, includes only eligible material listed in the special provisions, and that the contractor attached evidence of purchase. When the contractor's supporting evidence of purchase shows that a discount has been allowed, reduce the payment for materials on hand by the amount of the discount.
- Before processing materials on hand request, inspect all materials for acceptability. In general, accept only completely fabricated units, ready for installation on the project with the following exceptions:
 1. Piling. Steel plate used for steel pipe piling and driven steel shells filled with concrete and reinforcement as described in Section 49, Piling, of the Caltrans Standard Specifications may be considered acceptable as raw material. However, pay for such material as raw material only until shop fabrication of the pile is 100 percent complete. After shop fabrication is complete, the estimated fabricated value may be paid, subject to other specified restrictions and administrative guidelines.
 2. Structural Steel. Structural steel used in steel structures as described in Structural Steel section of the Caltrans Standard Specifications may be considered acceptable as raw material. However, pay for such material as raw material only until shop fabrication of a usable member (such as a girder or other shape ready for shipment to the job site) is 100 percent complete. After shop fabrication is complete, the estimated fabricated value may be paid, subject to other specified restrictions and administrative guidelines.
 3. Sign Structures. Structural steel used in overhead sign structures as described in the Signs section of the Caltrans Standard Specifications may be considered acceptable as raw material. However, pay for such material as raw material only, until shop fabrication of a usable member (such as a sign frame or other member) is 100 percent complete. After shop fabrication is complete, pay for the estimated fabricated value, subject to other specified restrictions and administrative guidelines.
- Verify proper storage of materials listed on the Materials on Hand (MOH) Form in accordance with the procedures below.

3-11.5.E.1 *Materials at the Project*

For all valid requests for material located at or near the project, determine whether the materials are stored in conformance with the contract. To conform to this requirement, the contractor may have to store materials in fenced areas with locked gates, in locked warehouses, or in areas where it is improbable that materials would be lost from any cause. In addition to having controlled storage, the contractor is likely required by the Caltrans Standard Specifications and the Contract Special Provisions to provide proper storage and handling so that the materials do not become damaged. Call any indication of improper storage to the contractor's attention. Withhold payment for materials on hand until the materials are properly stored.

Do not pay for material accepted on the basis of certificates of compliance until such certificates have been received.

The resident engineer or an assistant resident engineer must review the MOH form to verify that the request is acceptable.

3-11.5.E.2 Materials Not at the Project

For materials not delivered to the job site, obtain evidence, and establish the fact of purchase, proper storage, acceptability, accessibility and other factors. Following is the procedure:

- If it is not practical for the resident engineer or assistant resident engineers to verify quantity, quality, location, and proper storage, send a copy of the MOH form to the SANDAG construction manager.
- Upon receipt of MOH form, the SANDAG construction manager will immediately proceed with authorizing the appropriate inspection to be performed. The inspector will notify the resident engineer directly that the material has been inspected and that it is in acceptable condition and properly stored. It is encouraged that the inspector uses Caltrans Form TL-6037 for structural steel, precast pre-stressed concrete members, or sign structures. For other products, the inspector is encouraged to use Caltrans Form TL-0649.

The inspector also may indicate on its correspondence, the percent complete of shop fabrication on various structural components. This figure is given for the purpose of reporting progress on the affected items.

Do not use it to increase payment for materials on hand during fabrication.

- Upon receipt of the MOH form and the above verification, the resident engineer can approve the partial payment. The contractor must submit a new MOH form for each estimate, and the above procedure must be followed. However, it is possible the inspector may not be able to respond in time for payment on the estimate. The SANDAG construction manager gives priority to obtaining inspections on new or changed requests. Therefore, for requests that have not changed since a previous submittal, resident engineers may approve subsequent payments in the absence of any SANDAG construction manager reports to the contrary.

On the monthly progress pay estimate, enter the total value of acceptable material as material onsite regardless of storage location.

The maximum payment for materials on hand should be such that, when the estimated placing and other remaining costs of the work are added, the contract price is not exceeded. The purpose of this is to prevent payment of more than the contract price for the materials and to leave sufficient funds in the item to complete the work.

3-11.5.F Withholds

3-11.5.F.1 Performance Failure Withholds

Whenever the contractor fails to comply with a contract part, including timely submittal of a required document, the resident engineer notifies the contractor of the apparent performance failure. For example, performance failure withholds may be taken for the following required documents:

- Quality control plan
- Baseline schedule
- Updated schedules

- Revised schedules
- Time impact analyses
- Final schedule
- Traffic control plans
- Traffic contingency plan
- Water pollution control plan
- Storm water pollution prevention plan

The resident engineer gives the contractor seven days from this notification to either provide the submittal or a request for information. If neither is provided timely, the resident engineer should take the performance failure withhold in the next progress pay estimate. If the contractor submits a request for information, the resident engineer should allow another seven days from the time the request for information is answered in full before taking the performance failure withhold. Other withholds such as progress withholds, stop notice withholds, and penalty withholds are separate and may be taken simultaneously if justified.

3-11.5.F.2 Stop Payment Notice Withholds

At the onset of the project, it is not uncommon to receive a preliminary notice from a subcontractor, vendor, or others who are supplying materials or services on the project. The preliminary notice is a precursor to being able to file a stop payment notice against the prime contractor (see Civil Code §9300 et seq.). It is important to note that the need to file a preliminary notice does not apply to first-tier subcontractors, laborers, or for work with a value of \$400 or less. When a preliminary notice has been received, the resident engineer shall review and confirm that it is compliant with the regulations. If found to be compliant, the preliminary notice shall be retained within the project files to be cross-referenced in the event a stop payment notice is received. If it is found to be noncompliant, the resident engineer shall provide notice to the person filing the Preliminary Notice that it is rejected on the basis that it was not submitted in accordance with Civil Code §9300 et seq.

When a stop payment notice is received by the SANDAG engineering project coordinator, the resident engineer or shall take the following actions to confirm that it was filed in accordance with Civil Code §9350 et seq.:

- Check that the claimant was subject to filing a Preliminary Notice
- Check that the Stop Payment Notice has been properly submitted
- Check that the Stop Payment Notice was submitted in a timely manner

Provided the stop payment notice is valid, the resident engineer is to withhold from payment to the contractor, sufficient funds due or to become due to pay the claim stated in the stop payment notice. Should it appear likely, additional funds may be withheld to cover SANDAG's reasonable cost for any litigation pursuant to the stop payment notice. The resident engineer shall inform the contractor of this impending action. These funds are to be held until a stop notice release signed by the claimant is received by SANDAG or until otherwise described in this section.

SANDAG has the discretion to permit the contractor to provide a release bond executed by an admitted surety insurer, in an amount equal to 125 percent of the claim stated in the stop payment notice. On the receipt of a release bond, SANDAG will return any funds withheld due to the stop payment notice.

Should the contractor believe the stop payment notice is improper, they may serve SANDAG with an affidavit alleging the legal grounds for the release of the funds and a statement of the facts supporting the allegation. The affidavit also is to include a demand for the release of all or portion of the funds that are alleged to be withheld improperly and a statement of the address of the contractor within the state for the purpose of permitting service by mail on the contractor of any notice or document. The resident engineer shall then send correspondence to the claimant by registered or certified mail, a copy of the affidavit with a notice that SANDAG will release the funds withheld unless the claimant serves upon SANDAG a counter-affidavit on or before the time specified in the letter (between 10 to 20 days).

If no counter-affidavit is received with the time specified, the resident engineer will release the withheld funds to the contractor in the next progress pay estimate. If a counter affidavit is received in time, then either party may file action in the appropriate court. SANDAG will hold funds until the courts orders the distribution of the withheld funds.

3-11.5.G Deductions

Deductions (as opposed to retentions) are those amounts held back for specific purposes. The resident engineer must identify, initiate, and control all deductions.

Make a deduction from payment to the contractor as soon as the liability for the event requiring a deduction has been determined. It is preferable to base deductions on known amounts resulting from agreements or actual billings, but, if necessary, they can be estimated.

Resident engineers must keep source documents and summary sheets in the appropriate contract records to cover all deductions. In the absence of any information to the contrary, the construction management software will carry deductions forward from the previous month.

Whenever the contractor's progress is unsatisfactory, and the project has progressed to a point where a reasonably accurate estimate of possible liquidated damages can be made, the resident engineer must deduct an amount sufficient to cover probable liquidated damages. Make the deduction in lieu of any retention for unsatisfactory progress.

3-11.5.H Supplemental Progress Payments

Resident engineers are responsible for the completeness and accuracy of each progress payment. Supplemental progress payments are used to correct omissions or make adjustments to a previously processed progress payment estimate for work performed within that pay estimate period. Supplemental progress payments may be processed only between the completion of the original monthly progress payment and the 15th of the following month.

3-11.5.I Negative Estimates

The resident engineer is responsible for the accuracy of all payment estimates, including progress payment, after acceptance, semifinal, and final estimates. Negative estimates reflect an overpayment made to the contractor.

Verify the correctness of the contract item quantities and ensure the data submitted conforms to SANDAG policies. The resident engineer should hold the negative payment estimate for processing until approved by the SANDAG principal construction engineer, or delegate, and the SANDAG construction manager. The SANDAG construction manager discusses and resolves negative payment estimates with SANDAG principal construction engineer to determine the best course of action. The SANDAG finance department processes only those negative estimates approved by the SANDAG Director of MMPI. When a negative payment estimate is approved for processing, the SANDAG Finance Department creates an accounts receivable, and directly bills the contractor for the amount due. Accounts receivable debts should be considered for sending to collections after 90 calendar days. If, for any reason, the resident engineer believes that the accounts receivable should not go to collections, notify the SANDAG Department of Finance and the SANDAG construction manager. SANDAG will determine how to proceed with the collection of any amounts due in compliance with applicable law and Board Policy.

3-11.6 Payment After Contract Acceptance

SANDAG makes final payment as soon as possible after the contract is accepted and the contractor submits the required documents requested by the resident engineer. Any estimate covering a payment after contract acceptance is identified either as "after acceptance," "semifinal," or "final." The [Disputes](#) section in [Chapter 5](#) of this manual lists the timeline for completing payment steps after the acceptance process.

3-11.6.A Payment Prior to Proposed Final Estimate

A progress payment after acceptance but before the proposed final estimate must adhere to the Payment Prior to Proposed Final Estimate section of the Special Provisions. The purpose of this type of progress payment is to release all money due the contractor that exceeds any amounts retained or withheld under the contract. When determining amounts to be paid or deducted for this type of estimate, the following applies:

1. Include payment for the following:
 - a. Any work completed since the previous estimate
 - b. Any errors that may have been discovered and corrected
 - c. Any labor compliance deficiencies including skilled and trained workforce deficiencies that have been cleared
2. Include payment for any overbids on maximum value items, including the mobilization item. No additional action is needed for this step.
3. When delinquent or inadequate payrolls exist, make a deduction from the payment. The deduction will be in the same amount as for any progress estimate. See the [Labor Compliance](#) section in [Chapter 7](#) of this manual.
4. When the contractor has failed to correct deficiencies in its equal employment opportunity program, make a deduction from the payment. These deficiencies include failure to submit the Final Report – Utilization of All Subconsultants/Subcontractors, Underutilized/Disadvantaged Business Enterprises, and Small Businesses.

The deductions will be in the same amount as for any progress estimate. See the [Equal Employment Opportunity](#) and [Disadvantaged Business Enterprise](#) sections in [Chapter 7](#) of this manual.
5. To cover any outstanding documents required under this contract, make a deduction from the payment. These outstanding documents could include the following:
 - a. Reduced prints of working drawings

- b. Outstanding payrolls that are not yet delinquent
- c. Any information upon which to base the proposed final estimate, such as adjustments of contract unit prices. The deduction, regardless of the number of outstanding items, will be the lesser of 10 percent of the Subtotal Amount Earned Without Mobilization or \$10,000
- d. As-builts
- e. Shop Manuals, Operating & Maintenance Manuals

In addition to the steps listed above for determining amounts to be paid or deducted for a progress estimate after contract acceptance, the resident engineer also must do the following:

1. Notify SANDAG of what deductions are applicable.
2. Compound the deductions when a combination of the following situations, which were outlined above, occur:
 - a. The contractor has delinquent or inadequate payrolls.
 - b. The contractor failed to correct deficiencies in its equal employment opportunity program.
 - c. The contractor failed to honor requirements related to disadvantaged business enterprises.
3. Also compound permanent deductions. Permanent deductions include items such as material royalties, railroad flagging charges, material testing, out of specification material, or re-staking charges. Also considered permanent are deductions for anticipated liquidated damages. When warranted, anticipated liquidated damages can be made on progress estimates. However, anticipated liquidated deductions will need to be made permanent on the after-acceptance estimate. To do so, release anticipated liquidated damages; then take actual liquidated damages under liquidated damages on the after-acceptance estimate.
4. When deductions are made for outstanding items, advise the contractor in writing of the specific missing items and that they will result in a delay of final payment.
5. Before processing an after-acceptance estimate, run the following two reports, Status of CCO and CCO Master Listing. These reports will show any adjustment of compensation credit or deferred time not yet taken.

3-11.6.B Proposed Final Estimate

The purpose of the proposed final estimate is to obtain formal agreements regarding final payment. For this type of estimate, follow these guidelines:

- Submit the proposed final estimate to the contractor within the time frame outlined in the [Disputes](#) section in [Chapter 5](#) of this manual.
- Soon after the contract is accepted, meet with the contractor to discuss submitting the required information to complete the contract. If the contractor does not submit the required data within four weeks after acceptance, you must notify the contractor in writing that SANDAG will issue the proposed final estimate and deduct the appropriate amount.

- Before the processing of the proposed final estimate, ensure all extra work bills submitted by the contractor are processed and ready for payment. Ensure the estimate's issuance is not delayed for force account billings that remain outstanding.
- If the contractor has not submitted required information in a timely manner, the proposed final estimate must still be issued. In this situation, the following guidelines apply:
 1. Any time before a proposed final estimate is issued, SANDAG may exercise an option described in the Materials section of the Special Provisions. This section identifies the conditions under which SANDAG may establish the cost of materials when valid copies of vendors' invoices are not forthcoming. When the SANDAG decides to establish such costs, use the following procedure:
 - a. If the established cost is necessary to determine compensation, complete the pending CCO and have it unilaterally approved. To determine compensation, refer to the Changes in Character of Work section of the Special Provisions.
 - b. If the established cost is necessary to make force account payment on an existing contract change order, include this established cost as a lump sum payment on a supplemental CCO. Also, unilaterally approve this supplemental CCO.
 2. On the proposed final estimate, you may list (in the amount the SANDAG construction manager determines to be payable) any force account billings that have not been paid because of a dispute. Upon return of the proposed final estimate, the contractor must reiterate the disputed extra work, which must be handled like any other claim. Do not list in the proposed final estimate any force account billings the contractor has not yet submitted. It is the contractor's responsibility to either submit these bills before the proposed final estimate or list them as exceptions to the proposed final estimate.
 3. SANDAG will show the required deduction on the proposed final estimate in the same manner as for any other deduction when the contractor has the following outstanding items:
 - a. Delinquent or inadequate payrolls
 - b. Delinquent or inadequate skilled and trained workforce reports
 - c. Deficiencies in its equal employment opportunity program
 - d. Violations of requirements related to disadvantaged business enterprises

(These items also are described under the [Payment Prior to Proposed Final Estimate](#) section in this chapter.) When such deductions are shown, include a statement similar to the following on the letter that accompanies the proposed final estimate: "The amount of \$ (enter amount), which has been deducted for non-submittal of documents required by the contract, will be paid when all such documents have been received."

- The proposed final estimate is to be prepared and sent to the contractor by the SANDAG construction manager. It should include the following:
 1. A letter transmitting the proposed final estimate to the contractor ([Appendix 3-2, Sample 3](#))

2. A form for the contractor's acceptance of the amounts listed in this estimate ([Appendix 3-2, Sample 4](#))
 3. The proposed final estimate report showing the status of item payments generated by SANDAG along with the schedule of extra work and schedule of deductions reports
 4. If deductions for items such as staking charges, laboratory charges, railroad flagging charges, and overruns of contract time are not finalized and shown on the reports, a list of their estimated maximum amounts must be attached
- Use separate correspondence, not the proposed final estimate, for funds withheld for labor violations and wage restitution (as opposed to outstanding or inadequate payrolls).
 - When money is due on the proposed final estimate, ensure the semifinal estimate processed immediately after reflects the same "totals" as the proposed final estimate. If you follow this approach, the contractor will submit claims based on our "statement of total amount earned," rather than some "revised" number.
 - To establish the beginning of the 30 days during which the contractor may submit written claims, send the proposed final estimate by certified mail, "return receipt requested," or overnight delivery.
 - From the issuance of the proposed final estimate to the receipt of the contractor's response, do not enter into any negotiations, written or verbal, concerning the proposed final estimate or potential claims, except as described in the next bullet. During this time, negotiating or communicating with the contractor (or issuing contract change orders) may negate the finality of the proposed final estimate. If the finality is negated, the contractor may have 30 days from the most recent communication to respond.
 - If you discover an error that requires a decrease in a quantity, send a letter to the contractor stating the discovery of an error, and specify the item and amount of the change. Also, state that the error will be addressed after the contractor returns the proposed final estimate. If the contractor discovers and brings to your attention any errors or discrepancies, handle this situation through separate correspondence covering only the affected items. For example, if the contractor disputes the quantity of an item, send a letter to the contractor stating that the item must be listed as an exception to the proposed final estimate. In the letter, also state that the item will be analyzed after the return of the proposed final estimate and exceptions, also known as the Acceptance Statement.
 - When the contractor returns the Acceptance Statement, proceed as follows:
 1. If the returned Acceptance Statement has no exceptions (claims) and all documents required under the contract have been received, prepare and process the final estimate.
 2. If the returned Acceptance Statement has no exceptions, but some documents are still outstanding, continue pressing the contractor, in writing, for the missing documents. If amounts due the contractor exceeds the deductions by more than \$300, prepare and process a semifinal estimate.
 3. If the documents have not been received in approximately 60 days, request advice from the SANDAG construction manager about further action.

4. If the Acceptance Statement is returned with exceptions, initiate the claims procedure as outlined in the [Disputes](#) section in [Chapter 5](#) of this manual.
 5. If the Acceptance Statement is returned requesting a payment adjustment in accordance with Special Provisions, determine if the payment adjustment is warranted. If the payment adjustment is warranted, make the payment in the same manner as for any other adjustment and unilaterally approve.
- When the Acceptance Statement is not returned within the specified 30 days, ensure it has not been lost in transit and then proceed as follows:
 1. If all documents have been received, prepare and process the final estimate.
 2. If some documents are still outstanding, request advice from the SANDAG construction manager about further action.
 3. If the contractor includes in the Acceptance Statement any claim that is postmarked or hand-delivered more than 30 days after the date the contractor received the proposed final estimate, the claim is considered untimely and will not be processed. On a hand-delivered claim, record the date the claim arrived, who delivered it, and who received it. Retain the envelope for a claim that arrived through the mail to establish the date the claim was sent. Inform the contractor of the late filing by using a letter worded in a similar way to the letter below. This notification will constitute the final administrative action on a late claim.

Notification to Inform the Contractor of a Late Filing

Contractor (insert first and last name),

The statement of claim included in your letter dated (insert date) was submitted to us more than 30 days after you received copies of the proposed final estimate for Contract No. (insert contract number).

A final estimate, therefore, is being processed for issuance to you as provided in the Final Payment and Claim section of the Special Provisions.

Sincerely,

Resident Engineer

1. If the contractor includes claims with the return of the proposed final estimate, the resident engineer should immediately acknowledge the receipt of the claims by sending a written statement similar to the Acknowledgment of Receipt of Claims below.

Acknowledgment of the Receipt of Claims

Your written statement of claims has been received. The engineer will base the determination of your claims upon the investigation of your statement.

The investigation of your claim statement will begin immediately. If it is determined that additional information is required, you must furnish it within 15 days of the request in accordance with the Final Payment and Claims section of the Special Provisions. You may request in writing an extension of time to a specific date. Our purpose is to provide you with the engineer's final determination on claims in the minimum possible time, consistent with the assurance that all the facts are available for consideration.

1. If the initially submitted claim statement is obviously deficient in information, use a paragraph similar to the following example in lieu of the second paragraph above.

Notification of Deficiency of Information

Your initial submission appears to be deficient as to the following (select appropriate item or items):

- i. Statement of contractual basis for claim
- ii. Information as to compliance with Section 4-1.5.A, Section 9-1.6 of the Special Provisions, or both
- iii. Breakdown of amount claimed due
- iv. Other, as applicable

Please submit any further information you wish to have considered by (insert date, approximately 15 days after the contractor will receive the letter). If you will require additional time to prepare your supplementary statement, please request an extension in writing specifying the date to which the extension is requested. The engineer intends to make the final determination on claim matters in the minimum possible time, consistent with the assurance that all the facts are available for consideration.

1. Examine claims expeditiously. For detailed instructions, refer to the [Disputes](#) section in [Chapter 5](#) of this manual.

3-11.6.C Semifinal Estimate

A semifinal estimate is any estimate prepared after issuing the proposed final estimate and before preparing the final estimate. The primary purpose of a semifinal estimate is to make timely payment for all non-disputed items that have not been paid on a previous estimate. However, semifinal estimates also can be issued to make payment if some, but not all claims, have been resolved.

The proposed final estimate need not show a zero balance for money owed to the contractor. If the proposed final estimate does identify money owed to the contractor, immediately run a semifinal estimate after the proposed final estimate. Do not wait for any response from the contractor to the proposed final estimate. Do not issue any other estimates until 30 days after issuing the proposed final estimate.

Normally, use the same procedures to issue a semifinal estimate as those to issue a progress estimate.

3-11.6.D Final Payment and Claims

Submit a final estimate only after one of the following conditions has been met:

- The contractor has submitted all required documents and complete agreement on payment has been reached.
- The director of MMPI's determination of claim has been issued.
- The contractor does not respond to the proposed final estimate in the specified time but has submitted all required documents.
- The resident engineer has been advised by the SANDAG principal construction engineer to proceed.

As soon as SANDAG approves the final estimate, it must use a transmittal letter to send it to the contractor. The letter must state the following: "Submitted herewith in accordance with Section 9-1.10.B of the Special Provisions is a copy of the final estimate for your Contract No. (enter number)."

A copy of the transmittal letter is to be sent to the resident engineer to be retained in the project files.

3-11.6.D.1 Material to Submit with the Final Estimate

Before payment of a final estimate, the SANDAG construction manager must ensure that administrative details have been completed. For this purpose, the resident engineer must forward the following data to the SANDAG construction manager before or with all final estimates:

- Submit the proposed final estimate as originally submitted to the contractor, including transmittal letters.
- Submit the Acceptance Statement returned by the contractor. If the contractor has refused to sign the statement, submit it with an explanation of the contractor's refusal.
- Submit a transmittal letter containing, but not limited to, the following:
 1. A list of the forms and attachments being transmitted or an explanation as to why a form or attachment is missing. Include letters from the SANDAG principal construction engineer authorizing the submittal of the final estimate without certain documents and stating the action taken or to be taken as a result of the missing documents.
 2. A statement about the use of materials agreements. If there are no materials agreements, state this.
 3. A statement that reduced prints of all shop drawings for highway bridges and railroad bridges have been received from the contractor. If such drawings are not required, please state so.
 4. Correspondence or documents explaining or authorizing the differences between the proposed final estimate and the final estimate.

3-11.7 Retentions

Retentions are to be made in accordance with the terms of the contract. Current legislation limits retention to up to 5 percent of the payment, unless a determination has been made that the project is substantially complex and warrants retention in excess of 5 percent (Public Contract Code §7201). This notwithstanding, the resident engineer has the ability to withhold 150 percent of the value of any disputed amount of work from payment.

3-11.8 Adjustment of Overhead Costs

The Adjustment of Overhead Costs section of the Special Provisions provides for an adjustment in compensation. Make the adjustment when the final estimate is less than 90 percent of the original total bid price. Prepare a contract change order to be unilaterally approved by SANDAG. Make the payment for the adjustment in the same manner as for any other adjustment in compensation. The following is an example of a calculation to determine an overhead adjustment:

Example:

Contractor's original bid (including mobilization)	\$100,000
90 percent of Contractor's bid	\$90,000
Final Estimate of total work (including mobilization, extra work, and less permanent deductions)	\$85,000
Difference	\$5,000
Adjustment of Overhead Costs (10 percent of difference)	\$500

3-12 CONSTRUCTABILITY REVIEW

3-12.1 General

The Construction Industry Institute (CTI) defines constructability as “the optimum use of construction knowledge and experience in planning, design, procurement, and field operations to achieve the overall project objectives.” The Construction Management Association of America defines Constructability Review can be defined as “an independent and structured review of construction bid documents by construction professionals to make certain that the work requirements are clear, the documents are coordinated, and that they assist the contractor in bidding, construction, and project administration to result in reduced impacts to the project.” The basis of this concept is that experienced construction personnel need to be involved with the project from the earliest stages to help ensure that the construction focus and their experience can properly influence the owners, planners, and designers, as well as material suppliers. This does not necessarily mean that the design or project objectives should be changed to meet constructability only from a cost standpoint. Constructability should be used as a design consideration so that optimum results provide the best of both worlds.

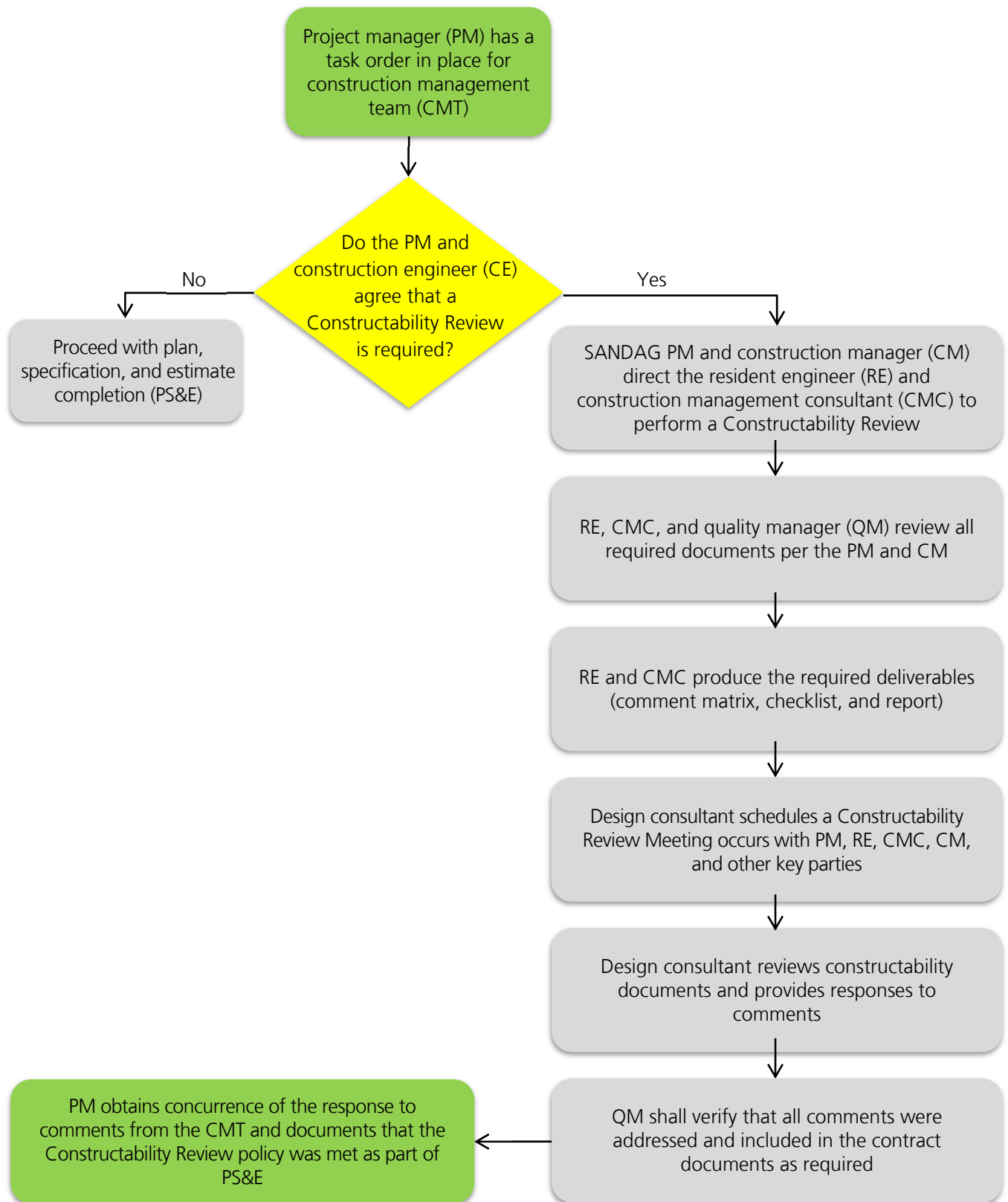
SANDAG has endorsed constructability reviews in an effort to improve the total quality of our construction bid package. SANDAG will optimize the use of construction knowledge and experience in planning and design to achieve the overall project objectives. Constructability reviews should be performed on all major projects. They improve project quality and overall constructability by reducing contract change orders, delay claims, and traffic delays. The constructability reviews also should improve the communication between construction and design staffs during project development, assure that field reviews occur, and minimize plan changes at the final design stages. The best management practice is for all project development team members to take an active role in the quality of the final product. The time spent in performing the constructability review should be considered an integral part of the project development process, and if employed properly, should not impact the project delivery schedule.

SANDAG practice is to submit the design documents to the construction manager for a constructability review prior to advertisement for bid. The construction management firm doing the constructability review may or may not be the firm that manages the construction project. The constructability review will be conducted as stated herein by the resident engineer and CMC under the construction manager and PM’s direction. See Figure 3-1 for a flow chart of the Constructability Review Process.

The resident engineer and CMC team as assigned by the SANDAG PM may perform constructability reviews of the design submittal packages at the 30 percent, 60 percent, 90 percent, and 100 percent design levels including the plans, Special Provisions, bid schedule, and other documents as deemed by the SANDAG PM and construction manager. The construction manager will conduct the 60 percent and 90 percent reviews whenever possible. The design consultant will be required to participate in a constructability review meeting with the CMC team, SANDAG PM, and other key parties as determined by the SANDAG PM. The design consultant will provide supporting design documents as necessary for the CMC team to complete the review.

The constructability review is an important part of getting approval of the design plans, specs, and estimate (PS&E). Approval of all design plans, specifications, and estimates for capital improvement projects is a Board-reportable action per [Board Policy No. 017](#). The Board-reportable action process is managed by the SANDAG engineering project coordinator to get internal approval to move the project from MMPI to the SANDAG contracts division so it can be bid on. The director of MMPI, acting on behalf of the SANDAG Executive Director, approves that staff move this project into the bidding phase. This is a Board-reportable action that the engineering project coordinator will include in the Board report for the following month.

Figure 3-1: Constructability Review Process



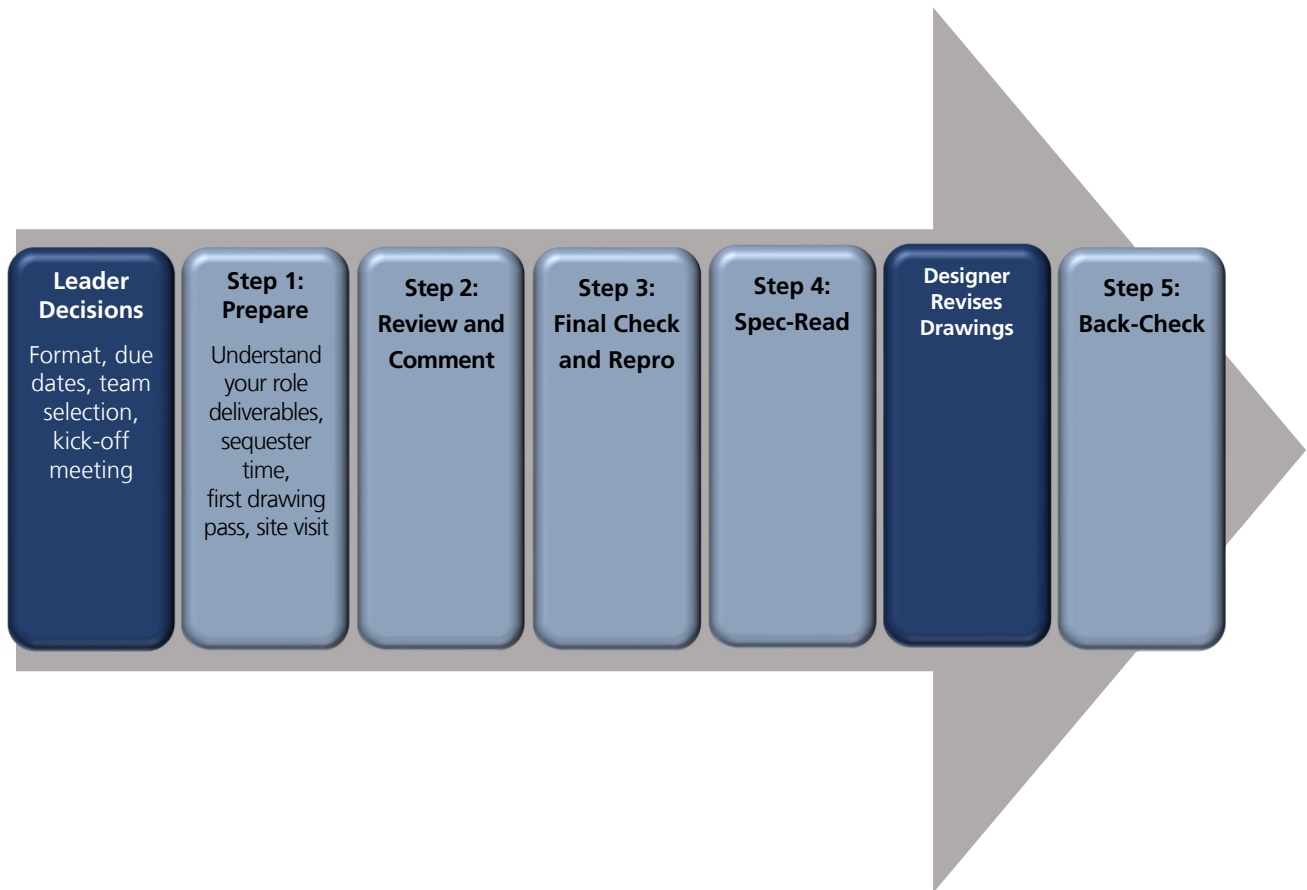
3-12.2 Construction Objectives

Overall, the goal is to save SANDAG time and money by uncovering problems or potential problems that may be encountered during construction such as errors, omissions, ambiguities and conflicts. A constructability review is undertaken to:

- Ascertain that the project design can be built in the allotted time and utilizes cost-effective methods of construction that are common within the construction industry
- Identify the need for design changes based on planned construction activities, means, methods, or techniques
- Permit review and input of SANDAG construction staff and the CMC prior to releasing documents for bid
- Ensure conformance with SANDAG requirements and other codes, standards, and guidelines
- Permit a review of the project cost estimates, bid quantities, schedules, and impacts to transit operations from a construction perspective
- Enhance early planning
- Minimize scope changes
- Reduce design related change orders
- Improve contractor's productivity
- Develop construction-friendly specifications
- Enhance quality
- Reduce delays/meet schedules
- Improve public image
- Promote construction safety
- Reduce conflicts/disputes
- Decrease construction/maintenance costs
- Decrease addendums
- Produce higher quality bids
- Gain greater understanding of project goals
- Result in a smoother construction process
- Reduce administrative costs over the project course for all parties

The Construction Management Association of America ideal five-step process to be followed is shown in Figure 3-2.

Figure 3-2: Constructability Review Five-Step Process



3-12.3 Responsibilities During a Constructability Review

SANDAG Construction Engineer:

- Establish procedures to implement the constructability review process.
- Approve exceptions to not performing constructability reviews.
- Ensure the consistent and effective application of standards and quality management activities for the timely delivery of quality projects.
- Monitor program change requests, contract change orders, and claims to provide agency-wide improvements to standards and quality management activities.
- Provide essential procedures to ensure compliance with this section.

SANDAG Construction Manager:

- Ensure that constructability reviews are resourced to efficiently carry out related activities.
- Ensure the consistent and effective application of standards and quality management activities for the timely delivery of quality projects.
- Prioritize workload and commitments to ensure successful and efficient application of constructability reviews.
- Ensure staff fully participates in constructability reviews.

- Communicate and facilitate information-sharing with the construction engineer, PMs, and program managers for continuous improvement based on systemic program change requests, construction changes, claims, or issues.
- Provide leadership and establish priorities to ensure constructability review requirements are met throughout the project-delivery cycle.
- Provide employees with the appropriate tools, resources, and time to participate in constructability reviews.
- Concur with the response to comments generated by the constructability reviews to complete this process.
- Ensure project compliance with policies, procedures, and standards.

SANDAG PMs:

- Prioritize workload and commitments to ensure successful and efficient application of constructability reviews.
- Ensure staff fully participates in constructability reviews.
- Provide leadership and establish priorities to ensure Constructability Review requirements are met throughout the project delivery cycle.
- Provide employees with the appropriate tools, resources, and time to participate in constructability reviews.
- Ensure project compliance with policies, procedures, and standards.
- Manage Constructability Reviews to ensure they are properly planned, resourced, and completed.
- Manage design consultants and program management consultants.
- Obtain concurrence of the response to comments from the construction team.
- Document that the Constructability Review policy has been met as part of the PS&E package.

Design Consultants:

- Resolve issues and incorporate comments from the constructability review.
- Respond to the constructability review comments.
- Ensure project compliance with policies, procedures, and standards.
- Schedule, distribute information, address comments, and finalize the constructability review comments.

CMC Team/Resident Engineer:

- Ensure that the constructability review objectives have been met.
- Ensure staff fully participates in constructability reviews and that staff is qualified to participate in a constructability review.
- Generate a comment list, checklist, and report as part of the constructability review.
- Provide personnel experienced in policies, standards, and law to participate in constructability reviews.

- Reviews the engineer's estimate to see if the project cost estimate is in line with the CMC team's experience for such project.

Quality Manager (QM):

- Review the project documents to verify that quality considerations are included.
- The QM shall verify that all comments have been addressed and included in the contract documents as required.
- The QM shall be responsible for the final disposition of all comments.

3-12.4 Constructability Versus Value Analysis

How does value analysis differ from constructability reviews? Value analysis and constructability can be similar in effect but differ in both scope and manner of analysis. Value analysis overlaps constructability since its purpose is similar—that is, to achieve the essential functions at the lowest total cost.

Value analysis focuses on function analysis and life-cycle costs, while constructability is achieved by fully exploiting construction experience in a timely and structured fashion. Constructability is most beneficial when performed, prior to establishment of a defined scope, during early planning and design phases. At this time, construction knowledge and experience are least restricted by design decisions, and most capable of affecting the final project.

3-12.5 Deliverables of a Constructability Review

A copy of all constructability review reports, correspondence, meeting minutes, and other documentation shall be maintained in the project files.

3-12.5.A Constructability Review Checklist

A Constructability Review Checklist in [Appendix 3-1](#) has been developed to assist the CMC team in performing in the Constructability Review. The construction concepts have been identified to help during the planning/design stage. These comments should not be considered all-inclusive but are shown to promote thought on the part of the designer and construction management personnel. There is no replacement for good engineering judgment, so each case must be considered on its own merit and handled accordingly.

This checklist shall be submitted together with the comment list to SANDAG PM, construction manager, construction engineer, and design consultant.

3-12.5.B Constructability Review Comment List

The CMC team performing the review shall produce a comment list in the desired format of the SANDAG construction manager describing each concern and its reference document/page. All must set aside their personal preferences during this exercise so that the pure constructability issues can be fully considered.

This list shall be submitted together with the checklist to SANDAG PM, construction manager, construction engineer, and design consultant. Resolution of all constructability issue review comments shall be documented via the constructability review meeting minutes. The design consultant shall provide a response and recommendation to each constructability review comment presented. The SANDAG construction engineer, design engineer, and the QM shall provide final direction in resolution of all constructability comments. Any outstanding constructability issues remaining after the meetings shall be formally closed in writing by SANDAG. All appropriate revisions, as accepted by SANDAG, shall be incorporated by the design consultant into the project bid documents, cost estimates, and schedules.

The design consultant shall keep a list of the constructability review comments and report its implementation progress to the SANDAG PM.

3-12.5.C Constructability Review Report

This report should be completed by the CMC team per the task order timeline (typically three weeks) after the constructability review and submitted to the construction manager and SANDAG PM.

The following items are required in the report and in the review:

1. Objective – which clearly defines the purpose of the study, provides a summary of items discussed (e.g., construction operations, safety, construction feasibility of major project components, staging areas, etc.)
2. Basis of Study – which documents were utilized to complete the study (e.g., plans/specs, geotechnical studies, estimates, etc.)
3. Approach – which provides a narrative of all engineering studies made for the report (e.g., field visits to determine field conditions, surveys, reviewing photo records, mapping, etc.)
4. Assumptions – which may include status of other projects (adjacent to current project and may have an impact or require any coordination), right-of-way assumptions, accuracy of engineer's estimate, etc.
5. Constructability Review Checklist – summary of findings with attached checklist
6. Constructability Review Comment List – summary of findings with attached comments
7. Construction Cost – Independent cost estimates should be furnished, list of assumptions and estimate resources should be provided
8. Construction Schedule – CPM schedule must be developed considering staging plans, absolute work window. A narrative of the critical path should be provided. Unit Production rates should be used to derive activity durations. List of any other assumptions should be provided
9. Conclusion – A summary of all findings and analysis. Recommendations for all alternative analysis
10. Appendices/Exhibits – must include all appendices and exhibits utilized to generate the report or are a part of the report
11. Questions – Any questions the review team has about the project documents or project itself

Appendix 3-1: Constructability Review Checklist

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CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
General Review Tasks	60%	95%	IF NO, EXPLAIN
<i>Beginning Tasks:</i>			
Review entire set for completeness			
Check for detour, traffic handling and stage construction plans			
Cross-check references to standard plans & specs			
Review quantities			
Review general plans			
Identify conflicts with on-going projects			
Check for necessary construction details in project plans			
Check if all necessary permits to construct identified/acquired			
Previous suggestions/corrections addressed			
Analyze if there are any other agency impacts			
<i>Estimate:</i>			
All items of work shown on Plans specified in SSPs and match pay items in BEES. Description and unit of measure are consistent in PS&E.			
Uses SANDAG's specific format			
Summary of Quantities are tabulated & summarized correctly			
Contingencies & soft costs are accounted for appropriately			
<i>Specifications:</i>			
Liquidated damages calculated per project's complexity			
SSPs specify all work to be done in Plans & contract pay items in BEES			
All SSPs have necessary measurement and payment clauses			
Cross-check references to other standards & specs including Caltrans, NCTD, and MTS.			
All SSPs related to obstructions (including high risk facilities) are included			
Railroad clauses provided			
Check for multiple agency specifications including: Caltrans Standard Specs, AASHTO Green Book, AREMA, etc. Verify if contract documents define which specs apply to which item of work and/or govern contract administration. Review for conflicts.			
<i>Design:</i>			
Preliminary structures studies and materials investigation conducted			
Drainage mitigation measures proposed			
Drainage interface with adjoining projects			
Complete and workable construction staging plans shown			
Identification and avoidance of section 4(f) properties			
Utility plans conform to Caltrans policy on high & low risk facilities			
Proposed "work-arounds", if needed, are clearly defined			
Consistency between roadway and structure plans			
Identify railroad involvement			
Identify power source for permanent & temporary electrical systems			
Check if water supply line has been incorporated in bridge plans			
Identify existing as-built irrigation systems			
Typical sections includes existing conditions			
Drainage profiles included as required. Alternative pipe culvert table included.			
<i>Environmental:</i>			
Environmentally Sensitive Areas (ESAs) are identified on plans and included in SSPs.			
Review impacts on riverbeds & waterways			
Storm Water Pollution Prevention Plan (SWPPP) issues addressed			
Verify if environmental reevaluation required or needed			
Verify soundwall designs conform to environmental requirements			
Evaluate design noise levels affected by minor design changes			
Verify permit requirements determined and requests issued			
Verify all permit requirements satisfied and permit receipt progressing on schedule			
Review if plans and specifications include noise mitigation measures during construction			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
Verify all required mitigation measures in the environmental document addressed			
Verify if there is a list of recommendations and commitments for permit requirements including schedules and commitments provided by the permitting agency			
Mitigation monitoring program established and feasible			
Verify if there is a temporary erosion and sedimentation control plan			
Environmental construction windows identified			
Materials and Geotech:			
Check compliance with CA Test Methods, ASTM or AASHTO alternatives			
Check for log of Test Borings for all retaining walls and soundwalls			
Check Project Materials Report recommendations followed for:			
<i>Structural Section Design</i>			
<i>Slope Design</i>			
<i>Embankment foundations & settlement estimates</i>			
<i>Subsurface/ground water control</i>			
<i>Earthwork</i>			
<i>Seismic Design Criteria</i>			
Check Geotech Baseline Info and materials handout provided (if appropriate)			
Identify available materials			
Stage Construction:			
Review general flow of stages			
Review whether special treatment is needed			
Review work windows & reasonability of them			
Check if number of working days is sufficient for type of work			
Check if there is room for equipment			
Review plan and permit restrictions			
Construction easements adequate			
Develop cross sections as required			
Check if mitigation or replacement planting is addressed			
Calculate liquidated damages per project's complexity			
Traffic:			
Traffic Management Plan has been developed, if required			
Show how traffic is being handled for each stage of construction			
Check distance between traffic and work zone			
Review lane closure schedule and detour plans			
Check sign plan and pavement delineation plans			
Review size and type of posts in roadside signs			
Check positioning of K rail			
Review whether K rail is needed for detour			
Check who maintains K rail			
Utilities:			
Make list of all entities			
Check whether there is a utility relocation plan			
Verify existence of utility crossovers			
Check who is responsible for relocation			
Review time & availability for performing work			
Check if agreements in place with all entities			
Check for future utilities versus active utilities			
Verify all permits are identified/obtained			
Identify power locations for irrigation timers			
Access & Room to Work:			
Verify how equipment gets to site			
Assess if there is enough room for equipment			
Check if traffic impacts the access & egress			
Check for adequate access for residents & businesses in areas under construction			
Maintenance:			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
Access for maintenance personnel (trash, landscape, electrical, structures & parking)			
Proposed landscaping provides erosion, weed & insect control & is fast growing			
Provisions for maintenance cleanouts for drainage			
Hazardous Waste:			
Hazardous Waste sites identified and mitigation plan developed			
Hazardous waste design actions consistent with SANDAG's Haz. Waste Procedures			
Initial Site Assessment (ISA) conducted on all properties involved in the project			
Extent and nature of hazardous waste sites identified by RI/FS			
Hazardous waste mitigation prior to construction includes documentation to ensure mitigation completion			
Hazardous waste mitigation during construction (by exception only):			
<i>Appropriate plans and specifications being developed</i>			
<i>PS&E adequate to being biddable and understandable by contractor</i>			
<i>SANDAG Construction Engineer for Project Development approval</i>			
<i>Proposed work-arounds, if needed, are clearly defined</i>			
<i>Appropriate permits and plans are handled</i>			
Construction Hazardous Waste Contingency Plan			
Hazardous waste mitigation completed prior to PS&E submittal			
Hydraulics:			
Approved preliminary drainage report			
Approved vertical and horizontal alignment			
Typical cross-section			
Preliminary drainage plans			
Maintainable facility with sufficient right-of-way and/or drainage easements			
Utilization of correct erosion factors for slope soil loss, stream aggradation/degradation outlet velocities			
Subsurface conditions studied adequately including groundwater control			
Flow diversion/connection approved by appropriate agencies			
Drainage for construction staging			
Drainage interface with adjoining projects or future projects			
Drainage plans, profiles and details are sufficient including special designs for large underground structures			
Grading plans			
Soundwall and/or retaining wall drainage plans adequate			
Bridge and/or pumping plant plans included			
Erosion Control plans complete and sufficient			
Pipe jacking method appropriate for given site conditions			
Materials report recommendations for backfilling adequate			
Channel lining adequate for conditions and availability of source			
Drainage is consistent with roadway and structure plans			
Drainage quantity estimates accurate			
Drainage specifications adequate			
All required pennits obtained including cooperative agreements			
Floodplan issues resolve (ie, impact on base flood elevation)			
Computability of project with future projects			
Hydrology:			
Ultimate drainage basin design protects private property and freeway against flooding			
Minimum diversion of natural stream flow			
SAG points of depressed sections of alignment designed for 50-year storm			
Pumping plants designed according to Caltrans Pumping Plant Design Manual			
Upstream and downstream affect on run-off is addressed			
Are water quality (surface groundwater) impacts anticipated and mitigated (detention and/or retention ponds required)			
Are dewatering systems needed			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
<i>Right-of-Way:</i>			
Right-of-way boundaries include all highway facilities			
All construction and footing easements are identified			
All appraisals, acquisitions and relocation assistance procedures/processes are conducted in accordance with Federal/State regulations			
All high risk utility relocations identified			
All utilities have Joint Use or Common Use agreements			
Railroad agreements contain necessary language with regard to insurance, maintenance, construction, costs and clearance issues			
Environmental mitigation agreements cover park and ride facilities or other mitigation issues contained in the Environmental Impact Report			
All easements are reviewed before granting			
Schedule of all utility relocations required prior to start of construction is identified			
All hazardous waste procedures are satisfactorily completed and necessary clearance documents obtained			
All right-of-way has been certified			
<i>Surveys:</i>			
Horizontal control Information: IE: NAD 27 or 83 monuments used for control, Calif. Coord. System			
Vertical control : Datum used and benches for vertical control			
Bearings, stationing, curve information (alignment)			
All dimensions			
Drainage plans and profiles			
Determine that the plans are stakeable from a construction survey point of view			
Right-of-way summary traverses			
Sub grade & finished grade slope stake listings			
Cross sections - w/finished and subgrade			
Pre PS&E			
Check need for falsework, if openings are provided, clearances, and lighting			
Review that permits are allowing for constructability and reasonable access			
Verify right-of-way or easement for foundations, piles, tie backs and soil nails			
Review foundation recommendations			
Reasonable and constructible pile type per field conditions			
Review access and site conditions for performing substructure work. Verify overhead utilities wont interfere with crane booms.			
Check for special testing requirements. Verify time allotted for testing. Check if supplemental funds needed.			
Check if stage construction plans included, reasonable, and consistent with bridge plans			
Check if existing utilities are identified and time allotted for relocation, staging, and coordination			
Assess feasibility of lane closure charts, work window times/days			
Review if widening or closure pours are needed and shown. Assess the sequence and time delay noted.			
Check if temporary rail is consistent with bridge plans. Review if drill and bond anchorage detail is shown.			
Conduct field review of the existing structure/object and any conflicts.			
Evaluate if geometrics are consistent with bridge/road plans			
Review feasibility of construction windows required or allowed by environmental resource agencies			
Evaluate if road grading plans are consistent with bridge length, slope paving, and/or retaining wall. Check for room for approach guard railing.			
Check if rock slope protection is compatible with bridge plans			
Analyze if roadway drainage is provided at bridge ends			
Review deck drainage connections to roadway drainage. Check slope paving drains			
Check for conflicts between existing underground, overhead utilities, foundation construction, and equipment			
Check for seal course & note shown on bridge plans			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
Verify underground & overhead utilities are shown on the foundation plan and consistent with road plans			
Evaluate feasibility of permanent minimum vertical and horizontal clearances			
Check conflicts between existing foundations and seal courses			
Verify the number of working/calendar days permit time restrictions			
Verify if the railroad agreement defines work windows			
Assess if the settlement periods defined in the SSP are consistent with foundation recommendations			
Evaluate any hazardous waste issues			
Evaluate any archaeological/paleontological issues			
Verify if there is sufficient room for sloping or shoring excavations, placing k-rail, column guys, falsework pads, etc. for footing construction near life traffic			
Check if crane boom/leads infringe on live traffic air space for driven battered piles			
Assess if there are aerially deposited lead (into soil) issues			
Evaluate if CIDH piles are vertical only and battered			
Bridge - Post PS&E			
<i>General Plan Sheet</i>			
Check that pile data (type, size, tip elev, cut off elev) are consistent with foundation recommendations and pile extensions			
Verify quantities reasonable and agree with special provisions			
Assess if shotcrete limits are defined			
Look at minimum vertical clearance under falsework are attainable per the SSP			
Evaluate if utility openings and pull boxes agree with utility plans, foundation plans, etc. Check that the fit in barrier rail/sidewalk.			
Check that BB/EB elevations and profile grade line agree with deck contour sheet and roadway plans			
Review existing facilities for interference with construction and if special treatment from noise, vibration, etc. is needed.			
Verify horizontal curve data agree with road plans			
Check deck drains and access openings			
Plot specified pile tip on LOTB sheet. Check for feasibility. Review for adverse conditions such as water, bedrock, cobbles and boulders, caving, etc.			
Verify stationing and x-fall are consistent with roadway plans			
<i>Deck Contours Sheet</i>			
Check general plan horizontal/vertical curve layout against roadway plans. Check deck contour layout against general plan.			
Verify roadway shoulders transition to meet bridge x-fall			
Evaluate the contour interval			
Check that stationing is consistent with roadway plans and general plans			
Review edge of deck lines and substructure bearings for correctness and if they are skewed.			
Verify contour line spacing agrees with deck x-fall on general plan			
Verify edge of deck and wingwall layout lines are correctly located with respect to centerline. Check that substructure control lines are at correct bearing and station.			
Compare contour elevations with profile grade elevations			
Compare BB and EB elevations with general plan			
<i>Foundation Plan</i>			
Verify if there is enough information to lay out foundations in field			
Check that stationing and span lengths agree			
Check centerline of substructure bearings. Verify if they are normal, skewed and if they agree with skew angle.			
Verify footing spacing dimensions agree with structure width shown on typical section			
Check footing elevations for cover at bents and abutments; use road plans for elevations of roadway shoulders etc.			
Compare wing wall LOLs line up with approach pavement bearings			
<i>Abutment Layout and Details</i>			
Verify utility openings shown agree with general plan			
Review if utility openings fit between girders			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
Check utility openings referenced to standard plans			
Evaluate drainage type behind abutments and where it drains to			
Verify pile layout is consistent with footing dimensions			
Compare footing dimensions with foundation plans			
Compare bearing pad layout is consistent with girder layout			
Verify details address all components of abutment construction: bar reinforcement in wing walls, back walls, stem, footings, shear keys and blocks etc. When to place approach slabs, joints, drainage etc.			
For stage construction, check rebar splicing details between stages			
<i>Bent Layout and Details</i>			
Assess type of column connections - top and bottom			
Review size and arrangement of main column reinforcement			
Evaluate spiral or hoop reinforcement, size, pitch and splice type			
Verify no splice zone, if any, for vertical reinforcing			
Check that utility openings through bent cap, are consistent with other sheets and referenced to standard plans			
Verify if column reinforcement interfere with P/S ducts			
Verify if bent cap reinforcement interfere with P/S ducts			
Verify pile layout is consistent with foundation plan and footing dimensions			
Check for column drains and grate details			
For columns pinned to footings, check that key size adequately dimensioned. Check bond breaker/expansion paper and pin details are specified.			
Verify flare details are adequate at top of column			
<i>Typical Section</i>			
Check utility openings layout and standard plan reference and compare with other plan sheets for consistency			
Verify if camber diagram is reasonable. For simple spans verify it meets 0.10' per 100 feet of span length.			
Evaluate if there is sufficient information to lay out and detail girder stem and deck steel			
Verify girder stem, deck and overhang thickness' are shown			
For widening, verify falsework release alternatives are provided. Verify transverse deck reinforcement bar splices are identified by type?			
<i>Girder Layout</i>			
Verify soffit and stem flares, if any, are properly dimensioned			
Verify prestress notes are complete. Verify Pjack, anchor set, number of girders, stress distribution if different from standard plans, concrete strength at time of stressing, initial stress.			
Check that critical points of P/S CG are shown			
Verify girder stirrup spacing, bar size and shape are shown			
Check that there is enough information to layout girders on varying width bridges			
Evaluate location of deck drains and special details for installation shown			
<i>Special Details</i>			
Barrier rail			
Approach slab and drainage			
Median barrier			
Bridge mounted signs			
Electroliers, call boxes, soffit lights etc. Check electrical plans			
Joint seals			
Slope paving			
Rock slope protection			
Utilities			
Stray current protection			
Architectural treatment			
Hinges: If hinge is skewed, verify it is clear whether the dimensions are perpendicular to hinge center line or parallel to structure center line. Check if rebar spacing follows dimensioning. For joint seal assemblies, verify details are provided for installation in overhangs and barrier rails.			
Bridge Plans Only			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
<i>Elevation view</i>	60%	95%	IF NO, EXPLAIN
Profile grade is equal to profile shown on road plans (if available)			
Total length of bridge is equal to sum of span lengths.			
Tip elevation is shown for cast-in-drilled-hole piles			
Tip elevation and bearing values are shown for driven piles			
Specified minimum vertical clearance shown will actually be obtained			
<i>Plan view</i>			
Bearing of tangents			
Various stationings			
Curve data			
Roadway dimensions (check against road typical section)			
Side slopes of cuts and fills (check against road typical section)			
Distance between the BB and the EB equal to that shown on the elevation view			
Enough horizontal clearance has been provided under the bridge for falsework traffic openings			
Shoulder treatment has been specified if bridge is shoulder-to-shoulder width			
Skew angles checked against tangent bearings			
<i>Typical section</i>			
Total width equal to sum of individual dimensions			
Dimensions equal to those shown on the plan view			
Deck superelevation. equal to the superelevation specified for the bridge approaches in the Road plans (if available)			
Deck surface treatment specified for widening jobs (concrete surface will be rough when barriers are removed)			
<i>Deck Contours</i>			
Confirm that the deck contour sheet has been included for new structures			
Stationing of BB, EB, centerline abutment, and centerline bent			
<i>Foundation Plan (check against General Plan)</i>			
Bearings of lines agree			
Skew angles agree with bearings			
Spread footing elevations are shown			
Stations for center lines of abutments and bents agree with distances shown on General Plan elevation view			
Dimensions along skew lines agree with right angle dimensions shown on the General Plan			
Bench mark data agrees with District survey data			
<i>Abutment Details</i>			
Cumulative distance from the centerline of bearing to the BB, the centerline of bearing to the EB, and the span lengths equal with the cumulative distance from the BB to the EB on the General Plan			
Footing dimensions are the same as those shown on the Foundation Plan			
Pile spacing is the same as shown on the Foundation Plan			
Wingwall piles are located under the wingwall with appropriate edge distance			
Wingwall footings have adequate cover			
Total length of wingwan is correct			
Skew dimensions and right angle dimensions concur			
Spacing for the bearings agree with the spacing for the girders (must agree for T-beam, steel girder, prestressed I girder- does not necessarily have to agree for box girder)			
Bearing elevations if shown			
Provisions have been made for expansion of the bridge deck (expansion joints, planes of slippage between deck and solid abutment, sliding joints under barriers or sidewalks, etc.)			
Vertical dimension of wingwall curb overhang against vertical dimension of deck overhang			
Width of berm in front of the abutment has been specified			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
At box girder abutments with bolster strengthenings, look for details which show vertical bars bonded in holes cored or drilled through the bottom soffit. This detail should be reviewed and changed to a detail removing all bottom soffit concrete to the width of the bolster to allow cast-in-place construction			
<i>Bent/Pier Details</i>			
Footing elevations and dimensions compare to those shown on Foundation Plan			
Length of the bent/pier cap shown is correct			
Pile spacing conforms to the Foundation Plan			
Bearing elevations if shown			
If the footing is being retrofitted or widened, confirm whether or not the original had a seal course. If so, the seal course will stick out at least 2' beyond the neat lines of the footing. Are there any pile conflicts?			
If a concrete foundation seal is shown, it must be clearly labeled "Seal Course". Otherwise, the Contractor can claim additional compensation in the event the seal course is eliminated			
If the centerline of the structure is on a curve and the bents/piers are parallel to each other, the lengths of the piers will vary. Therefore, a typical bent/pier with a fixed length should not be shown			
At bent cap strengthenings, look for details calling for drill & bond through bent caps. Question the designer to see if coring can be utilized to avoid making unwanted drill holes at the top of the column			
For infill walls, check for overhead dowels in the bottom of the soffit or bent cap. If shown, make a note for the designer that the Office of Earthquake Engineering no longer recommends this detail A gap between the bottom soffit or bent cap and the infill wall is permitted - should allow sufficient room for finishing the top of infill wall (at least 6")			
Look for a spiral splice detail Typically, this detail is good for #4, #5, and #6 spiral. Make a note to the designer that the METS Structural Materials Section has said that the detail is good for #7 spiral also			
When footings are being retrofitted such that an existing pinned column is being made fixed, look for notes calling for removal of existing expansion material. Check to see if practical			
Details and notes made where couplers (mech. splice) cannot be used			
<i>Typical Section (check)</i>			
Dimensions, superelevations, barrier dimensions and slopes, girder spacings, etc. should agree with those shown on the General Plan			
Utility openings are shown and have been dimensioned			
Type and height of barrier agree with that shown on the barrier detail sheet (if not a standard barrier)			
If a bridge is on a skew, a note should be placed stating whether the transverse deck reinforcing steel is to be placed parallel to bents or transverse to centerline of bridge			
<i>Girder Layout and Longitudinal Section</i>			
On box girders, the thickness of slabs, width of girder webs and depth of superstructure are shown, both at mid-span and at the supports			
On box girders, the lower slab has adequate drains to completely drain the cells			
A bridge camber diagram has been included			
On bridges with a tight radius and/or deep girders that are CIP/PS, the #4 duct ties detail and/or interior diaphragms call out to restrain horizontal component of PJACK			
At box girder bridges with hinge retrofits that include a hinge bolster, the old soffit vent is to be plugged and a new soffit vent is specified			
<i>Miscellaneous Details</i>			
Foundation recommendations made by the Office of Structural Foundations (if preliminary report is available) have been taken into consideration on the Foundation Plan sheet(s)			
The position of electroliers, soffit lights, pull boxes, etc. agrees with the road plans			
The sizes of reinforcing bars have been specified (sometimes these are inadvertently left off, particularly on the Typical Section)			
Grinding of butt splices in steel girder flanges has been specified			
Appropriate standard detail sheets have been included (piles, joint seal assembly, approach slab, column casing, restrainers, etc.)			



CONSTRUCTABILITY REVIEW CHECKLIST

Contract No.:	Consultant:	SANDAG Project No.	
CTO:	Description:	SANDAG Project Manager:	
ITEM			
	60%	95%	IF NO, EXPLAIN
On highly skewed bridges, the abutment/wingwall acute corner has sufficient room to fit a prestress jack			
Items mentioned in the special provisions agree with the contract plans, such as staging			
When driven piles are specified, a note containing the possible necessity of driving shoes should be noted if the specified tip elevation is in hard material			
Any details requiring exact layout to meet buried or as-built work should be questioned (e.g. coring through footings to intersect existing piles at centerline of pile)			
When coring through hinges is called for, the special provisions contain a note stating that angle iron, rebar, bearing plates, etc. may be encountered			
At hinge seat pipe extenders, the box girder deck/soffit access opening will allow installation of the pipe extender in one piece			
On retrofit work, dowels drilled and bonded into girders are to avoid as-built posttensioning path			
A waters top or membrane waterproofing is shown wherever it is needed, such as hinges using a Type A or B joint seal, 6" into the low-side barrier, approach slab/backwall interface, etc.			
Engineering Manager Initials _____			

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Appendix 3-2: Samples Letters and Memos

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San Diego
ASSOCIATION OF GOVERNMENTS
MEMO

June 6, 2019

CIP 1280504

TO: Jim Linthicum, Ramon Ruelas, Eric Adams, Omar Atayee
FROM: Gary Bosse, Resident Engineer for SANDAG [Simon Wong Engineering]
SUBJECT: CONTRACT ACCEPTANCE: SOUTH BAY BUS RAPID TRANSIT (BRT) SEGMENT 1B PROJECT, CIP 1280504, CONTRACT 5007005

This is to inform you that my final inspection has determined that the contractor, Pulice Construction, Inc. (Pulice), has satisfactorily completed the required contract work in compliance with the conformed drawings, Special Provisions, and applicable change orders to meet project completion of Contract 5007005. All work was completed by May 17, 2019. The total contract value was \$16,951,616.00, plus approved construction change orders totaling \$1,000,457.75, for a total of \$17,952,073.75. The contract was completed on time within the 300 original working days and approved time extensions of 170 working days (470 total days). I recommend that Pulice be granted Acceptance.

Pulice was previously granted Relief From Maintenance (RFM) in a letter dated November 28, 2018 (effective October 25, 2018).

Therefore, in accordance with the provisions of Section 7-6.05, "Acceptance of the Contract," of the Special Provisions, and SANDAG Policy No. 024, "Procurement and Contracting – Construction," I recommend that Acceptance be granted, effective May 17, 2019.

The Acceptance letter is attached for Jim's signature.

CONCUR:

CONCUR:

OMAR ATAYEE (date)
Project Manager

ERIC ADAMS (date)
Construction Manager

CONCUR:

CONCUR:

MIKE DANAY (date)
Manager of Contract Operations & Passenger Facilities
San Diego Metropolitan Transit System

WILLIAM VALLE (date)
Director of Engineering & Capital Projects/
City Engineer, City of Chula Vista

CONCUR:

CONCUR:

DALE NEUZIL
For As-Builts

(date)

RAMON RUELAS
Construction Engineer

(date)

APPROVE:

JIM LINTHICUM
Director of Mobility Management
and Project Implementation

(date)

LTorio/M_1280504_5007005_ACCEPT.GBosse

cc: Ramon Ruelas, John Anderson, Omar Atayee, Louise Torio, Contracts File
MTS: Mike Daney
Chula Vista: William Valle

Attachment: Acceptance Letter



VIA CERTIFIED MAIL

401 B Street, Suite 800
San Diego, CA 92101-4231
(619) 699-1900
Fax (619) 699-1905
sandag.org

June 12, 2019

CIP 1280504
5007005

Mr. Max Frazier
Vice President
Pulice Construction
591 Camino De La Reina #1250
San Diego, CA 92108

Dear Mr. Frazier:

SUBJECT: CONTRACT ACCEPTANCE: SOUTH BAY BUS RAPID TRANSIT (BRT)
SEGMENT 1B PROJECT, CIP 1280504, CONTRACT 5007005

Pulice Construction, Inc. (Pulice), is hereby granted Contract Acceptance effective May 17, 2019, for the above-referenced project.

Acceptance is granted in accordance with Section 7-6.05, "Acceptance of Contract," of the Special Provisions and SANDAG Policy No. 024, "Procurement and Contracting – Construction."

Sincerely,

JIM LINTHICUM
Director of Mobility Management
and Project Implementation

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cc: SANDAG: Ramon Ruelas, Eric Adams, Omar Atayee, Louise Torio, Contracts File
MTS: Mike Daney
Chula Vista: William Valle
Simon Wong Engineering: Gary Bosse, Project Files

MEMBER AGENCIES

- Cities of
- Carlsbad
- Chula Vista
- Coronado
- Del Mar
- El Cajon
- Encinitas
- Escondido
- Imperial Beach
- La Mesa
- Lemon Grove
- National City
- Oceanside
- Poway
- San Diego
- San Marcos
- Santee
- Solana Beach
- Vista
- and
- County of San Diego

ADVISORY MEMBERS

- Imperial County
- California Department of Transportation
- Metropolitan Transit System
- North County Transit District
- United States Department of Defense
- San Diego Unified Port District
- San Diego County Water Authority
- Southern California Tribal Chairmen's Association
- Mexico



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sandag.org

VIA CERTIFIED MAIL

June 12, 2019

CIP 1280504
5007005

Mr. Max Frazier
Vice President
Pulice Construction
591 Camino De La Reina #1250
San Diego, CA 92108

MEMBER AGENCIES

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- Oceanside
- Poway
- San Diego
- San Marcos
- Santee
- Solana Beach
- Vista
- and
- County of San Diego

ADVISORY MEMBERS

- Imperial County
- California Department of Transportation
- Metropolitan Transit System
- North County Transit District
- United States Department of Defense
- San Diego Unified Port District
- San Diego County Water Authority
- Southern California Tribal Chairmen's Association
- Mexico

Dear Mr. Frazier:

Subject: PROPOSED FINAL ESTIMATE (PFE) – SOUTH BAY BUS RAPID TRANIST (BRT) SEGMENT 1B PROJECT, CIP 1280504, CONTRACT 5007005

In accordance with the provisions of Section 9-1.10B, "Final Payment and Claims," of the Special Provisions, attached (in duplicate) is a proposed final estimate for the above-referenced contract. The total contract value was \$17,936,226.71. The proposed final estimate will be in the amount of zero dollars.

Please review the revised proposed final estimate and, if satisfactory, indicate your approval in the space provided on the attached Acceptance Statement. Return one copy of the Acceptance Statement to the Resident Engineer, Gary Bosse, PE, at SANDAG, 2602 Hoover Avenue, Suite 101, National City, CA 91950, and send a copy via email to Louise Torio, Engineering Project Coordinator, at SANDAG, 401 B Street, Suite 800, San Diego, CA 92101, Louise.Torio@sandag.org. One copy is for your files.

Please note the following portion of Section 9-1.10B of the Special Provisions, which states:

"The contractor shall submit written approval of the proposed final estimate or a written statement of all claims arising under or by virtue of the contract so that the engineer receives the written approval or statement of claims no later than close of business of the thirtieth day after receiving the proposed final estimate. If the thirtieth day falls on a Saturday, Sunday, or legal holiday, then receipt of the written approval or statement of claims by the engineer shall not be later than close of business of the next business day."

Your promptness in returning the signed copy, indicating your approval, will expedite payment of the final estimate. Alternatively, a signed qualified approval by reason of a written statement of claims will expedite payment of a semifinal estimate. A statement of claims must include a notarized certificate containing the language required in Section 9-1.10B of the Special Provisions.

If claims are submitted in connection with this contract, you will be expected to comply fully with the applicable paragraphs of Section 9-1.10B of the Special Provisions. The Engineer will base the determination of claims upon the investigation of your statement, in which you will be expected to present your position fully as to the contractual basis of the claim; compliance with contract requirements such as Section 4-1.03A, "Procedure and Protest," or Section 9-1.06, "Notice of Potential Claim" of the Special Provisions, if applicable; a breakdown of the total amount claimed; and all other information you consider to be in support of your claim.

As further provided in Section 9-1.10B of the Special Provisions, in case neither approval nor a statement of claims is received within 30 days, a final estimate in the amount of this proposed final estimate will be issued. Your date of receipt of this proposed final estimate establishes the beginning of the specified 30 days.

Sincerely,

JIM LINTHICUM
Director of Mobility Management
and Project Implementation

LTorio
12805040_5007005_SBBRT_1B_Pulice_PFE.GBosse

Attachments: Proposed Final Estimate (2)
Acceptance Statement (2)

cc: SANDAG: Ramon Ruelas, Eric Adams, Omar Atayee, Louise Torio, Contracts File
Simon Wong Engineering: Gary Bosse

[Insert Proposed Final Estimate Here]

ACCEPTANCE STATEMENT

Attached to transmittal letter
dated June 3, 2019

Project: CIP 1280504
Contract: 5007005
SOUTH BAY BUS RAPID TRANSIT (BRT)
SEGMENT 1B PROJECT

I have examined the quantities of contract items and amounts indicated as payment for Extra Work and Deductions on the Proposed Final Estimate dated June 12, 2019.

I agree to accept the total of \$17,936,226.71 as indicated, as the total amount earned for all work performed on the above contract, except as may be indicated below.

EXCEPTIONS: (check one)

None

As indicated per attached letter dated

CONTRACTOR:

Pulice Construction, Inc.

By _____

Title _____

Date _____

LTorio
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6/6/19



Chapter 4

Quality Assurance and

Controls

Construction Division
Department of Mobility Management and Project Implementation



SANDAG Construction Manual

Chapter 4 – Quality Assurance and Controls

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4-1 PURPOSE

It is the commitment of SANDAG that the projects are designed and constructed with the highest regard for quality. The construction program shall define quality goals and objectives, specify quality related activities, assign responsibilities for ensuring that quality control (QC) and assurance responsibilities are planned and executed on a timely basis, and establish objectives for continual improvement of quality.

4-1.1 Responsibilities

The resident engineer, construction management consultant (CMC), and contractor shall be responsible for working closely with SANDAG, North County Transit District, Metropolitan Transit System, and other SANDAG member agencies staff to ensure the success of the project. Should a regulatory compliance issue or safety concern related to the maintenance and operation of existing or new improvements be identified by the resident engineer/CMC, the resident engineer/CMC is to immediately report the concern to the construction manager and, if warranted, to applicable operator or other member agencies. When applicable, the operator shall report deviations from regulatory requirements related to the operation of the railroad to the governing regulatory authority when required.

The contractor is solely responsible for ensuring that the quality of the work (including the work performed and incorporated into the project and/or materials procured from subcontractors, vendors, manufacturers, and suppliers) meets the requirements of the contract in full. As a means of ensuring that the performance of the work fulfills the requirements of the contract and that the materials, equipment, and all elements of the work will perform satisfactorily for the purposes intended, the contractor shall provide a Contractor Quality Control Plan (CQC Plan) in accordance with the contract special provisions for the project.

The resident engineer shall see that the contractor is implementing the approved CQC Plan for all aspects of the contract, including construction and contract administration. The contractor is ultimately responsible for the quality of the work, including all work and products of subcontractors at all tiers, fabricators, suppliers, and vendors both on site and off site. SANDAG has the right to conduct periodic audits and inspections of the project and will sample, test, and measure material used and installed by the contractor, subcontractors of all tiers, suppliers, and vendors.

SANDAG and its construction management team (CMT) will perform a quality assurance (QA) role, closely monitoring performance of the CQC Plan to verify its effectiveness. The basic measure of effectiveness is that the work is performed correctly the first time. Secondly, if a problem does occur, action(s) must be immediately taken, not only to correct the problem, but to ensure it does not occur again. The resident engineer shall develop a QA Plan for the project. The QA Plan shall identify the requirements for development, implementation, maintenance, auditing, and reporting of QA activities in support of the SANDAG Quality Assurance Program (QAP) and associated procedures.

Work shall not begin on the project until SANDAG's acceptance of the CQC Plan and SANDAG's acceptance of the CMC's QA Plan.

A summary of responsibilities during construction is summarized in Table 4-1.

Table 4-1 Responsibilities During Construction

Construction Task (Summary)	SANDAG Quality Manager	Resident Engineer/ Construction Manger Team	Contractor
Review and ensure SANDAG quality manager (QM) review/approval of CQC plan	P	P	P
Develop project-specific QA plan	D/P	P	P
Review, monitor, and accept project-specific QA Plan	P	P	
Constructability review		P	
Source inspection		P	P
Procedure approval		P	
Perform inspections		P	P
Witness inspections		P	
Perform tests		P	P
Witness tests		P	P
Approve inspection/testing/ surveillance reports		P	
Administer nonconformance program		P	P
Obtain approval for nonconformance dispositions		P	
Perform quality audits	P	P	
Review audit reports	P	P	
Issue stop work		P	P
Release stop work		P	

D/P: The identified organization may perform the function or delegate the performance to another organization with the SANDAG construction manager approval.

P: The identified organization is to perform the function.

4-2 QUALITY CONTROL OBJECTIVES AND RESPONSIBILITIES

4-2.1 Contractor's Quality Control Plan

The contractor is required to develop and submit a comprehensive CQC Plan consistent with the requirements of the contract special provisions for QC. The resident engineer and QM will review the contractor's submittal and approve or reject the CQC Plan, along with any comments. The resident engineer will follow the same process in reviewing subsequent revisions and amendments to the CQC Plan.

4-2.2 Contractor's Quality Control Plan Submittal

The CQC Plan shall contain all of the requirements of the contract documents, and if reflected in the contract documents include the additional elements summarized below. The QM (and resident engineer, if already designated) shall be responsible for reviewing the bid documents to determine what must be included in the CQC Plan, as each project may vary.

1. Management responsibility
2. Documented quality management system
3. Design control
4. Document control
5. Purchasing
6. Product identification and traceability
7. Process control
8. Inspection and Testing – The CQC Plan shall include a readiness review meeting and QC work plan for major elements of work
9. Inspect, measure, and test equipment
10. Inspection and test status
11. Non-conformance
12. Corrective action
13. Quality records
14. Quality audits
15. Training

4-2.2.A CQC Plan Review and Approval Procedures

The following is an outline of how the CQC Plan will flow through the submittal and approval process:

1. Contractor submits its proposed CQC Plan to the resident engineer.
2. Resident engineer reviews and distributes the CQC Plan to the SANDAG QM, construction manager, and the ultimate owner/maintainer (if deemed appropriate) of improvements for review with request for comments.
3. Resident engineer compiles comments from the SANDAG QM within an allocated review time.
4. Resident engineer and SANDAG QM accept or reject.
5. Resident engineer issues/returns the CQC Plan to the contractor with one of two status options:

- a. "ACCEPTED" status and returns to the contractor for use.
- b. If corrections to the submitted CQC Plan are required, each print will be marked "MAKE CORRECTIONS NOTED" or "AMEND AND RESUBMIT" and the required corrections will be explained. One copy will be returned for correction by the contractor. If the contractor receives an "AMEND AND RESUBMIT" status, the contractor shall resubmit the CQC Plan with all comments addressed and the review time will start over from the date of receipt by the resident engineer.

IMPORTANT: The resident engineer typically has a short turnaround (verify in project-specific contract documents) from receipt of the submittal from the contractor to distribute the submittal to the QM, compile all review comments, and return the submittal to the contractor with a disposition of "ACCEPTED," "MAKE CORRECTIONS NOTED," or "AMEND AND RESUBMIT." The resident engineer shall secure the necessary resources to review the submitted CQC Plan, verify that it complies with the contract document requirements, assure that it meets the needs of the project's quality requirements, and it is returned to the contractor with a disposition within the allotted time to avoid delays in beginning construction. The approval of the CQC Plan does not relieve the contractor of meeting all of the requirements of the contract documents, should there be an omission within the approved CQC Plan, and shall not relieve the contractor of the responsibility of providing QC measures to assure that the work strictly complies with the requirements of the contract documents.

4-2.2.B Modifications or Changes to the Contractor's Quality Control Plan

The CQC Plan may be modified as work progresses. A supplement shall be submitted by the contractor whenever there are changes to QC procedures or personnel for review and acceptance by the resident engineer. Work requiring amended CQC Plan inspections and tests shall not be performed before the amended parts of the CQC Plan have been accepted by the resident engineer and QM or unless otherwise authorized by the resident engineer. Work performed prior to receiving authorization from the resident engineer or to approval of the modified or amended changes to the CQC Plan can be subject to a Non-Conformance Report being issued by the resident engineer.

4-2.2.C Contractor's Quality Control Authorities

The CQC Authorities must work directly for an officer or principal of the contractor.

The contractor's project manager, superintendent, or other on-site staff member shall not have authority over the CQC authorities.

It is imperative that the resident engineer and QM monitor the CQC authorities to ensure they conform to the lines of authority as noted above. Any improprieties or conflicts with the lines of authority noted by the resident engineer should be documented and formally presented to the signatory officer of the contractor for immediate correction and resolution. Improprieties or conflicts raised by the resident engineer and not addressed by the contractor in an expeditious manner as determined by the resident engineer shall be brought to the immediate attention of QM. In both instances, the matter also should be noted in the resident engineer's daily diary and monthly project status report.

4-3 QUALITY ASSURANCE OBJECTIVES AND RESPONSIBILITIES

4-3.1 Construction Management Consultant Quality Assurance Plan

The resident engineer shall be responsible for securing the development of a contract specific QA Plan for the construction of SANDAG projects. This plan shall identify the requirements for development, implementation, maintenance, auditing, and reporting of QA activities in support of the SANDAG Quality Program. For Federal Highway Administration projects, CMC QA plan should follow the requirements of SANDAG QAP. See Appendix 4-1 for the latest SANDAG QAP.

The QAP shall outline the organization, authorities, and responsibilities for daily QA surveillance activities. Specifically, the QAP shall establish the procedures to ensure the contractor:

- Produces a product that conforms to the quality standards and requirements established by the contract specifications and drawings.
- Operates and maintains an effective QC System.

Therefore, the CMC QM shall submit this plan to the construction manager and resident engineer for review and acceptance prior to beginning work. The QA Plan also will be furnished to the QM for review, comment, and concurrence. Elements of the plan shall address the Federal Transit Administration's Quality Management System Guidelines and the 15 Elements of Quality as applicable, including project information, list of definable features of work, QA organization, and QA activities and construction testing requirements for each definable feature of work. The QAP shall be updated as necessary to remain current.

4-3.2 Quality Assurance Inspection Requirements

The contractor is obligated by the contract to build the project according to the plans and specifications and perform QC activities in accordance with the approved CQC Plan and any other contract document. The resident engineer is responsible for verifying and assuring that the contractor's field operations and procedures produce the results required by the plans and specifications. The resident engineer and CMC's inspection staff is responsible for performing QA testing inspections of construction activities and materials incorporated into the work to verify that the contractor's work is in conformance with the contract documents. The CMC will provide QA inspection of the contractor's work when being performed at the site. The resident engineer and the CMC's inspection staff will provide QA inspection of the work (as directed by the SANDAG construction manager) at off-site locations to assure conformance with the contract documents.

It is expected that the resident engineer and CMC's inspection staff is well prepared for the upcoming activities and elements of work prior to the work being performed. This will include reviewing the plans, specifications, utility relocations, traffic control requirements, and any other applicable contract documents for that work. While reviewing the documents, the resident engineer and CMC's inspection staff will pay special attention to plan notes, special details, unusual methods or materials that are required, and all specified tests and inspections for that feature of work.

The resident engineer will closely coordinate with the contractor to establish an understanding of the critical activities to be inspected. It is essential that the contractor keep the resident engineer informed of special operations, so that QA inspections and testing will not be overlooked.

4-3.2.A Quality Assurance Inspector Qualifications and Requirements

Unless otherwise approved by the construction engineer or construction manager, the minimum requirements and qualifications for the resident engineer/CMC's QA inspection staff are as follows:

1. Four years of construction experience on a similar project or other relevant experience.

2. Two years of experience inspecting work features such as railroad, roadway, drainage, utility systems, and structures that the inspector is assigned to as their primary responsibility.
3. Knowledge of construction practices, physical characteristics, and properties of roadway, structures, drainage, and utility systems construction materials, and the approved methods and equipment used in performing physical tests of construction materials.
4. Ability to work independently and to perform duties in the construction field office.
5. Ability to effectively make minor decisions concerning work in progress and solving field and office problems.
6. Proficient in the use of Microsoft Office computer software, specifically Word and Excel.

It is expected that each QA inspector will assume the following functional responsibilities and shall possess experience in all of these areas:

1. Performing QA inspections to achieve conformance with contract plans and specifications on all phases of construction such as paving, structures, grading, drainage, sewer, water, utility relocation, electrical installation, sign installation, and landscaping items.
2. Performing quantity calculations and measurements for progress pay estimates and keeping daily project records.
3. Performing calculations and measurements of basic earthwork, grading, and construction components.
4. Maintaining continuous communication with the resident engineer and other field staff.

4-3.2.B Roles/Duties of the Independent Testing Laboratory

The resident engineer/CMC shall employ an independent testing laboratory to perform all of the QA sampling and testing required by the resident engineer/CMC. The independent testing laboratory shall perform QA testing for the Resident Engineer/CMC on an as-needed basis and as directed by the resident engineer/CMC and in conformance with applicable guidelines including the Caltrans Local Assistance Procedures Manual (most recent edition available at the time of bid advertisement), the SANDAG QAP Manual, or in accordance with the frequency specified in the Special Provisions or Technical Specifications, whichever is the most stringent.

The independent testing laboratory will be required to provide testing results to the resident engineer/CMC in a timely manner to avoid causing delays to the project and meeting all contract requirements.

All testing equipment will be required to be provided and calibrated by the independent testing laboratory, as no equipment will be provided by the SANDAG.

4-4 INSPECTION, MATERIALS, TESTING, AND REPORTS

In general, the resident engineer/CMC shall provide QA inspections and testing in conjunction with the CQC inspections and testing. In some cases, it may be more practical, and a better use of QA inspection resources, to monitor the activities of the CQC processes and staff and review their testing results for compliance with the contract documents. As long as the CQC program and staff is achieving the contractually-required QC requirements and effectively documenting the QC tests and inspections, the resident engineer/CMC staff can remain in a QA role, by simply ensuring that the CQC program is working sufficiently.

If the CQC program and staff is not achieving measures that are sufficient to the resident engineer, including meeting proper QC contract requirements and properly documenting the QC tests and inspections, the resident engineer's staff will be expected to take whatever actions are permitted under the terms of the contract documents to enforce the QC requirements and to ensure that the project work is being performed in accordance with the contract documents.

As a project progresses, the resident engineer may discover circumstances where inspections and testing that are recommended have not been specified to be performed by the contractor under the terms of the contract documents. The resident engineer shall bring those instances to the attention of the construction manager for review and discussion concerning the appropriate level of QC or QA inspection and testing that the resident engineer and the construction manager agree would need to be added in order to achieve the desired results.

4-4.1 Daily Inspection Reporting

See the [Daily Inspection Report](#) section in [Chapter 5](#) of this manual for daily inspection reporting.

4-4.2 Off-Site Inspections

In some instances, the resident engineer/CMC staff may be required to perform an inspection at an off-site location such as a batch plant, fabrication shop, or material source location where a portion of the work is being manufactured, fabricated, or produced. At a minimum, the resident engineer/CMC should review all off-site inspection documentation, material certifications, and reports produced by the CQC inspection staff to verify compliance with the contract documents and to assure that the contractor is in compliance with the accepted CQC Plan.

Where shop/source inspections are required by the terms of the contract, the contractor shall notify the resident engineer prior to the requirement for a shop/source inspection so that the resident engineer has sufficient time to coordinate with the CMT and may elect to perform QA inspections at the same time as the CQC inspections.

4-4.2.A Batch Plant Inspections

It is the contractor's responsibility to verify that the design of the mix, batching, mixing, placing, and curing of the concrete or asphaltic concrete, or other batch materials, are in compliance with the contract documents and the CQC Plan, as approved. The resident engineer/CMC will review the contractor's documentation showing such compliance. The resident engineer/CMC also shall perform independent QA inspections at an interval subject to the resident engineer/CMC's discretion and defined in the QAP, to verify compliance with the contract documents and the CQC Plan.

4-4.2.B Shop or Source Inspections

The contract documents indicate that the contractor is responsible for performing all QC inspections at fabrication shops, yards, sources, and plants where components of the project are being manufactured. The contractor is required by the contract documents to have a QC Plan in place at each of the fabrication locations. The resident engineer/CMC shall be familiar with the contract requirements in this regard and shall require the contractor to submit for review and acceptance any required QC Plans for off-site facilities. The resident engineer/CMC will provide QA inspection (or sampling) with the contractor's QC at a frequency as defined in the QAP, to assure compliance with the contract documents and the CQC Plan.

4-4.2.C Inspection Check Points

The resident engineer/CMC shall check to confirm that the contractor is observing and complying with all QC check points as listed in the accepted CQC Plan and as required by the contract documents. These check points are intended to allow the resident engineer/CMC adequate time and notification of specified activities for verification.

The resident engineer/CMC shall verify that the CQC personnel have inspected and approved each item of work with an assigned QC check point and have completed the associated inspection checklist prior to subsequent work proceeding. A signed copy of the inspection checklist, noting approval, shall be provided to the resident engineer/CMC before the contractor proceeds with the subsequent work. The resident engineer/CMC's QA inspector shall include a copy with the daily inspection report.

Failure of the contractor to comply with the QC check points procedures shall be cause for the resident engineer/CMC to issue a Non-Conformance Report to the contractor.

When QC check points are not required as part of the contract documents, it is recommended that the resident engineer/CMC and the contractor staff coordinate their efforts and agree on hold points/check points in the construction process to allow adequate time for the CQC staff and the resident engineer/CMC's QA staff to perform their respective duties.

4-4.3 Specialty Inspection and Testing

4-4.3.A Railroad Work

If the railroad should request that any additional testing be performed by the contractor, the resident engineer shall notify the construction manager of the railroad's request, provide a recommendation, and execute the construction manager's decision on the matter, including a contractual change, if necessary.

4-4.4 Visual Inspection of Work in Progress

When the contractor is performing railroad work, the resident engineer/CMC shall perform QA inspections and testing similar to all other work on the project. When the contractor is not performing railroad work, but the work is being performed by railroad personnel, the resident engineer/CMC shall perform inspections to document the progress of the railroad personnel and document any testing, as well as the results of such testing as performed by railroad personnel or their subcontractors.

4-4.5 Rail Testing

If railroad work is performed by the contractor's personnel, the resident engineer/CMC shall use the American Welding Society Certified Welding Inspector (AWS CWI), or other qualified rail inspection staff to monitor and document any x-ray, ultrasonic, or other required non-destructive testing (NDT) required by the contract documents as performed by the contractor's QC personnel. A copy of the contractor's test results will be required to be obtained by the resident engineer/CMC. The resident engineer/CMC also may order the performance of the same QA tests being performed by the contractor to assure compliance with the contract documents.

All rail welding, inspection, and testing, when performed by the contractor, shall be tracked and logged by the contractor. The resident engineer/CMC may request to review the rail inspection and welding log for use in tracking the progress, inspection, and testing of the rail work.

When the contractor is not performing railroad work, but the work is being performed by railroad personnel, the resident engineer/CMC shall perform inspections to document the progress of the railroad personnel and document any testing and the results of such testing as performed by railroad personnel or their subcontractors. If the railroad should request that any additional testing be performed by the contractor, the resident engineer/CMC shall notify the construction manager of the railroad's request, provide a recommendation, and execute the construction's manager decision on the matter, including a contractual change, if necessary.

4-4.5.A Welding Inspection

The resident engineer/CMC shall assure that the CQC staff has verified and/or performed all welder certifications, procedure qualifications, required welding procedure specifications, testing, and any other requirements as required by the contract documents.

The resident engineer/CMC will be required to provide an AWS CWI or other qualified rail inspection staff to perform periodic QA inspections when the contractor is performing welding operations as required by the contract documents. The resident engineer/CMC shall verify that the contractor's AWS CWI is on site performing QC inspections at all times when any welding is being performed.

4-4.5.A.1 Testing – X-Ray, Ultrasonic, and Other Non-Destructive Testing

The resident engineer/CMC shall use the AWS CWI, or other qualified inspection staff, if the resident engineer/CMC's AWS CWI is off site, in order to properly monitor and document any x-ray, ultrasonic, or other NDT required by the contract documents, as performed by the CQC personnel. A copy of the contractor's test results will be required to be obtained by the resident engineer/CMC for its record files. The resident engineer/CMC shall review all test results and determine if they are acceptable prior to filing in the project record files.

4-4.5.B Post-Tensioned Concrete

The resident engineer/CMC shall perform QA inspections during all phases of the prestressed/post-tensioned concrete construction. The resident engineer/CMC shall confirm that the CQC staff is observing the typical hold points during this type of construction and shall observe and record the stressing results at the time of stressing. The CQC personnel will be responsible for all post-tensioning calculations and will submit the required calculations to the resident engineer/CMC for review or processing in accordance with the contract documents. The resident engineer/CMC will send the post-tensioning calculations to the design engineer for review prior to the resident engineer/CMC's acceptance of the results. The resident engineer/CMC shall inform the contractor of these requirements so that the contractor can notify the resident engineer/CMC of the planned dates and schedule its subcontractors for the stressing operations. A calibrated gauge and one load cell, or two calibrated gauges (matched set), will be required for each stressing operation. During stressing operations, the resident engineer/CMC shall observe and monitor the CQC inspection and monitoring of the stressing operations, and post-stressing operations, such as grouting. The resident engineer/CMC shall monitor the recording of stressing data and record duplicate field data recordings to assure that final results submitted by the contractor are as-stressed and recorded in the field.

4-4.5.B.1 Prestressed Concrete

The resident engineer/CMC shall monitor the contractor's and the precaster's QC operations as needed to assure compliance with the contract documents. The resident engineer/CMC shall verify that the precaster's QC Plan is approved prior to stressing or casting any pieces of the work. Copies of all of the contractor's and the precaster's QC inspection and testing documents shall be reviewed by the resident engineer/CMC before approving payments for the elements of work.

The resident engineer/CMC shall verify that the CQC staff has inspected and released the precast elements at the precast yard prior to allowing shipment to the job site. The resident engineer/CMC may perform a side-by-side inspection at the same time as the contractor.

Upon arrival at the job site, the precast elements will be inspected again by the CQC staff and inspected by the resident engineer/CMC's QA staff to assure no damage was caused during transport.

4-4.5.C Railway Signaling System Verification

The resident engineer shall confirm that the CMT's signal engineer(s), signal inspector(s), or qualified designee (e.g. designer of record's signal engineer) witness: (a) initial testing of each type of required testing to ensure the contractor's test procedures are consistent with regulatory requirements and best practices; and (b) acceptance testing during railway signaling system cutovers. During system cutovers, the CMT's signal engineer/inspector or qualified designee shall witness the recording of test results by the contractor's signal engineer in the test report and verify that test results conform to minimum acceptance requirements. The CMT's signal engineer shall verify that all circuit changes are red-lined on signal plans and confirm red-lined changes are incorporated into the final configuration CAD files described in the [General Provisions](#) chapter, and in the [As-Builts/Record Drawings Monitoring](#) section in [Chapter 5](#) of this manual.

4-4.5.D Traction Power Feeder Cable Inspection

At all traction power feeder cable installation locations, a CMT's system inspector shall witness: (a) the pulling of a properly sized mandrel through traction power duct banks; (b) the pulling of traction power feeder cable in accordance with manufacturer's and contractual requirements; and (c) acceptance testing of all traction power feeder cables. The CMT's system inspector shall witness the recording of test results in the test report and verify that test results conform to minimum acceptance requirements.

4-4.6 Certification of Resident Engineer/CMC QA Samplers and Testers

The resident engineer/CMC shall perform QA soils and materials sampling and testing to support the construction of the project and to provide assurance that the contractor's sampling and testing is in compliance with the contractor's accepted CQC Plan and all contract requirements.

Resident engineer/CMC sampling and testing shall be in accordance with the contract documents, scope of work, and the QAP. All sampling and testing shall be performed in accordance with the California Test Methods and shall meet the latest requirements of the American Society for Testing Materials and the requirements imposed upon the contractor in the contract documents.

The resident engineer/CMC also will review the qualifications of the CQC samplers and testers employed and dispatched to the project by the independent testing laboratory. This review shall be a part of the review and observation of the CQC Plan on an ongoing basis.

4-4.6.A Requirements

The resident engineer/CMC's samplers and testers shall be qualified to the same level required of the contractor's independent testers, as specified in the contract documents. Each qualified tester shall be accredited and certified by Caltrans in accordance with the provisions of the California Department of Transportation Independent Assurance Program for Caltrans Qualification of Laboratories and Testers, and the Caltrans Independent Assurance Manual – July 2005. Each qualified tester must have a current certificate of proficiency for the tests they perform.

It is the resident engineer/CMC's responsibility to coordinate with Caltrans or any other entity to secure testing and sampling personnel/laboratory personnel certified by Caltrans or in compliance with Caltrans requirements, and assure that each tester/sampler has a current certificate of proficiency for each test they will perform.

The resident engineer/CMC shall perform an independent review of the project plans, specifications, and other contract documents to prepare a list of potential tests that will be required to be performed during the construction of the project, so that the resident engineer/CMC can assure that the contractor's submitted CQC Plan includes all required tests. The contractor is required to identify each required test and inspection, organized by technical specification section and subsection number, and to indicate the inspection, sampling, and testing methods, as well as the name of the independent testing laboratory that will be performing each required inspection, sampling, and testing.

The resident engineer/CMC's samplers and testers shall work with the resident engineer/CMC inspection staff to ensure that a level of QA is attained that is in compliance with the CQC sampling and testing requirements, in accordance with the contract documents and the CQC Plan as approved by the resident engineer/CMC.

Resident engineer/CMC samplers and testers shall keep accurate records of samples and tests taken or performed and the results of those tests, including clearly and completely filled out sampling and testing forms required to track the sample from the field to the testing lab and the corresponding results back to the resident engineer. The resident engineer/CMC samplers also shall provide all information required for the resident engineer/CMC to keep logs of all tests taken, results of such tests, non-conformance tests, and re-tests showing a passing result or failure.

The resident engineer/CMC shall not contract with the same independent testing laboratory that the CQC personnel use for their sampling, testing, and special inspections. The resident engineer/CMC also shall assure that no individual who has performed independent sampling, testing, or special inspections for the CQC personnel performs the same functions for the resident engineer/CMC.

4-4.7 Certification of Independent Testing Laboratories

The resident engineer/CMC shall employ an independent testing laboratory to perform all of the QA sampling and testing required by the QAP. The resident engineer also shall review the qualifications of the independent testing laboratory employed by the contractor to perform its QC testing.

4-4.7.A Requirements

The resident engineer/CMC, as well as the contractor, shall employ the services of an independent testing laboratory in accordance with the contract documents. Each testing laboratory contracted by the resident engineer/CMC and the contractor shall be accredited and certified by Caltrans in accordance with the provisions of the Caltrans Independent Assurance Program for Caltrans Qualification of Laboratories and Testers, and the Caltrans Independent Assurance Manual – July 2005. Each qualified tester employed by the laboratory must have a current certificate of proficiency for the tests they will perform.

It is the resident engineer/CMC's responsibility to ensure that the testing laboratory and personnel employed by the contractor are accredited and certified as noted above. The resident engineer/CMC also shall verify its own testing laboratory's accreditations prior to employing the laboratory for testing, sampling, and special inspection services.

The resident engineer/CMC shall not contract with the same Independent testing laboratory that the CQC personnel use for their sampling, testing, and possible special inspections. The resident engineer/CMC also shall assure that no individual who has performed independent sampling, testing, or special inspections for the CQC, performs the same functions for the resident engineer/CMC.

The contract documents require that any testing performed by a laboratory that is not accredited or by a tester who is not qualified by a certificate of proficiency, shall be performed again by an accredited laboratory and a qualified tester at the contractor's time and expense. QA testing results by SANDAG or its representative, shall govern and may require retesting for that feature of work at the contractor's expense.

4-4.8 Quality Assurance Sampling and Testing

The resident engineer/CMC is responsible for performing QA testing/audit testing of materials incorporated into the project work to verify compliance with the contract documents. The resident engineer/CMC will perform this testing on an as-needed basis to adequately assure that the QC and acceptance testing performed by the CQC is in conformance with the CQC Plan and the contract documents.

4-4.8.A Material Sampling and Testing

Material sampling and testing will be accomplished in three separate phases. The first phase will be source sampling and testing to establish if a source of material meets the requirements of the contract documents and complies with all applicable contract documents. The second phase will be sampling of materials already approved for use, upon delivery and use on the project. The third phase will be spot-testing or auditing of the contractor.

An example is crushed aggregate base. First, the contractor will inform the resident engineer/CMC of the source of material and its intended use. It will be expected that both the CQC staff and the resident engineer/CMC's QA staff will schedule to sample the material at the same time and split the sample. If the material's physical properties tests pass and verify compliance with the contract documents, then the material is suitable for use on the project. The resident engineer/CMC may or may not choose to test its part of the sample; it may be stored for future testing, if necessary.

Phase two will occur when the material is delivered to the site for use after being approved for use. The CQC personnel will sample the material to verify that the physical properties of the material being placed are in compliance with the contract documents. The CQC personnel also will test the materials in place for performance (in this case a compaction test) to verify that the material is being placed in compliance with the contract documents. At any time, the resident engineer/CMC may choose to perform QA sampling and testing of the material being used for both physical and in-place performance testing. The resident engineer/CMC shall coordinate this sampling and testing with the contractor to split samples and perform in-place performance tests at the same approximate location.

The third phase of QA material sampling and testing will be spot-testing or auditing of the contractor. This will entail the resident engineer/CMC pulling a sample of a material either as a spot-check or from an observation that a material or process may not be in compliance with the contract documents. An example of this situation is that the resident engineer/CMC observes a load of concrete that appears to be excessively wet, and after discussion with the CQC personnel, the CQC personnel still believes the load is acceptable and chooses to allow the use of the load of concrete in the work and does not sample the load. In this case, the resident engineer/CMC will take a sample of the concrete to verify that the concrete load in question meets the requirements and complies with the contract documents.

When the resident engineer/CMC's QA sampling or testing is performed as described in the third phase example, the resident engineer/CMC shall notify the contractor of the situation and that QA tests are being performed to avoid a dispute, should the material tested fail to meet and comply with contract document requirements. The contractor shall be given an opportunity to sample the same material in question at the time of the resident engineer/CMC's sampling, so they have an opportunity to test the material independent of the resident engineer/CMC's test sample.

If the contractor chooses not to sample the material in question, the contractor will have to accept the results of the resident engineer/CMC's tests and, in the case of failing tests, remedy the resulting Non-Conformance Report issued by the resident engineer/CMC, at the contractor's expense and time. The contractor also may choose to pursue other means or methods of testing at its expense, upon the resident engineer/CMC's approval, to ensure the resident engineer/CMC that the material incorporated into the work complies with and meets the contract document requirements.

If the contractor chooses to sample and test the material in question and the contractor receives results that differ in terms of a pass or fail disposition from those received by the resident engineer/CMC, then the matter shall be resolved in accordance with the procedures specified in the contract documents.

4-4.8.B Non-Conformance Test Results/Non-Conformant Materials

When a material test fails to meet the requirements of the contract documents, the CQC personnel, the resident engineer/CMC, or QM shall issue a Non-Conformance Report to track the issue to resolution. Refer to the [Non-Conforming Work/Materials and Corrective Action Reports](#) section in this chapter for additional information.

4-4.8.C Laboratory/Testing Equipment Calibration Requirements

The resident engineer/CMC shall assure all field construction laboratory equipment and portable field test equipment is calibrated prior to use on the project. This will include testing equipment used by both the resident engineer/CMC's QA testers and the CQC testers, and any independent laboratories used by either party to perform testing.

Testing equipment shall be calibrated a minimum of annually and re-calibrated as often as required to assure the calibration of the equipment is accurate.

Calibration of testing equipment shall be performed in accordance with the requirements of Chapter 16 of the Caltrans Local Assistance Procedures Manual.

4-4.9 Frequency of Sampling and Testing

Keeping in mind that the resident engineer/CMC and the QM are responsible for QA, the resident engineer will determine, with the guidelines noted in this section, the appropriate amount and frequency of QA sampling and testing required and necessary to assure the contractor's compliance with the contract documents and the accepted CQC Plan.

A goal of 10 to 20 percent of QA/audit testing, as deemed appropriate by the resident engineer/CMC and the SANDAG QM in relation to the CQC and acceptance testing frequencies required in accordance with the contract documents and the CQC Plan, is the preferred minimum amount of testing that should be performed by the resident engineer/CMC to assure this goal is met. The resident engineer/CMC shall track and log all QC and acceptance testing performed by the contractor, as well as all correlating QA/audit testing performed by the resident engineer/CMC. The resident engineer/CMC's test will be required to be cross-referenced in a tracking log to the contractor's testing for assurance that the tests meet the requirements of the contract documents.

The resident engineer/CMC shall use its best judgment in determining if a greater number of tests are required than the range specified above. The resident engineer/CMC shall immediately notify the QM if it becomes necessary to consistently perform QA testing above the baseline amount of 10 to 20 percent.

For testing that may be used to substantiate a claim by the contractor or tests that are taken for potential change orders (e.g., unsatisfactory subgrade), it is recommended that the resident engineer/CMC take a one-to-one test sample at the same time as the contractor's sampling to assure there is enough data to substantiate either party's position.

In some cases, testing such as gamma or cross-hole sonic logging of cast-in-drilled-hole piles placed under slurry will not be required to be duplicated by the resident engineer/CMC, but will be performed by a specialized testing firm hired by the contractor, and the test results will be reviewed and approved by the design engineer or resident engineer/CMC for acceptance or rejection.

A thorough observation and documentation of the test and any preliminary results available at the time of the test (before the final test report) will suffice in advance of the contractor's submittal of the test results and the resident engineer/CMC's or engineer's review for approval of the test results.

4-4.10 Non-Conforming Work/Materials and Corrective Action Reports

The purpose of non-conformance is to establish, document, and maintain procedures for analyzing and resolving nonconforming work documents on the project, from the point of identification through corrective action. This section is established to assure that all nonconforming work or conditions are prevented from being incorporated into the final work product; that it is properly identified, put on hold or segregated from conforming work items while awaiting disposition; and the work is reported for immediate disposition of nonconformance.

The resident engineer/CMC will observe and inspect the contractor's work for compliance with the contract documents and the CQC Plan, review the testing and inspection reports submitted by the CQC organization, and notify the contractor of any observed defects and deficiencies in the work. The resident engineer/CMC shall require that the contractor take appropriate and acceptable action when failing test reports indicate defective or non-compliant work. This will be accomplished by the issuance of a Non-Conformance Report to the contractor, if a deficiency, defect, or non-conforming work is noted during a QA inspection, review, audit, or test.

Upon discovery of a deficiency, the resident engineer/CMC shall notify the contractor. The resident engineer/CMC shall allow the contractor up to five working days to issue the Non-Conformance Report for the noted deficiency (in some cases, a prompter Non-Conformance Report is required if work may be covered up or added to). If the contractor disagrees with the resident engineer/CMC's pending Non-Conformance Report and does not issue a corresponding Contractor Non-Conformance Report, the resident engineer/CMC will issue and track the Non-Conformance Report issued by the resident engineer/CMC to closure and resolution.

The resident engineer/CMC will track both the contractor-issued and the resident engineer/CMC-issued Non-Conformance Reports in accordance with the procedures noted in this section.

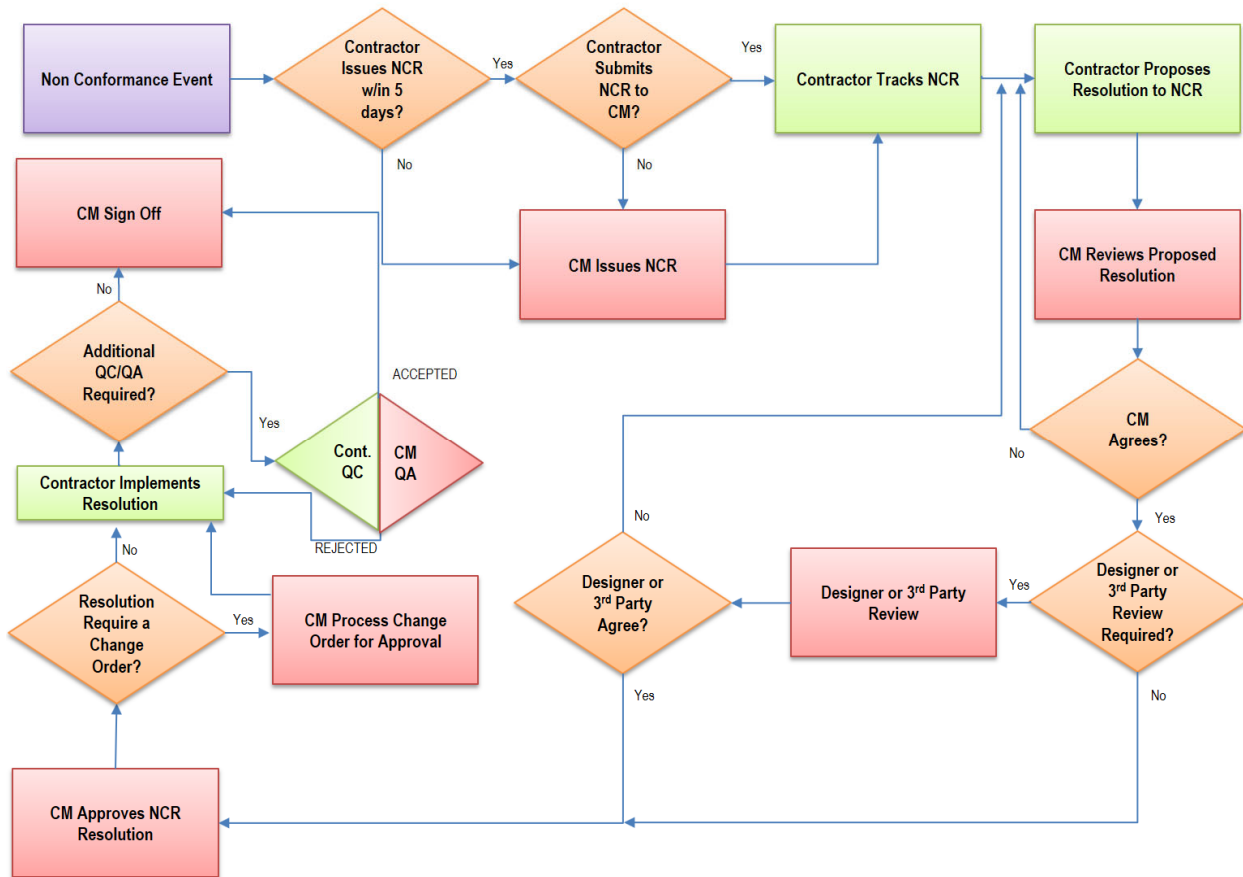
Closure and resolution of the Non-Conformance Reports is the responsibility of the CQC organization. This may be accomplished in the following ways:

1. By submission of a request for engineering review of the issue and subsequent acceptance by the resident engineer.
2. By a proposed resolution by the contractor requiring the resident engineer's approval.
3. By removal and replacement of the non-compliant, defective, or deficient work in question, either by the contractor's self-direction or by direction of the resident engineer.

A contractor requested change order should be considered processed for approval whenever non-conforming work is allowed to remain.

The resident engineer has approval authority on the final disposition of Non-Conformance Review's. Unless otherwise stipulated, title to such rejected work and risk of loss shall remain with the contractor, and the contractor shall bear the responsibility and costs to make such corrections. All acceptance testing of work that has been rejected previously shall be at the contractor's expense. Costs incurred by the resident engineer/CMC to perform such re-tests shall be deducted and withheld from the Progress Pay Estimate.

Figure 4-1 Non-Conformance Report Flow Chart



4-4.10.A Delivery of Non-Conformance Reports to the Contractor

In accordance with the contract documents, all notices and other communications concerning the contract shall bear the number assigned to this contract by SANDAG and shall follow the SANDAG correspondence format and reference system. Notices and other communications such as Non-Conformance Reports may be delivered personally, by private package delivery, facsimile, or regular, certified, or registered mail. An electronic copy can be forwarded to the contractor through email, in addition to one of the aforementioned methods.

The names of the authorized representatives for each of the parties and their addresses to which communications and correspondence should be delivered will be established and made known to the other party at the pre-construction meeting.

The contract documents stipulate that a notice to the contractor will be effective only if it is delivered to the contractor's authorized representative made known to SANDAG at the pre-construction meeting.

In addition to the authorized representative, it is recommended that the resident engineer also send a copy of the Non-Conformance Report to the CQC authorities to avoid delay and keep the CQC authorities informed in a timely manner of any non-compliant work issues, so that the CQC authorities may begin working to resolve the issue.

4-4.10.B Tracking Non-Conformance Reports/Non-Conformant Work Elements

The resident engineer/CMC shall track and log all issued Non-Conformance Reports. The logs will be used for tracking the Non-Conformance Reports issued until each is resolved and closed as verified by the resident engineer/CMC. The logs also will be used for generating monthly status reports by the resident engineer, so the logs must be current and reflect the latest status of each issued, outstanding, and closed Non-Conformance Report.

The CQC personnel must have procedures in place for tracking failed material tests and construction deficiencies from identification through acceptable corrective action. The procedures shall establish verification that identified deficiencies have been corrected. These procedures are a required part of the CQC Plan and subject to approval by the resident engineer/CMC. The resident engineer/CMC shall strive to ensure that the contractor's procedures are in accordance with the resident engineer/CMC's procedures to allow for the two systems to be cross-utilized and compared. The resident engineer/CMC should keep this in mind when reviewing the CQC Plan submitted for approval by the contractor.

4-4.10.C Non-Compliant Work and Monthly Progress Payments

The resident engineer will use the Non-Conformance Report Tracking Log during the Progress Pay Estimate to determine if any portion of the monthly progress payment will need to be rejected or withheld due to an outstanding Non-Conformance Report or item of non-compliant work that does not meet the contract document requirements.

Deficiencies and non-compliance issues resulting in withholding of funds also should be noted in the monthly project status report.

4-5 QUALITY RECORDS

4-5.1 Purpose

To set forth the procedures for establishing and maintaining records that provide objective evidence of quality. These procedures include requirements for the collection and maintenance of quality records for procurement, construction, installation, inspection, testing, and operational activities for SANDAG.

4-5.2 Policy

Records providing objective evidence of conformance with the contract documents shall be identified, collected, and stored in a readily retrievable manner, and preserved to preclude damage, loss, or deterioration. These records shall be turned over to SANDAG at the completion of the project in the required format and with the retention time defined.

Quality Records:

- Are identified by title, contract number, revision, activity description, date and appropriate signatures.
- Are available to authorized persons upon request.
- Include documents which are stamped, signed, and dated by authorized personnel. These records may either be the original or a reproduced copy.
- Are subject to QA audits and assessments at any time.

Changes to quality records are to receive, as a minimum, the same review and approval as the original document.

4-5.3 Procedures

Quality records are prepared, filed, and maintained as part of the project construction file (Category 38: Quality Control and Quality Assurance) and in such a manner that will make them readily retrievable when requested by authorized personnel. Quality records should be legible and should specify the work involved.

Quality records should be maintained by the CMC to show achievement of quality objectives and appropriate functioning of the quality management system. Supplier, contractor, and subcontractor quality records should be included when pertinent.

All quality records shall be forwarded to SANDAG at the completion of the project as required for archival. construction manager shall ensure the records are archived in accordance with SANDAG policy.

4-5.4 Quality Records

Types of documents that are considered quality records during construction, but shall not be limited to:

- Procurement Records
 - Procurement procedures and manuals
 - Surveillance inspection reports
 - Pre-award surveys
 - Contract Specifications and modifications
 - Certificates of compliance
 - QA system audit reports
 - Test results
- Construction, Manufacturing, Installation Records
 - Contract drawings
 - Contractor data submittals
 - CQC Plan and daily reports
 - QA Plan and daily reports
 - Process and personnel certifications
 - Material certifications
 - Test reports and data
 - Nonconformance reports
 - Surveillance inspection reports
 - Release for shipment notices
 - QA process audits
 - Test witness reports
- Operational Records
 - Maintenance actions (corrective and preventative)
 - Inspection records
 - QA operational audits
 - Personnel certifications

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Appendix 4-1: SANDAG Quality Assurance Program

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QUALITY ASSURANCE PROGRAM (QAP)

San Diego Association of Governments (SANDAG)
 401 B Street, Suite 800, San Diego, CA 92101
 Attention Venkatesh (Venky) Ganesan, PE, MBA, Acting Principal Construction Engineer
venky.ganesan@sandag.org, office: 619-595-5365, mobile: 951-543-6445
 Administrative questions: Louise Torio, Engineering Project Analyst, louise.torio@sandag.org

The purpose of this program is to provide assurance that the materials incorporated into the construction projects are in conformance with the contract specifications. This program should be updated every five years or more frequently if there are changes of the testing frequencies or to the tests themselves. To accomplish the above stated purpose, the following terms and definitions will be used:

DEFINITION OF TERMS

- **Acceptance Testing (AT)** – Sampling and testing, or inspection, to determine the degree of compliance with contract requirements.
- **Independent Assurance Program (IAP)** – Verification that AT is being performed correctly by qualified testers and laboratories.
- **Quality Assurance Program (QAP)** – A sampling and testing program that will provide assurance that the materials and workmanship incorporated into the construction project are in conformance with the contract specifications. The main elements of a QAP are the AT, and IAP.
- **Source Inspection** – AT of manufactured and prefabricated materials at locations other than the job site, generally at the manufactured location.

MATERIALS LABORATORY

The AGENCY will use a private consultant materials laboratory to perform AT on Federal-aid and other designated projects. The materials laboratory shall be under the responsible management of a California registered Engineer with experience in sampling, inspection and testing of construction materials. The Engineer shall certify the results of all tests performed by laboratory personnel under the Engineer's supervision.

The materials laboratory shall contain certified test equipment capable of performing the tests conforming to the provisions of this QAP.

The materials laboratory used shall provide documentation that the laboratory complies with the following procedures:

1. **Correlation Testing Program** – The materials laboratory shall be a participant in one or more of the following testing programs:
 - a. AASHTO Materials Reference Laboratory (AMRL)
 - b. Cement and Concrete Reference Laboratory (CCRL)
 - c. Caltrans' Reference Samples Program (RSP)
2. **Certification of Personnel** – The materials laboratory shall employ personnel who are certified by one or more of the following:
 - a. Caltrans District Materials Engineer
 - b. Nationally recognized non-Caltrans organizations such as the American Concrete Institute, Asphalt, National Institute of Certification of Engineering Technologies, etc.
 - c. Other recognized organizations approved by the State of California and/or Recognized by local governments or private associations.
3. **Laboratory and Testing Equipment** – The materials laboratory shall only use laboratory and testing equipment that is in good working order. All such equipment shall be calibrated at least once each year. All testing equipment must be calibrated by impartial means using devices of accuracy traceable to the National Institute of Standards and Technology. A decal shall be firmly affixed to each piece of equipment showing the date of the last calibration. All testing equipment calibration decals shall be checked as part of the IAP.

ACCEPTANCE TESTING (AT)

SANDAG's QA testing will be used as Acceptance Testing. AT will be performed by a materials laboratory certified to perform the required tests. The tests results will be used to ensure that all materials incorporated into the project are in compliance with the contract specifications.

Testing methods will be in accordance with the CT Methods or a national recognized standard (i.e., AASHTO, ASTM, etc.) as specified in the contract specifications.

Sample locations and frequencies may be in accordance with the contract specifications. If not so specified in the contract specifications, samples shall be taken at the locations and frequencies as shown in Attachment A of this manual, "Acceptance Sampling and Testing Frequencies".

INDEPENDENT ASSURANCE PROGRAM (IAP)

IAP shall be provided by personnel from Caltrans, or SANDAG's consultant certified materials laboratory. IAP will be used to verify that sampling and testing procedures are being performed properly and that all testing equipment is in good condition and properly calibrated.

IAP personnel shall be certified in all required testing procedures, as part of IAP, and shall not be involved in any aspect of AT.

IAP shall be performed on every type of materials test required for the project. Proficiency tests shall be performed on Sieve Analysis, Sand Equivalent, and Cleanness Value tests. All other types of IAP shall be witness tests.

Poor correlation between acceptance tester's results and other test results may indicate probable deficiencies with the acceptance sampling and testing procedures. In cases of unresolved discrepancies, a complete review of AT shall be performed by IAP personnel, or an independent materials laboratory chosen by the Agency. IAP samples and tests are not to be used for determining compliance with contract requirements. Compliance with contract requirements is determined only by AT.

REPORTING ACCEPTANCE TESTING RESULTS

The following are time periods for reporting material test results to the Resident Engineer:

- When the aggregate is sampled at material plants, test results for Sieve Analysis, Sand Equivalent and Cleanness Value should be submitted to the Resident Engineer within 24 hours after sampling.
- When materials are sampled at the job site, test results for compaction and maximum density should be submitted to the Resident Engineer within 24 hours after sampling.
- When soils and aggregates are sampled at the job site:
 - (1) Test results for Sieve Analysis, Sand Equivalent and Cleanness Value should be submitted to the Resident Engineer within 72 hours after sampling.
 - (2) Test results for "R" Value and asphalt concrete extraction should be submitted to the Resident Engineer within 96 hours after sampling.

When sampling products such as Portland Cement Concrete (PCC), cement-treated base (CTB), hot mix asphalt (HMA), and other such materials; the time of such sampling shall be varied with respect to the time of the day insofar as possible, in order to avoid a predictable sampling routine. The reporting of AT results, if not performed by the Resident Engineer's staff, shall be done on an expedited basis such as by fax or telephone.

TESTING OF MANUFACTURED MATERIALS

During the Design phase of the project, the Project Engineer may submit a "Source Inspection Request", see Exhibit 16-V of the LAPM, to the Agency, consultant, or Caltrans for inspection and testing of manufactured and prefabricated materials by their materials laboratory. A list of materials that can be typically accepted on the basis of certificates of compliance during construction is found in Section 6-203C, "Materials Accepted on the Basis of a Certificate of Compliance," of the Caltrans Construction Manual. All certificates of compliance shall conform to the requirements of the contract specifications, for examples see Appendix J of the Caltrans QAP Manual.

Should the Agency request Caltrans to conduct the source inspection, and the request is accepted, all sampling, testing, and acceptance of manufactured and prefabricated materials will be performed by Caltrans' Office of Materials Engineering and Testing Services.

For Federal-aid projects on the National Highway System (NHS), Caltrans will assist in certifying the materials laboratory, and the acceptance samplers and testers. For Federal-aid projects off the NHS, Caltrans may be able to assist in certifying the materials laboratory, and the acceptance samplers and testers.

PROJECT CERTIFICATION

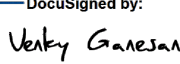
Upon completion of a Federal-aid project, a "Materials Certificate" shall be completed by the Resident Engineer. The Agency shall include a "Materials Certificate" in the Report of Expenditures submitted to the Caltrans District Director, Attention: District Local Assistance Engineer. A copy of the "Materials Certificate" shall also be included in the Agency's construction records. The Resident Engineer in charge of the construction function for the Agency shall sign the certificate. All materials incorporated into the work which did not conform to specifications must be explained and justified on the "Materials Certification", including changes by virtue of contract change orders. For an example see Appendix K of the Caltrans QAP Manual.

RECORDS

All material records of samples and tests, material releases and certificates of compliance for the construction project shall be incorporated into the Resident Engineer's project file. If a Federal-aid project:

- The files shall be organized as described in Section 16.8 "Project Files" of the Local Assistance Procedures Manual.
- It is recommended that the complete project file be available at a single location for inspection by Caltrans and Federal Highway Administration (FHWA) personnel.
- The project files shall be available for at least three years following the date of final project voucher.
- The use of a "Log Summary," as shown in Appendix Hof the QAP Manual, facilitates reviews of material sampling and testing by Caltrans and FHWA, and assists the Resident Engineer in tracking the frequency of testing.

When two or more projects are being furnished identical materials simultaneously from the same plant, it is not necessary to take separate samples or perform separate tests for each project; however, copies of the test reports are to be provided for each of the projects to complete the records.

DocuSigned by:

APPROVED BY: 8728F020E7744A1... **RCE# 74170, Exp. 06-30-2021**
 (Signature) (CE# and Expiration Date)

NAME: Venkatesh (Venky) Ganesan, PE **DATE:** March 23, 2021

TITLE: SANDAG Acting Principal Construction Engineer

Attachment A

Portland Cement (Hydraulic Cement)

Note:

It may be desirable to sample and store some materials. If warranted, testing can be performed at a later date.

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Cement/fly ash (Sampling only)	8-lb. sample	If possible, take a least one sample per job, even if the material is accepted based on a Certificate of Compliance.	ASTM D75, C494 CT 125 AASHTO O T127, M85, M295	Standard for sampling hydraulic cement or fly ash.
Cement (Testing Only)	8-lb. sample	If the product is accepted based on a Certificate of Compliance, testing is not required. If the product is not accepted using a Certificate of Compliance, test at least once per job.	ASTM C109 CT 515 AASHTO T106	If testing appears warranted, fabricate six 2-in. mortar cubes using the Portland (or hydraulic cement). Test for compressive strength.

Portland Cement Concrete (Hydraulic Cement Concrete)

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate for Hydraulic Cement Concrete (Sampling & Testing)	50-lb. sample	Take one aggregate sample for each 1000 cu. yd. of PCC/HCC concrete. Test at least one sample per job.	ASTM D75 CT 125 AASHTO M6, T2, M80	Sample aggregate from belt or hopper (random basis).
Water (Sampling & Testing)	Take a two-quart sample using a clean plastic jug (with lining) and sealed lid. Sample at the point of use.	If the water is clean with no record of chlorides or sulfates greater than 1%, no testing is required. If the water is dirty do not use it. Test only when the chloride or sulfates are suspected to be greater than 1%.	CT 405, CT 422, CT 417 AASHTO R23	If testing appears warranted, test for chlorides and sulfates.
Air Entraining Admixtures (Sampling & Testing)	Take a one-quart sample using a clean, lined can or plastic bottle, if liquid. If powder, take a 2.5 lb. sample.	If the product is accepted based on a Certificate of Compliance, testing is not required. Take one sample per job. Prior to sampling, check with Caltrans (METS) for acceptable brands and dosage rates.	ASTM C233 AASHTO M154, T157, C260	If testing appears warranted, test for sulfates and chlorides. Admixtures with sulfates and chlorides greater than 1% should not be used.

Attachment A (Continued)

Portland Cement Concrete (Hydraulic Cement Concrete) - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description of Comments
Water Reducers or Set Retarders (Sampling & Testing)	If liquid, take a 1-qt. sample using a clean plastic can. If powder, take a 2.5 lb. sample.	If the product is accepted based on a Certificate of Compliance, no testing is required. If not, test once per job. Prior to using this product, please check with Caltrans (METS) for acceptable brands and dosage rates.	ASTM C494 AASHTO M194	If testing appears warranted, test for sulfates and chlorides. Admixtures with sulfates and chlorides greater than 1% should not be used.
Freshly-Mixed Concrete (Sampling)	Approx. 150lb. (or 1 cu. ft.) near mixer discharge.	When tests are required, take at least one sample for each 500 to 1000 cu. yd. of PCC/HCC.	ASTM C172, C685 CT 539 AASHTO T141, M157	This describes a method to sample freshly-mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge.	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C143 AASHTO T119	This test determines the slump of the freshly-mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C360 CT 533	This test determines the ball penetration of the freshly-mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C231 CT 504 AASHTO T152	This test determines the air content of freshly-mixed concrete (pressure method).
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C138 CT 518 AASHTO T121	This test determines the unit weight of freshly mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	Fabricate at least two concrete cylinders per project. Test for compressive strength at least once for each 500 to 1,000 cu. yd. of structural concrete.	ASTM C39 CT 521 AASHTO T22	This test is used to fabricate 6" x 12" concrete cylinders. Compressive strengths are determined, when needed.
Freshly-Mixed Concrete (Testing)	Approximately 210 lb. of concrete are needed to fabricate three concrete beams.	One sample set for every 500 to 1,000 cu. yd. of concrete.	ASTM C78 CT 31 AASHTO T97 & T23	This test is used to determine the flexural strength of simple concrete beams in third-point loading

Attachment A (Continued)**Soils and Aggregates****Note:**

Gradations of aggregate for asphalt concrete or asphalt rubber hot mix will be tested every 750 tons.

Sieve analysis will not be performed on aggregates extracted from asphalt concrete mixes.

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate (Sampling)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D75 CT 125 AASHTO T2	This test describes the procedures to sample aggregate from the belt or hopper (random basis).
Fine Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	ASTM C128 CT 208 AASHTO T84	This test determines the apparent specific gravity of fine aggregates for bituminous mixes, cement treated bases and aggregate bases.
Fine Aggregate (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	ASTM C128 CT 207 AASHTO T84	This test determines the bulk specific gravity (SSD) and the absorption of material passing the No. 4 sieve.
Coarse Aggregate (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	CT 206	This test determines the cleanness of coarse aggregate.

Attachment A (Continued)**Soils and Aggregates - Continued**

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Coarse Aggregate (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	ASTM C127 CT 227 AASHTO T85	This test determines the specific gravity and absorption of coarse aggregate (material retained on the No. 4 sieve).
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Only test on bulk samples of material to be placed.	ASTM C136 CT 202 AASHTO T27	This test determines the gradation of soils and aggregates by sieve analysis.
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	ASTM D2419 CT 217 AASHTO T176	This test determines the Sand Equivalent of soils and aggregates.
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Only test on bulk samples of material to be placed.	ASTM C117 AASHTO T11	This test determines the gradation for materials finer than the No. 200 sieve (by washing method).
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	ASTM D3744 CT 229 AASHTO T210	This test determines the Durability Index of soils and aggregates.

Attachment A (Continued)**Soils and Aggregates - Continued**

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test once at the plant prior to start of project, and only at the Engineer's discretion based on review of supplier's test documentation and familiarity with the source.	ASTM D2844 CT 301 AASHTO T190	This test determines the Resistance Value (R-) and expansion pressure of compacted materials.
Soils and Aggregates (Testing)	One random location for every 2,500 sq. ft.	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2922 CT 231 AASHTO T238	This test determines field densities using the nuclear gage.
Soils and Aggregates (Testing)	One random location for every 2,500 sq. ft.	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D3017 CT 231 AASHTO T239	This test determines the water content using the nuclear gage.

Attachment A (Continued)**Asphalt Binder**

Note: Only be sampled and tested at the discretion of the Engineer based on familiarity of the source plant, binder manufacturer, certificate of compliance and test documentation submitted by manufacturer.

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder (Sampling)	One 0.5-gal. sample placed in a clean, sealed can.	Sample once per job at the asphalt concrete plant.	CT 125 ASTM D 979 AASHTO T 168, T48	This procedure describes the proper method to sample the asphalt binder.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Sample once per job at the asphalt concrete plant.	ASTM D92, D117 AASHTO T 48	This test determines the flash point of the asphalt binder (by Cleveland open cup).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2872 & D92 CT 346 AASHTO T240 &T48	This test determines the rolling thin-film oven test (RTFO).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2042 AASHTO T44	This test determines the solubility of asphalt material in trichloroethylene.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2171 AASHTO T202	This test determines the dynamic viscosity, (absolute viscosity of asphalt @ 140 degrees F by the Vacuum Capillary Viscometer Poises).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D5 AASHTO T49	This test determines the penetration of bituminous material @ 77 degrees F and percentage of original penetration from the residue.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D113 AASHTO T51	This test determines the ductility of asphalt @ 77 degrees F.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2170 AASHTO T201	This test determines the kinematic viscosity of asphalt @275 degrees F (Centistoke).

Attachment A (Continued)

Asphalt Binder - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2171 AASHTO T202	This test determines the dynamic viscosity. (absolute viscosity of asphalt @ 140 degrees F by the Vacuum Capillary Viscometer Poises).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D36 AASHTO T53	This test determines the softening point of asphalt.

Asphalt Emulsified

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt (Sampling)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D140, D979 CT 125 AASHTO T 40, T168	This test describes the procedure to sample the emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the sieve retention of emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the weight per gallon of emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the penetration of the emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 CT 330 AASHTO T59	This test determines the residue @ 325 degrees F evaporation of emulsified asphalt.

Attachment A (Continued)**Asphalt Emulsified - Continued**

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D4402 AASHTO T201	This test determines the Brookfield viscosity.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D88 AASHTO T72	This test determines the Saybolt-Furol viscosity of emulsified asphalt @ 77 degrees F (seconds).

Hot Mix Asphalt (Asphalt Concrete) – Concrete

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Concrete (Sampling)	Obtain one 30-lb. sample each day of production	Obtain one sample at the asphalt concrete plant for each 5,000 tons of asphalt concrete placed.	ASTM D75, D140, D979 CT 125 AASHTO T 40, T168	This test describes the procedure to sample the asphalt concrete.
Asphalt Concrete (Testing)	4" x 8" cores	Take one 4" x 8" core for every 500 ft of paved roadway. Test only in case of dispute with contractor.	ASTM D1188, D1560, D1561, D5361 CT 304 AASHTO T246, T247	This test determines the field density of street samples.
Asphalt Concrete (Testing)	Obtain one 30-lb. sample for each day of production	Obtain one sample for every five cores taken.	ASTM D1188, D1560, D1561, D5361 CT 304 AASHTO T246, T247	This test determines the laboratory density and relative compaction of asphalt concrete.
Asphalt Concrete (Testing)	4" x 8" cores	Obtain one sample for every five cores taken.	ASTM D2726, D1188, D5361	This test determines the specific gravity of compacted bituminous mixture dense- graded or non-absorptive.

Attachment A (Continued)

Hot Mix Asphalt (Asphalt Concrete) - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Concrete (Testing)	One 30-lb sample	Obtain one sample for every 1,000 tons of asphalt concrete. Only be tested at the Engineer's discretion based on results of other tests and familiarity with the source.	ASTM D1559 AASHTO T245	This test determines the resistance to plastic flow of prepared mixes as determined by the Marshall Method.
Asphalt Concrete (Testing)	One 30-lb sample	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM C117, D2172 (use Method B) AASHTO T164	This test determines the screen analysis of aggregates recovered from asphalt materials.
Geotextile Fabric (Placed Under the Asphalt Concrete) (Testing)	One 12 ft. x 3 ft. sample	Obtain one sample per job.	ASTM D4632 AASHTO M288	This test determines the weight per sq. yd. and grabs strength of geotextile fabrics.
Asphalt Concrete (Testing)	Sample any test location (random basis)	<ul style="list-style-type: none"> Obtain one sample for every 250 feet of paved roadway in lieu of cores, except in case of dispute with contractor. 	ASTM D2950 CT 375	This test determines the nuclear field density of in-place asphalt concrete.
Asphalt Concrete (Testing)	One 10-lb sample	Obtain one sample during every day of production. Only be tested at the Engineer's discretion based on results of other tests and familiarity with the source.	ASTM D1560, D1561 CT 366 AASHTO T246, T247	This test determines the stability value of asphalt concrete.
Slurry Seals (Sample)	One 0.5 gal. sample in a clean, dry plastic container.	Obtain one sample per truck	ASTM D979 CT 125 AASHTO T 40, T168	This test describes the procedure for sampling the slurry seal.
Aggregate for Slurry Seals (Testing)	One 30-lb. sample.	Obtain at least one sample per project from the belt or hopper or stockpile and test for Sand Equivalent	ASTM D2419 CT 217 AASHTO T176	This test determines the Sand Equivalent of aggregates.

Attachment A (Continued)**Slurry Seals**

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate for Slurry Seals (Testing)	One 30-lb. sample.	Obtain at least one sample per project from the belt, hopper, or stockpile and test for sieve analysis of fine sand.	ASTM C117 AASHTO T11	This test determines the sieve analysis of fine sand (gradation of materials finer than No. 200 sieve by wash grading).
Slurry Seals (Testing)	One 0.5 gal. sample in a clean, dry plastic container.	Test one sample per project and test for Abrasion.	ASTM D3910	This test determines the Wet Track Abrasion Test (2) (WTAT).

Steel

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Steel Strand (Testing)	Sample strand at various sizes.	This item may be accepted using a Certificate of Compliance. Sample and test at least two steel strands per job when a Certificate of Compliance is not used.	ASTM A370, A416, E328 AASHTO T244	This test determines the tensile strength of uncoated seven-wire stress-relieved strand for pre-stressed concrete.
Steel Rebar (Testing)	Sample rebar at various sizes.	This item may be accepted using a Certificate of Compliance. Sample and test at least two steel rebar per job when a Certificate of Compliance is not used.	ASTM A615, A370 AASHTO T244	This test determines the steel reinforcement bar tensile strength and bend capability.



Chapter 5

Contract Administration

Construction Division
Department of Mobility Management and Project Implementation



SANDAG Construction Manual

Chapter 5 – Contract Administration

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5-1 CONDUCT OF THE WORK

5-1.1 Resident Engineer's Pending File

For guidance and information, the project engineer assembles and forwards to the resident engineer a set of letters, memoranda, and other data titled Resident Engineer's Pending File. This file must contain all pertinent information, comments, and advice that may be useful on the specific project to which the resident engineer is assigned. The file usually includes the following:

- Copies of right-of-way (ROW) agreements that require work to be done under the contract or that affect the project's construction.
- Copies of Notice to Owner, which covers utilities and their completion status.
- Copies of Utility Service Request, which the resident engineer will use for the installation and coordination of utility services. Copies of correspondence giving the background of any unusual project features.
- All pertinent engineering data previously prepared in connection with the project. This data should include the design engineer's quantity calculations.
- Copies of the project report, preliminary report, and materials reports.
- A copy of the materials information as given to prospective bidders.
- A copy of the environmental document, including any permits, agreements, and commitments.
- A separate summary of all environmental commitments, as well as any special instructions or explanations for meeting permit and other legal requirements and commitments to other agencies.

The resident engineer must consult with the design consultant and SANDAG project manager (PM) who forwarded the file, if the file has any of the following problems:

- Information appears to conflict
- Information appears to be missing
- Additional information or explanations are required

5-1.2 Preconstruction Conference with SANDAG Personnel

Before the start of construction, the resident engineer should review the job with the following people:

- SANDAG PM
- SANDAG engineering project coordinator
- Design consultant
- ROW manager/consultant
- SANDAG environmental unit
- SANDAG public information officer (PIO)
- Owner-operators
- Other agency personnel
- Affected utility companies

- Others who may have a direct interest in the project

At this preconstruction stage, such a review will significantly aid in explaining the reasons for certain design features such as the following:

- ROW obligations
- Owner-operators' requirements for minimizing impact to rail or roadway traffic
- Materials sites
- Selected material
- Foundation treatment
- Potential slides
- Environmental commitments and permits
- Potential drainage and maintenance problems, including erosion control and water pollution

The resident engineer is tasked with ensuring that the implementation of environmental mitigation measures included in the project approval are carried out. To be fully informed of the environmental mitigation measures, commitments, or concerns on projects that include environmental commitments, the resident engineer must review the environmental commitment record and meet with the assigned SANDAG environmental staff. At the same time, the resident engineer can reach agreement on the assistance required from environmental specialists and the tentative schedule and plan for environmental monitoring. See the Environmental chapter of this manual for details.

5-1.3 Preconstruction Conferences with the Contractor

Before the start of work, a preconstruction conference must be held. The SANDAG engineering project coordinator will work with the resident engineer to set up this conference and create the preconstruction PowerPoint (PPT) slides, getting the appropriate SANDAG staff members to update or create slides related to their area of responsibility (like environmental, small business, etc.). Depending on the project's complexity, more than one conference may be desirable to limit the scope and number of individuals attending. The conferences must include the resident engineer, the SANDAG construction manager, the SANDAG engineering project coordinator, the contractor's PM and/or superintendent, and may include principal assistants, SANDAG principal construction engineer, SANDAG PIO if deemed necessary by the PIO, owner-operators, and other key personnel. Specialists should be included too, such as the labor compliance representative, SANDAG environmental, and other specialty consultants as deemed necessary. Alternatively, the resident engineer may cover the respective responsibilities.

Meeting participants should discuss, among other items, the following:

- Work plans
- Equipment to be used
- Progress schedule
- Layout of job
- Labor compliance
- Equal employment opportunity
- Safety requirements

- Environmental commitments and permits
- Water pollution control requirements

This discussion affords both parties a common understanding of the proposed work and the problems and possible solutions that may be expected during the life of the contract.

The contractor should receive advance notice of the items that will be discussed. Among other documents, the contractor should consider bringing a copy of the contractor's Code of Safe Practices, and a water pollution control plan (WPCP) or a storm water pollution prevention plan (SWPPP), as appropriate. The project file must contain a record of the conferences (or the reason for omitting a conference). Depending on the conference's complexity, the record can be a recording of the preconstruction conference (either audio tape or electronic recording file), a relatively complete set of minutes, or a copy of the resident engineer's daily report. The resident engineer may create a PPT presentation or a detailed agenda that will then go into the resident engineer files.

The police and fire departments, public transportation agency, schools, and other affected agencies should receive any information developed from the meetings that will affect these agencies' operations.

Listed below are the guidelines for the preconstruction conference. However, bear in mind that these are reminders only. Items will or will not be included depending upon their applicability to a specific project. Also, consider any previous experience of a particular contractor with SANDAG projects.

- Introduce all participants, including each person's responsibilities for the project.
- Discuss superintendence as well as lines of authority for both contractors and SANDAG personnel. If you have not yet received it, request the written information required by the Superintendence section of the SANDAG Special Provisions.
- Discuss the subcontracting requirements covered in the Subcontracting section of the SANDAG Special Provisions.
- Discuss requirements related to labor compliance and equal employment opportunity. Advise the contractor of the deadlines for submitting payrolls and other required documents. Also advise the contractor of the contractual and administrative deductions that will be applied for noncompliance. Provide the necessary SANDAG-furnished forms and posters.
- Review the contract's safety requirements.
- Discuss the contractor Quality Control (QC) Plan and SANDAG's Quality Assurance (QA) Plan.
- Discuss the requirements for submitting working drawings.
- Discuss the progress schedule (and the provisions for submitting, reviewing, updating, and revising it).
- Discuss weighing procedures, weight limitations, and the Caltrans policy on overloads. For more information, the [Load Limitations](#) section in [Chapter 3](#) of this manual.
- Advise the contractor of administrative procedures and deadlines for payment for material on hand.
- Review the contract's provisions about water pollution control. Discuss the contractor's WPCP or SWPPP when appropriate.

- Review the contract’s provisions and the environmental commitments record for environmental permits and agreements. Discuss the contractor’s plan for implementing environmental commitments and environmental work windows.
- Remind the contractor to submit a program to control water pollution before beginning work.
- Discuss the requirements for handling rail and roadway traffic.
- Discuss railroad flagging and roadway worker protection training, if appropriate.
- Discuss any unusual project features.
- Remind the contract of the contractual procedures to follow in the event of disagreement. Emphasize the necessity for timely written notices.
- Discuss the scheduling of utility work. For discussion of utility preconstruction conferences, see the Utility, Non-Highway, and Non-Railway Facilities section of the Special Provisions.

5-1.4 Daily and Periodic Report

The resident engineer is required to compose and distribute various inspection reports to keep the construction manager informed and to record the project’s progress. Timeliness of submission of the reports by the resident engineer is of the utmost importance and should be a priority. The reports as described in the following subsections and the required content may evolve as the project progresses, and as requested by SANDAG or deemed appropriate by the resident engineer.

5-1.4.A Resident Engineer’s Daily Report

The resident engineer shall maintain a daily diary containing a record of items such as those listed below and in a format approved by the construction manager. The daily report shall be available to SANDAG no later than 4 p.m. of the next working day following the date the report covers. These reports will be filed in accordance with file breakdown structure and available for review by SANDAG.

This report is mandatory, with a signature, even if no work is performed by the contractor on that day. Because the diaries will be an official project document, it will be available to the contractor by request. The resident engineer must exercise prudence and good judgment in making daily entries. Information that should be included in the resident engineer daily report, but is not limited to:

- Include any information that may be pertinent even though no activity may have occurred. For example, such information could include support for determining working or nonworking days. Include the following in the daily report:
 1. Important discussions and agreements with the contractor. Record these on the day discussed. Give the names of specific persons to whom instructions were given or with whom agreements were made. If the contractor objects or comments, note these items too. Actual quotations on significant discussion points can be useful. Through letters to the contractor, confirm important verbal instructions.
 2. A general statement about the type of work done. Include the controlling operation and any facts concerning the work’s progress.
 3. Weather conditions such as maximum and minimum temperatures, surface conditions, and precipitation, among other items. Expand on exceptional weather conditions.

4. Statements of any other important facts pertaining to the contract that are not specifically covered elsewhere in the contract records.
- Keep the report concise yet include any important information. The report should not contain routine matters, such as quantities placed, that can be found in other records.
 - Retain the original copy with the project records.
 - Photographs to support the narrative portions of the report, as required.
 - Number of workers on the site.
 - Any test or inspections performed by the contractor.
 - Any test or inspections performed by the resident engineer.
 - Note any non-conformant or deficient work encountered or inspected.
 - Note any non-conformant test results, or if a retest or rework is performed, that the passing test rectifies the non-conformant test.
 - Reasons for the work being delayed or otherwise hampered.
 - Unusual occurrences such as accidents and the details thereof.
 - Problems or delays encountered and the suspected cause of such.
 - Note any contractor-caused delay, including amount of delay and work impacted.
 - List of heavy equipment in use, not being used, and equipment moved on or off the job. Type and quantity of equipment, and identification numbers or rental unit. Note idle equipment, equipment stored on site but not used, and broken-down equipment.
 - Signature of the resident engineer on each day's entry.
 - List of all visitors.
 - Notes of significant verbal communication.
 - Reports of field conditions that conflict with design drawings. Note recommendations to solve, conversations about, and any resolution given and/or agreements. All agreements affecting cost or time or pertaining to contract requirements shall be followed up in writing.
 - Track potential extra work or potentially disputed work including personnel, hours, equipment, and materials.
 - Any instructions or comments given to the contractor by the resident engineer or representatives of SANDAG regarding construction.

5-1.4.B Assistant Resident Engineer's Daily Report/Daily Inspection Report

SANDAG anticipates all construction contracts will use a web-based construction management software. Each of the resident engineer's QA inspection staff or assistant resident engineer will be required to produce a Daily Inspection Report (DIR) using the construction management software that documents each day's work activities for which they are responsible for inspecting and the progress of the work of the project. Time and experience have proven that the DIR is invaluable as a record of field operations for use in substantiating claims, change order requests, pay estimates, and other similar items. The potential use of the DIR as a record of information and data for future use by others shall be considered during preparation.

To report the activity for a contract item, assistant resident engineers must submit a report for each contract day and other days' work is performed. Also, use this form for reporting extra work and for labor compliance. The form contains a narrative portion and a tabular portion.

The narrative portion of the assistant resident engineer's report should include statements about the contractor's operation and the activities of the individual preparing the report. The description of the contractor's operation should include the following:

- The location where the work was performed
- A brief description of the operation
- The quantities placed, or the amount of work completed for the day
- Significant statements by the contractor

In addition, report the following:

- Extra work – for details, refer to the [Extra Work](#) section in [Chapter 3](#) of this manual.
- Hours worked by labor and equipment. Provide sufficient detail to permit a review of the contractor's costs in a manner similar to force account. Using the publication titled *Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership)*, sufficiently identify equipment to enable the determination of applicable rental rates. Sufficiently identify the labor classification to enable determination of the appropriate wage rate. Also record the equipment's arrival and departure dates, as well as idle time for breakdowns or other reasons. This information can be used to make a possible adjustment of compensation due to an overrun or an underrun of quantities, a change in character, a protest, or a potential claim. The *Labor Surcharge and Equipment Rental Rates* book is available on the Caltrans website at: <http://www.dot.ca.gov/hq/construc/equipmnt.html>
- The name of the contractor or subcontractor performing the work.

The statement of the assistant resident engineer's activities should be sufficient to demonstrate the performance of duties. Record observations of contractor compliance or noncompliance, actions taken, statements made to the contractor, and approvals given.

Distribute the assistant resident engineer's reports as follows:

- Retain the original of all reports in the project files in the field office.
- File reports covering extra work according to the procedure in the [Organization of Project Documents](#) section in this chapter.

See the [Organization of Project Documents](#) section in this chapter for details to consider when establishing a system for handling the assistant resident engineer's reports on specific projects.

5-1.4.B.1 Daily Inspection Report Guidelines

The DIR will start the first day the resident engineer's inspectors perform their responsibilities, and end on the last day of the project in which they perform inspection duties. A DIR also will be prepared for non-working days with the reason stated for the non-working day and shall be signed by the inspector writing the report.

The DIR will be prepared using information accumulated from the inspector's observations, diaries, and field notes. The work will be described in a clear and concise manner on the DIR so that any project personnel can understand what is written and stated. The construction will be documented in the sequence in which it is performed. In addition to the normal work activities, other general information will be considered and documented on the daily report. The following information should be included in the DIR:

- Observations made of the work, its progress, and its quality (including start-up or completion of units of work). Note the contractor's schedule activity identification number whenever possible.
- Photographic documentation supporting the written report is strongly encouraged.
- Quantities and quality of material received.
- Quantities of work items installed using the pay item identification number and stationing to identify locations, when applicable.
- Document QA inspections to achieve compliance with contract plans and specifications on all phases of construction such as paving, structures, grading, drainage, sewer, water, utility relocation, electrical installation, sign installation, and landscaping items.
- Document any performance and assist in performing checks of grade and alignment, monitoring construction traffic control, and observing materials sampling and testing.
- Observe and report on a variety of field QC tests such as relative compaction, concrete slump tests, concrete cylinders, special inspections, and other required field tests performed by the SANDAG independent third-party testing laboratory and inspectors to ensure compliance with the contract requirements.
- Document any non-conformant, non-conforming, or deficient items of work. Detail what the issue is and whether the contractor has been notified or if a Non-Conformance Report has been issued.
- Factors adversely affecting progress such as utility delays, delivery of material, availability of work force and equipment, plan changes, changed conditions, weather, safety issues, accidents, and poor contractor management.
- Delays and their causes (including the time it started and ended, and the duration of the delay) and a description of the work that was affected.
- Unsatisfactory work performed by the contractor and corrective actions proposed or taken.
- Statements of unusual difficulties met, and the methods used in completing the work in those cases.
- Situations or conditions that may require changes, extra work, or may generate a claim.
- Unusual or difficult engineering, construction, or traffic problems involved and their solution.
- Brief notations on special instructions, comments, or suggestions given to the contractors, including to whom they were given.
- Condensed summaries of points covered in meetings with contractors/subcontractors.
- Safety conditions that require action with respect to the public, workers, and adjacent property owners (safety conditions that pose imminent danger will be immediately reported to the resident engineer).

- Document whether the contractor's field personnel are keeping up-to-date red-line drawings of as-built conditions.
- Documentation and justification of actions taken.
- Activity that the contractor could and would be accomplishing but is not, and the efforts made to have the contractor improve upon its progress.
- Discussions with property owners, official visitors, and representatives of other agencies, utilities, and railroads.
- List of visitors and their official capacities.
- Any authorized extra work, force account work, etc., being performed by the contractor. Refer to the individual inspector's report for detailed information.
- Times of starting and finishing principal subdivisions of work. Use the approved construction schedule activity identification number and activity name to identify the actual start and finish dates of those subdivisions of work.
- All events or situations that might, at any future date, have a connection with controversies with adjacent property owners, owners or operators of public or private utilities, owners of public or private roads, or other contractors. Also note any trespass onto the project site and any incident concerning persons refusing to leave.
- A summary of the contractor's staff, by employer, providing a total number of people under each work or trade classification on the job during the day. Information as to the number of people working can be secured daily from the contractor in an informal memorandum form or from the contractor's daily report, but the report author is expected to perform a check of the reasonableness of the manpower counts based on their own observations. Any discrepancies between the contractor's counts and those of the resident engineer's inspector shall be noted in the DIR.
- A list of heavy equipment in use, not being used, and equipment moved on or off the job. The types, numbers of equipment, and equipment identification numbers or rental unit. Note idle equipment, equipment stored on site but not used, and broken-down equipment.
- Any incidents or conflicts with other contractors.
- Notable occurrences (including detailed descriptions of accidents or disputes).
- Records of extra work performed or work that may result in a claim for extras.

The QA inspectors will complete a DIR on a daily basis, and sign and include all attachments to be submitted for review by the resident engineer. The resident engineer will review the report for completeness, sign or initial it, and submit it to document control for filing and distribution. The DIRs will be available electronically to the construction manager no later than 4 p.m. of the following working day. DIRs not in conformance with the minimum requirements listed above will be returned to the resident engineer by the construction manager for correction.

5-1.5 Maintenance Reviews

It is important for the resident engineer to work with the system operator's or other agency's maintenance group and keep them informed of the start of work and job progress for all construction projects within the superintendents' and supervisors' maintenance areas. Before the start of construction, send a copy of the "Resident Engineer's Report of Assignment," to the owner/operator of the facility or as required by their procedures and/or encroachment permit.

Provide the maintenance group opportunities to inspect as required by encroachment permit or other agreements.

It is a good idea to provide them an opportunity to review the contract with the resident engineer and to conduct a joint field review of the job site within the first two weeks of construction. The intent of this field review is to accomplish the following:

- Discuss the scope of the project.
- Coordinate contingency planning for rail and traffic management.
- Discuss SANDAG's maintenance responsibility as described in the [Maintenance within Construction Limits](#) section in [Chapter 3](#) of this manual.
- Discuss complex construction activities that could affect adjacent maintenance operations.
- Discuss features requiring special attention.
- Discuss manufacturers' warranties and service instructions.
- Schedule regular reviews. When the contract work is 50 percent complete, schedule at least one review, unless both construction and maintenance representatives agree the review is unnecessary.
- When the project nears 90 percent completion, invite the maintenance superintendent, supervisor, or both for a final field review of the project.

The resident engineer should work closely with the maintenance personnel to make minor field adjustments to the project. The PM must provide their concurrence on any amendments to the contract plans or specifications that significantly affect project cost, scope, or schedule.

When the work nears completion and just before contract acceptance, the resident engineer must notify the maintenance superintendent or supervisor to facilitate the transfer of maintenance and responsibility from the contractor to the owner operator as outlined in the applicable encroachment permit or agreement.

5-1.6 Federally-Funded Contracts and Involvement in Contract Administration

When a resident engineer is assigned the responsibility for a construction contract, they must first determine if it includes federal funding, and, if so, the type of federal funding. The resident engineer should review the construction contract, resident engineer's pending file, and talk to the PM to determine the project's federal funding. It will be the responsibility of the resident engineer to ensure any specific forms and procedures are following based on the type of federal funding while administering the contract. At the start of the project the resident engineer will update the Project Management Plan (PMP) for construction to reflect the specific elements that need to follow for the type of federal including in the project (see the [Project Management Plan During Construction](#) section in this chapter).

5-1.6.A Project Management Plan During Construction

The resident engineer/construction management consultant (RE/CMC) will assist the PM in the review and development of construction-related topics in the PMP including the list below. Typically, this PMP is in place prior to the project's advertisement.

This is a living document and would get updated annually in conjunction with the capital improvement project fiscal year, when the budget changes, or when team members are replaced. The PM is responsible for distributing the plan and updates to the project development team, construction team, communications staff, and key stakeholders.

The SANDAG-North County Transit District (NCTD) Memorandum of Understanding (MOU) (Addendum 18): Addendum Number 18 to the Master Memorandum of Understanding between the San Diego Association of Governments, the North San Diego County Transit Development Board, and the Metropolitan Transit System (MTS) Concerning Cooperative Work Efforts, Project Development And Implementation of Capital Projects (SANDAG Agreement No. 5000710), describes the PMP requirements for projects falling under this agreement.

Other projects may require PMPs for other large or complex projects, or if required by a funding agency, or as deemed necessary by the PM. These PMPs should follow the requirements set forth by the funding agency (if applicable) or by the PM's determination. If a PMP is applicable during construction, the following items should be considered for inclusion in the plan:

- Roles and responsibilities during construction
- Levels of authority
- Lines of communications definition with a responsibility matrix and organization chart including for construction personnel
- Approval of the plan
- Budget and cost tracking methods
- Construction schedules including information for work windows
- Configuration management procedures
- Submittal process flow chart specific to that project
- Request for Information process flow chart specific to that project
- Change order process flow chart specific to that project
- Example monthly progress report
- Construction safety

5-1.7 Surveying

The resident engineer shall monitor the contractor's tracking and logging of all surveys performed by the contractor.

Other special check surveys, quantity measurements, and investigative surveys may be required, as recommended by the resident engineer.

All surveys performed by the contractor shall be performed in accordance with the current industry standards, the Professional Land Surveyors' Act, Caltrans Survey Manual, Section 8771 of the Business and Professions Code, NCTD Design Criteria or other member agency's standards as appropriate, and in accordance with the directions of SANDAG. "Responsible charge" for the work shall reside with a licensed land surveyor or a registered civil engineer in the State of California, whose license pre-dates January 1, 1982.

The resident engineer shall not provide surveying or staking services of any type on behalf of the contractor, even if the contractor agrees to pay for such services.

Failure of the contractor to provide the required survey and staking services necessary to perform its work in accordance with the contract documents shall be documented in a written request by the resident engineer to the contractor to perform the survey required. If the contractor fails to perform the required survey, a Non-Conformance Report shall be written by the resident engineer following the procedures found in the [Non-Conforming Work/Materials and Corrective Action Reports](#) section in [Chapter 4](#) of this manual.

Unless otherwise specified in the survey request, control surveys shall conform to NCTD or other member agency's standards as appropriate. The contract documents require that construction staking shall be performed by the contractor as described in the Caltrans Survey Manual.

Surveying work shall not be performed by the contractor when conditions such as weather, traffic, and other factors prevent a safe, efficient operation, or as directed by the resident engineer.

Tasks and assignments to be performed by the contractor may generally include the following items as described in the following subsections. Tasks and assignments to be performed would generally be defined in the construction contract documents.

5-1.7.A Control Point and Bench Mark Surveying

Control point and bench mark surveying includes horizontal and vertical controls, as well as project control surveys and aerial mapping control surveys. This also includes restoring, renewing, referencing, relocating, and resetting existing control monumentation and benchmarks. All horizontal and vertical points shall be based on the Record of Survey Map on file for the project. For projects within NCTD ROW, Global Positioning System Survey Control Points are available upon request to NCTD.

5-1.7.B Contract Documents Surveys

The contractor shall perform all surveying that is required as described in the contract documents. Other surveying and engineering calculations shall be performed as needed to administer and manage the project.

5-1.7.C Survey Calculations and Adjustments

Survey calculations and adjustments shall be performed with established and computed coordinates based on the California Coordinate System. Cross-section data collection shall be performed by conventional and terrain line interpolation survey methods. Survey data formatting will include formatting topography, cross-sections, and other survey data into computerized formats compatible with the computerized survey and design systems. Preparing and maintaining survey documents will include compiling data and survey field notes, maps, drawings, and other survey documents. Monitoring for settlement shall be performed, if required.

5-1.7.D Existing Right-of-Way Easements

Existing ROW and easements shall be dictated from the contract documents and/or NCTD's record information and existing monumentation. ROW related monumentation shall be renewed and restored in accordance with the Land Surveyors' Act. Perpetuating existing monumentation includes restoring, renewing, referencing, and resetting existing boundary-related monumentation, staking areas where construction disturbs the existing ROW, and preparing and filing the required maps and records.

5-1.7.E New Right-of-Way and Easements

The contractor shall establish new ROW and easements from plans, ROW maps, utility drawings, and SANDAG's other record information and existing monumentation in accordance with the contract requirements. ROW surveys include research, locating, and monumenting ROW easement lines, staking ROW and easement fences, and preparing and filing required maps and records. Final monumentation includes the setting of centerline points of control upon completion of construction. Special design data surveys include drainage, utilities, and surveys required for special field studies.

5-1.7.F As-Built Drawing Survey Support

When required by the contract documents, the contractor shall provide electronic record information for any performed surveys to support the development of as-built drawings.

5-1.7.G Survey Monument Markings

Monuments established by the contractor shall be marked by a furnished disk, plugs, or tags acceptable to SANDAG and the municipality having jurisdiction over the improvements. In addition, the contractor shall identify those established monuments by tagging or stamping the monuments with the license or registration number of the contractor's surveyor who is in "responsible charge" of the work.

5-1.7.H Quality Assurance/Check Surveying

The resident engineer also shall perform surveying checks of the work as deemed necessary and appropriate to ensure compliance with the contract documents.

Special surveying and engineering calculations may be required to verify surveys performed by the contractor, investigate potential non-compliant work, and measure unit price pay item quantities as required by the resident engineer, in addition to those services noted above in the preceding sections.

The contractor shall provide all necessary instruments, tools, and safety equipment required for its survey personnel to perform their work accurately, efficiently, and safely.

5-1.7.I Survey Deliverables

When required by the contract documents, the contractor shall create and maintain the following survey documentation and deliverables including, but not limited to:

1. Field measurement reports, and all reports, calculations, and other applicable documents prepared for the project as required by the technical specifications.
2. Survey points, lines, and monuments shall be established, marked, identified, and referenced, as required by the survey request and requirements herein.
3. Survey notes, drawings, calculations, and other survey documents and information shall be completed as required herein.

4. All original survey documents resulting from the contractor's work (including original field notes, adjustment calculations, final results, and appropriate intermediate documents) shall be delivered to the resident engineer and shall become the property of SANDAG. A copy of all survey documents furnished to SANDAG by the contractor or others also shall be retained by the resident engineer and properly filed as part of the project record for future reference.
5. When a survey is performed with a total station survey system, the original field notes will be a hard copy listing, in a readable format, of the data (observations) as originally collected and submitted by the survey party. The party chief shall sign the listing, or if the chief is not licensed, the person in "responsible charge" of the survey shall sign it.
6. Survey deliverables to SANDAG shall follow the format specified below:
 - a. Horizontal Control – Alpha/numeric hard copy point listing with adjusted California Coordinate System northing and easting and appropriate description.
 - b. Vertical Control – Alpha/numeric hard copy benchmark listing with adjusted elevations compatible with the design datum.
 - c. Topography – Alpha/numeric hard copy listing, hard copy drawing, and Computer-Aided Design (CAD) digital drawing. The CAD drawing shall be provided on current media that will be compatible with city standards.
7. Cross-Section Data – The data collection method used to collect cross-section data and the coding (feature description) of terrain data for cross sections shall conform to the survey request requirements. Deliverables shall depend on the data collection methods as follows:
 - a. Conventional Cross-Sections – For each cross-section: an alpha/numeric listing, a hard copy drawing, and a computerized formatted file, which is compatible with NCTD or other member agency's standards as appropriate standards. Computerized formatted cross-sections shall be provided on electronic media as requested by SANDAG.
 - b. Terrain Line Interpolation Cross-Section Data for each Terrain Line Interpolation Survey – an alpha/numeric listing, a hard copy plan view drawing of the terrain lines, and a computerized input file. The computerized input file shall be provided on electronic media compatible with NCTD or other member agency's standards as appropriate requirements.
 - c. Data Collector Data – If specified in the survey request, the raw data from the data collector shall be provided in a format conforming to the survey request requirements.
8. All resident engineer correspondence, records, and other project documents described in the contract documents.

5-1.7.J Contractor Survey Responsibilities

The resident engineer shall verify that the contractor meets all of its required survey obligations described in the contract documents. The following list establishes the minimum level of staking required to be performed by the contractor in accordance with the contract documents for this project. Additional items may be required to be performed by the contractor to fulfill its obligations, as appropriate for the project:

1. Temporary control points for construction shall be established using control monumentation indicated on the plans.

2. Existing monuments that will be lost due to construction shall be cross-tied and referenced with the surveyor's field notes provided to the engineer to allow for future retracement of monuments.
3. ROW and limits of clearing will be flagged at 100-foot intervals with 3-foot laths.
4. Rough grade stakes and slope staking will be placed at 50-foot intervals on centerline at all beginning of curves, end of curves, and grade breaks, and at the top of slope and the toe of slope.
5. Intermediate slope staking shall be provided with spacing of 50 feet to control cut slope or fill slope in excess of 25 feet.
6. Contour grading shall be staked at all grade breaks, with maximum spacing of 50-foot intervals.
7. Drainage culverts and under drains will be staked at 40-foot intervals.
8. Manholes and inlets will be staked with two, 10-foot straddle stakes.
9. Staking for signs shall be two, 20-foot straddle stakes.
10. Sanitary and water systems will be staked at 40-foot intervals.
11. Street light standards and sign structures will be staked with two, 10-foot straddle stakes.
12. Bridge staking: One set of abutment fill stakes in accordance with the layout shown in the Caltrans Survey Manual. One set of stakes for rows of piles; one set of off-set staking to the layout line for abutment, bent, and wing walls; and one set of stakes for edge of deck and finished deck elevations.
13. Retaining layout lines will be staked at 25-foot intervals at the off-sets requested by the contractor.
14. Finished grade stakes will be provided at 25-foot intervals.
15. Contractor-prepared and verified slope staking/grid grade sheets.

5-2 PROJECT RECORDS AND REPORTS

5-2.1 Forms Used for Contract Administration

1. Resident Engineer's Report of Assignment

When assigned to a new project, the resident engineer must use this form to provide contact information. Distribute copies of the report according to instructions on the form and any SANDAG instructions.

It is not necessary or desirable to hold the form until all information is available. Submit partial information with a note that a supplemental form will follow.

2. Construction/Job Order Contract – Subcontracting Request
The contractor submits this form and the resident engineer uses the form to calculate the percentage of work to be self-performed by the prime contractor, to verify contractor licenses, and to verify that the subcontractor is registered with the DIR (see the [Subcontracting](#) section in [Chapter 3](#) of this manual for more details). The resident engineer must sign this form before the contractor can begin on the applicable subcontracted work. Before approval, verify that subcontractors are not on the debarred contractors list that is available on the California DIR website: dir.ca.gov/dlse/debar.html
3. Exhibit 15-G Local Agency DBE Commitment
This executed form is in the executed contract portion of the spec book.
4. CEM 2404(F) Monthly DBE/UDBE Trucking Verification
This blank form can be found in the execution contract portion of the spec book. The contractor must submit this form before the 15th of each month. It lists the dollar amount paid to the DBE trucking companies for truck work performed by DBE certified truckers and for any fees or commissions for non-DBE truckers used each month on the project. Instructions for filling out this form are located on the last page of the form.
5. Final Utilization Report (FUR) [17F] Utilization of all subconsultants/subcontractors, Underutilized/ Disadvantage Business Enterprise (U/DBE), and Small Businesses (SB)
The contractor completes this SANDAG form. The resident engineer certifies (signs) the form. This form describes work performed and materials provided by all subconsultants/subcontractors, U/ DBE, and SBs. Refer to the [Disadvantaged Business Enterprises](#) section in [Chapter 7](#) of this manual for details.
6. CEM-2403(F) Disadvantaged Business Enterprises Certification Status Change [17-O]
This blank form can be found in the execution contract portion of the spec book. The contractor fills out and certifies this form. The resident engineer uses the form to verify the actual dollar amount paid to DBE subcontractors on federally-funded projects that have a change in certification status during the course of the contract. See the [Disadvantaged Business Enterprise](#) section in [Chapter 7](#) of this manual for details.

5-2.2 Organization of Project Documents

5-2.2.A General

This section describes the uniform filing system for organizing project records and reports. The system uses numbered categories for filing project documents. Use the uniform filing system on all projects.

There are currently 63 categories in the filing system. There are several unassigned categories. Use them for project documents that do not fit in assigned categories. If necessary, divide a category into subcategories.

Assign the appropriate category numbers to documents filed at a separate location (such as a field office hanging file). The filing system will then be correct when records are brought together after project completion.

5-2.2.B Indexing

Use a category index, similar to the sample shown in this section, for each project. Post the index in a prominent location.

When the location of a category is separate from the main file, indicate its location on the index under appropriate heading.

5-2.2.C Description of Categories

The discussion below describes the documents that should be included in each category and, for some categories, a recommended order of the documents in the categories.

Category 1: Project Personnel

Include all personnel related records in this category including consultants. Suggested subcategories are listed below. On smaller projects, some of the listed subcategories may be combined when the amount of detail shown is not warranted.

- Resident Engineer's Report of Assignment
- Attendance report
- Overtime records
- Monthly time sheets
- Overtime requests and authorizations
- Absence requests
- Project roster
- Travel expense claims and records
- Individual Personnel File – Use this for a file on each individual containing emergency telephone numbers, experience or training records, among other things

Category 2: Project Office Equipment and Supplies

In this category, file those documents relating to equipment and supplies. Include records of equipment and supplies that have been received or returned. The subcategories listed below outline the scope of this category.

- Equipment inventory
- Shipping records (related shipping and receiving records should be stapled together)
- Receiving records
- Automotive records
- Purchase orders
- Bills of lading

Category 3: Equipment and Personnel Cost Reports

In this category, file construction engineering cost reports including consultant's invoices.

Category 4: Service Contracts

In this category, file those documents related to the project office utilities and services. File requests for service along with all correspondence relating to project office service contracts in an appropriate subcategory. File the receiving records for bills for utilities and services in a "date received" sequence.

It is recommended that a separate subcategory be used for each company or each service agreement. File purchase orders for supplies in Category 2.

The subcategories that may be included in this category are as follows:

- Rent
- Electricity
- Gas
- Telephone
- Water
- Additional service agreements, as required

Do not confuse this category with Category 16, Category 17, or a subcategory of Category 52. These are part of the project's construction operations. This category includes only those transactions connected with the resident engineer's office.

Category 5: General Correspondence

In this category, file those letters that do not relate to any other category or subcategory in use. File correspondence concerning a subject that directly relates to some other category in that category. For example, file correspondence developed in connection with a contract change order (CCO) in the CCO category file.

File correspondence filed in any subcategory in chronological order.

When the volume of correspondence builds up, segregate and divide it into more detailed subject subcategories. When appropriate, transfer correspondence from this category to a more specific category. For example, a property owner may object to certain conditions on the project. After considerable correspondence, the resident engineer writes a CCO to solve the problem. At this point, the resident engineer should transfer all of the correspondence related to the CCO to the CCO category file.

A letter might cover subjects in different categories. When the letter relates directly to two subjects, file a copy in each category or cross-reference to the location of the original. Cross-referencing need be only a note describing the letter filed in the appropriate category.

The following are examples of the subcategories within this category. The number of subcategories will depend on the volume of correspondence. Show all subcategories in the index.

- To SANDAG office
- From SANDAG office
- To contractor
- From contractor
- Property owners
- Utility companies
- Any additional subcategories that may be required depending on the volume of the correspondence.

Category 6: Safety

File project documents relating directly to safety in this category. Suggested subcategories are shown below:

- Employee safety
- Contract documents relating to safety
- Correspondence with the Division of Occupational Safety and Health
- A copy of the contractor's Code of Safe Practices in use for the project

Category 7: Public Relations

File the various documents covering the subject of public relations in this category.

Category 8: Construction Surveys

Use this category for filing all survey documents submitted by the contractor.

Category 9: Welding

In this category, file documents relative to welding.

Category 10: Extra Category Number

Use this extra category number for project documents that do not fit in presently established categories. When used, enter the name of the category on the index sheet.

Category 11: Information Furnished at Start of Project

In this category, file documents related to planning, design, contract funding, advertising, and opening bids. Do not file documents in this category that apply solely or directly to other established categories. This category should contain the following items. Create subcategories as necessary because of the volume of documents.

- Project report
- Preliminary report
- Detailed estimate of project cost
- Notice of award of contract
- Bid results
- Executed contract, special provisions, and plans
- Notice to proceed
- Environmental permits
- Encroachment permits and cooperative agreements
- Bidder inquiry Information

Category 12: Contractor

Use this category to file the various documents that the contractor is required to submit. Do not use it for general correspondence or documents appropriate to another specific category. The following subcategories suggest the scope of the category:

- Contractor's organization including the designation of the contractor's authorized representative as required by the Superintendence section of the Special Provisions

- Contractor's equipment list
- Contractor's borrow agreements
- List of subcontractors and other project documents concerning subcontracting
- Preliminary notices
- Stop notices
- Shop plans, if not filed under another appropriate category
- Falsework plans
- Insurance documents as required in the Indemnification and Insurance section of the Special Provisions

Category 13: Signs and Striping

In this category, file all documents related to signing, delineation, and handling public traffic during construction. Suggested subcategories are listed below.

- Layout of construction signs
- Detour design, striping, and signing
- Traffic striping diagrams

Category 14: Photograph Records

File routine photographs and their identification in this category. File photographs relating to claims in Category 62. It is a good practice to take photographs, at least on a monthly basis, to document the work during construction. Maintain videos and photo files in an organized manner. Note the location of these items in this category file.

Suggested subcategories for this category are:

- Before construction
- During construction
- After construction

Category 15: Accidents

In this category, file documents related to accidents. Subcategories may include:

- SANDAG/CMC employee accident and injury reports
- SANDAG/CMC vehicle accident reports
- CMC accident and injury reports
- California Highway Patrol (CHP) accident reports
- Local police accident reports
- Records and investigations of public traffic accidents
- Records and investigations of contractor accidents

Category 16: Utility Agreements

In this category, file those documents that relate to work to be done to utility facilities in connection with the project.

Create subcategories for the various utility companies. Set up second level subcategories when required by the number of documents. The following are examples of subcategories within this category:

- 16.1.1 SDG&E Co. – Agreements
- 16.1.2 SDG&E Co. – Relocations
- 16.1.3 SDG&E Co. – Encroachment Permit
- 16.2 AT&T Co.
- 16.3 Southern Pacific RR Co.

Category 17: Utility Work Performed

In this category, file daily reports and other records of utility facility work. Create the same primary subcategories as those used in Category 16.

Create second level subcategories when required by the number of documents and the amount of work. For example, where the work would develop just daily reports and receiving records of one utility relocation, these documents could be kept in one subcategory in chronological order. When the same utility company has more than one relocation, a more detailed breakdown may be advisable.

Category 18: Agreements

In this category, file agreements (except utility agreements) with third parties or other state or local agencies. The number and levels of subcategories will depend upon the agreements and the nature and extent of the work involved. A list of suggested subcategories follows:

- ROW agreements—without obligations
- ROW agreement—with obligations
- Forest service agreements
- Borrow agreements (between SANDAG and owner)
- Disposal agreements (between SANDAG and owner)
- Service agreements (these are utility service agreements such as for highway lighting)
- Disposal permits
- Records of royalty payments
- Encroachment permits

File an encroachment permit relating to a utility facility agreement under Category 16. File an encroachment permit relating to a ROW agreement in this category.

Where there are several ROW agreements requiring some degree of control, such as ROW agreements with obligations, maintain a summary to show the status of these agreements. An example of the status summary headings is shown below:

- The agreement number

- The location of work to be performed
- A brief description of work to be done and by whom
- When the work is completed
- The CCO number if the required work is being done by CCO

Category 19: Hazardous Waste and Hazardous Materials

File any information regarding the discovery and removal of hazardous waste in this category.

Category 20: Water Pollution Control Plan or Storm Water Pollution Prevention Plan

File all correspondence regarding WPCPs or SWPPP in this category. A list of suggested subcategories follows:

- Approved WPCP or SWPPP
- Amendments to WPCP or SWPPP notification of construction
- Correspondence
- Inspections by contractor
- Inspections by or for SANDAG
- Notices of noncompliance
- Annual certification of compliance
- Notice of completion of construction

Category 21: Construction Zone Enhanced Enforcement Program

File documents relating directly to the Construction Zone Enhanced Enforcement Program (COZEEP) in this category. Suggested subcategories are shown below:

- COZEEP/Maintenance Zone Enhanced Enforcement Program (MAZEEP) Cancellation Form
- COZEEP/MAZEEP Task Order
- COZEEP Daily Report

Category 22: Traffic Management Information

Use this category to file information related to traffic management. Possible subcategories include:

- Contractor lane closure requests
- Lane closure requests
- Approved lane closures
- Contractor contingency plans
- Traffic count data

Category 23: Rail Operations Management Information

Use this category for all flagging requests, Form B, and work window requests to railroad owner operators and include the approvals and denials of request.

Category 24: Disadvantaged Business Enterprises

Use this category for the following:

- DBE correspondence
- The contractor's DBE commitment
- DBE substitution requests and approvals
- DBE monthly reports
- Final Report – Utilization of all subconsultants/subcontractors, underutilized/disadvantage business enterprise, and small businesses
- DBE certification status change
- Monthly DBE trucking verification
- Other DBE related documents

Category 25: Labor Compliance and Equal Employment Opportunity

In this category, file required labor compliance and equal employment opportunity information. See the Labor Compliance and Equal Employment Opportunity sections in Chapter 7 of this manual for details.

Category 26: Progress Schedule

In this category, file the progress schedule, critical path method submittals, and other related information.

Category 27: Weekly Statement of Working Days

In this category, file the Weekly Statement of Working Days. Also, file correspondence relating to contract time in a subcategory of this category.

Category 28: Weekly and Monthly Newsletter

In this category, file periodic newsletters and reports that are prepared during the project. Include those weekly and monthly reports of a general nature pertaining to the progress of the contract.

Category 29: Materials Information and Preliminary Tests

In this category, file materials information and preliminary test reports. Suggested subcategories follow:

- Materials information
- Report of foundation investigation
- Report of tests on aggregate base (preliminary tests)
- Report of tests on aggregate subbase (preliminary tests)

Category 30: Basement Soil Test Results

In this category, file basement soil test results taken to determine structural section adequacy (taken during design phase).

Category 31: Notice of Materials to Be Used

In this category, file the Notice of Materials to Be Used form or other authorized form. Create a system for checking that notices have been received.

Create a form that contains information for structure items available for use by the structure representative. Consider filing the form listing structure items in a separate subcategory of this category.

Category 32: Notice of Materials to be Inspected

In this category, file form the Notice of Materials to be Inspected form.

Category 33: Notice of Materials to be Furnished

In this category, file form the Notice of Materials to be Furnished form.

Category 34: Treated Base

In this category, file documents for cement-treated base, cement-treated permeable base, and asphalt-treated permeable base. Do not include those documents that are to be filed in other specific categories such as Category 37 and Category 48.

Use subcategories similar to the examples shown below. Create a numbering system that identifies the category, item, and subcategory. For example, 34.26.3, 34 – indicates Category 34: Treated Bases, 26 – is the contract item number of the material and also identifies the subcategory, and 3 – is the second level subcategory identifying the particular document.

- 34.26.1: Mix design data, cement-treated base
- 34.26.2: Plant records, cement-treated base
- 34.26.3: Spread records, cement-treated base
- 34.27.1: Mix design data, cement-treated permeable base
- 34.27.2: Plant records, cement-treated permeable base
- 34.27.3: Spread records, cement-treated permeable base
- 34.28.1: Mix design data, asphalt-treated permeable base
- 34.28.2: Plant records, asphalt-treated permeable base
- 34.28.3: Spread records, asphalt-treated permeable base
- 34.4: Certificates of Compliance for materials used in treated bases

Category 35: Hot Mix Asphalt

In this category, file documents related to hot mix asphalt, except those to be filed in other specific categories such as in Category 37 and Category 48. Following are suggested subcategories:

- Hot Mix Asphalt Production Report (form)
- Hot Mix Asphalt Placement Report (form)
- Contractor Job Mix Formula Proposal (form)
- Contractor Hot Mix Asphalt Design Data (form)
- SANDAG Hot Mix Asphalt Verification (form)
- Certificates of Compliance for materials used in hot mix asphalt

Category 36: Concrete (other than structure items)

In this category, file documents related to concrete. Do not include documents that are to be filed in other specific categories such as Category 37, Category 43, and Category 48. For structure items, the project documents are to be filed in Category 43. Following are suggested subcategories for this category:

- 36.1: Portland cement concrete Pavement

- 36.1.1: Mix Designs
- 36.1.2: Plant Records
- 36.1.3: Certificates of Compliance for materials used in concrete pavement
- 36.2: Portland cement concrete, Class A Structure and minor concrete
 - 36.2.1: Mix Designs
 - 36.2.2: Plant Records
 - 36.2.3: Certificates of Compliance for materials used in Class A structure concrete and minor concrete

Category 37: Initial Tests, Verification Tests, and Acceptance Tests

In this category, file initial tests, verification tests, and any acceptance tests. File documents in each subcategory chronologically unless there is a specific reason for doing otherwise.

Use subcategories similar to the examples shown below. Create a numbering system that identifies the category, item, and subcategory. For example, 37.21.3, 37 – indicates Category 37: Initial Tests, Verification Tests, and Acceptance Tests, 21 – is the contract item number of the material and also identifies the subcategory, and 3 – is the second level subcategory identifying the particular test result.

- Test Results Summary (form)
- Relative Compaction Summary (form)
- SANDAG Production Start-Up Evaluation (form)
- Embankment
 - 37.10.1: Relative Compaction
- Structure Backfill
 - 37.14.1: Sand Equivalent
 - 37.14.2: Relative Compaction
- Aggregate Subbase
 - 37.21.1: Relative Compaction
 - 37.21.2: Moisture
 - 37.21.3: Sieve Analysis
 - 37.21.4: Sand Equivalent
 - 37.21.5: Record of Thickness (summarized in the order that the measurements are made)
- Aggregate Base
 - 37.22.1: Relative Compaction
 - 37.22.2: Moisture
 - 37.22.3: Sieve Analysis
 - 37.22.4: Sand Equivalent
 - 37.22.5: Record of Thickness (summarized in the order that the measurements are made)

- Hot Mix Asphalt
 - 37.31.1: Aggregate Gradation
 - 37.31.2: Asphalt Binder Content
 - 37.31.3: Maximum Theoretical Density (%)
 - 37.31.4: Sand Equivalent (min)
 - 37.31.5: Stabilometer Value (min)
 - 37.31.6: Air Voids content
 - 37.31.7: Crushed Particles
 - 37.31.8: Moisture Content
 - 37.31.9: Los Angeles Rattler
 - 37.31.10: Fine Aggregate Angularity
 - 37.31.11: Flat and Elongated Particle
 - 37.31.12: Voids in Mineral Aggregate
 - 37.31.13: Voids with Asphalt
 - 37.31.14: Dust Proportion
 - 37.31.15: Smoothness
 - 37.31.16: Asphalt Binder
 - 37.31.17: Asphalt Rubber Binder
 - 37.31.18: Asphalt Modifier
 - 37.31.19: Crumb Rubber Modifier
 - 37.31.20: Certificates of Compliance for Materials Used in Hot Mix Asphalt
- Portland Cement Concrete Pavement
 - 37.42.1: Sand Equivalent
 - 37.42.2: Cleanness Value
 - 37.42.3: Sieve Analysis
 - 37.42.4: Modulus of Rupture
 - 37.42.5: Penetration Values
 - 37.42.6: Cement Content
 - 37.42.7: Profilograph Summary
 - 37.42.8: Coefficient of Friction
 - 37.42.9: Other related items

Bills of lading and copies of sample identification tags may be filed in this category temporarily and discarded when their respective test reports are filed.

Category 38: Quality Control and Quality Assurance

In this category, include all documents relating to quality control and QA. Create a subcategory system to include:

- Contractor's QC Plan – Create subcategories for Inspection and test results prepared by contractor in accordance with their contractor QC Plan.
- CMC's QA Plan
- Mix designs quality control tests
- SANDAG verification tests
- QC/QA tests
- Copies of related correspondence

Category 39: Extra Category Number

Use this extra category number for project documents that do not fit in presently established categories. When used, enter the name of the category on the index sheet.

Category 40: Field Laboratory Assistant Reports to Resident Engineer

In this category, file chronologically any reports made out by the project's materials tester. For more than one type of report, such as a report and a summary form, provide separate subcategories.

Category 41: Report of Inspection of Material

In this category, file the following forms:

- QA – Nonconformance Report
- QA – Nonconformance Resolution
- Report of Inspection of Material
- Material Suitability Documentation Report
- Material Suitability Report
- Inspection Release Tag
- Materials Suitability Tag
- Materials Release Summary
- Material Inspected and Released on Job

Create subcategories within this category for each contract item requiring inspection at the source by an inspector. Place a summary sheet (use the Materials Release Summary) in each subcategory containing the date of inspection, quantity inspected, cumulative quantity, and lot numbers. The summary sheet documents that materials used in the work have been inspected.

Staple the Inspection Release Tag or other item removed from materials received on the project, to the Report of Inspection of Material or other Source Inspection Report on a letter-size sheet of paper and file it in the appropriate subcategory. The sheet should include the name of the engineer or inspector who removed it and the date removed. When lot numbers are marked on the items, note the observed lot number on the related form.

When source inspection is performed by Caltrans, a Materials Suitability Tag, should be attached to the Materials Suitability Report, received from Caltrans' Office of Materials Engineering and Testing Services and filed.

When the form includes material for more than one item, include a reference on the summary sheet showing the file location of the materials.

File test reports (usually on Material Inspected and Released on Job) that cover material sampled on the job in lieu of source inspection in the appropriate subcategory of this category, not in Category 37.

Category 42: Material Plants

In this category, file the Material Plant Safety Checklist and all other project documents pertaining to material plant inspections.

Category 43: Concrete and Reinforcing Steel

In this category, file documents relative to concrete and reinforcing steel.

Category 44: Environmental

In this category, create a subcategory to include

- Recycle Materials and Diversion of Solid Waste. A completed copy of Solid Waste Disposal and Recycling Report. The contractor completes the form and the resident engineer reviews the form within the reporting time constraints.
- All other environmental documents not covered in other categories.

Category 45: Resident Engineer’s Daily Reports

In this category, file the resident engineer’s daily report.

Category 46: Assistant Resident Engineer’s Daily Reports

In this category, file the assistant resident engineer’s daily report

Subcategories may be used. They may vary depending on the complexity of the project. Follow the procedures described below to establish the subcategories.

1. Reports Covering Contract Items

Create a subcategory for each major operation so that all items affecting the major operations are grouped together. An example of a system for a relatively large project follows below.

Modify the above breakdown to conform to the size and nature of the project. Make the breakdown narrow enough so that reports covering any particular contract item may be obtained with ease. Review the breakdown to ensure it includes all contract items.

Make as many daily reports as necessary to cover all contract item work in the appropriate subcategories.

As indicated in the example below, set up a separate subcategory for each structure.

Category and Subcategory Number and Title	Contract Items Involved in the Operation
46.1: Chronological	All
46.2: Clearing and Grubbing	5
46.3: Roadway Excavation, Ditch Excavation, Aggregate Subbase	8, 13, 11, 15, 22

Category and Subcategory Number and Title	Contract Items Involved in the Operation
46.4: Salvage Fence, Fence Gates	2, 78, 79, 80
46.5: Guard Railing, Markers, Barricades	1, 4, 82, 83, 87
46.6: Aggregate Base, Cement Treated Base	23, 24
46.7: Asphalt Slurry, Asphalt Dikes	28, 29, 30, 31, 32
46.8: Concrete Paving	35, 36, 37
46.9: Curbs and Sidewalks, Slope Paving, Curb Drains, Spec. Gutter Drains	73, 74, 76, 77
46.10: Minor Str., Precast MH and DI, Reinf. Steel, Misc. Iron and Steel	42, 69, 70, 46, 75
46.11: RCP, CMP, SSP Arch, Drainage Gates, Under/Down Drain, Str. Exc., Str. Backfill	9, 11, 58
46.12: Preparing Slopes, Straw	16, 17, 18, 19, 20
46.13: Permanent Singing	52, 53, 54, 55
46.14: Highway Lighting and Sign Illumination	88
46.15: Finishing Roadway	21
46.16: Structure No. 1	89, 90, 91
46.17: Structure No. 2	89, 90, 91

2. Reports Covering Extra Work

Pending receipt of the contractor's billing, file chronologically the original and one copy of the Assistant resident engineer's daily report, covering extra work in a subcategory of this category. After receiving the extra work bill report and approving payment, record the extra work bill number on both copies of the daily report covering the extra work. Keep one copy of the daily report in this chronological file and use it to detect future billings for the same work. File the second copy with the daily extra work report in Category 49.

Extra work bills for material should show the date the material was supplied or placed and referenced to the invoice so that the particular material may be readily identified. Keep a summary of invoices paid and use it as a check against duplicate payment.

Category 47: Extra Category Number

Use this extra category number for project documents that do not fit in presently established categories. When used, enter the name of the category on the index sheet.

Category 48: Contract Item Quantity Documents

In this category, file source documents supporting contract item quantities. List the subcategories within this category by contract item number order. Identify individual calculation sheets for the various contract items in the following manner. A quantity sheet with the number 48.14.2 indicates that it is Sheet Number 2 covering Contract Item Number 14 and filed in Category 48.

Category 49: Contract Change Orders

In this category, file CCOs and supporting documents in numerical order.

Category 50: Adjustment in Compensation Calculations

In this category, file project documents and calculations to support adjustments in compensation.

After a CCO is written, the supporting project documents may be transferred to the CCO file or remain in this category. Provide cross references between Category 4 and this category when the supporting documents and calculations remain in this category.

List the subcategories under this category by contract item numbers.

Category 51: Materials on Hand

In this category, file the Request For Payment for Materials on Hand, the related evidence of purchase, and any other project documents supporting material on hand payments.

Category 52: Charges to Total Contract Allotment

In this category, file the documents related to and supporting charges to the contract allotment for materials and services supplied by SANDAG.

Divide the category into the subcategories indicated below:

- SANDAG-Furnished Material and Expenses
In this subcategory, file the contractor's letters requesting delivery of SANDAG-furnished materials. Also, file the receiving records or other records of material furnished by SANDAG. When SANDAG furnished material is received as evidenced by a shipping record and a receiving record, file the related shipping and receiving records together.
- Service Contracts
In this subcategory file, supporting documents and records of project related services. These are not the service contracts connected with the project office.

Category 53: Credit to Contract

In this category, include a subcategory to keep a record of any salvaged or surplus material. Also set up a subcategory for copies of daily extra work reports which cover repair of damage to SANDAG, state, city, or owner-operator property by third parties.

Credit received for salvaged or surplus material or repair of damage is not applied to the contract allotment and the project is not given credit for any additional money to spend.

Category 54: Deductions from Payment to Contractor

In this category, file documents related to deductions from payments to contractors. Possible subcategories include the following:

- Royalties on material
- Materials bought for the contractor by SANDAG
- Inspections or testing performed on behalf of contractor
- Costs of damaged or missing SANDAG-owned signs
- Railroad flagging charges

- Noncompliance with the equal employment opportunity provisions of the contract
- Liquidated damages
- Any other deductions
- COZEEP charges

Category 55: Partnering

This category is for filing all documents related to partnering meetings, workshops, and evaluations.

Category 56: Request for Information (Contractor)

In this category, file RFI and corresponding documents from the contractor.

Category 57: Submittals

In this category, file submittals from the contractor.

Category 58: Request for Information (CMC)

In this category, file RFI and corresponding documents from the CMC.

Category 59: Bridge Estimate Data

In this category, file the bridge estimate data and American Recovery and Reinvestment Act reports.

Category 60: Contract Administration System Inputs and Reports

This category contains documents resulting from the construction management software.

In this category, file those documents that do not relate to any other category or subcategory in use. For example, file documents developed in connection with a CCO in the CCO category file.

Category 61: Estimate and Project Status

In this category, file monthly Project Record – Estimate Request documents. The suggested subcategories of this category are:

- Project Contingency Fund Status
- Estimate

The following documents may be filed by estimate number in numeric order:

- Form CEM-6101, Project Record – Estimate Request or equivalent
- Estimate Verification form
- Progress Pay Estimate
- Estimate Processing Results
- Project Record-Estimate and Project Status

Category 62: Disputes

In this category, file notes, photographs, information, and other project documents that may be necessary to establish facts with respect to a dispute. Include any documents that may be related to a dispute in this category or briefly describe and cross-reference them.

Number notices of potential claims in chronological order. These numbers may then be used for subcategories.

The scope of this category may vary considerably, depending upon the nature and circumstances of the dispute. The following types of documents indicate the type of information that should be included:

- Notice of potential claim
- Acknowledgment of the contractor's dispute
- Disputes review board agreement
- Contractor's claim for a time extension (cross-reference to Category 27)
- Acknowledgment of the contractor's claim for time extension
- Other correspondence relating to disputes
- Photographs pertaining to disputes

Category 63: Project Completion Documents

In this category, file documents related to the completion of the project. The following are suggested subcategories:

- Contract acceptance
- Final materials certification
- Punch list

5-2.3 Contract Administration System

SANDAG anticipates all construction projects will use a web-based construction management software to administer construction projects. This system shall be used to process the Daily Inspection Reports, RFIs, submittals, Weekly Statement of Working Days, monthly progress pay estimates, and CCOs. The construction management software system shall be used to store and manage all working and final approved construction documents.

SANDAG will provide instructions and training to the contractor and CMC on how to use the construction management software. SANDAG will provide access to the construction management software at no cost to the contractor. Full compensation for using the software system shall be considered included in the contract prices paid for the various items of work, and no separate payment will be allowed therefore.

5-2.4 Monthly Progress Report

The resident engineer must submit a Monthly Progress Report to the SANDAG construction manager. See Appendix 5-1, Monthly Progress Report Examples.

5-3 FINAL CONSTRUCTION PROJECT RECORDS

5-3.1 General

Construction project records consist of all material in the construction files, whether in the field office or SANDAG main office. This section contains guidelines for the disposition of construction project records after SANDAG makes the final payment. This section also provides guidelines for allowing public access to construction project records and for producing a set of As-Built Plans for each completed construction project.

5-3.2 Public Access to Project Records

The California Public Records Act permits anyone to obtain any written information relating to the conduct of the public's business that is prepared, owned, used, or retained by any state agency, regardless of the physical form or characteristic of the writing. Although the act includes exemptions for certain categories of records, most construction project records fall within the description of documents that must be produced upon proper demand. Except for preliminary drafts or notes that are not retained in the ordinary course of business, permanent project records that are reasonably identified are subject to inspection and copy.

Records exempt from disclosure include the following:

- Estimated project cost before bidding.
- Contract claim analysis.
- Personal information, such as home addresses, telephone numbers, medical records, and similar files, the disclosure of which would constitute an unwarranted invasion of personal privacy.
- Accident reports. If accident reports produced by another agency are requested, such as accident reports by the CHP, refer the requester to the other agency.

If copies of payroll records are requested, refer to the Payroll Records section of the Special Provisions for the procedures to follow.

Resident engineers should refer all requests for copies of any records to the SANDAG Office of General Counsel.

Allow contractors and subcontractors to review records used to determine contract payment in the construction field office.

5-3.3 Disposition of Construction Project Records

SANDAG has an established procedure for the handling of construction project records. Per its Records Retention Schedule, records for construction projects must be kept for ten years after project completion. For practical purposes, the ten years begins from contract acceptance. The procedure is in accordance with its policies and for achieving the following objectives:

- Relieve the resident engineer of the responsibility for storing the records before or at the time final payment is made.
- Avoid unnecessary long-term storage of duplicate copies.
- Retain construction project records as follows:
 1. For projects that involve federal participation, retain the records for a minimum of ten years after submission of the final voucher.
 2. For projects that do not involve federal participation, retain the records for a minimum of ten years after the date on which the final estimate is scheduled for payment.
 3. For projects on which some legal question exists, such as a pending claim, a labor compliance case, or litigation, retain the records for ten years after settlement.

When SANDAG no longer needs the records in categories 1, 2, 3, 4, 7, and 28, destroy them. Do not retain them as part of the project construction records.

After records from the resident engineer's office are sent to SANDAG construction division, eliminate duplicate records.

The construction records retention schedule lists the length of time certain files must be retained, as well as files that must be kept permanently in the project history files per federal requirements. The files that are retained permanently are listed below:

- Category 11: Information Furnished at Start of Project
 - Detailed expense of project cost
 - Notice of award of contract
 - Contract special provisions
 - Notice of approval of contract
 - Start of work notice
 - Executed contract
 - Proposal and contract forms (Bonds)
- Category 12: Contractor
 - Insurance for contractors
- Category 14: Photograph Records
 - Before construction
 - During construction
 - After construction
- Category 16: Utility Agreements
- Category 18: Agreements
 - ROW agreements
 - Forest service agreements
 - Borrow agreements (between state and owner)
 - Disposal agreements (between State and owner)
 - Service agreements (Service agreements charged to contract allotment)
- Category 19: Hazardous Waste and Hazardous Materials
- Category 27: Weekly Statement of Working Days
 - Progress summaries
 - Weekly statement of working days (CEM-2701)
- Category 49: Contract Change Orders
 - CCOs (CEM-4900)
 - Transmittal memorandums (CEM-4903)
- Category 61: Estimate project status

- Proposal final estimate
- Final estimate
- Invoices and receiving records (if applicable) 5 7
- Category 63: Project Completion Documents
 - Contract acceptance documents
 - Contract acceptance recommendation
 - Contract acceptance (CEM-6301)

5-3.4 As-Built Plans

The SANDAG construction manager shall be responsible for overseeing the RE/CMC's as-built process timeline and requirements. On a regular basis (usually at least once a month), the RE/CMC shall check and/or audit the contractor's progress in keeping current their as-built (or record set) drawings, in accordance with the Construction Contract Document requirements. These drawings shall be available to the RE/CMC at all times. The RE/CMC should be checking the progress to assure they are being compiled and that they are an accurate representation of the actual field conditions to date. The RE/CMC is required to submit the as-built construction documents to the applicable parties within 90 days of project acceptance for operations to begin per SANDAG-NCTD-MTS MOU No. 5000710 Addendum 17 (MOU 17) and 18 (MOU 18) unless otherwise authorized by the SANDAG Construction Engineer.

For MTS Projects, as-built records shall be submitted to the SANDAG PM, San Diego Trolley, Inc. (SDTI) Superintendent of Wayside Maintenance, and the SANDAG document control administrator. The as-built plans shall be in electronic PDF format. If the as-built records are created with CAD software, the contractor shall submit the CAD drawing files and the pertaining reference files to the SANDAG document control administrator.

Final as-built "in-service" current configuration drawings for critical elements shall follow the requirements in the [As-Built and Current Configuration Record for Rail Trail Agencies Critical Elements](#) section of this chapter.

For NCTD projects, MOU 18 further details the required document submission requirements.

5-3.4.A As-Built/Record Drawings Monitoring

During the construction phase of the project, the RE/CMC shall establish a schedule and process for monitoring/checking on the progress of the as-built/record drawing set being maintained by the contractor.

The monitoring should be a two-phase activity. Phase one will assure that the contractor's field forces performing the work are accurately red-lining any minor changes made in the field as approved by the RE/CMC and as required in the specifications. The contractor's and CMC/design signal engineers shall review final configuration signaling plans and, once all changes have been addressed, CAD files shall be submitted to the SANDAG current configuration manager and RTA (e.g. MTS/SDTI or NCTD). These field red-lines must be produced so that the contractor's managing staff can incorporate the red-lined work into the record/as-built set onsite in the contractor's project office. The RE/CMC's field inspection staff will assist in this task by checking and regularly inquiring if this is being accomplished. If the RE/CMC becomes aware that a particular portion of the work requiring red-lines has not been incorporated into the record/as-built drawings, the RE/CMC shall notify the contractor for immediate attention.

Phase two of the RE/CMC's monitoring of the record/as-built drawing production/maintenance by the contractor is as follows:

1. Review the record/as-built drawings maintained by the contractor as often as required to be assured they are being kept up to date and maintained.
2. Audit/inspect at least on a monthly basis as part of the Monthly Progress Payment function.

All as-built drawings will become controlled baseline documents and will be submitted to the SANDAG document control administrator. Please refer to the SANDAG Configuration Management Plan for both MTS/SDTI corridor and NCTD corridor for further information on as-built document distribution.

5-3.4.B As-Built and Current Configuration Record for Rail Transit Agency's Critical Elements

The as-built and current configuration CAD file update process for RTA's critical elements such as railway signaling, traction power, overhead contact, and communications systems shall follow a systematic approach to ensure drawings are kept current and correctly reflect the in-service condition in accordance with the SANDAG and RTA's Configuration Management Plan and regulatory requirements.

5-3.4.B.1 MTS Project Critical Elements Process

Prior to the start of construction, the resident engineer shall ensure the contractor identifies a qualified signal engineer that will be the responsible party for the control and updating of railway signaling drawings and CAD files to accurately reflect the final in-service configuration. In addition, the resident engineer shall identify a construction manager signal engineering inspector to perform QA reviews of the contractor's electronic current configuration drawings to ensure the drawings are being updated to accurately reflect the current configuration of the signaling circuits. In addition, the resident engineer shall identify a qualified systems engineering specialist for each type of system included in the construction contract to either: (a) update record drawings and CAD files to reflect the final in-service configuration; or (b) verify that the construction contractor updates record drawings and CAD files to reflect the final in-service configuration.

The authorized construction team staff shall work with the SANDAG document control administrator and the project design team to obtain access to the conformed set CAD drawing files for the project.

During construction, to ensure version control is properly maintained only one authorized user of the CAD files shall be authorized to access the files. The systems resident engineer or designated inspector shall verify that the CAD drawings are being updated to reflect all redlined changes made during construction. Version control of CAD drawing file shall be maintained for the duration of the construction.

As critical elements are completed and placed in service, the resident engineer's designated qualified signal engineer shall: (a) verify that all field changes to all affected locations are accurately depicted in the final configuration CAD files; and (b) submit the required number of copies of final configuration drawings and CAD files as stated in the [As-Built/Record Drawings Monitoring](#) section of this chapter, to the SANDAG document control administrator. After the drawings and operations and maintenance manuals are submitted, the SANDAG document control administrator shall review and accept the documents and CAD files. Once the files are accepted, the document controller will place the files into the Document Control Library and forward copies to the MTS/SDTI superintendent of wayside maintenance.

5-3.4.B.2 NCTD Project Critical Elements Process

Prior to the start of construction, the resident engineer shall ensure the contractor identifies a qualified signal engineer that will be the responsible party for the control of red-line mark ups of field changes to railway signaling drawings to accurately reflect the final in-service configuration. In addition, the resident engineer shall identify a construction manager signal engineering inspector to perform QA reviews of the contractor's red line marked up signal plans to ensure the drawings are being updated to accurately reflect the current configuration of the signaling circuits as the work is performed. In addition, the resident engineer shall identify a qualified systems engineering specialist for each type of system included in the construction contract to verify that the Construction contractor red line updates record drawings reflecting the final in-service configuration are transmitted to the engineer of record and the as-built and current configuration circuit plan CAD drawing preparer to ensure drawings are properly updated and reflective of the final configuration.

The authorized construction team staff shall work with the SANDAG document control administrator, NCTD and the project design team to ensure version control is properly maintained and CAD drawing changes are verified by the systems resident engineer or designated inspector. The resident engineer or designated inspector shall verify that version control of CAD drawing files is being maintained.

As critical elements are completed and placed in service, the resident engineer's designated qualified signal engineer shall: (a) verify that all field changes to all affected locations are accurately depicted in the red line marked up signal plans and transmitted to the signaling system designer so the drawing files can be updated to reflect the final circuit configurations; (b) verify that all field changes are drafted by the signaling design engineer and reflected in the designers final electronic drawing files; and (c) confirm that the red line drawings in the signaling equipment enclosures are replaced with the final CAD file drawings prepared by the signal designer. Copies of all drawings exchanged with the designer and the transmittal letters addressed to or from the signal engineer shall be placed in the Construction files. Copies of final drawings and operations and maintenance documents shall be transmitted to: (a) the SANDAG document control administrator; (b) NCTD project engineer; (c) NCTD's document control library; and (d) NCTD's superintendent of maintenance.

5-3.4.C Sensitive Security Information

Prior to finalizing as-built plans, the resident engineer shall contact SANDAG document control administrator to review if Sensitive Security Information (SSI) requirements may apply to the infrastructure constructed by the project based on categories listed in 49 CFR §1520.5(b). If infrastructure may fit into one of the SSI categories, then the RTA's security director/chief or designee in consultation with the SANDAG document control administrator shall determine which plan sheets, if any, warrant being classified as SSI documents, so those sheets can be stamped/labeled and filed accordingly. The RE and the SANDAG document control administrator will sign-off on the as-built title sheet that an SSI review process has been performed.

5-3.4.D As-Built Procedure and Guidelines

5-3.4.D.1 General

Section 5-1.02.3, Site Copy of Plans, Specifications, and As-Builts, of the Special Provisions outlines the contractor's requirements for the maintenance and submission of as-built. The RE/CMC shall follow the procedure and guidelines below unless requested by other member agencies or third-party agencies to comply with their standards.

5-3.4.D.2 Purpose

The purpose of these guidelines and procedures is to ensure that the As-Built Drawings are:

- a. Created consistently and accurately for all projects

- b. Prepared by SANDAG consultants in an organized and efficient manner
- c. Distributed to the necessary project stakeholders that require the as-built information to maintain the improvements

5-3.4.D.3 Definitions

Bid Set Plans:	The bid set plans are the final sealed and signed plans including all addendums at the time of bid opening.
Conformed Set Plans:	The conformed set plans are prepared by the design engineer of record, after the bid opening, and incorporate any drawing revisions issued as addendums during the bidding phase onto the bid set plans. The conformed set plans are distributed and are to be utilized in the administration and inspection of the work.
Field Red-Line Plans:	The Field Red-Line Plans record the changes that have occurred during construction and are incorporated onto the plans manually and/or electronically prepared by the resident engineer. These are changes that are acknowledged and accepted by SANDAG during the construction of the work, and for which no formal design change was issued by the design engineer of record. The Field Red-Line Plans and other relevant documents will be provided by the contractor, to the SANDAG' resident engineer, for the preparation of the as-built plans.
As-Built Plans:	The as-built plans are the official record drawing that documents the improvements that were constructed.
Resident Engineer:	The person in responsible charge of the administration and inspection of the project on behalf of SANDAG. A responsibility of the resident engineer is to ensure that the contractor is maintaining Field Red-Line Plans in the course of constructing the project. The resident engineer will be responsible for verifying that the Field Red-Line Plans accurately depict constructed conditions. Once the contractor transmits the Field Red-Line Plans to the resident engineer, and the resident engineer accepts them, the resident engineer shall coordinate with SANDAG's construction management PM and as-built drafter to prepare the final as-built plans.
As-Built Drafter:	The person employed by SANDAG responsible for accurately transferring, by drafting, either by hand or through the use of computer aided drafting software, the information recorded on the accepted Field Red-Line Plans onto the completed as-built plans.
Construction Manager:	The SANDAG construction manager is responsible for managing and overseeing the efforts of the resident engineer and the entire project team.
Engineer or Designer of Record:	Is the professional registrant who is responsible for sealing the plan sheets and making design changes as requested by SANDAG PM.

5-3.4.E As-Built Procedure

1. The resident engineer ensures that all project changes to the conformed plans have been recorded on the Field Red-Line Plans and the Red-Line Guidelines.

2. The resident engineer reviews the Field Red-Line information and formally transmits the complete Red-Line package to the as-built drafter assigned to the project.
3. The as-built drafter will review the Field Red-Line Plans for legibility and accuracy. During the review process, the as-built drafter and resident engineer must address any discrepancies, resolve any concerns, and establish a schedule for completion of the as-built plans. The as-built set shall be completed in a maximum of 90 days from the project acceptance date unless otherwise authorized by the SANDAG construction engineer.
4. Once the Red-Lines are converted into the as-built set, the as-built drafter will return to the resident engineer, an electronic copy (PDF), and one hard copy full size (24" x 36") bond set and one as-built plans. The resident engineer will complete the final review, sign and date each as-built plan sheet.
5. The resident engineer will notify the construction manager and the as-built drafter via email that the as-built plans are complete and approved. The resident engineer formally transmits the signed as-built plans to the as-built drafter.
6. The as-built drafter will confirm with the construction manager the number and size of the hard copies and/or PDF copies to be created for distribution to project stakeholders.
7. Upon completing the reproduction of the as-built plans, the as-built drafter will inform the construction manager and/or the resident engineer that the plans are available for pick up and distribution.
8. The construction manager and/or the resident engineer will distribute the as-built plans to appropriate owner agencies, and also will send CD/DVD in PDF format of the as-built plans to the SANDAG document control administrator.
9. The SANDAG document control specialist will check that all pages are printed and ensure that the files do not contain un-readable or corrupt file(s). If the as-built deliverables contain corrupt or unreadable file(s), the SANDAG document control administrator will notify the resident engineer, as-built drafter, SANDAG construction manager of the discrepancy and request the delivery of a new file.

5-3.4.F Red-Line Guidelines

1. The base for Red-Lines will be a copy of the conformed plans, or most current revised plan issued by the engineer of record.
2. Ensure that all new sheets added have been sealed and signed by the engineer of record.
3. All field revisions to permanent construction will be documented. These revisions include but are not limited to horizontal and vertical control, underground conduit construction (including type, size, alignment and depth), electrical and communications panels, irrigation and landscaping, guardrail, striping, signage, and permanent erosion control.
4. Shop drawings that are unique in nature and are original contractor submitted designs that were not included in the conformed plans, shop drawings that change the design, RFI's will all be documented. Any of these shop drawings or contractor submitted design plan sheets will be added at the end of the plan set.
5. Minor revisions will be drawn on the original sheets.

- The resident engineer may add sketches that clarify or document new findings or field modifications that need to be recorded.
 - The resident engineer should ensure that the Red-Line Plans are readable, without leaving any extraneous data on the plans.
6. Use red to record your changes.
7. Major Revisions
- If a revised sheet is needed to completely replace an original conformed sheet, the new sheet shall be sealed and signed by the engineer or designer of record making the revision.
 - The original conformed sheet is not discarded. An "X" must be drawn from corner to corner of the borders.
 - The line should not be so wide as to obscure any details that should remain visible.
 - The revised sheet is numbered with the same sheet number and includes a revision line with the revision number, description, date, and initials of the person creating the changes.
 - If a single sheet is being revised several times, an "X" must be drawn on the original sheet and subsequent sheets until the last revised sheet has been submitted. Place the sheets behind the original in chronological order, numbering them using the original sheet number and the revision number.
 - The construction field office may red-line changes onto the plans. If there were multiple revisions for a single sheet, all revisions should be transferred onto the last revision sheet.
 - If there is no time to prepare an electronic detail, hand drawn sketches sealed and signed by the professional engineer responsible for the change may be used. These types of details should be converted to a formal revision to the plans prior to the completion of the construction.
 - All revisions prepared by the engineer will be clouded and if necessary numbered using the triangles legend.
8. Added Plan Sheets
- Added plan sheets shall be inserted within the appropriate section. Label the sheet with the sheet number and the next letter in the alpha designation sequence using upper case alpha letters (18A, 18B, etc.) in the upper right title block.

5-3.4.G As-Built Guidelines

1. All changes need to be legible. Where drafting of changes is required the as-built drafter is responsible for producing quality drawings from the Red-Lines provided.
2. Revisions should not be clouded, unless specifically requested by third party agencies.
3. If sheets are revised, only the original conformed sheet with the "X" across it and the final revision sheet showing all revisions will be included in the as-builts.
4. Ensure that all revised sheets resulted from a Design Change Notice have been sealed and signed by the engineer of record.

5. The resident engineer must sign and date every As-Built sheet whether or not there are changes in that plan sheet.
6. Traffic control plans, erosion control plans, and construction staging plans are not to be As-Built. The original conformed sheets shall be included in the as-built plans but will not be signed and dated by the resident engineer.

5-4 PROJECT FUNDING

5-4.1 General

SANDAG aims to complete construction projects within the planned scope, allotted time, and projected budget. The project allotment includes a contingency fund for unforeseen expenses or unknown factors encountered during construction. Occasionally, the magnitude and cost of unforeseen expenses or unknown factors are greater than the budgeted amount. In such instances, the contract allotment may be supplemented with additional funds to complete the project as originally planned. The project also may include an allotment of funds that may be categorized as allowances, supplemental work, or provisional sums. These are for items of work which are either specifically identified for reimbursement as part of the contract or for other known work that will need to be performed but are difficult to quantify.

SANDAG develops and implements local funding programs that supplement federal and state funding programs to meet their current and future transportation needs. Projects funded by others that are constructed are sponsored by a city, county, local transportation authority, local transit agency, or private entity and use local or private funding. Local revenues for projects may include local sales tax, other local funds, local federal-aid funds (Regional Surface Transportation Program, Congestion Mitigation Air Quality, Transportation Enhancement Program, and other funds), and private funds. SANDAG may combine the local funds with state and federal funds (State Transportation Improvement Program, Interregional Improvement Program, State Highway Operation and Protection Program) to develop transportation improvements.

The term "local agency" used throughout this section means any public entity (county, city, or other local government entity) that sponsors a construction contract for SANDAG.

5-4.2 Managing Funds

The resident engineer is responsible for managing the project construction costs within the current allotment, which includes item payments, SANDAG-furnished materials, contingencies, and supplemental work. The resident engineer must track project expenditures, forecast future costs, determine the need for additional funds, and immediately notify the SANDAG construction manager and SANDAG PM of any apparent funding shortfalls. The resident engineer must not allow work to proceed that would require the encumbrance of additional funds before those funds have been approved and added to the project allotment.

The resident engineer must update the project contingency balance continuously as changes occur and whenever additional costs are initially identified. For example, payment for item overruns will come from the contingency fund, and extra money from item under runs will be returned to the contingency fund.

5-4.3 Obtaining Additional Funds

When the resident engineer determines that additional funds are needed, the resident engineer must consult with the construction manager. Both should discuss additional funds and potential alternatives with the PM to complete the project within budget.

An assessment of financial status must show that the existing contingency balance will prove insufficient to complete the project within the approved contract scope. Do not request additional funds to settle disputes that are not yet resolved.

The resident engineer and the SANDAG construction manager must meet with the PM to discuss the funding need and alternatives.

The resident engineer must then write a memorandum to request additional funds and send it to the construction manager and PM. The memo must include Financial Status of the Contract and Justification for the Request sections. The Financial Status of the Contract section must include information on the present contract allotments and estimated probable final expenditures for contract items, supplemental work, contingency fund, state-furnished material and expenses, and any previously approved additional funds. The Justification for the Request section must contain a clear explanation of the reason for additional funds to complete the project within the scope indicated in the approved contract. The justification must answer the following questions:

- Why are additional funds needed?
- What work will be performed with the additional funds?
- What alternatives have been considered to mitigate the unforeseen expenses?

5-4.4 Segregation of Quantities by Fund Source

5-4.4.A General

The recording of total quantities of materials used on a project determines the final payment to contractors. However, this recording does not complete the data necessary to prepare the final billing when projects involve several different funding sources. Therefore, resident engineers must review the funding for each project before work begins and be alert to the necessity for segregating quantities for fund apportionment.

It is essential that the resident engineer understands the project's funding make-up and understands the agreement that establishes the funding and payment arrangements. This knowledge is important in the maintenance of records throughout the project including records for quantities, cost increases, change orders, and final apportionment. The resident engineer may need to notify, and get concurrence from, the appropriate funding source when the work changes. The PM should make this funding information available to the resident engineer, who should then establish a contact with the funding source.

5-5 CONTRACT CHANGE ORDERS

5-5.1 General

A CCO is a legally binding document used to make changes to the contract. The "Contract Change Order" form is used for CCOs. SANDAG anticipates all construction projects will use a construction management software system to process CCOs. The "Contract Change Order Memorandum" form must be prepared for each CCO. This section describes the use of these two forms, describes SANDAG policies for CCOs, and provides guidelines for writing CCOs and memorandums.

5-5.2 Contract Change Order Policy

The authority for SANDAG to make changes to a contract is located in the Changes section of the Special Provisions. Work that is outside the scope of an existing contract should be done using a separate procurement.

The resident engineer should consider the following in determining if the proposed change is within the scope of the original contract. Answering “yes” to any of the following questions indicates that the new work may be outside the scope of the original contract:

- Is the type of work for the proposed change significantly different from other types of work within the original contract?
- Is it necessary for the prime contractor or subcontractors to mobilize specialized forces and equipment to perform the work of the proposed change?
- Will the estimated cost of the proposed work, when combined with all other contract changes, be outside the approved contract allotment?
- Does the proposed change represent a significant deletion of work from the original contract?
- Does the proposed change significantly delay completion of the contract when compared to the number of original contract working days?
- Is the proposed change outside the original contract limits?
- Can the project be completed as contemplated at the time of bid without the proposed change?
- Will the type of work for the proposed change trigger the addition or deletion of a North American Industry Classification System (NAICS) code from what was initially considered in the development of the contract DBE goal?

Answering the previous questions assists in determining if a proposal is within the scope of the existing contract. However, a complete analysis of all the facts and circumstances surrounding the proposed change or new work is required to make a final determination. The resident engineer must consult with the construction manager in assisting with making its final determination.

5-5.2.A Contract Change Order Method of Payment

When writing a CCO, the resident engineer often can choose the payment method for added or changed work. However, SANDAG has a preference for the type of payment method used. Always attempt to use the most preferred method. The following lists, in order of preference, the payment methods:

1. Contract items at contract unit prices
2. Contract items at contract prices with an adjustment in compensation at agreed unit price or lump sum
3. Payment Adjustment at agreed unit price or lump sum
4. Force account
 - a. Payment adjustment
 - b. Extra work

When a contract item is changed in character, the resident engineer may delete the entire contract item, or the portion of it affected by the change, and pay for the entire work at force account. A much better choice, though, is to determine a correct and equitable adjustment in compensation to the contract item unit price. An adjustment in compensation providing for increased or decreased costs due to the change in character allows the contract price to remain unchanged. Before resorting to force account payment, resident engineers must make every effort to make adjustments in compensation or negotiate agreed prices.

See the [Payment Methods](#) section in [Chapter 3](#) of this manual for methods of payment. [Chapter 3](#) of this manual, describes how the various methods of payment are used in CCOs.

5-5.3 Purpose of Contract Change Orders

Use CCOs to change any part of the original contract. In addition, CCOs are used for administrative and other purposes. The following are some of the reasons for writing CCOs:

- To change contract plans, specifications, or both.
- To describe the work and method of payment for work stipulated in the contract to be paid as extra work.
- To authorize an increase in extra work funds necessary to complete a previously authorized change.
- To make adjustments in compensation.
- To implement a cost reduction proposal or a construction evaluated research proposal. See the [Control of Work](#) section in [Chapter 3](#) of this manual for a discussion of cost reduction proposals and the [Scope of Work](#) section in [Chapter 3](#) of this manual for a discussion of construction evaluated research.
- To clarify terms of the contract.
- To resolve disputes, potential claims, exceptions during the contract, after the proposed final estimate, and to pay for contract claim determinations. For the use of CCOs in the dispute resolution process, see the [Disputes](#) section of this chapter.

5-5.4 Initiation of Contract Change Orders

The resident engineer usually determines the need for and initiates a CCO. However, the contractor, other SANDAG units, or outside agencies or individuals may request changes. Other SANDAG units requesting a CCO must clearly document the need for the change. They must provide information sufficient to demonstrate that the requested change meets SANDAG policy for making changes to the contract and explain why the change is necessary or desired. If the resident engineer determines a CCO is needed s/he will issue a request for proposal to the contractor. During this period the resident engineer will complete an independent cost estimate and if applicable a time impact analysis. Upon receipt of the contractor proposal the resident engineer will negotiate the final amount and agree upon method of payment.

5-5.5 Preliminary Considerations

When preparing to write a CCO or requesting a prior authorization, consider the following:

- Is the proposed CCO necessary to complete the work as contemplated at the time the contract documents were approved?
- Is the proposed CCO part of a negotiated contract (design-build, etc.)? If so, coordinate with the PM to ensure the scope of the proposed change is not already included as part of the negotiated cost.
- The proposed agreed price CCO costs are to be negotiated consistent with the terms outlined in the contract documents.
- How should the force account markups be adjusted to account for previously negotiated costs such as indirect costs and contractor's risk?

- What is the overall impact on the planned work?
- Are there sufficient unobligated contingency funds? If additional funds are required, can they be obtained soon enough to prevent delays?
- Will the contract time of performance be affected? What are the impacts of extending the contract time of performance?
- When a project is nearing completion, give careful consideration to the effect the change will have on the time of completion. Changes near the end of a contract are more apt to extend the time of completion than changes made earlier. Late changes may adversely affect the contractor's schedule, delay public use of the facility, and disrupt the planned use of SANDAG or consultant personnel.
- If the adjustment of time of completion is deferred, how will the adjustment be determined?
- Will the proposed CCO affect or change the contractor's planned method of performing the work?
- Is the proposed work already covered in the contract?
- Will the ordered change cause a change in character of the work?
- If an adjustment in compensation resulting from a change in character of the work is deferred, how will the adjustment be determined?
- Does the proposed change adhere to existing permit conditions, environmental mitigation requirements, local agency and utility obligations, and ROW agreements? Does the proposed change require new coordination, permits, or agreements?
- Will the contractor cooperate in providing timely cost estimates for the extra work at the agreed price and cost information for adjustments in compensation? Should you share your own cost estimates and determinations and present them to the contractor?
- What methods of payment should be used?

If the contract has a DBE goal, further consideration shall be made for the following:

- Will the type of work for the proposed change trigger the addition or deletion of a NAICS code from what was initially considered in the development of the Contract DBE goal? If the answer to this question is yes, discuss the CCO with the SANDAG construction manager and the Office of Small Business to assess the appropriateness of establishing a DBE goal for the CCO.
- If no new NAICS code is triggered, is the type of work for the proposed change significant? Does it create potential opportunities for DBE subcontractors? If the answer to these questions is yes, the resident engineer should consult with the SANDAG construction manager and the Office of Small Business to establish a DBE goal for the CCO or whether another option, such as accepting a contractor's commitment to utilize a DBE on the CCO should be pursued.

The following scenarios should help with determining when a goal and/or commitment may be appropriate:

Scenario 1: The proposed change does not involve a change in NAICS code and is significant enough to allow for additional DBE subcontracting opportunities. If work being added is the same as work being performed by a listed DBE or non-DBE firm, this new work should be assigned to that same firm. If, however, the work being added could create new DBE subcontracting opportunities, consult with the SANDAG construction manager and the Office of Small Business on the factors associated with engaging a DBE Contractor, and a DBE package (Scope of Work, NAICS Code, and ICE) will either be submitted to the Contracts Division to establish a DBE goal for the CCO or another option will be pursued.

Scenario 2: If the proposed change adds a new NAICS codes, the work may create new subcontracting opportunities. In this case, consult with the SANDAG construction manager, notify the Office of Small Business, and submit the DBE package (Scope of Work, NAICS Code, and ICE) to the Contracts Division before CCO work commences to determine if a DBE goal can be established.

Scenario 3: There is an exigent need for a CCO. If the proposed change will add a new NAICS codes, the work may create new subcontracting opportunities. Consult with the SANDAG construction manager and notify the Office of Small Business immediately. The Contractor shall be encouraged to utilize DBEs but no goal needs to be established.

5-5.6 Contract Change Order Content

The CCO must be clear, concise, and explicit. When appropriate, it must include the following:

- What is to be done
- Location and limits of proposed work
- Any applicable specification changes and references to specifications
- The proposed CCO's effect on time of completion
- Method and amount of compensation
- DBE goal, if deemed appropriate

5-5.6.A Specifications

The specifications for contract item work already included in the contract will apply to added contract item work. You do not need to repeat or reference specifications for added work that is clearly shown to be contract item work.

In the CCO, completely describe extra work. Include directly or by reference the specifications for extra work, whether paid for at agreed price or at force account. The contractor must complete this extra work exactly as it is specified in the CCO.

Included in the contract will be some work specifically designated as extra work. For an example of this situation, see the Flagger and the Flagging Costs sections of the Caltrans Standard Specifications.

The contractor normally chooses the method of performing extra work, subject to the resident engineer's approval for labor, equipment, and materials for force account work. If, for any reason, the engineer wants to control the method of performing the work, the method must be specified in the CCO.

5-5.6.B Description of Work

The CCO must clearly describe added work or other changes to the contract. Include appropriate references to special provisions contract plans, Standard Plans, Standard Specifications, or Special Provisions. Decide if a written statement clearly defines the proposed change or if plans or drawings need to be included.

On plans attached to a CCO, show pertinent dimensions and the scale or label the plans “Not to Scale.” Plainly mark reduced reproductions “Reduced Plans, Scales Reduced Accordingly.” When using existing plan sheets, clearly show the difference between new work, work already included in the contract, and changed or eliminated work. A simple sketch on a letter-sized sheet will more clearly depict the change than an obscure revision to an existing sheet of the original plans. An 8.5” x 11” attachment is always preferable to a full-size contract plan sheet.

Section 6735, Preparation of Plans and Other Documents, of the Business and Professions Code, requires that a registered civil engineer signs and stamps or seals all civil engineering plans and specifications. Plans or specifications attached to a proposed CCO must meet this requirement. A registered civil engineer does not need to sign revisions already covered by Standard Plans, Standard Specifications, SANDAG Contract Special Provisions, previously engineered drawings, or minor changes not requiring calculations or determinations by a resident engineer.

Show the SANDAG contract number, sheet number, and CCO number on plans or other documents made a part of a CCO. Include all attachments to each distributed copy of a CCO.

5-5.6.C Methods of Payment

This section provides guidelines for using the various methods of payment in CCOs.

5-5.6.C.1 Increases and Decreases in Contract Items at Contract Prices

Changes in planned work or adding or decreasing work will often result in increases or decreases in contract item quantities. Except for contract items designated in the engineer’s estimate as final pay quantities, show changes in contract item quantities as estimates on a CCO. Calculate the estimated increases or decreases that will result from the work as changed by the CCO. The actual quantity paid for each contract item will be determined by the method specified for measuring each contract item quantity. For guidelines on measuring contract item quantities, [Measurement and Payment](#) section in [Chapter 3](#) of this manual.

Show changes in the quantity of contract items that are designated as final pay quantities as fixed amounts added to the quantity shown in the bid item list. If a portion of a final pay item quantity is eliminated, the final pay quantity will be revised in the amount represented by the eliminated portion of the item of work quantity. Calculate the increase or decrease in the final pay quantity by the method specified in the contract specifications.

For the method of indicating changes in contract item quantities, refer to “CCO Format” later in this section.

5-5.6.C.2 Extra Work

For the definition of extra work and guidelines for using extra work in CCOs, see [Chapter 3](#),

[Section 3-5, Scope of Work](#), of this manual. Before designating additional work as extra work, ensure that it cannot be paid for as a contract item, a combination of contract items, or a contract item with an adjustment in compensation.

5-5.6.C.2.a Extra Work at Agreed Prices

For guidelines for determining and paying for extra work at agreed price, see the [Measurement and Payment](#) section in [Chapter 3](#) of this manual.

File, with the contract records, any calculations made to determine extra work at agreed price. These calculations are subject to audit and must be in such a form that they clearly substantiate and justify the amount paid for extra work. In lieu of showing all the calculations necessary to substantiate extra work at agreed price in the change order memorandum, you can include a statement that such calculations are on file in the project records.

When a subcontractor is to perform extra work paid for by agreed price, include the subcontractor markup in the agreed price calculations. For subcontractor markup guidelines, see the [Measurement and Payment](#) section in [Chapter 3](#) of this manual.

Agreed prices may be unit prices or lump sum. Before an agreed price may be used to pay for extra work, the resident engineer and the contractor must agree on compensation. The contractor must execute the CCO providing for extra work at agreed price.

After the extent of extra work has been determined, request the contractor to submit a proposed agreed price. Analyze the contractor's proposed price using the force account method. You also may initially determine a proposed agreed price based on a force account analysis and present it to the contractor. When you have reached an agreement, process the CCO and retain in the project files the records fully justifying the agreed price.

Ensure that payments of agreed lump sum prices do not exceed the amount authorized on the change order. Agreed unit prices can be applied to an estimated number of units in the CCO. Although the unit price remains fixed, the number of units paid for may vary from the estimated number.

When extra work consists entirely of work that neither the contractor nor any of the subcontractors would normally perform, the work is considered "specialty work," and the contractor may obtain three bids for the extra work. Determine the agreed price by taking the lowest bid and adding the markup, as described in the Work Performed by Special Forces or Other Special Services section of the Special Provisions. When this method is used, ensure that the work is accurately and completely described when bids are solicited. The same description of the work must be used in the CCO. If the contractor or a subcontractor includes a bid along with independent firms, you must make an analysis using the force account method. The contractor's or subcontractor's bid will be acceptable only if the analysis can justify it.

5-5.6.C.2.b Extra Work at Force Account

Pay for extra work at force account under the following conditions:

- When the work cannot be estimated within reasonable limits of accuracy
- When the resident engineer and the contractor are unable to agree on a unit or lump sum price for the work

For guidelines for paying for extra work at force account, see the [Measurement and Payment](#) section in [Chapter 3](#) of this manual. For examples of CCOs with extra work paid for on a force account basis, see Appendix 5-3.

5-5.6.C.3 Adjustment in Compensation

The [Scope of Work](#) section in [Chapter 3](#) of this manual discusses adjustments in compensation for increased or decreased quantities and for changes in character of work.

Adjustments in compensation usually involve estimating the cost of work or determining the actual cost of work performed. The following explains how to estimate or determine such costs.

Verify the contractor's records of item cost by comparing labor and equipment charged to the item by the contractor to the labor and equipment shown on the daily reports. Charge equipment to the item cost in accordance with the force account method. Exclude down time and apply the correct force account rental rates. Exclude any overhead costs and any items that should be charged to other work.

Sometimes a contractor may submit cost estimates based on the billing from a specialist plus a markup. When the work is of such a nature that it would qualify under the Work Performed by Special Forces or Other Special Services section of the Special Provisions, you may calculate the adjustment on this basis. Ensure the specialist rate or billing is in line with the firm's usual charges.

For contract item overrun and underrun adjustments, when the contractor does not furnish sufficient and timely cost information, issue a unilaterally approved CCO adjusting the item. Base the adjustment on your cost determination. This approved CCO establishes the time allowed for protest and helps avoid problems and delays after contract completion.

Even though the contractor may have agreed to pay a fixed price to others for an element of work, you can still use a force account-based adjustment of the item price. You must use a force account cost determination even when the work is subcontracted unless the element of work was performed by special forces, as defined in the Work Performed by Special Forces or Other Special Services section of the Special Provisions.

5-5.6.C.3.a Adjustments for Increased or Decreased Quantities

As soon as it is known that a contract item quantity will vary from the bid item list by more than 25 percent, consider the method of adjustment that will be used. Make daily reports for the item with the same degree of detail used in force account daily reports. Doing so will facilitate determining any necessary adjustment. When required, make adjustments in compensation for increased or decreased quantities as soon as the contractor completes work on a contract item.

You may calculate adjustments by analyzing the performance of a portion of an item, provided the portion is typical of the item as a whole.

You may verify a contractor's records by comparing them with SANDAG records. Where more extensive auditing is required, request the assistance of the SANDAG internal auditor. When examining the contractor's records to determine the cost of equipment used, consider only the hours worked. Force account equipment rental rates must be used regardless of what rate the contractor may have used.

When verifying contractor's records, eliminate supervision and overhead costs and any items of costs properly chargeable to other work. When making adjustments, use SANDAG records to determine the amounts of labor, equipment, and materials. The verified contractor's records may supplement the SANDAG records, or in some instances, you may need to use only the verified contractor's records. The resident engineer must use good judgment when reconciling differences between the contractor's and the engineer's records to arrive at a reasonable and equitable adjustment.

An item that has been adjusted under the provisions of the Changes in Character of Work section of the Special Provisions, may later become eligible for further adjustment under the Increased or Decreased Quantities section of the Special Provisions. In making the quantity adjustment, deduct or add payments made in making the change in character adjustment to determine the contractor's total cost of the work.

5-5.6.C.3.b Adjustment Calculations Involving Asphalt Concrete Dikes and Miscellaneous Areas

The contract item "asphalt concrete dike" is occasionally paid for by the ton of asphalt concrete and by the lineal foot for asphalt concrete dike. The contract item "asphalt concrete (miscellaneous areas)" is also occasionally paid for by the ton of asphalt concrete and by the square yard for asphalt concrete (miscellaneous areas). The specifications do not exactly separate the work covered under each contract item. This lack of separation causes a problem when it is necessary to adjust either the asphalt concrete dike contract item or the asphalt concrete (miscellaneous areas) contract item.

Although a change in character is not actually involved, the procedure is considered the most equitable to compute the adjustment somewhat in conformance with change in character methods.

The following is the recommended procedure to determine the proper costs for computing adjustments of asphalt concrete dike and asphalt concrete (miscellaneous areas):

Subtract the estimated normal haul and laydown unit cost for asphalt concrete used in paving from the contract unit price to determine the cost of producing asphalt concrete. For commercial plants, you may use published price lists to determine the cost of producing asphalt concrete.

- To obtain the total cost of producing asphalt concrete used in dikes or miscellaneous areas, multiply the actual mass of asphalt concrete used for dikes or miscellaneous areas by the unit cost of asphalt concrete as determined above.
- To obtain the total force account cost of dikes or miscellaneous areas, add to the total cost of producing asphalt concrete the total force account haul and placing costs for asphalt concrete used in dikes or miscellaneous areas.
- Calculate the force account unit cost of the dike or miscellaneous area item and proceed as with any contract item increase or decrease adjustment.

To some extent, this procedure constitutes an adjustment in the asphalt concrete item as well as in the placing item. However, this statement is true only for the asphalt concrete used on that portion of the dike or miscellaneous areas in excess of 125 percent of the engineer's estimate. Also, an overrun or underrun in asphalt concrete dike or asphalt concrete (miscellaneous areas) will usually have little effect on the overall quantity of asphalt concrete.

5-5.6.C.3.c Deferred Contract Item Adjustments

If adjustment was deferred on the original CCO, you may write a supplemental CCO to resolve the adjustment. To simply indicate an item adjustment will not be made, you do not need to write a supplemental CCO. In this case, a letter from the contractor is sufficient. File a copy of the contractor's letter with the original CCO that deferred the adjustment.

Upon completion of the changed work, promptly resolve all deferred item adjustments.

5-5.6.C.3.d Exemption from Adjustment

Unless requested in writing by the contractor, do not adjust a contract item when the total pay quantity is less than 75 percent of the quantity in the bid item list. You also do not need to adjust (unless requested in writing by the contractor) if the value based on the contract price for the units of work in excess of 125 percent is less than an amount shown in the Increases of More Than 25 Percent section of the Special Provisions. As soon as a final contract item quantity is known, decide whether to make the adjustment.

Unless an obvious imbalance exists between the contract unit price and actual cost, do not make the adjustment. Inform the contractor in writing whether or not SANDAG will adjust the contract item price.

5-5.6.C.3.e *Adjustments for Changes in Character of Work*

This section defines changes in character of work.

Adjustments in compensation for changes in character may be unit or lump sum adjustments. A lump sum adjustment is normally only applied to a lump sum contract item.

A change in character adjustment may require a force account determination of the cost of an entire item as changed and a force account estimate of the cost of the work as planned.

When the changed portion of the work can be separated from the unchanged portion, only a force account determination of the cost of the changed portion is necessary. You can make payment at the contract price plus a separate payment for the added work or credit for any deleted work. When added work is clearly separable from the planned item work, pay for it as a lump sum or unit adjustment in compensation. You also may pay clearly separable added work as at an agreed price or force account. For work deleted from the original item work, make an adjustment in compensation (credit) for the deleted portion.

Do not eliminate a contract item and pay for the work at agreed price or force account unless the change is so extensive that the original item no longer applies. If at all possible, never change a contract bid price. Instead, make an adjustment to the contract bid price.

Changes in character always result from an approved CCO. At times, it will not be possible to come to an immediate agreement with the contractor regarding adjustment of compensation. You may need to complete the entire item before costs can be determined. In such cases, provide for payment at contract prices, and defer adjustment in the initial CCO. Include an appropriate deferment clause.

5-5.6.D *Adjustments to Time of Completion*

For a discussion of time of completion and extensions of contract time see the [Time of Completion](#) section in [Chapter 3](#) of this manual.

A CCO may specify a positive, negative, or zero adjustment to time of completion.

Whenever you can estimate an adjustment in contract time with reasonable accuracy, try to reach agreement with the contractor. Enter the amount of the adjustment on the change order (including zero adjustments). Regardless of the amount of time actually required, the agreed adjustment becomes binding on both parties. File with the contract records the calculations and other data used to determine adjustments of contract time.

If you cannot determine or agree on an adjustment of contract time in the initial CCO, you may defer the adjustment. When doing so, write "deferred" on the time adjustment line and include a time adjustment deferred clause in the CCO.

As soon as the CCO work is completed, determine the appropriate contract time adjustment. If you cannot reach agreement with the contractor, issue a unilaterally approved supplemental CCO adjusting contract time.

On contracts with internal time limits or multiple time limits, ensure any CCO that includes a time extension contains a statement that identifies the time limit(s) to which the extension applies. If an internal milestone date will change, but total contract time remains unaffected, specify the new date in the CCO and indicate a zero-time adjustment.

Periodically during the progress of the CCO work, resolve extensive deferred time extensions. Do so by issuing a supplemental CCO covering time allowable to a given date, with the deferment continued for subsequent work. Your objective is to resolve deferred time extensions as soon possible. By doing so, the contractor can better schedule remaining work so as to complete the project within the contract time limits.

The resident engineer may not unilaterally decrease contract time unless this is permitted by the contract specifications. Otherwise, the contractor must agree to changes that reduce contract time. Without this agreement, you can do one of two things:

1. Do not recommend approval of the change if no benefit exists for SANDAG.
2. If substantial benefits exist for SANDAG, issue a unilaterally approved CCO with no adjustment in contract time.

5-5.6.E Contract Change Order Standard Clauses

The following are examples of standard clauses for specific situations found in various types of CCOs. Note that any items in brackets are not part of the clause but are instructions to you in using the clause. In using any of these clauses, ensure that the clause states what is appropriate for your CCO.

Situation 1: Adjustment Deferred for Increase in Quantities in Excess of 125 Percent of the Engineer's Estimate

Standard Clause for Situation 1: Any adjustment due in accordance with the Increases of More Than 25 Percent section of the Special Provisions for Contract Item No(s). (enter item[s] number), (item[s] description) is deferred.

Situation 2: Adjustment for Increase in Quantities in Excess of 125 Percent of the Engineer's Estimate

Standard Clause for Situation 2: Adjustment in compensation in accordance with the Increases of More Than 25 Percent section of the Special Provisions:

The following adjustment(s) will be made for units of work in excess of 125 percent of the engineer's estimate:

List the contract item(s), unit adjustments, quantities, and total item adjustment(s).

or (for a single contract item):

In accordance with the Increases of More Than 25 Percent section of the Special Provisions, the adjustment of the contract unit price for the quantity in excess of 125 percent of the engineer's estimate for Contract Item No. (enter item number) (item[s] description) will be \$(enter amount) per increase

(When you know the total pay quantity, you may apply the unit adjustment to a fixed quantity for an exact total adjustment. When the total pay quantity has not yet been determined, you may apply the unit adjustment to an estimated quantity for an estimated total adjustment.)

Situation 3: Adjustment Deferred for Decrease of More Than 25 Percent

Standard Clause Situation 3: Any adjustment due in accordance with the Decreases of More Than 25 Percent section of the Special Provisions for Contract Item No(s). (enter item[s] number) (item[s] description) is deferred.

Situation 4: Adjustment for Decrease of More Than 25 Percent

Standard Clause for Situation 4: Adjustment in accordance with the Decreases of More Than 25 Percent section of the Special Provisions:

The following adjustments will be made for contract items that underran the engineer's estimate by more than 25 percent:

Or (for a single contract item)

In accordance with the Decreases of More Than 25 Percent section of the Special Provisions, the adjustment of the contract unit price for Contract Item No. (enter item number) (item description) will be \$(enter amount) per increase.

(Normally, in the case of an underrun, you must know the total pay quantity before determining the adjustment. It is usually more convenient to show the adjustment as a lump sum amount because of the specified limit of 75 percent of the engineer's estimate for total compensation.)

Situation 5: No Adjustment due to Increases or Decreases of More Than 25 Percent of the Engineer's Estimate

Standard Clause Situation 5: No adjustment(s) to the contract unit price of Item No(s).(enter number[s] and title[s]), will be made in accordance with the Increases of More Than 25 Percent section of the Special Provisions (for decreases, use the Decrease of More Than 25 Percent section of the Special Provisions).

or (when waiving adjustments for both increases and decreases)

There will be no adjustment for Item No(s).(enter number[s] and item title[s]) in accordance with the Increased or Decreased Quantities section of the Special Provisions by reason of this CCO.

(The contractor must be in agreement and execute the CCO before adjustment in compensation for increased or decreased quantities is waived.)

Situation 6: Adjustment Deferred Due to Possible Change in Character

Standard Clause for Situation 6: Any adjustment due in the contract unit price(s) of Item(s) No. (enter number), (enter item title), in accordance with the provisions in the Change in Character of Work section of the Special Provisions, is deferred.

Situation 7a: Eliminated Item, Adjustment Deferred

Standard Clause for Situation 7a: Any adjustment due in accordance with the Eliminated Items section of the Special Provisions of Contract Item No. (enter number) incurred or unavoidable costs can be determined.

Situation 7b: Eliminated Item, Adjustment Determined will be deferred until all

Standard Clause for Situation 7b: In accordance with the Eliminated Items section of the Special Provisions, the adjustment due to the elimination of Item(s) No. (enter number), (item title), is zero (or replace zero with whatever costs the contractor has incurred).

Situation 8: Revised Final Pay Item Quantities

Standard Clause for Situation 8: The quantity increase shown herein for Item No. (enter number), (item title), when combined with the quantity shown in the bid item list, and as modified by any previous change orders or revisions to dimensions made by the engineer, shall be the final quantity for which payment will be made.

Situation 9: Extra Work or Adjustment in Compensation at Agreed Unit Price

Standard Clause for Situation 9: For this work, the contractor shall receive and accept \$(enter amount) per (unit) of (pipe, fence, among other items). This sum constitutes full and complete compensation for furnishing all labor, material, equipment, tools, and incidentals including all markups by reason of this change.

Situation 10: Extra Work or Adjustment in Compensation at Agreed Lump Sum Price

Standard Clause for Situation 10: For this work, the contractor will be paid the sum of \$(enter amount). This sum constitutes full and complete compensation, including all markups for this change.

or

For this work, the contractor shall receive and accept the agreed lump sum of \$(enter amount). This sum constitutes full and complete compensation for providing all labor, material, equipment, tools and incidentals, including all markups by reason of this change.

or

For this reduction, the contractor agrees to/will credit/pay SANDAG a lump sum of \$(enter amount). This sum constitutes full and complete compensation, including all markups for this change.

or

SANDAG will accept a lump sum payment of \$(enter amount) as full compensation for this change.

or

The contractor shall credit SANDAG \$(amount) for each (unit) of Item(s) No.(enter number), (item title). This sum constitutes full and complete compensation for this change.

or

There shall be no cost or credit to the SANDAG by reason of this change.

Situation 11: Time Adjustment

Standard Clause for Situation 11: Consideration of a time adjustment will be deferred until completion of the work specified in this CCO. A determination of a time extension will be made in accordance with the Liquidated Damages section of the Special Provisions.

or

A determination of the delay in completion of the contract due to the work specified by CCO No. (enter number) has been made in accordance with the provisions of the Liquidated Damages section of the Special Provisions. Add either of the following sentences to this clause:

CCO No. (enter number) was the controlling item of work for the following dates: (list dates—mm/dd/yy).

The contractor shall be granted (number) working days for the following dates: (list dates—mm/dd/yy).

or

A determination of the delay in completion of the contract due to work specified by CCO No. (enter number) for work performed from (mm/dd/yy), to (mm/dd/yy) (or on mm/dd/yy) has been made. Consideration of time extension for the remaining work continues to be deferred.

Situation 12: Deferred Adjustment for ROW Delay

Standard Clause for Situation 12: Any adjustment in compensation due to possible delays to the work resulting from this change is deferred until completion of the work. The adjustment will be made in accordance with the Right-of-Way Delays section of the Special Provisions.

Situation 13: Adjustment in Compensation for Overhead Costs

Standard Clause for Situation 13: In accordance with the Adjustment of Overhead Costs section of the Special Provisions, compensate the contractor the total sum of \$(enter amount) to cover overhead costs.

Situation 14: Claim Settlement

Standard Clause for Situation 14: Payment indicated in this CCO provides for full settlement of all claims on this Contract (or the contractor's Claim No. [enter claim number]).

or

Grant the contractor (number) working days, reducing the overrun in contract time by (number) calendar days, which provides for full settlement of all claims on this contract.

or

This CCO resolves notice of potential Claim No. (enter claim number), dated (mm/dd/yy).

5-5.6.F Work Designated as Extra Work in the Specifications

The Standard Specifications and the Special Provisions describe certain work and specify that it is to be paid for as extra work. In some cases, supplemental funds (these also can be referred as allowance funds or provisional sums) are set aside to pay for this extra work. Make an independent cost estimate of the work for which the supplemental funds were provided. This estimate must be as accurate as possible.

Refer to the specific section of the specifications that identifies the extra work in the CCO. Also, describe the exact work to be performed.

Traditionally, CCO No. 1 provides for extra work specified for public traffic and public convenience. This CCO must be limited to the following:

- Work designated as extra work in the specifications
- Work related to the needs of public traffic or for public convenience

5-5.6.G Contract Change Order Format

The resident engineer will use SANDAG's CCOs format. SANDAG anticipates all construction contracts will use a web-based construction management software to process CCOs. The following describes the format:

- Describe the work or the change that will cause increases and decreases to contract item quantities. Refer to any attached drawings or documents. If the contract item work cannot be described separately from other work, describe the entire work at this stage. Describe work paid for by other methods in the appropriate sections of the CCO. The intent is that the CCO clearly specifies the work paid for by each payment method.
- Show the increases and decreases in contract item quantities. Include the percent of the bid item quantity represented by this change. Also show the accumulated change to date from the original quantity in the bid item quantity.
- Write clauses for situations resulting from increases or decreases in contract item quantities (deferred adjustments or actual adjustments in compensation for overruns or underruns).
- Write clauses for adjustments or deferred adjustments in compensation due to any cause. Describe the work or change causing the adjustment or deferred adjustment. Show the amounts of adjustments.

- Describe work to be paid for as extra work at agreed price. Show the price agreed. Agreed prices may be fixed unit prices and an estimated or actual number of units or agreed prices may be fixed lump sums.
- Describe the work to be paid for as extra work at force account. Show the estimated cost of the extra work.
- Write time deferment or time extension clauses.
- Include DBE goal, if deemed appropriate.

5-5.7 Contract Change Order Memorandum

Include with all CCOs sufficient documentation to explain what the change does and why it is needed. For this purpose, use SANDAG's "CCO Memorandum" with any necessary attachments. The memorandum is intended for interdepartmental use only. Do not send the memorandum to the contractor.

The memorandum must be sufficiently complete to enable a person unfamiliar with the details of the project to review the CCO and determine the justification for the work, the reasonableness of the compensation, and the time extension provisions.

5-5.7.A Contents of the Memorandum

Include the following in the memorandum:

- State what the CCO provides. Supplemental CCOs also should include a description of the original CCO.
- Explain why the change is needed. When another SANDAG unit, transit operator, or public agency requests a change, the correspondence requesting the change also should justify the need for the change. Attach supporting letters to the memorandum.
- State why a particular method of payment was chosen. Include an Independent Cost Estimate and record of negotiations with the contractor within the change order file. The statement should include the method used in making the cost analysis.
- Explain why the ordered change causes any change in the character of the work. To substantiate why any additional compensation is due, you may need to provide a summary of events leading up to the change.
- State the extent of coordination and concurrence from designer, project manager, small business manager, and/or other relevant parties.
- If prior authorization of the change order has been obtained, state the name of the person who granted prior authorization and the date.
- Show the unobligated balance of funds available to finance the CCO. The resident engineer must ensure the available funds are not exceeded.
- Show the total authorized funds to date, as well as the dollar amount of a supplemental CCO.
- Indicate when funds for supplemental work shown in the detailed estimate of job cost are used in the CCO.
- For change orders involving participation by other agencies, identify the portion of the work that is applicable to the contributing agency.

- For a CCO that is to be unilaterally approved, explain why the contractor will not sign it or why the contractor’s signature is not required. Attach a copy of any correspondence from the contractor regarding the CCO.
- Include justification for a contract time adjustment. Describe the method used to determine time extensions. State what operation-controlled time during the delay period. Whenever possible, and when resolving a previously deferred time adjustment with a time extension, indicate the specific calendar or working days represented by the time extension. By indicating the specific days, you ensure that other time extensions do not cover the same time period.
- Indicate the cumulative time extension and total number of CCOs with unreconciled deferred time.
- Include and identify the work that is to be performed by each subcontractor. The information shall include the name and address of the subcontractor performing the work (indicate if sub is a DBE), scope of work the sub will perform, along with the estimated value of the work.
- On contracts that are federally funded with DBE requirements, explain why the CCO did not merit the establishment of a DBE goal. See Section 5-5.5, Preliminary Considerations, of this chapter for guidance.

5-5.8 Contract Change Order Approval

SANDAG must approve a CCO, and whenever possible, the contractor should sign it. When the contractor signs a CCO, it is referred to as “executed.” If the contractor refuses to sign the CCO, then SANDAG may approve it “unilaterally.”

So that the contractor will execute the CCO, make every effort possible to reach agreement. However, do not delay the work by waiting for the contractor to respond. If necessary, submit the CCO for unilateral approval. Receipt by the contractor of an approved CCO establishes a time for protest. If the CCO is not protested within the specified time, it is considered an executed CCO. Refer to the Procedure and Protest section of the [Special Provisions and the Changes](#) section in [Chapter 3](#) of this manual.

Change orders must be approved in accordance with board policies for delegation of authority. The minimum signature levels of approval are currently as follows:

- CCO up to \$5,000 approved by the SANDAG construction manager
- CCO up to \$25,000 approved by the SANDAG principal construction engineer
- CCO up to \$200,000 approved by the SANDAG director of engineering and construction
- CCO > \$200,000 approval by the SANDAG Executive Director

5-5.8.A Prior Authorization

The resident engineer must seek prior authorization from the appropriate SANDAG person pursuant to the CCO delegation policy, prior to authorizing the contractor to work. After receiving prior authorization, the resident engineer may order the contractor to proceed with the work. This order, as well as the prior authorization, must be dated and in writing. In the case of a CCO requested by the contractor, SANDAG must have written assurance before allowing work to proceed that the contractor will execute the CCO.

Actively pursue preparation and final approval of CCO for work covered under a prior authorization. Prior authorization does not include the authority to make payments for the work.

5-5.9 Cost Reduction Proposals

For procedures for a cost reduction proposal, see the [Control of Work](#) section in [Chapter 3](#) of this manual.

Prepare all cost reduction proposal CCO as a complete package, with no indeterminate or deferred time or cost considerations.

Give careful attention to the clauses in the CCO covering payment. Cost reduction incentive change orders may involve any combination of contract item work, adjustments in compensation, and extra work at agreed price.

Contract item prices for the contract items possibly may not represent the costs of doing either the planned or changed work as computed on a force account basis. In this case, in addition to increases and decreases at contract prices, include adjustments in compensation to reflect the actual force account cost of increases and decreases in contract item quantities. Also, in the analysis of cost savings, you may have to consider adjustments based on a 25 percent overrun or underrun.

Cost reduction proposal CCOs must include an adjustment in compensation that returns one half of the savings to the contractor. Determine the adjustment in the following manner:

- Determine the total decrease in construction cost. This decrease will be the sum of increases and decreases in contract items at contract unit prices, adjustments in compensation including change in character adjustments, and extra work at agreed price.
- Provide for an adjustment in compensation to pay the contractor one half of the total decrease.

5-6 DISPUTES

5-6.1 General

The objective of this section is to provide a valuable aid to the contract administrative team, including the resident engineer, the construction engineer, and other SANDAG personnel, to ensure that contract disputes are addressed and resolved timely and consistently.

A contract dispute is a disagreement between the contractor and SANDAG over the need to revise the contract. Contractors submit disputes as written notices, protests, potential claims, or claims to the Resident engineer. Begin the process of addressing and resolving the dispute upon receiving written notice of a dispute. Resolving a dispute involves ascertaining the relevant facts, determining responsibilities, and compensating the contractor if merit exists, or refusing compensation with clear reasons when no merit exists.

Disputes stem from disagreements in the interpretation of plans, specifications, bid proposals, material handouts, and other contract documents. The resident engineer acknowledges each dispute upon receipt. Try to resolve disputes as early as possible, in accordance with the contract, and at the lowest responsible level.

Dispute resolution begins by gathering facts and determining the responsibilities of the parties involved to achieve a thorough understanding of the dispute. Contractors must provide complete information in support of the dispute or risk losing the right to pursue the dispute as a claim.

After the contractor provides the necessary information, analyze the dispute and provide a timely response in accordance with contract requirements and SANDAG policies and procedures. Take appropriate actions, within the scope of the contract and within your authority, to resolve the dispute. If you lack the authority to resolve the dispute, discuss the issue with the construction manager and the principal construction engineer. Promptly issue and obtain approval of a change order if the dispute has merit. Advise the contractor in writing, explaining in detail, reasons for the lack of merit if the contractor's dispute has no merit. On some projects, formal partnering and dispute review boards (DRBs) are available to the resident engineer and the contractor to assist in resolving disputes. If a dispute remains unresolved after contract acceptance, the dispute is administered through the claims resolution process and, potentially, through the courts.

5-6.2 Claims Avoidance

Claims avoidance is the most prudent step the resident engineer can take to minimize the number and size of claims. Claims are minimized or avoided if the resident engineer appropriately engages with the contractor and properly administers the contract. Partner with the contractor, within the confines of the contract, and maintain a respectful relationship through completion of the project. Be knowledgeable about the contract documents, policies, and procedures, including federal and state laws applicable to the proper administration of the contract. Knowing the contractual responsibilities will help in the timely resolution of the contractor's dispute.

Take the following suggested actions to minimize claims:

- Partner with the contractor
- Investigate the situation
- Consider the facts
- Define the critical issues
- Review the appropriate contract specifications
- Communicate your position timely
- Work within the contractual constraints
- Document resolution and elevate, if appropriate

5-6.3 Types of Disputes

Disputes are divided into four categories: notice, protest, potential claim, and claim. The Special Provisions outline each category.

During the course of the project and up to receiving the proposed final estimate, the contractor must submit a contract dispute in the form of a written notice, protest, or a potential claim to the resident engineer. Disputes become claims when the contractor lists them as exceptions to the proposed final estimate.

5-6.3.A Notice

The contractor submits a written notice when unforeseen conditions are encountered on the project that were not shown in the plans or detailed in the specifications. Notices are required with unforeseen conditions described in the [Differing Site Conditions](#) section in [Chapter 3](#) of this manual and the Liquidated Damages and the Utility, Non-Highway, and Non-railway Facilities sections of the Special Provisions.

5-6.3.B Protest

The contractor submits a written protest when a dispute concerns the terms or conditions of a CCO or the determination of contract time. For a protest of a CCO, refer to the Procedure and Protest section of the Special Provisions. For a protest in connection with change in character of work, see the Changes in Character of Work section of the Special Provisions.

For a protest of contract time, refer to the Time of Completion section of the Special Provisions. For additional information about protests, refer to [Procedure and Protest](#), [Differing Site Conditions](#), and [Time of Completion](#) sections in [Chapter 3](#) of this manual.

5-6.3.C Potential Claim

The contractor submits a written potential claim when the contractor believes additional compensation is due. In accordance with the Notice of Potential Claim section of the Special Provisions, the contractor must submit a potential claim on the following forms:

- Initial Notice of Potential Claim
- Supplemental Notice of Potential Claim
- Full and Final Documentation of Potential Claim

The contractor, in addition to providing an identification number for each potential claim submitted, must certify each form with reference to the False Claims Act, Government Code Sections 12650–12655. Follow the potential claim process when notice and protest issues are not resolved.

5-6.3.C.1 Initial Notice of Potential Claim

The initial notice of potential claim provides an early notice to SANDAG of a dispute issue. It states the nature and circumstances of the dispute and gives the parties the opportunity to mitigate the associated costs, allowing for an early resolution. The initial notice of potential claim must be received within five days of the event, activity, occurrence, or other cause giving rise to the claim.

5-6.3.C.2 Supplemental Notice of Potential Claim

The supplemental notice of potential claim provides complete justification for additional compensation and adjustments referencing the appropriate provisions of the contract along with the estimate of the costs. The contractor must submit the supplemental notice of potential claim within 15 days of submitting the initial notice of potential claim, and provide the following information:

- The complete nature and circumstances of the dispute causing the potential claim
- The contract provisions that provide the basis of the potential claim
- The estimated and itemized cost of the potential claim
- A time impact analysis illustrating the effect of the potential claim on the scheduled completion date of the contract, if requesting a contract time adjustment

The contractor must update the cost estimate or the effect on the scheduled date of contract completion as soon as a change is recognized.

5-6.3.C.3 Full and Final Documentation of Potential Claim

The full and final documentation of potential claim quantifies all costs after completion of the disputed work. The contractor must provide the full and final documentation of the potential claim within 30 days of completing the dispute related work. The documents must contain the following:

- A detailed factual narration describing the nature and circumstances that caused the dispute, including, but not limited to, dates, locations, and items of work affected by the dispute.
- A reference to the specific contract provisions supporting the potential claim, and the reasons for entitlement of the potential claim.
- Supporting documentation in accordance with the Force Account Payment, or Right-of-Way Delays, sections of the Special Provisions when additional compensation is in dispute, and an itemized breakdown of costs categorized as follows:
 1. Labor – A listing of personnel, classifications, regular hours and overtime hours worked, dates worked, and other pertinent information related to the requested reimbursement of labor costs.
 2. Materials – Invoices, purchase orders, location of materials either stored or incorporated into the work, dates materials were transported to the project or incorporated into the work, and other pertinent information related to material costs.
 3. Equipment – Dates and hours of use, equipment rental rates, and a detailed description including make, model, and serial number. Equipment rental rates are at the applicable state rental rates in effect when the work in dispute was performed. The applicable state rental rates are listed in the SANDAG publication entitled Labor Surcharge and Equipment Rental Rates.
 4. Other categories as specified by the contractor or engineer.
- When an adjustment of contract time is requested:
 1. The dates the contractor believes the work was delayed because of the disputed issues and the reasons for entitlement for a contract time adjustment.
 2. The specific contract provisions providing the basis for a contract time adjustment.
 3. A detailed time impact analysis showing the effect of changes or disruptions on the scheduled completion date.
- Copies of documents or records, including oral communications, which support the potential claim.

5-6.3.D Claim

The contractor submits a written claim for an unresolved dispute by listing it as an exception to the proposed final estimate. In addition, certain administrative and overhead claims may occur as exceptions to the proposed final estimate as described in the Final Payment and Claims section of the Special Provisions.

All claims included in the exceptions to the proposed final estimate should be considered in the review of claims by the resident engineer for resolution before the final estimate.

Analyze the merit of new claims and document the claims as outlined in [Documentation Guidelines for Disputes](#) section of this chapter. Include the analysis in the preliminary construction claims findings.

5-6.4 Dispute Resolution Process

Dispute resolution begins by gathering facts and determining the responsibilities of the parties involved to achieve a thorough understanding of the dispute. Contractors must provide complete information in support of the dispute or risk losing the right to pursue the dispute as a claim.

Analyze the dispute and provide a timely response in accordance with contract requirements and SANDAG policy and procedure after the contractor provides the necessary information. Take appropriate actions within the scope of the contract and within your authority to resolve the dispute. If you lack the authority to resolve the dispute, discuss the issue with the SANDAG construction engineer. Promptly issue and obtain approval of a CCO if the dispute has merit. Advise the contractor in writing, explaining in detail, the reasons for the lack of merit if the contractor's dispute has no merit.

5-6.4.A Response Guidelines

When receiving a written dispute notice, protest, or potential claim from the contractor, note the date and time of receipt and the name of the person receiving the written notice on the written notice of dispute. Ensure that the notice of dispute is complete and timely. If the information is incomplete, notify the contractor of the deficiencies and request the contractor to resubmit the notice with the complete information. Sample dispute response clauses are located in the [Sample Dispute Response Clauses](#) example in this chapter.

5-6.4.A.1 General

- Dispute Background – The background must explain the circumstances that led to the dispute. Include information such as events, dates, discussions, meetings, memos, and letters.
- Contractor's Position – Base the contractor's position on supplied information. Use direct quotes from the information the contractor provided
- Resident Engineer's Position – The resident engineer's position must clearly and concisely state the merits of the dispute, using contract specifications to support the findings. The response letter also must request the contractor to state if the contractor agrees or disagrees with the resident engineer's position on the dispute. Request the contractor to clarify those areas where disagreement exists.

5-6.4.A.2 Potential Claim

If a potential claim form is received without certification, notify the contractor, in writing, that it was not submitted in accordance with the Notice of Potential Claim section of the Special Provisions and that the contractor is allowed 15 days to certify or withdraw the potential claim. If certification is not provided in the required time, notify the contractor in writing that SANDAG will not consider the potential claim. Discuss this latter notification with the SANDAG construction manager.

5-6.4.A.2.a Resident Engineer's Response to the Initial Notice of Potential Claim

Upon receipt of an Initial Notice of Potential Claim, start a folder in Category 62 of the project records to document the potential claim. Additional information including related notices, protests, and correspondence should be included in this folder. Although a response to the initial notice of potential claim is not necessary, take appropriate action if the contractor's potential claim has merit.

5-6.4.A.2.b Resident Engineer's Response to the Supplemental Notice of Potential Claim

Upon receipt of a Supplemental Notice of Potential Claim, analyze the contractor's potential claim. This may involve discussing the potential claim with subject matter experts and involving the construction manager. Other less formal processes, such as reviews by peers of the resident engineer CMC claims expert or the SANDAG construction engineer, may be beneficial in developing the engineer's response to the supplemental notice of potential claim.

Provide a detailed response letter to the contractor within 20 days of the receipt of the supplemental notice of potential claim. The response letter must include the following sections:

- **Background** – Explains the circumstances that led to the dispute. Include only information such as events, dates, discussions, meetings, memos, and letters.
- **Contractor's Position** – Base the position on the information provided in the contractor's supplemental notice of potential claim. Use direct quotes from the information provided by the contractor without attempting to interpret or clarify them.
- **Resident Engineer's Position** – State the merits of the potential claim clearly and concisely. Fully document the contract requirements such as permits, plans, specifications, and other requirements supporting the findings. In addition, include a statement requesting the contractor to provide a reply that supports agreement or disagreement with the resident engineer's analysis of the claim.

When the potential claim has no merit, remind the contractor of the option to further pursue the potential claim as specified in the contract. Advise the contractor of the consequences of not following the specified dispute resolution procedures.

5-6.4.A.2.c Resident Engineer's Response to the Full and Final Documentation of Potential Claim

Upon receipt of a Full and Final Documentation of Potential Claim, determine if the full and final documentation of the claim has the same nature, circumstances, and basis as those specified in the initial and supplemental notices of potential claim, and begin drafting your response. Otherwise, do not consider the issue and notify the contractor in writing.

Provide a response to the contractor's full and final documentation of potential claim within 30 days of its receipt. In most cases, this response will not vary greatly from the response provided to the supplemental notice of potential claim with the exception that analysis of additional information provided by the contractor may require further response.

Issue and obtain approval of a CCO when the dispute has merit.

A response is not required when the contractor has submitted the timely full and final documentation of potential claim after contract acceptance. In that case, review and consider the information before processing the proposed final estimate.

Information submitted after receipt of the full and final documentation of potential claim will not be considered.

5-6.4.B Documentation Guidelines for Disputes

The following are guidelines for keeping records and providing information when responding to notices, protests, and potential claims:

- Ensure that reports and documents are factual and accurate. Use specific statements in daily reports. An entry such as, “Told the contractor that...” is not satisfactory, whereas “I told Foreman Smith that...” is satisfactory. A general conclusion about the effect of a conversation is not helpful; a statement of the conversation is better.
- Answer letters containing questionable or erroneous statements made by the contractor in writing by refuting or correcting the contractor’s statement.
- Do not hesitate to put orders and decisions in writing. Confirm any important statement about the unacceptability of the work in writing. Before ordering the contractor to proceed with extra or additional work, obtain approval from your supervisor. If the contractor verbally informs you of a dispute, advise the contractor to comply with the Notice of Potential Claim section of the Special Provisions. Include this verbal discussion in the resident engineer’s daily report.
- On projects with a DRB, the response to the contractor’s supplemental notice of potential claim will serve as the basis for the resident engineer’s position paper.
- Focus on costs specific to the dispute, but do not discuss any funding availability, such as project contingency balance, with the contractor.
- If a dispute arises during the work’s progress, keep accurate records of the operations to eliminate subsequent arguments related to work costs. During the progress of the disputed work, make regular agreements for the labor, equipment, or material quantities involved.
- Take preconstruction and project progress photographs. Photographs and videos establish job conditions at a particular point in time. Dated pictures of areas where work is not underway may be as important as pictures of construction operations or completed work.
- Record the full names of all the contractor’s personnel involved in any dispute. These individuals may need to be located later. Information contained in the certified payrolls may be useful.
- Record equipment information such as description, model number, contractor’s equipment number, size, and capacity to help determine and confirm costs associated with disputes.
- Category 62 of the project records must contain copies of all documents related to every dispute on the project. This information provides the basis for preparing the preliminary construction claim findings. Follow the procedures outlined in the [Project Records and Reports](#) section of this chapter to provide a good basis for documenting claims.
- Require the contractor to promptly submit an update or revise the progress schedule, as appropriate.

5-6.5 Alternative Dispute Resolution Processes

The two alternative dispute resolution processes used to resolve potential claims are partnering and DRB. These processes are used based on size, duration, and complexity of the contract. Read Section 5 of the Special Provisions before the preconstruction conference to determine which alternative dispute resolution process is included in the contract and whether or not they are optional or mandatory.

5-6.5.A Partnering

Partnering allows all parties and stakeholders to establish and maintain cooperative communication channels and mutually resolve conflicts at the lowest responsible level. Read Section 5 of the Special Provisions to understand the process, allowable costs, and the method of payment. Include a topic on partnering for the preconstruction conference.

To establish the formation of formal partnering, the contractor must submit a request to the resident engineer upon contract approval. If the request is not in the best interest of SANDAG, discuss it with the construction manager before responding to the contractor's request. Both parties should agree to the scheduling of a partnering workshop, selection of a partnering facilitator, workshop site, and other administrative details.

Additional partnering workshops are subject to the agreement of both parties and as specified in the contract.

On large contracts, the partnering provisions also may include a mandatory one-day "training in partnering concepts" session regardless of whether the contractor requests the formation of a partnering or not.

5-6.5.B Dispute Review Board

A DRB consists of three members nominated and approved jointly by the contractor and SANDAG. A DRB allows knowledgeable and experienced board members, not directly involved with the contract, the opportunity to review and analyze a dispute and provide their recommendations. All three members are "neutrals" and represent neither the contractor nor SANDAG. Although these recommendations are not binding, they are valuable in trying to resolve a dispute before it becomes a claim. These recommendations become important if the dispute is carried over beyond the administrative remedies allowed under the contract.

Each party may reject the other's nominee one time without cause. Contact the principal construction engineer before rejecting a nominee proposed by the contractor. There is no limit to the number of rejections based on specific breach or violation of nominee's responsibilities or nominee's qualifications.

After the two DRB members are approved, request that the DRB members provide the name of the nominee for DRB chairperson and the project specific disclosure statement to both parties for consideration. Submit a written request to the DRB chairperson to schedule the initial DRB meeting after both the contractor and SANDAG approve the nominee. If the nominee is rejected, submit a written request to the two DRB members to nominate another candidate.

The DRB agreement contained must be signed by each DRB member, the contractor, and the resident engineer before the initial DRB meeting. Additionally, issue and obtain approval of the required CCO.

5-6.5.B.1 Dispute Review Board – Operation

Establishment of the DRB is only the beginning of the DRB process. In addition to the specific dispute resolution meetings, there are mandatory initial and follow up progress meetings.

5-6.5.B.2 Dispute Review Board Dispute Issue Meetings

When a dispute issue is referred to a DRB, prepare the position paper for submittal to the contractor and the DRB in advance of the oral presentation at the meeting. Present an effective position paper to the DRB since the DRB recommendations may be introduced in other legal proceedings.

The contractual time period for both submitting the position paper and holding a dispute issue meeting are located in the DRB agreements. Follow the suggested position paper format below:

- Description of the Dispute – A summary paragraph defining both the nature of the contractor's dispute and the basis for refusing compensation with clear reasons when no merit exists.
- Background or Chronology of the Dispute – The history of the issue in a narrative format including the facts, presented in a non-judgmental manner. This section must include a description of any partial or attempted resolutions.

- Contractor’s Stated Position – As stated in the contractor’s notice of potential claim, other written materials, or oral communications. Quoted segments are most effective when supplemented by exhibits. Present this section in a non-judgmental fashion and do not elaborate on the contractor’s previously stated position.
- SANDAG’s Position – State the logical flow of information and the relevant contractual requirements that resulted in the determination of no merit. All supporting information must be referenced within this section and included in the exhibit section.
- Summary – A concluding paragraph stating why contractually and factually there is no merit to the contractor’s dispute. The summary must be a strong absolute statement of the SANDAG’ position requesting the DRB find in SANDAG’s favor. Avoid subjective language such as feelings or beliefs within this section.
- Exhibits – A number of exhibits for illustrating and clarifying the contractual and technical requirements. Include a table of contents for easily locating individual exhibits that are tabbed and numbered. Provide complete information related to the dispute including those exhibits used within the oral presentation at the DRB issue meeting when compiling the written position paper. Failure to provide certain exhibits may result in the DRB disallowing related items within the oral presentation. Distribute written position papers to the contractor and DRB members one or two days in advance of the deadlines.

Submit a draft written position paper to the construction manager and peers for review and comment in advance of the formal exchange with the contractor and the DRB. These internal reviews provide an opportunity to improve the position paper, and benefit SANDAG by informing management of dispute issues.

The oral presentation given during the dispute issue meeting is important in effectively presenting SANDAG’s position to the DRB. Begin preparing for your presentation well in advance of the issue meeting. Hold a mock presentation at least a week in advance of the issue meeting to allow incorporation of comments from attendees. Attendees at the mock presentation should include the Resident engineer, construction manager, construction field personnel, and others as deemed necessary.

The objectives of the meeting are to further examine the contractor’s position, review the basis of SANDAG’ determination of no merit, and to rehearse SANDAG’ presentation including participant, not directly involved in the contract provides constructive criticism of SANDAG’s position and the rebuttal of the contractor’s position.

Either the resident engineer or structure representative gives the presentation to the DRB depending on the dispute issue. Other SANDAG personnel associated with the project may provide additional evidence depending on the dispute and the circumstances involved. Use of experts not associated with the contract is discouraged unless the dispute issue is complex and requires a technical specialist. The contractor also can request to use a technical specialist. The DRB must agree to these requests in advance and allow the other party to provide a technical specialist.

The DRB issue meeting is an informal meeting without testimony, cross-examination, transcripts or “bench” decisions. The order of events is as follows:

- Party filing the dispute will begin with a presentation to be followed by the other party’s presentation.
- Rebuttal statements will follow.
- DRB members may ask questions or make requests for additional information or clarifications.

5-6.5.B.3 Dispute Review Board Recommendations and Responses

Begin preparing SANDAG's response once the DRB issues its recommendation to the parties. A request for clarification of the DRB recommendation will only be considered if made within ten days of receipt of the recommendation. Any request for clarification of a DRB recommendation needs to be discussed with the principal construction engineer before its submittal to the DRB. Requests for clarification are warranted when the DRB recommendation fails to thoroughly explain the rationale for the recommendation, when the DRB has not stated SANDAG's position accurately, or when the contractual provisions have been disregarded without explanation.

A request for reconsideration of an issue may be made to the DRB and will only be considered if new evidence concerning the dispute is provided and the request is made within 30 days of the receipt of the DRB recommendation. Reconsideration requests must be discussed with the principal construction engineer before submittal to the DRB.

5-6.6 Claims Resolution Process

The following established claims processing milestones ensure that the claims process is completed within the statutory requirement of 240 days of contract acceptance. The number of days referenced below refers to the number of calendar days elapsed after contract acceptance. For each contract accepted, SANDAG must record actual milestone dates and monitor the progress of the claims resolution process.

5-6.6.A Issue Proposed Final Estimate — Target Day 40

The resident engineer should attempt to issue a proposed final estimate within 40 days after contract acceptance. Issue the proposed final estimate with the understanding that the estimate represents the final payment to the contractor.

Issuance of the proposed final estimate should not be postponed while waiting for additional information from the contractor. Ensure that all quantity calculations and adjustments are completed in time to process the proposed final estimate within the target date. Send the proposed final estimate by certified mail with return receipt requested.

5-6.6.B Proposed Final Estimate Returned — Target Day 70

The contractor has 30 days after receiving the proposed final estimate to review, sign, and respond either with or without a written statement of claims per the Final Payment and Claims section of the Special Provisions. Document the receipt of the contractor's response by postal receipt or written receipt if hand delivered.

No further action is required other than processing the final estimate if the contractor returns the proposed final estimate indicating acceptance, or the contractor does not return the proposed final estimate within the required 30-day period. If claims are submitted after the 30-day period, the entire submittal must be returned to the contractor with a cover letter stating that SANDAG will not address the claims because they were not submitted in accordance with the contract requirements, and the final estimate must be processed.

If the contractor returns the proposed final estimate with a written statement of claims within the 30-day period, a copy of the contractor's claim package is to be provided to the resident engineer, construction manager, and the principal construction engineer.

5-6.6.C Preliminary Construction Claim Findings Completed — Target Day 110

By target day 110, the resident engineer should attempt to complete the preliminary construction claim findings, which include the compilation of the existing information and documents in Category 62 of the contract records. The resident engineer sends the preliminary construction claim findings to the SANDAG construction manager. See the [Preliminary Construction Claim Findings and Category 62: Disputes, Preparation and Guidelines](#) section of this chapter for detailed format, content, and suggestions in preparing this document.

Review the contractor's statement of claims for conformance with procedural requirements. This review ensures that each claim, excluding overhead claims or administrative disputes that occur after issuance of the proposed final estimate, is a continuation of a previously submitted potential claim. If the contractor fails to comply with the contract requirements for submitting the statement of claims, document the failure in the preliminary construction claim findings for each claim. Failures identified within the potential claim process should be documented in detail in Category 62 of the project records and should only be referenced in the preliminary construction claim findings. Contractor failures identified in the claims process must be fully detailed within the preliminary construction claim findings and may include, but are not limited to the following:

- Failure to provide a statement of claims within the 30-day time period.
- Failure to provide the identification number corresponding to the supporting full and final documentation of potential claim record and the final amount of requested additional compensation.
- Failure to provide documentation in support of the final amount of the claim if different from that stated in the full and final potential claim record.

If the contractor submits a claim without the corresponding identification number, or if there is a disparity in the identification number, notify the contractor of the omission or disparity. The contractor has 15 days after receiving the notification to correct the omission or disparity. Assign the identification number if the contractor fails to correct the omission or disparity.

If the contractor's statement of claims includes administrative disputes that occurred or were recognized after issuance of the proposed final estimate, include these items in the preliminary construction claim findings. Administrative disputes occurring or recognized after issuance of the proposed final estimate may include the following:

- Contract item quantity payments
- Changed quantity payment adjustments
- Administrative deductions and withholds
- Extra work resolution of disputed labor, equipment, and materials

If administrative claims have merit, payment is made through item payments, CCOs, or by releasing withheld deductions. Accompany payment of these types of claims with a letter stating that the payment resolves the respective claim in its entirety. If the contractor does not accept the payment as full resolution, refer to the [Claim Payments](#) section of this chapter for more information.

If the statement of claims includes claims for overhead, such as field or home office, and cost escalation associated with delays caused by SANDAG, these claims must be supported with an audit by an independent certified public accountant. Send these types of claims to the director of MMPI and the SANDAG principal internal auditor as part of the preliminary construction claim findings.

5-6.6.D SANDAG's Review of Preliminary Construction Claim Findings Completed — Target Day 130

The SANDAG principal construction engineer, or delegated authority, must complete the review of the preliminary construction claim findings and segregate the claims into the following three categories:

- Claims with entitlement
- Claims to refer to a board of review process
- Claims of an administrative nature

The principal construction engineer finalizes the preliminary construction claim findings and authorizes payment for claims with entitlement.

By day 130, the principal construction engineer reviews the preliminary construction claims findings and uses this information to prepare a notification letter. This notifies the contractor which claims are resolved, claims which are of an administrative nature returned to the resident engineer for further review, and which claims will or will not be heard at a board of review meeting.

5-6.6.E Board of Review Meeting — Target Day 160

The board of review convenes when the SANDAG principal construction engineer decides that certain claims may warrant further analysis by a board of review. The target date to hold a board of review meeting is 160 calendar days from contract acceptance. The board of review secretary must notify the contractor of the date, time, and the location of the board of review meeting as soon as the board members have been selected and all the necessary arrangements have been made. In the "Board of Review" notification letter, state that both the contractor and SANDAG will be allowed to make only oral presentations in support of their previously submitted written information and that no additional written information will be accepted by the board of review. The resident engineer, supported by SANDAG personnel, is responsible for preparing and delivering the presentation at the board of review meeting.

The board of review is an informal meeting allowing the contractor and SANDAG the opportunity to make presentations in support of previously submitted written information for claims identified within the board of review notification letter to the contractor. The board of review listens to the presentations made by both the contractor and SANDAG and provide objective recommendations within the board of review report. The board of review report should be issued within 200 days from contract acceptance.

If requested, SANDAG personnel involved with the contract must attend the board of review meeting to assist in presenting the claims under review by the board. Arrange to have other personnel involved in the project available to the board to answer questions during the meeting regarding complex claims or for firsthand knowledge of events.

5-6.6.E.1 Board of Review Secretary

SANDAG will assign a secretary for the board of review. The secretary must do the following:

- Arrange the meeting date, time, and location and notify the contractor by certified mail at least 15 days before the meeting. In the notification letter to the contractor, request the contractor inform SANDAG of any intentions to have legal representation at the board of review meeting. If the contractor plans to have legal representation at the meeting, SANDAG should consider having a legal representative attend as a legal advisor. A legal representative is present only to advise and counsel the board on significant legal issues.
- Notify respective SANDAG staff of the meeting date, time and location, and verify their attendance.

- Verify the attendance of the contractor, subcontractors, resident engineer, and any other SANDAG personnel involved with the project before the meeting.
- Ensure board members have copies of the preliminary construction claim findings, notification letter written by the SANDAG principal construction engineer, board of review notification letter, project plans, and special provisions, two weeks before the meeting.

5-6.6.E.2 Board of Review Member Selection

The principal construction engineer is responsible for selecting the board of review members.

5-6.6.E.3 Board of Review Operation

The board of review will hear only those claims identified in the SANDAG principal construction engineer's notification letter sent to the contractor. The board will not hear or address other claims. SANDAG prohibits recording the meeting by tape, court reporter, or video. The meeting is informal, allowing the contractor and SANDAG project construction team to present their positions, and for all parties to exchange questions and answers. All questions, except those of the chairperson, are directed to the chairperson first. The meeting attendees must recognize that the chairperson controls the meeting.

The members of the board of review must conduct the meeting as follows:

- The board of review chairperson informs the meeting attendees of the procedures and the format of the meeting.
- The chairperson states that the meeting is being conducted in accordance with the Special Provisions, allowing a person or a board appointed by the SANDAG to review those claims that would benefit from further review by a board of review.
- Each claim issue begins with the project representative giving a brief description of the project and the subject of the claim.
- The contractor is given the opportunity to present the claim in detail as supported by previously submitted information and documentation.
- The project team presents its detailed position as supported by the preliminary construction claim findings.
- After both the contractors and the project team make their presentations, the board may allow rebuttals by both parties. Attendees must only respond when board members request a response.
- If the contractor attempts to submit new information regarding a claim, the board chairperson must inform the contractor that the board does not permit additional claims or additional information regarding claims.
- If the contractor attempts to discuss a claim other than those to be heard by the board as stated in the notification letter by SANDAG principal construction engineer, the board chairperson informs the contractor that the board will not hear the issue and will not accept any additional information.

The board of review will not make decisions on claims at the meeting. After the meeting, the board of review members and the secretary will discuss further analysis and review of the claims.

If the contractor did not attend a scheduled board of review meeting, the board of review report will be based on the information contained in the preliminary construction claim findings.

The board of review must make decisions on claims, after reviewing the preliminary construction claim findings and the information presented by both the contractor and project team at the board of review meeting. The board's secretary compiles the board of review report under the direction of the board's Chair, with suggestions from the other board members. The board of review report will contain a determination of claims heard and the board's conclusions. The board members and other SANDAG personnel involved in the claims resolution process must review drafts of the board of review report. Once all comments and corrections have been made, the board secretary will complete the board report and obtain the signatures of the board of review members.

5-6.6.F Board of Review Report Completed — Target Day 200

After the board members have signed the board of review report, the board's secretary prepares a letter of transmittal and transmits the report and the supporting documents to the principal construction engineer by target day 200.

5-6.6.G SANDAG Construction Determination of Claims — Target Day 230

The principal construction engineer finalizes and approves the construction claim findings. Submit a request for the final estimate after preparing and obtaining approval of the CCO. Other than forwarding the final estimate with a cover letter to the contractor, no further contact or discussion is necessary with the contractor.

5-6.7 Claim Payments

5-6.7.A Claim Payments Based on Entitlement

If all claims are resolved before a board of review meeting, issue and obtain approval of the CCO for the claims resolution and request the issuance of the final estimate.

If only some of the claims are resolved, issue and obtain approval of the CCO for those claims that have been resolved and process a semifinal estimate.

5-6.7.B Claim Payments Based on Negotiated Settlements

Negotiated settlements of claims may arise when both SANDAG and the contractor contributed to the disputed issue and total responsibility is difficult to attribute to either party. The SANDAG principal construction engineer or the board of review will explore the possibility of settlement with the contractor.

Write a draft claim settlement report and discuss with SANDAG Office of General Counsel and director of MMPI before presenting a negotiated settlement offer to the contractor. The draft claim settlement report must include the following items:

- A background of the contract and claims
- The scope of the settlement, including terms and conditions
- Identification of the specific claims or potential claims to be settled
- Compromises made in the best interest of SANDAG
- Reasons for the compromises
- Consequences of not settling
- Method of payment

5-6.8 Overhead

Overhead is the general cost of running a business. It is not attributed to a specific part of the work operation. Overhead of construction contractors can be separated into two general categories: time-related overhead and overhead that is not time-related. Time-related overhead consists of costs that are associated with the normal recurring operations of the construction project, including home office overhead and field office overhead. Home office overhead consist of indirect costs that are not associated with a specific project but are costs of general facilities and administration necessary for the contractor's performance on all contracts. Field office overhead consists of indirect costs associated with a specific project. These costs do not include costs for labor, materials, or equipment used in performing the work.

Overhead that is not time-related could consist of mobilization, permits, profit, bonding, and liability insurance.

5-6.8.A Methods of Overhead Payment

The contractor recovers the cost of overhead based on the following contract criteria:

- Contracts without an item for time-related overhead – The contractor includes overhead costs in the price of various items of work. The contractor recovers overhead cost of performing CCO work by applying the markups referenced in the Force Account Payment section of the Special Provisions to the direct cost of performing the work. If the CCO work is paid at contract item prices, the overhead cost of performing the work is compensated through the overhead cost already included in the contract item prices.
- Contracts with an item for time-related overhead – The contractor includes time-related overhead costs in the time-related overhead item of work and overhead not related to time in the various other items of work. The overhead cost of performing CCO work is included in the reduced markups specified in the contract special provisions and through increasing the time-related overhead item when the work extends the project completion date. For delays caused by SANDAG, which are not a result of CCO work, the contractor also is compensated for overhead through commensurate increases in the time-related overhead item.

5-6.8.B Overhead Claims

Section 7102, Delays, Recovery of Damages, of the Public Contract Code states that public agencies cannot limit the damages incurred by a contractor due to unreasonable, public agency-caused delay, to an extension of contract time only. The process of addressing overhead claims may involve multiple groups within SANDAG. Meeting the final determination timeframe requires the judicious handling of an overhead claim. Many claims involving overhead are relatively complex and may require the assistance of a CMC expert. Discuss with principal construction engineer on needs and type of expertise needed.

The contractor must provide proof of a delay caused by SANDAG or suspension of contract performance for an uncertain or unreasonable duration which disrupts the contractor's stream of revenue needed to pay its fixed overhead costs and show an inability to take on additional work which would provide a substitute stream of revenue to pay for those fixed overhead costs.

The key element in considering overhead claims is that the revenue stream that the contractor expects to cover overhead expenses in a normal business plan is interrupted, or significantly curtailed, and cannot be immediately replaced.

The issuance of numerous CCOs is not sufficient proof for an overhead claim. In accordance with the Changes section of the Special Provisions, changes from the plans and specifications are expected. In addition, the Force Account Payment section of the Special Provisions, provides for markups on CCOs that constitute full compensation for all overhead costs associated with the change. When a contractor is delayed in completion of the work, an extension of time commensurate with the delay in completing the work is allowed as specified in the Liquidated Damages section of the Special Provisions. If a delay caused by SANDAG causes a project to be suspended or delayed by a stoppage of all or the critical part of the work, the contractor's revenue stream could be interrupted or significantly curtailed, possibly exposing SANDAG to an overhead claim.

Compensable delays caused by SANDAG to the controlling operation are compensated through time-related overhead contract item quantity adjustments for contracts with a time-related overhead contract item. Make prompt adjustments in overhead compensation based on the bid price supplied by the contractor. Support all overhead claims with an audit report prepared at the contractor's expense. The contractor must provide the required information in accordance with the Notice of Potential Claim section of the Special Provisions. Provide a written response regarding SANDAG's consideration of the overhead claim to the contractor before issuing the proposed final estimate.

To accurately respond to an overhead claim, examine the project schedule to determine if SANDAG has caused any delays. Separate the delays caused by SANDAG attributed to supplemental work that was specified within the original contract. When there is no delay caused by SANDAG other than delays attributed to supplemental work, deny the potential claim without further analysis of the contractor's written request.

5-6.9 Audits

If the resident engineer has informed the contractor that SANDAG will consider the request for additional overhead, evaluate the request through the audit process. Consult with SANDAG Office of General Counsel and SANDAG's internal auditor on how best to proceed.

5-6.10 Preliminary Construction Claim Findings and Category 62: Disputes, Preparation and Guidelines

Preparation of the preliminary construction claim findings can be completed quickly by incorporating documents contained in Category 62 of the project records. When you receive exceptions to the proposed final estimate from the contractor, complete the preliminary construction claim findings.

5-6.10.A Preliminary Construction Claim Findings Format

The preliminary construction claim findings consist of the following sections:

- Title page
- Table of contents
- Project chronology
- General information
- List of claims
- Contractor's exceptions to the proposed final estimate
- Exhibits obtained from Category 62

A well-organized Category 62, of the project records is imperative for preparing the construction claim findings. Refer to the [Description of Categories](#) section of this chapter for more details about the file categories.

For each claim, Category 62 must include:

- Claim checklist; see example, “Sample Claim Checklist,” of this manual
- Notification details
- Written notice or protest
- Form CEM-6201A – Initial Notice of Potential Claim, and SANDAG’s response
- Form CEM-6201B – Supplemental Notice of Potential Claim, and SANDAG’s response
- Form CEM-6201C – Full and Final Documentation of Potential Claim, and SANDAG’s response
- All correspondence
- Resident engineer’s position paper for the dispute DRB
- Contractor’s position paper for the DRB
- DRB recommendation
- Resident engineer diaries
- Assistant resident engineer diaries
- Applicable parts of plans and specifications
- Relevant CCOs
- Photographs
- Calculations and analysis
- Weekly statement of working days
- Critical path method schedules
- Other pertinent information

The SANDAG principal construction engineer reviews the information contained in the preliminary construction claim findings to determine how to proceed with the resolution of the claims.

5-6.11 Board of Review Report Preparation and Guidelines

The SANDAG principal construction engineer uses the Board of Review Report to complete the construction claim findings that are the basis of SANDAG’s determination of claims.

In preparing the board of review report, the board members should follow the guidelines below:

- State opinions, facts, positions, conclusions, determinations, and recommendations in the report. However, the important items to be presented are facts, contract language, and the results of applying the contract to the facts.
- Do not use words such as “think,” “feel,” and “believe.”
- Quantify all items. If the contractor was inefficient, state that conclusion’s basis. If such inefficiency occurred frequently, state how many times and over what time frame.

- Do not use tables within the board recommendations.
- Begin each individual claim on a new page.
- Do not include any language indicating that the report's findings comprise the final determination. For all claims, the director of MMPI makes the final determination.

The following establishes the format, content, and guidelines for writing the board of review report and a board of review recommendations.

5-6.11.A Format

A board of review report follows the general format below:

5-6.11.A.1 Introduction

The board of review report will start with an introductory paragraph describing the board meeting attendees and date of occurrence.

5-6.11.A.2 Items that are Common to All Claims

List items such as the chronology and general information.

5-6.11.A.3 Summary of Settled Claims

Reference claims that were entirely or partially settled.

5-6.11.A.4 Individual Claim Information

Reference each individual claim number, title, and the amount.

5-6.11.A.5 General Description of the Claim

Briefly describe the nature of the claim.

5-6.11.A.6 Contractor's Position

Quote directly from the contractor's protest, notice, notice of potential claim, or written statement of claims. Add any other pertinent information provided in other documentation.

5-6.11.A.7 SANDAG's Position

The resident engineer's position must be compiled from the responses to potential claim submittals and supported by exhibits including related correspondence.

5-6.11.A.8 Comments of the Board

In this section of the report, include the following:

- Any new material or change in position if raised by the contractor at the board meeting.
- Any board requests for additional information or analysis and any general discussion of that information or analysis.
- Other information the board considers relevant to the issue.

The following are some examples of clauses that may be used in this section:

- "At the board of review meeting, the contractor informed the board that..."
- "At the board of review meeting, the contractor submitted additional information to support the contractor's claim."

- “At the request of the board, the resident engineer reviewed the contractor’s submittal and noted...”
- “The resident engineer informed the board...”
- “At the request of the board...”

5-6.11.A.9 Findings of the Board

Format this section of the board of review report as a series of bullets listing the board’s conclusions and providing the board’s findings. The bullets will convey the board’s reasoning and follow a progression that illustrates what was required, what happened, and what the board concluded was relevant to its recommendation. The following are some examples of phrases that may be used in this section, beginning with the statement, “The board concluded that:

- The contract provided for...
- The work included...
- Based on bid Item Number xx, description...
- The contract further provided...
- The contract time is subject to extensions for...
- Work began on (date)
- By correspondence dated (date)... the contractor directed the resident engineer’s attention to...
- The contractor requested issuance of a CCO to provide compensation for...
- The resident engineer disputed the contractor’s request and directed the contractor’s attention to Section XX of the Special Provisions.
- On (date) the contractor submitted an initial notice of potential claim, dated (date).
- On (date) the contractor submitted a supplemental notice of potential claim, dated (date) at an estimated cost of \$ (XX) value.
- On (date) the resident engineer responded to the contractor’s supplemental notice of potential claim and directed the contractor’s attention to Section XX of the Special Provisions.
- On (date) the contractor submitted the full and final documentation of claim, dated (date) with the requested cost of \$(XX) value.
- On (date) the resident engineer responded to the contractor’s full and final documentation of potential claim and again referred the contractor’s attention to Section XX of the Special Provisions.
- With the return of the proposed final estimate, the contractor included a corresponding claim for \$(XX) value.
- The contractor has been compensated for the work of Item No. (XX) and that the contractor is not entitled to any additional compensation for that work.

For each claim, the conclusions will be ended with a recommendation statement such as, “Therefore, it is recommended that the claim be denied (or allowed) in the amount of \$(XX) value.”

Findings and facts about what actually occurred, including only facts the board knows with certainty. Guesses or unverified information should not be used in the conclusion.

The board of review report should specifically address any DRB findings and recommendations pertaining to the claim and provide its conclusions. Particular attention must be paid when the board of review's conclusion disagrees with the findings and recommendations of the DRB.

5-6.11.A.10 Board of Review Member Signature Block

Include signature blocks for the board members. Place all signature blocks on the same page as the final portion of the report's text.

After the board of review report is complete, a draft final determination pertaining to those claims heard by the board of review will be prepared by the board secretary and forwarded to the SANDAG construction engineer. The draft will consist of the introductory paragraph and the board's conclusions and recommendations taken from the board of review report. However, the board's recommendations will be modified to state, "That the claim is denied," or, "That the claim is allowed in the amount of \$(XX) value."

Upon completion of the board of review report, the board's secretary transmits the report to the SANDAG's construction engineer for incorporation into the construction claim findings.

5-6.12 Construction Claim Findings Preparation and Guidelines

The board of review report is incorporated as a part of the construction claim findings. The construction claim findings provide the basis of the director of MMPI determination of claims. The SANDAG principal construction engineer prepares the construction claim findings by refining the preliminary construction claim findings and incorporating claims resolved prior to completing the preliminary construction claim findings, administrative claims addressed by the resident engineer, claims addressed by the board of review, and the other remaining claims. When preparing the construction claim findings document, consider that the document is used by a SANDAG attorney if claims are filed in legal proceedings.

5-6.12.A Format

The construction claim findings follow the format of the sections below.

5-6.12.A.1 Title Page

The title page states the following:

- "Construction Claim Findings"
- Contract identification data such as contract number, county route, kilopost, and federal project number, if applicable
- Applicable Standard Specifications, Special Provisions, and Standard Plans
- Names of the contractor, resident engineer, structure representative, construction manager, board of review members, and principal construction engineer
- Date

5-6.12.A.2 Table of Contents

Number all pages in the table of contents.

5-6.12.A.3 Project Chronology

The project chronology includes the following:

- Advertisement date
- Bid opening date

- Contract award date
- Contract approval date
- First working day (date and working day number)
- Date Contractor began work
- Working days specified (number of days)
- Computed completion date (date and working day number)
- CCO time adjustment (number of days)
- Nonworking days (number of days)
- Suspension days (number of days)
- Working days not worked on controlling operation (number of days)
- Extended date for completion (date and working day number)
- Project completion date
- Contract acceptance date
- Overrun in contract time (number of working and calendar days)

5-6.12.A.4 General Information

The general information section should be presented in a narrative format, and include the following:

- Description of the work
- Contractor's bid amount
- Proposed final estimate amount
- Date the proposed final estimate was sent to the contractor
- Date the contractor returned the proposed final estimate with claims
- Total number and amount of claims submitted

5-6.12.A.5 Summary of Claims

Provide the following information:

- Identification numbers and titles
- Claimed amounts
- Recommended payments
- Remaining amounts

5-6.12.A.6 Claim Categories

Show the segregation of claims into the following categories:

- Administrative claims
- Claims heard by board of review
- Claims not heard by board of review

5-6.12.A.7 Claim Number, Title, and Claim Amount

A boldfaced, underlined title bar will be used for each claim. In the left-hand column, place the claim number. In the middle column, position the claim title. In the right-hand column locate the claim amount, including days claimed.

5-6.12.A.8 Description of the Claim

Provide the following information:

- An explanation of what caused the claim
- Pertinent statements of facts related to the issue, not beliefs or opinions
- A reference to the applicable specifications relating to the claim. You may include a separate section entitled Applicable Specifications, listing the section numbers and excerpts.
- The circumstances leading to each claim; use facts supported with exhibits that include daily reports or letters
- Relevant dates if the claim includes time considerations
- A statement of actions and responses made by SANDAG and the contractor
- The method and time of notification of the claim

5-6.12.A.9 Contractor's Position

Quote directly from the contractor's protest, notice, notice of potential claim, or written statement of claims. Add any other pertinent information provided in other documentation. Do not interpret the contractor's position. If the contractor has not stated the basis for the claim, note that the basis was not stated. State whether a cost analysis was stated.

Provide the information in the following order:

- Full and final documentation of potential claim
- Supplemental notice of potential claim
- Initial notice of potential claim
- Written notice or protest if applicable
- Contractor's initial written correspondence pertaining to the claim
- Reference table to contractor's supporting exhibits

5-6.12.A.10 SANDAG's Position

The SANDAG position must be compiled from the responses to potential claim submittals and supported by exhibits including related correspondence. Additional arguments supporting the SANDAG position are not required. If the contractor provides reasons for changing the amount of requested additional compensation from that stated in the full and final documentation, additional opposing statements may be included.

Provide the information in the following order:

- Resident engineer's response to the full and final documentation of potential claim
- Resident engineer's response to the supplemental notice of potential claim
- Resident engineer's initial written correspondence pertaining to the claim

- A list of exhibits including CCOs for partial resolution of the potential claim, photographs, critical path method analysis, cost analysis, correspondence, and diaries

Include a separate section stating deficiencies if the contractor has failed to comply with the Final Payment of Claims section of the Special Provisions.

5-6.12.A.11 Findings and Recommendations

State the SANDAG conclusions on the merit of the claim in bullets, following the format of the board of review report.

Briefly state the reason for the conclusions based on the information provided. Recommend denial if there is no merit, but do not deny the claim.

5-6.12.A.12 Tabular Reference to Supporting Information

5-6.12.A.13 Summary of Resolved Claims in Tabular Format for All Claims

5-6.12.A.14 Principal Construction Engineer Signature Block

5-6.12.A.15 Exhibits

Include the following exhibits as appropriate:

- Copy of the contractor's written statement of claims
- Correspondence
- Cost data
- Notices, protests, or notices of potential claims
- Detailed chronology of correspondence, other documents, or events
- Critical path method schedule or time impact analysis
- Photographs

5-6.13 Helpful Hints

When preparing the construction claim findings, the following hints may be helpful:

- Identify specific references in the following manner: "Section XX of the Special Provisions requires..."
- Quote all excerpts, avoid paraphrasing them
- Include all pertinent correspondence
- Include pertinent photographs
- Provide a response to every relevant contention that the contractor makes
- Use exact dates and numbers
- State whether days are working or calendar days
- When referring to days, when applicable, include the month, day, and year

5-6.13.A Things to Avoid

When preparing the construction claim findings, avoid the following:

- Using the words "Denied," "Rejected," or "Determined"

- Including a copy of Sections 1 through 9 of the Special Provisions
- Making the background section of the SANDAG position a chronology of letters or events; write the background as a narrative, referencing any relevant letters or events, if appropriate
- Including correspondence, photographs, or other exhibits that have no direct bearing on the claim

5-6.14 Director Determination of Claims Preparation and Guidelines

The director of MMPI makes the final recommended determination of claims to the Office of General Counsel in consideration of the construction claim findings and supporting documents. The determination of claims is a stand-alone document and does not reference the board of review report, or construction claim findings; and it is presented in a bulleted format, listing the construction claim findings.

Once the determination of claims is completed, the it is submitted to the contractor by hand delivery or deposit in U.S. Mail. Issue the final estimate in writing. If the contractor is due any monies, pay the entire sum within 30 days.

Once the determination of claims is submitted to the contractor, there should be no further contact or discussion concerning merits of claims. If the contractor pursues unresolved claims through a public contract code claim, the Office of General Counsel coordinates any necessary responses.

Example: Sample Dispute Response Clauses

Use the following sample clauses in response to disputes. Edit the clauses to fit the specific situation.

Notice

For a discussion of notices, see the [Notice](#) section of this chapter. Use the following information in your response to a notice:

- (1) General “I have received your written notification dated May 4, 2016, of a differing site condition encountered at (give location). It is my understanding that you believe the material encountered differs materially from that shown on the plans or is considered to be of an unusual nature...”
- (2) If no merit “I have investigated the material and the contract documents, (specify which documents) and have found that the material does not vary from that shown on the contract documents. Therefore, no additional cost or extension of contract time is warranted to complete the work. If you still feel a differing site condition exists, please provide me with any additional information you may have.”
- (3) If merit “I have investigated the material and the contract documents (specify which documents) and have found that the material does vary from that shown on the contract documents. Therefore, additional cost or extension of contract time is warranted to complete the work. Please furnish me with the additional costs that may result from the increased work as a result of this differing site condition.”
- If partial merit:
- “I have investigated the material and the contract documents (specify which documents) and have found that the material from (specify locations/stations) does not vary from that shown on the contract documents and the material from (specify locations/stations) does vary from that shown on the contract documents. Therefore, additional cost or extension of contract time may be warranted to complete the work from (specify locations/stations).
- “Please furnish me with the additional costs for the work from (specify locations/stations) that may result from the increased work as a result of this differing site condition.”

Protest

For a discussion protest, see the [Protest](#) section of this chapter.

- (1) CCO Time Adjustment:

Use the following clauses in your response to a protest of time determination in a CCO:

- (1)a General “I have received your letter of protest, dated May 4, 2016, regarding the time adjustment under CCO No. 16. I understand that you are protesting the determination of (no. of days) working days’ time extension for this change and you believe you are entitled to (no. of days) working days’ time extension.”

(1)b If no merit “My review of the CCO, anticipated work, and the progress schedule indicates that the work required by CCO No. 16 does not impact the controlling operation [if a CPM review was performed substitute “critical path” for “controlling operation”]. Therefore, you are not entitled to an extension of contract time. If you still believe that a time extension is warranted, please provide documentation, either in narrative form or an analysis showing the impact of this work on the completion date of the project.”

(1)c If merit “My review of the change order, anticipated work, and the progress schedule indicates that the work associated with Contract Order No. 16 impacts the controlling operation (if a CPM review was performed substitute “critical path” for “controlling operation”). Therefore, you are entitled to a time extension. I have determined a time extension of (no. of days) days associated with the work. The CCO will be revised to reflect this change in the adjustment of contract time. Please review and sign the revised CCO if you agree with the change.”

If Partial Merit:

“My review of Change Order No. (X), anticipated work, and the progress schedule indicates that the work required by the change order does not alter the controlling operation (if a CPM review was performed substitute “critical path” for “controlling operation”) as you have indicated. My review indicates that the timeline for the controlling operation (if a CPM review was performed substitute “critical path” for “controlling operation”) was lengthened by (no. of days or dates). Therefore, you are entitled to an extension of contract time by (no. of days) days. Change Order No. (X) will be issued to provide an adjustment of contract time for (no. of days or dates).

“If you still believe that an additional time extension is warranted, please provide documentation to support your position, either in narrative form or an analysis showing the effect of this work on the completion date of the project.”

(2) Weekly Statement of Working Days

Use the following clauses in your response to a protest related to determination of contract time in a weekly statement of working days:

(2)a General “I have received your letter of protest, dated May 4, 2016, regarding weekly statement of working days No. 8. It is my understanding that you are protesting the charging of (specify day or days protested) as a working day because (specify the contractor’s reasons for protesting the days in question).”

(2)b If no merit “Our records indicate that you were working on the controlling operation for the entire day. If you believe that you did meet the requirements of the Time of Completion section of the Special Provisions, please provide me with documentation in support of your protest. In the absence of the required documentation, the weekly statement of working days No. 8 stands unchanged.”

(2)c If merit “I have reviewed the project records and have determined that April 22, 2016, should be revised to indicate a non-working day. I will send you a revised weekly statement of working days No. 8.”

(3) Notice of Potential Claim

For a discussion of the notice of potential claim, see [Potential Claim](#) section in this chapter. Use the detailed format and response guidelines in [Response Guidelines](#) section of this chapter in conjunction with the following clauses in response to a notice of potential claim:

- (3)a General “I have received your notice of potential claim (specify which of the three forms) dated May 4, 2016, regarding (state the issue). It is my understanding that this potential claim is the result of a dispute over (state the dispute and give background of the dispute). I understand your position to be (quote the contractor’s position as described in the notice of potential claim).”
- (3)b If no merit “I have reviewed your potential claim (specify which of the three forms) and based on the information you provided I find that it has no merit (explain why in detail).”
- (3)c If merit “I have reviewed your potential claim (specify which of the three forms) and based on the information you provided I find that it has merit (explain why). Please provide me with the cost associated with your notice of potential claim for review and determination of compensation.”
- (3)d Request for Information “I have reviewed your notice of potential claim (specify which of the three forms), and I am unable to make a determination based on the information you provided. Please provide me with the following information so I can make a determination regarding your potential claim.”

Sample Claim Checklist (1 of 2)

Identification Number _____
 Title _____

Notification Details

Date	Date	On Time	Amount Claimed
Written notice/protest	_____	Yes__ No__	\$ _____
Initial NOPC	_____	Yes__ No__	\$ _____
Supplemental NOPC	_____	Yes__ No__	\$ _____
Full and Final Doc	_____	Yes__ No__	\$ _____

State Response

	Date	Merit	On time
To Supplemental	_____	Yes__ No__	Yes__ No__
Comments	_____		

	Date	Merit	On time
To Full and Final	_____	Yes__ No__	Yes__ No__
Doc Comments	_____		

Background _____

Contractor Position _____

District Position _____

5-4.56 Disputes

DRB Information [if applicable]

DRB held Yes__ No__ Date _____

DRB Recommendation in favor of: State _____ Contractor _____

DRB Accepted by: State: Yes__ No__ Contractor: Yes__ No__

Payment detail CCO No. _____ Amount _____

Comments _____

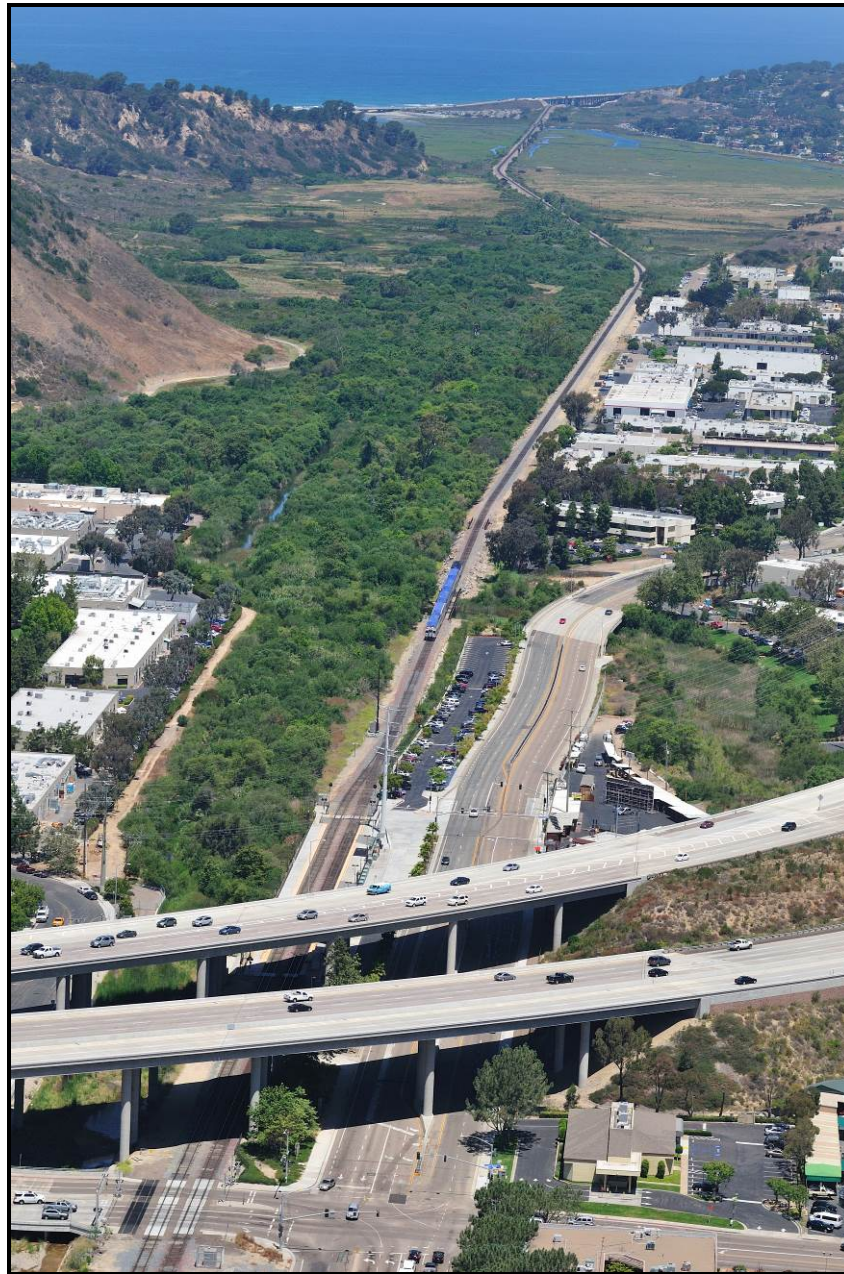
Sample Claim Checklist (2 of 2)

<u>Exhibits</u>	x = included
• Contractor's exceptions to PFE	_____
• Written notice or protest	_____
• Initial NOPC (6201 A)	_____
• Supplemental NOPC (6201 B)	_____
• Full & Final Documentation (6201 C)	_____
• State response	_____
• To Supplemental NOPC	_____
• To Full and Final Documentation	_____
• Other correspondence	_____
• Dispute Review Board	_____
• State position paper	_____
• Contractor position paper	_____
• DRB recommendation	_____
• Diaries	_____
• Resident Engineer	_____
• Assistant	_____
• Plan sheets	_____
• Specifications	_____
• Contract Change Orders	_____
• Photographs	_____
• Calculations & analysis	_____
• Weekly Statement of Working Days	_____
• CPM Schedules	_____
• Other (list)	_____

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Appendix 5-1: Monthly Progress Report Examples

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**CIP Project 1239807
SORRENTO VALLEY DOUBLE TRACK**

**CONSTRUCTION PROJECT MANAGEMENT REPORT
JANUARY 2016***

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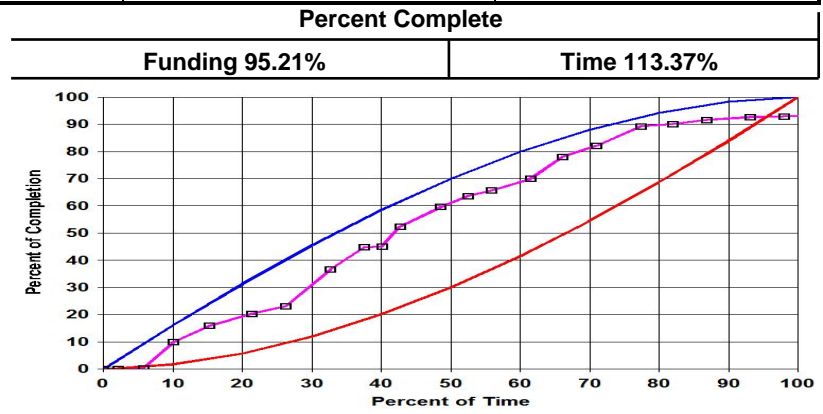
* For Period: December 12th, 2015 - January 11th, 2016

Sorrento Valley Double Track

MONTHLY CONSTRUCTION STATUS REPORT – JANUARY 2016

Contract No. 00-1027		CR: 1257007	
Operating Agency: NCTD	Contractor: Flatiron/H&H JV		Regional Contract Agency: SANDAG
SANDAG R.E. Steve Vargo - 858-320-0480	SANDAG C.E. Ramon Ruelas - 619-699-6944	SANDAG Corridor Director: Bruce Schmith - 619-595-5613	SANDAG Corridor CM: Steve Hoyle - 760-430-2005

CONTRACT FINANCIAL STATUS			
FUNDING	Original Contract Amount	\$17,559,500	
	Contingency	\$1,755,950	
	Net Budget Adjustments	\$0	
	AVAILABLE FUNDS	\$19,315,450	
AUTHORIZED CCO WORK	Bid Item QTY (CCO)	(\$490,984)	
	Extra Work at Force Account	\$1,181,292	
	Extra Work at Agreed Price	\$1,007,667	
	Adjustments in Compensation	\$37,804	
	Total Approved CCO Adjustments	\$1,735,779	
	Original Contract	\$17,559,500	
	TOTAL VALUE AUTHORIZED WORK	\$19,295,279	
	EXPENDITURES	Item Work Completed (Incl's MOB and MOH)	\$16,692,875
		Extra Work at Force Account	\$643,836
		Extra Work at Agreed Price	\$997,455
Adjustments in Compensation		\$37,804	
Total Payments to Date		\$18,371,969	
Value of Remaining Work		\$923,310	
PROJECTED EXPENDITURES	\$19,295,279		
PENDING	Pending CCO Work	\$1,113,049	
	Contingency (5% of Remaining Value of Work)	\$46,165	
	Total Pending Adjustments	\$1,159,214	
	Projected Contract Expenditures	\$19,295,279	
ESTIMATED COST AT COMPLETION	\$20,454,494		
SUMMARY	Available Funds	\$19,315,450	
	Projected Expenditures	\$19,295,279	
	Current Contingency Balance	\$20,171	
	Available Funds	\$19,315,450	
	Estimated Costs at Completion	\$20,454,494	
PENDING CONTINGENCY BALANCE	(\$1,139,044)		
WORKING DAYS	Contract Award Date	1/16/2014	
	Notice to Proceed	2/3/2014	
	Original Completion Date	8/11/2015	
	Revised Completion Date	9/30/2015	
	Original Contract Duration	380	
	Additional Days Granted by CCO	9	
	For "Other" Reasons	0	
	Non-Working Days Due to Weather	20	
	Working days Elapsed	460	
	Working Days Remaining	-71	



Work Accomplished this Period
<ul style="list-style-type: none"> Completed emergency additional rip rap slope protection on west side of track from SVDT MT-2 STA 234+00 – 245+00 (CCO #42). SWPPP inspection. Landscape/Mitigation maintenance.
Planned For Next Period
<ul style="list-style-type: none"> Parking lot security cameras. CP Torrey pedestrian access for signal maintainer. SWPPP inspection and sampling. Landscape/Mitigation maintenance.
Problems and Solutions (Action Items)
<ul style="list-style-type: none"> Negotiate CISS pile claim amount (ongoing). Obtain JROE Amendments to complete remaining CCO work. Replace damaged/dead plants in the mitigation areas and South Lot. Close out project.
Anticipated Changes
<ul style="list-style-type: none"> Parking Lot Security Cameras. CP Torrey Pedestrian Access for Signal Maintainer.
Project Schedule
The authorized contractual completion date is 9/30/2015 based on the 1/15/16 Weekly Statement of Working Days. CM is currently issuing CCOs for additional work and the contract completion date will be extended.

Sorrento Valley Double Track

Bid Results			
Engineers Estimate	Low Bid	2nd Bid	3rd Bid
\$18,600,000	\$17,559,500	\$18,775,899	\$21,246,826
Bid Date: 9/19/2013			

SUBMITTALS AND RFIs

Submittals			
Submittals	Received	Closed	In Review
1239807	465	457	8
<ul style="list-style-type: none"> The Contractor has submitted 311 submittals to date. Some of these submittals are resubmittals. 			

RFI'S			
RFI'S	Received	Closed	In Review
1239807	174	171	3
<ul style="list-style-type: none"> The Contractor has submitted 165 RFIs to date. Some of these RFIs are resubmitted. 			

QUALITY ASSURANCE

Concrete Compressive Strength				
Location	Total	Passed	Failed	Notes
No work requiring QA testing this period.	N/A	N/A	N/A	N/A

Embankment				
Location	Total	Passed	Failed	Notes
No work requiring QA testing this period.	N/A	N/A	N/A	N/A

Thermite Weld Ultrasonic Testing				
Location	Date	Weld #	Passed	Failed
No work requiring QA testing this period.	N/A	N/A	N/A	N/A

SWPPP
SWPPP inspections continue to be conducted on a regular basis. A recent heavy rain event during the week of January 4, 2016 exceeded the peak 50 year storm design flows. No delays to train service were caused by failures of the SVDT project improvement, but some damage was experienced that required CCO #42 work. This CCO repaired a portion of track embankment (approximately 1,000 linear feet) which was originally constructed without rip rap slope protection near the Sorrento Valley Station and experienced some slope erosion. This work was completed on 1/18/2015.

Bridge 248.7
<ul style="list-style-type: none"> No structures work this period.

SCHEDULE

SCHEDULE							
DATA DATE	DESCRIPTION	BASELINE, TIA, or RECOVERY		MONTHLY UPDATE		COMPLETION DATE	
		SUB	APP	SUB	APP	CONTRACT	SCHEDULE
2/10/14	Baseline Revision 2	3/24/14	3/26/14			8/20/15	8/20/15
7/21/15	July Update Schedule			7/22/15	7/27/15	9/10/15	8/03/15
8/21 – 11/21/15	August – November Schedule			12/7/15	12/21/15	9/23/15	7/27/15
Contract completion date will be extended for forthcoming CCO work.							

CHANGE ORDERS – JANUARY 2016

Please see next page for complete Change Order table.

Sorrento Valley Double Track

CCO No.	Description	Amount	Time Extension	Comments/ Status
1	Offsite Drainage and Unsuitable Subgrade	\$86,258	Deferred	Executed
2	Contaminated Soils	\$50,000	Deferred	Executed
2.1	Contaminated Soils Supplemental	\$6,792	Deferred	Executed
3	PTC Changes	\$40,000	Deferred	Executed
4	Maintaining Vehicular Traffic & Existing Systems	\$93,000	0 days	Executed
5	Specification Change to Payment Retention	\$0	0 days	Executed
6	ACB Unsuitable Subgrade	\$150,000	Deferred	Executed
7	Unknown Utilities	\$25,000	Deferred	Executed
7.1	Unknown Utilities Supplement	\$20,000	0 days	Executed
8	Retaining Wall 1 Changes	(\$217,681)	0 days	Pending (CM)
9	CIDH Pile Method Change	\$0	0 days	Executed
10	South Parking Lot Changes	\$512,957	Deferred	Executed
11	Force Account Payment	\$0	0 days	Executed
12	Retaining Wall 2 Revision North Parking Lot	(\$153,240)	0 days	Executed
13	Temporary Communication Antenna Installation	\$20,000	0 days	Executed
13.1	Temporary Communication Antenna Installation	\$9,365	0 days	Executed
14	CISS Pile Flange Covers	\$60,000	0 days	Executed
15	DRB	\$20,000	0 days	Executed
16	ACB Ditch Revision	(\$21,088)	0 days	Executed
17	ROW Fencing and Stabilizing Drainage	\$41,886	0 days	Executed
18	Augercast Piles Bidge 248.7	\$0	0 days	Executed
19	Transition Rail at Pines Spur	\$55,047	0 days	Executed
20	BMP Additions	\$49,926	0 days	Executed
21	Replace Meter Service at MP 249.8 (Pines Spur)	\$27,969	0 days	Executed
22	Manmade Burried Objects at Pines Spur	\$15,000	0 days	Executed
23	Rip Rap Changes	\$84,191	0 days	Pending (SANDAG)
24	High Water Detector	\$6,933	0 days	Executed
26	Phase 2 Pile Subsurface Obstructions Old Timber	\$219,617	9 days	Executed
27	Additional Subballast	\$2,482	0 days	Executed
28	Flanges/Trenton No. 2 Wax Tape	\$19,698	0 days	Executed
29	Signal Walkway and Temporary Platforms	\$8,500	0 days	Executed
30	Buried Bridge Rip Rap	\$15,000	0 days	Executed
31	North Lot Temporary ADA	\$4,390	0 days	Executed
32	North Parking Lot Changes	\$20,000	TBD	Pending (CM)
33	North Lot Security Cameras Conduits	\$24,500	Deferred	Executed
34	Pines Spur Derail	\$14,615	0 days	Executed
36	Shotcrete Transition Ditch	\$20,000	0 days	Executed
36.1	Shotcrete Transition Ditch Supplemental	\$60,000	0 days	Pending (CM)
37	Retaining Wall 3 Changes	\$27,832	0 days	Executed
38	Remove Insulated Joint Plugs at MP 251.4	\$18,340	Deferred	Executed
39	CP Torrey Signal Maintainer Ped Access	\$25,000	Deferred	Executed
40	Security Cameras	\$180,464	Deferred	Pending (FHJV)
41	Project Suspension for Holidays	\$0	0 days	Executed
42	Additional Slope Protection	\$220,000	0 days	Executed
PCO 43	NOPC #1 and 3 CISS Pile Claim	\$975,000	0 days	Estimate for Potential CCO
PCO 44	Flagging Overages	(\$150,000)	0 days	Estimate for Potential CCO
PCO 45	Phase 1 Impact to Track and Signal Work	\$86,075	0 days	Estimate for Potential CCO
PCO 46	Repair Mitigation Landscape and Irrigation	\$75,000	0 days	Estimate for Potential CCO
Total Cost of CCOs (Executed & Pending)		\$2,848,828		
Original Contingency		\$1,755,950		
Executed CCOs		\$1,735,779		
Current Remaining Contingency		\$20,171		
Pending CCOs		\$1,113,049		
Projected Remaining Contingency		(\$1,092,878)		

Sorrento Valley Double Track

EXHIBIT A: Project Photos – DECEMBER 2015/JANUARY 2016



PROGRESS ON WETLANDS REPLANTING GROWTH



PROGRESS ON HYDROSEED REPLANTING GROWTH

Sorrento Valley Double Track



SORRENTO VALLEY FLOOD GAUGE SHOWING DEBRIS FROM HIGH WATER ON JAN 5-7, 2016



FLOOD AT SORRENTO VALLEY ROAD DURING STORM EVENT IN JANUARY 2016

Sorrento Valley Double Track



CCO #42 ADDITIONAL SLOPE PROTECTION



CCO #42 ADDITIONAL SLOPE PROTECTION



CIP Project 1145000

**LOS PENASQUITOS BRIDGE REPLACEMENTS PROJECT
CONSTRUCTION PROJECT MANAGEMENT REPORT
JANUARY 2016**

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 Los Penasquitos Bridge Replacements Project.....4

Exhibit A – Project Photos.....5-8

*Financial reporting period through January 14th, 2016

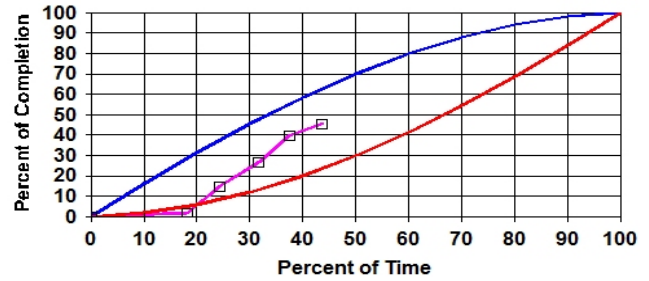
Los Penasquitos Lagoon Bridge Replacements Project

MONTHLY CONSTRUCTION STATUS REPORT – JANUARY 2016

Contract No. 5007001		CIP. 1145000	
Operating Agency: NCTD		Contractor: SKANSKA Terry Williams – 970-529-0208	
SANDAG R.E. George Valuska – 619-417-5534		SANDAG C.E. Ramon Ruelas - 619-699-6944	
		SANDAG Corridor Director: Bruce Schmith - 619-595-5613	
		SANDAG Corridor CM: Steve Hoyle- 760-518-8715	

CONTRACT FINANCIAL STATUS		
FUNDING	Original Contract Amount	\$21,800,000
	Contingency	\$1,090,000
	Net Budget Adjustments	\$0
AVAILABLE FUNDS		\$22,890,000
AUTHORIZED WORK	Bid Item QTY Adjustments	\$0
	Extra Work at Force Account	\$168,200
	Extra Work at Agreed Price	\$0
	Adjustments in Compensation	\$27,220
	Total Approved CCO Adjustments	\$195,420
	Original Contract	\$21,800,000
TOTAL VALUE AUTHORIZED WORK		\$21,995,420
EXPENDITURES	Item Work Completed (Incl's MOB and MOH)	\$9,963,668
	Extra Work at Force Account	\$41,053
	Extra Work at Agreed Price	\$0
	Adjustments in Compensation	\$0
	Total Payments to Date	\$10,004,721
Value of Remaining Work		\$11,990,699
PROJECTED EXPENDITURES		\$21,995,420
PENDING	Pending CCO Work	\$0
	Contingency (5% of Remaining Value of Work)	\$599,535
	Total Pending Adjustments	\$599,535
Projected Contract Expenditures		\$21,995,420
ESTIMATED COST AT COMPLETION		\$22,594,955
SUMMARY	Available Funds	\$22,890,000
	Projected Expenditures	(\$21,995,420)
	Current Contingency Balance	\$894,580
	Available Funds	\$22,890,000
Estimated Costs at Completion		(\$22,594,955)
PENDING CONTINGENCY BALANCE		\$295,045
WORKING DAYS	Contract Award Date	11/13/2014
	Notice to Proceed	12/19/2014
	Original Completion Date	12/04/2017
	Revised Completion Date	01/27/2017
	Original Contract Duration	310
	Additional Days Granted by CCO	0
	For "Other" Reasons	0
	Non-Working Days Due to Weather	1
	Working days Elapsed	117
Working Days Remaining	193	
Project Schedule		
Per the most recent Weekly Statement of Working Days, the Contract completion date is 02/02/2017. The Contractor's current forecast finish is 03/13/17. (Refer to Page 4 for more detail)		

Percent Complete	
Funding 45.49%	Time 43.55%



Work Accomplished this Period	
	<ul style="list-style-type: none"> Bridge 246.1 – All 33 CISS piles have been installed. Forming of the bent caps has started. Bridge 246.9 – All 8 interior CISS piles have been installed. 3 of the 16 exterior CISS piles have been installed. Bridge 247.1 – All 4 interior CISS piles have been installed. Bridge 247.7 – Bridge 247.7 is currently being used as a staging area to store and mobilize material/equipment.
Planned For Next Period	
	<ul style="list-style-type: none"> Bridge 246.1 – Continue forming bent caps Bridge 246.9 – Continue installing Exterior CISS Piles during Form B. Begin forming bent caps. Bridge 247.1 – Begin installing Exterior CISS Piles during Form B. Begin forming bent caps. Bridge 247.7 – Begin installing CISS Pile during Form B. Complete the Site Specific Work Plans for the two March AWWs.
Problems and Solutions (Action Items)	
	<ul style="list-style-type: none"> A Dispute Review Board (DRB) has been established. To date, the Contractor has submitted 11 notices of potential claims. Continue to relocate the existing Verizon & NCTD fiber optic cable in advance of the Contractor's work (on schedule) There is an unforeseen City of SD drainage pipe and drainage issue at Bridge 247.7. Heavy rain events can cause potential flooding in the nearby area. This is an ongoing issue which may require additional adjustments to the staging area.
Anticipated Changes	
	<ul style="list-style-type: none"> None at this time

Los Penasquitos Lagoon Bridge Replacements Project

BID RESULTS			
Engineers Estimate	Low Bid	2nd Bid	3rd Bid
\$15,691,974	\$21,800,000	\$36,556,143	N/A
Bid Date: 08/25/2015			

SUBMITTALS AND RFI's TO-DATE - JANUARY 2016

SUBMITTALS			
CIP #	Received	Closed	In Review
1145000	225	214	11
<ul style="list-style-type: none"> Critical submittals: the Contractor has submitted site specific work plans for the March Absolute Work Windows and they are currently under review 			

RFI'S			
CIP #	Received	Closed	In Review
1145000	74	73	1
<ul style="list-style-type: none"> 74 RFIs have been received from the Contractor and 1 is currently in review. 			

QUALITY ASSURANCE – JANUARY 2016

MATERIALS TESTING REPORTS				
Location	Total	Passed	Failed	Notes
Bridge 246.1 – CISS Concrete Placement	3	3	0	28 day break
All Bridges – CISS Pile Field Welding	48	48	0	Ongoing NTD Field Welding Testing

SWPPP & ENVIRONMENTAL
<ul style="list-style-type: none"> Required Environmental Awareness Training is being provided and documented for all new Employees working on the project Monthly Environmental Reports are being generated The Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention Control and Countermeasure (SPCC) plan have been received and approved. Weekly SWPPP inspections are now being conducted Required SWPPP and SPCC training is being provided in the field

Los Penasquitos Lagoon Bridge Replacements Project

INSPECTIONS

- Construction inspections are currently being conducted for all field work
- The Contractor's Environmental Compliance officer and SANDAG's project biologist are on site for all site clearing and temporary fill placement activities
- Weekly Owner/Oversight SWPPP inspections are being conducted in the field
- Precast Concrete source inspections for the Bridge Girders are currently being conducted by the CM Team

SCHEDULE – JANUARY 2016

SCHEDULE						
BASELINE			MO. UPDATES		COMPLETION DATE	
DUE	SUB	APP	SUB	APP	CONTRACT	SCHEDULE
1/5/15	6/18/15 Revision #2	6/25/15 Exceptions as Noted	December Update	01/13/16 Under Review	02/02/17	03/13/2017
<ul style="list-style-type: none"> • The Contract allows for 310 working days. • The original Contract Completion Date was 12/04/2017 which accounted for the Bird Breeding Season non-working periods. • CCO #002 eliminated the Bird Breeding Season Restrictions. • The Revised Contract Completion Date is now 02/02/17 and accounts for some accrued rain days. • The Contractor's latest Schedule Update shows all interior CISS piles being installed during AWWs, and all Exterior piles being installed during Form B Protection 						

CHANGE ORDERS – JANUARY 2016

CCO #	Description	Amount	Comments/Status
CCO-001	Establish Absolute Work Windows	\$0	Deleted
CCO-002	Work Performed During the Bird Breeding Season	-	Executed
CCO-003	Utility Relocation Support	\$24,700	Executed
CCO-004	Remove Trees at McGonigle Road	\$4,000	Executed
CCO-004	Supplement 1 – Remove Trees at McGonigle Road	-	Pending/CM Team
CCO-005	Temporary Railroad Crossing Asphalt Ramps	\$4,600	Executed
CCO-006	FAWW Specification Revisions	\$0	Executed
CCO-007	Dispute Review Board	\$20,000	Executed
CCO-008	Pedestrian & Vehicle Flagging	\$15,000	Executed
CCO-009	BR 246.1 Unforeseen Lateral Bracing	\$14,000	Executed
CCO-010	BR 247.7 Unforeseen Drainage Culvert	\$24,000	Executed
CCO-011	Insert Center Tie at Ballast Retainers	\$47,000	Executed
CCO-012	Construction Cameras	\$37,220	Executed
CCO-013	Additional Project Signs	\$4,900	Executed
	Total Cost of CCO's (Pending and Executed)	\$195,420	
	Remaining Contingency (Executed CCO's)	\$894,580	
	Remaining Contingency (Executed & Pending CCO's)	\$894,580	

Los Penasquitos Lagoon Bridge Replacements Project



Bridge 246.1 – All 33 CISS piles at Bridge 246.1 have been installed.



Bridge 246.1 – Forming and reinforcing of the Bent Caps has started.

Los Penasquitos Lagoon Bridge Replacements Project



Bridge 246.1 – The two Jump Spans at Abutments 1 and 11 were installed during the Jan 16-17 AWW



Bridge 246.9 – All 8 interior CISS piles were installed during the Jan 16-17 AWW

Los Penasquitos Lagoon Bridge Replacements Project



Bridge 246.9 – Exterior CISS piles for Bridge 246.9 continue to be installed during the day under Form B protection.



Bridge 247.1 – All 4 interior CISS piles were installed during the Jan 16-17 AWW.

Los Penasquitos Lagoon Bridge Replacements Project



Bridge 247.7 – Concrete for the two interior bridge's CISS piles is being trucked in via TowRailer cars during train free periods (AWWs). The trucks are being loaded onto the TowRailers at Bridge 247.7 and are then pulled by the Shuttlewagon to the two interior bridges (See below photo).



Bridge 247.7 – Photo of the TowRailer and the Shuttlewagon on the track.

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Appendix 5-2: Construction/Job Order Contract – Subcontractor Request Form

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CONSTRUCTION/JOB ORDER CONTRACT - SUBCONTRACTOR REQUEST FORM

Prime Contractor:

Contract Number:

Job Order # (if applicable):

Date:

I certify that:

The Standard Specifications for labor set forth in the contract apply to the subcontracted work and written contracts have been executed for the subcontracted work noted in this form.

Request Number: _____

Prime Contractor Address: _____

City, State, Zip: _____

Telephone Number: _____

Current U/DBE Commitment (%): _____

Contact Email Address: _____

Small Business Utilization (%): _____

Contact Name/Electronic Signature: _____

Underutilized / Disadvantaged Business Enterprise (U/DBE) Acronyms

BA - Black American	NA - Native American	APA - Asian Pacific American	W - Woman	HA - Hispanic American	SCA - Subcontinent Asian American
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REQUESTED SUBCONTRACTOR(S)	BID ITEM	PERCENTAGE OF BID ITEM SUBCONTRACTED	DESCRIBE WORK WHEN LESS THAN 100% OF WORK IS SUBCONTRACTED	SUBCONTRACTOR AMOUNT (\$)	SUBCONTRACTOR ANTICIPATED START DATE
Company Name: _____ Address: _____ City, State, Zip: _____ Contact Person: _____ Email: _____ Telephone Number: _____ DBE Certification #: _____ U/DBE Type: _____ SB Certification #: _____ DIR Registration #: _____ Contractor License #: _____					
Company Name: _____ Address: _____ City, State, Zip: _____ Contact Person: _____ Email: _____ Telephone Number: _____ DBE Certification #: _____ U/DBE Type: _____ SB Certification #: _____ DIR Registration #: _____ Contractor License #: _____					
Company Name: _____ Address: _____ City, State, Zip: _____ Contact Person: _____ Email: _____ Telephone Number: _____ DBE Certification #: _____ U/DBE Type: _____ SB Certification #: _____ DIR Registration #: _____ Contractor License #: _____					

Comments:

APPROVED

SANDAG RESIDENT ENGINEER/CONSTRUCTION MANAGER ELECTRONIC SIGNATURE: _____

DATE: _____

COPY DISTRIBUTION: Original - Contractor


COPY - Resident Engineer

COPY - Contracts Department (constructioncontracts@sandag.org)

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Appendix 5-3: Contract Change Order and Contract Change Order Memo Examples

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	CONTRACT CHANGE ORDER (CCO)	Report Date: 01/21/2019
Contract 5007016	South Bay Bus Rapid Transit Segment 3, Otay Mesa Transit Center Project	CIP: 1280504
Page 1 of 1 Page(s)		
CCO No.:	40	Edge Restraint Along Wall Gutter
Supplement No.:	0	
To:	Pulice Construction, Inc.	

You are hereby directed to make the herein described changes from the plans and specifications or do the following described work not included in the plans and specifications on this contract.

Note: This change order is not effective until approved by SANDAG Construction Manager.

Description of work to be done, estimate of quantities, and prices to be paid. Segregate between additional work at contract price, agreed price and force account. Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time.
 Change Requested by **ENGINEER**
 The last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

CCO Scope	See detailed description of change order scope of work below.	
Item No. CCO 040-1-Extra work at Agreed Lump Sum		\$3,302.00
Edge Restraint Along Wall Gutter-- In accordance with Section 4-1.03 "Changes," Section 4-1.03D "Extra Work," Section 11 "Landscape and Irrigation," and as directed by the Engineer, the Contractor is directed to provide labor, equipment, materials and incidentals necessary to furnish and install a 4" x 4" rigid, slotted edge restraint along the edge of Retaining Wall RW1 wall gutter from Line RW1 1+34 to 3+93, in order to retain the rock gravel mulch along the landscaped slope. As a result of the changes specified herein, Contractor agrees to accept a lump sum payment of \$3,302.00. This payment constitutes full and equitable adjustment for performing the work described in this change order and no additional compensation will be required, therefor. There will be no adjustment to contract time by reason of this change order. EXTRA WORK AT AGREED LUMP SUM\$3,302.00		
TOTAL OF THIS CHANGE ORDER:		\$3,302.00

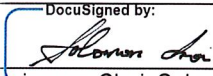
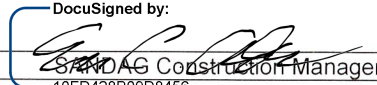
By reason of this order the time of completion will be adjusted as follows: No adjustment days


We, the undersigned contractor, have given careful consideration to the change proposed and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, except as may be otherwise noted above, and perform all services necessary for the work above specified, and will accept as full payment therefore the prices shown above.

Accepted, Date: 03/08/19 Contractor: Pulice Construction, Inc.

By:  VICTOR JIMENEZ Title: COO

If the Contractor does not sign acceptance of this order, his attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.

Submitted by:	 Resident Engineer - Chief, Solomon TRC Solutions	Date <u>2/15/2019</u>
Concurred by:	SANDAG Construction Engineer	Date _____
Approved by:	 SANDAG Construction Manager	Date <u>4/26/2019</u>

		CCO MEMORANDUM		Report Date: 02/08/2019
Contract: 5007016		South Bay Bus Rapid Transit Segment 3, Otay Mesa Transit Center Project		CIP: 1280504
Contractor:	Pulice Construction, Inc.	CCO No.	40	
To:	SANDAG Construction Manager	Supplement No.	0	
From:	Solomon Choi	Amount of Change:	\$3,302.00	(INCREASE)
Description:	Edge Restraint Along Wall Gutter		Page	1

THIS CHANGE ORDER PROVIDES FOR:

compensating the Contractor for the expenses incurred to provide labor, material and equipment necessary to furnish and install a 4" x 4" rigid, slotted edge restraint along the edge of Retaining Wall RW1 wall gutter from Line RW1 21+95 to 26+00.

During the punchlist walk with MTS on 1/16/19, MTS noticed the rock gravel mulch along the landscaped slope was depositing onto the Retaining Wall RW1 concrete wall gutter due to the rock gravel mulch slope being adjacent to the wall gutter. Since the existing condition would be a maintenance issue, MTS recommended an edge restraint to retain the rock gravel mulch, similar to the edge restraint installed on the opposite side of the bus guideway where there is a rock gravel mulch slope next to a concrete brow ditch. SANDAG CM and the R.E. agree an edge restraint is necessary at this location. This is considered extra work since this detail is not shown in the conformed plans.

This change order has been discussed with and has received concurrence from SANDAG Construction Manager Eric Adams.

There will be no adjustment to contract time by reason of this change order.
Backup documentation has been prepared and is available for review in the project files.
This change order, including supplements, represents less than 0.1% increase when compared to the Original Contract Value of \$8,067,754.00.

CONTRACTOR	% OF WORK	\$ AMOUNT
PRIME:Pulice	100%	\$3,302.00
SUB:		

TOTAL	100%	\$3,302.00

DBE Required? No

DBE Explanation No DBE requirement for non-Federally funded projects.

WBS TOTALS:		
WBS	CHANGE	WBS BALANCE
1280504-1000	\$3,302.00	\$215,877.80
REASONS FOR CHANGE ORDER		
SANDAG Concept		100%

Encumber from Contract Contingency? Yes


ESTIMATE OF COSTS:		
COMPENSATION METHOD	THIS SUPPLEMENT	TOTAL TO DATE THIS CCO
Bid Item Adjustments	\$0.00	\$0.00
Force Account	\$0.00	\$0.00
Agreed Price	\$3,302.00	\$3,302.00
Adjustment of Comp.	\$0.00	\$0.00
Total	\$3,302.00	\$3,302.00

PENDING CONTRACT CONTINGENCY BALANCE
(including this change)
\$215,877.80

Approved by:


Name Solomon Choi Date 01/21/19
Resident Engineer TRC Solutions

Name Omar Atayee Date 02/08/19
Project Manager

		CCO MEMORANDUM		Report Date: 02/08/2019	
Contract: 5007016		South Bay Bus Rapid Transit Segment 3, Otay Mesa Transit Center Project		CIP: 1280504	
Contractor:	Pulice Construction, Inc.	CCO No.	40		
To:	SANDAG Construction Manager	Supplement No.	0		
From:	Solomon Choi	Amount of Change:	\$3,302.00	(INCREASE)	
Description:	Edge Restraint Along Wall Gutter		Page	2	

Name N/A Date _____
 Client Agency Approver

Name Eric Adams Date 02/08/19
 Construction Manager

		CONTRACT CHANGE ORDER (CCO)	Report Date: 01/22/2019
Contract 5007010		South Bay Bus Rapid Transit Segment 1A Project	CIP: 1280504
			Page 1 of 2 Page(s)
CCO No.:	29	RFI No. 130 Irrigation Revisions	
Supplement No.:	2		
To:	West Coast General Corporation		

You are hereby directed to make the herein described changes from the plans and specifications or do the following described work not included in the plans and specifications on this contract.

Note: This change order is not effective until approved by SANDAG Construction Engineer.

Description of work to be done, estimate of quantities, and prices to be paid. Segregate between additional work at contract price, agreed price and force account. Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time.

Change Requested by **ENGINEER**

The last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

CCO Scope	See below for detailed description of the Change Order scope of work:	
Item No. CCO 29-1-Adjustment of compensation at Agreed Lump Sum		\$2,400.00
RFI No. 130 Irrigation Revisions-In accordance with Section 4-1.03 "Changes" and as directed by the Engineer, Contractor shall be compensated for the labor, equipment, and materials necessary to make the required changes to the irrigation system at the following locations. The unit prices shown below are derived from the accepted Schedule of Values for Item 102 Renovate and Install Irrigation System, per Plans & Specifications, Complete In-Place:		
Station 458+80 - Install Sch 40 PVC irrigation crossover sleeve 45 l.f. @ \$20.00/l.f.....=\$900.00		
Station 472+50 - Install Sch 40 PVC irrigation crossover sleeve 21 l.f. @ \$20.00/l.f.....=\$420.00		
Station 479+70 - Install Sch 40 PVC irrigation crossover sleeve 13 l.f. @ \$20.00/l.f.....=\$260.00		
Station 496+25 - Install Sch 40 PVC irrigation crossover sleeve 41 l.f. @ \$20.00/l.f.....=\$ 820.00		
		\$2,400.00
As a result of the changes specified herein, Contractor shall receive and accept a lump sum adjustment of two thousand four hundred and 00/100 dollars (\$2,400.00) as adjustment to Item No.102 Renovate and Install Irrigation System, per Plans & Specifications, Complete In-Place. This sum constitutes full and complete compensation for providing all labor, equipment, tools and incidentals, including all markups by reason of this change.		
There will be no adjustment to contract time by reason of this change order.		
Adjustment Comp. Estimate \$2,400.00		
Total Change This Supplement:		\$2,400.00 (Increase)
TOTAL OF THIS CHANGE ORDER:		\$2,400.00

By reason of this order the time of completion will be adjusted as follows: No adjustment days


We, the undersigned contractor, have given careful consideration to the change proposed and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, except as may be otherwise noted above, and perform all services necessary for the work above specified, and will accept as full payment therefore the prices shown above.

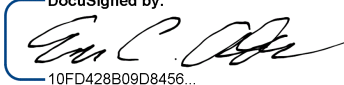

Accepted, Date: 2/25/19 Contractor: West Coast General Corporation


By: [Signature] Title: PRES.

If the Contractor does not sign acceptance of this order, his attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.

Submitted by: [Signature] DocuSigned by: Gary Bosse 81D5E94AD3E5432 Date 2/15/2019
Resident Engineer – Bosse, Gary Kleinfelder

	CONTRACT CHANGE ORDER (CCO)	Report Date: 01/22/2019
Contract 5007010	South Bay Bus Rapid Transit Segment 1A Project	CIP: 1280504
		Page 2 of 2 Page(s)
CCO No.:	29	RFI No. 130 Irrigation Revisions
Supplement No.:	2	
To:	West Coast General Corporation	

Recommended by:	DocuSigned by:  10FD428B09D8456...	Date	3/4/2019
	DocuSigned by:  B40D3C98C00641D...	SANDAG Construction Manager	Date
Approved by:		SANDAG Construction Engineer	Date
			3/12/2019


	CONTRACT CHANGE ORDER (CCO)	Report Date: 3/1/2019
Contract 5007014	Catenary and Broadway Wye Improvements Project	CIP: 1129200
Page 1 of 2 Page(s)		
CCO No.:	9	Balance Weight Modifications
Supplement No.:	0	
To:	HMS Construction, Inc.	

You are hereby directed to make the herein described changes from the plans and specifications or do the following described work not included in the plans and specifications on this contract.

Note: This change order is not effective until approved by SANDAG Director of MMPI.


Description of work to be done, estimate of quantities, and prices to be paid. Segregate between additional work at contract price, agreed price and force account. Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time.
 Change Requested by **ENGINEER**
 The last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

CCO Scope	Make adjustments and changes to the Balance Weight Assemblies (BWA) not identified in the Contract and furnish additional balance weight plates and 300E mechanical splices. Procure Additional BWA weight plates due to additional weight adjustments of the line.
Item No. 021- Decrease in Quantity at Bid Unit Price In Accordance with Section 12B-6.01 Contractor to eliminate rehabilitation of BWA at STA 636+ 03. -1EA (-1.2%) @ \$15,997.00 = -\$15,997.00 (-1.2%)	-\$15,997.00
Item No. 036-Increase in Quantity at Bid Unit Price In Accordance with Section 12B-6.15 Contractor to provide an additional 135 balance weight plates 135 EA (+1,350%) @ \$155.00 = \$20,925.00 (+1,350%)	\$20,925.00
Item No. CCO 9-4- Adjustment of compensation at Agreed Lump Sum In accordance with Section 4-1.03B(1) "Increases of More Than 25 Percent," of the Special Provisions- a payment adjustment to Bid Item 36 "Furnish Pulley Weight" is made for the units of work in excess of 125 percent of their respective bid quantities shown on the Bid Item List. The contractor is compensated a lump sum adjustment of (\$6,418.09) that represents the net total of the unit price payment adjustments for Bid Item 36 "Furnish Pulley Weight". This sum constitutes full and complete compensation for this change.	-\$6,418.09
Item No. CCO 9-1-Extra work at Agreed Unit Price Rehabilitate BWA Pulleys-In accordance with Section 4-1.03D, Extra Work, Contractor is to refurbish existing pulley wheels with new bearings. 10 EA @ \$478.48 = \$4,784.80 For this work contractor accepts to \$478.48 for each refurbished pulley. This sum constitutes full and complete compensation for furnishing all labor, material, equipment, tools, and incidentals including all markups by reason of this change.	\$4,784.80

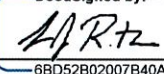

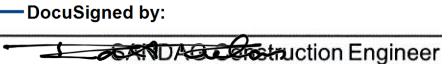
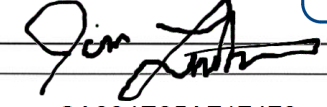
		CONTRACT CHANGE ORDER (CCO)	Report Date: 3/1/2019
Contract 5007014	Catenary and Broadway Wye Improvements Project		CIP: 1129200
			Page 2 of 2 Page(s)
CCO No.:	9	Balance Weight Modifications	
Supplement No.:	0		
To:	HMS Construction, Inc.		
Item No. CCO 9-2-Extra work at Force Account			\$70,000.00
Miscellaneous BWA Modifications-In accordance with Section 4-1.03D, Extra Work, & 9-1.05, Force Account Payment, of the Special Provisions, and subject to approval of the Engineer: 1. Change out yoke plates and adjust messenger from 3:1 ratio to 2:1 ratio. 2. Adjust messenger wire hangers and steady arms due to weight ratio adjustment 3. Using a 300E compression splice, splice extra messenger wire where existing conditions are too short assembly. Contractor to purchase 12 for use on the project and return any extra to MTS at the end of the project. 4. Remove temporary concrete weights and replace with new steel weights A determination of the delay in completion of the contract due to work specified by Change Order No 009 for work performed from 8/11/18 to 8/30/18 has been made. Contractor shall be granted an additional 14 working days for the additional work described in CCO9.			
Item No. CCO 9-3-Extra work at Agreed Unit Price			\$2,070.00
Furnish 300E Mechanical Splice-In accordance with Section 12B-2.06 WIRE AND CABLE MATERIALS Contractor is to provide a mechanical 300E messenger wire splice. Splice is to exceed the minimum breaking strength of the 300E wire outlined in Section 12B-2.06(A). 12 EA @ 172.50 = \$2,070 For this work, the contractor shall receive and accept \$ 172.50 for the material cost only of each splice. This sum constitutes full and complete compensation for furnishing all material, tools, and incidentals including all markups by reason of this change.			
TOTAL OF THIS CHANGE ORDER:			\$75,364.71
By reason of this order the time of completion will be adjusted as follows:		Increased	14 days


We, the undersigned contractor, have given careful consideration to the change proposed and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, except as may be otherwise noted above, and perform all services necessary for the work above specified, and will accept as full payment therefore the prices shown above.

Accepted, Date: _____ Contractor: HMS Construction, Inc.

By:  Title: **CORP. Secretary**

If the Contractor does not sign acceptance of this order, his attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.

Submitted by:	 6BD52B02007B40A...	Resident Engineer – Rathe, Lucas DHS Consulting	Date	3/7/2019
Recommended by:		DocuSigned by:  B40D3C98C00641D...	Date	3/20/2019
Approved by:	 CA994E85AF17470...	SANDAG Director of MMPI	Date	3/31/2019

		CCO MEMORANDUM		Report Date: 12/17/2018	
Contract: 5007014		Catenary and Broadway Wye Improvements Project		CIP: 1129200	
Contractor:	HMS Construction, Inc.	CCO No.	9		
To:	SANDAG Director of MMPI	Supplement No.	0		
From:	Lucas Rathe	Amount of Change:	\$75,364.71	(INCREASE)	
Description:	Balance Weight Modifications		Page	1	

THIS CHANGE ORDER PROVIDES FOR:

Bid Item 36 - Increase in Quantity at Bid Item Prices

Bid item 36 "Furnish New Balance Weight Plate" only accounted for 10 balance weight plates to be installed during the entire project. It was discovered while performing checks to the Balance Weight Assemblies (BWA) that the existing weight stacks weighed less than the 3000 pound design requirement and a quantity greater than 10 plates would be required to rehabilitate the weights as required by the Contract. This CCO provides compensation to the contractor to supply an additional 135 balance weights at bid item price to complete the project scope as calculated below:

135ea @ \$155 = \$20,925.00

Bid Item 21 - Decrease in Quantity at Bid Item Prices

There is no physical Balance Weight Assembly to be rehabilitated in the field at station 636+03 WB as indicated in the plans. This CCO adjusts the item quantity to match the total project quantity completed.

-1 ea @ \$15,997.00 = (\$15,997.00)

Item CCO 9-1 Rehab Existing BWA Pulleys: Extra Work at Agreed Unit Price:

The Contractor's scope required inspection of the condition of existing balance weight pulleys and replacing worn pulleys when required. The contractor proposed to send out the pulley wheels and replace bearings on pulley assemblies which were sized up but otherwise in good condition. MTS approved this because this limited the number of new pulley assemblies required and ultimately saved project costs. The Contractor and Engineer agreed to refurbish 10 pulleys a unit cost per pulley to replace the bearings of \$478.48/ea which includes the cost of new bearings, machine shop time, and the Contractor time to handle each pulley. Refer to ICE dated 3/20/18

10 ea @ \$478.48 = \$4,784.80

Item CCO 9-2 Miscellaneous Balance Weight Adjustments Extra Work at Force Account:

1. The contract requires the contractor to check the weight at each BWA and add weight to meet the designed 3000 pounds. As a result, the stagger arms of the adjacent support arms moved out of tolerance and needed to be adjusted back to the correct stagger location. Specification 12B-4.03 REHABILITATE EXISTING BALANCE WEIGHT ANCHOR ASSEMBLY does not provide direction to the contractor to adjust the adjacent steady arms due to the changes in weight. This CCO provides compensation to the contractor via Force Account to adjust stagger arms back to the correct location after weight adjustment as directed by the Engineer. Refer to ICE dated 6/8/18

2. The contract design requires a BWA yoke plate ratio of 2:1 with a weight stack of 3000 pounds. It was found during the work that a number of the existing BWA assemblies had a yoke plate with a ratio of 3:1. When the weight stack was increased to 3000 pounds as required, the contractor needed to change the ratio from 3:1 to 2:1 to maintain proper system tension. This CCO provides compensation via Force Account to the Contractor to re-adjust yoke plates from a 3:1 ratio to 2:1 ratio. Refer to ICE dated 6/8/18

3. At the Merlin Crossing, there are currently 2 messenger wires which are too short to allow the complete rehabilitation of the BWA. This CCO provides compensation to the contractor to splice in additional lengths of salvaged messenger wire using a compression 300E splice. The contractor will be compensated at Force Account for the installation of each splice at the locations directed by the Engineer. Refer to ICE dated 6/8/18 (for labor and equipment). The material costs for the splices will be paid as extra work at agreed lump sum; refer to CCO 9 item CCO9-3.


4. HMS borrowed from MTS spare steel and concrete weights to complete the BWA rehab operations while the proper steel plates were on order to fulfill the scope of CCO 9 Bid Item 36. The contractor will be compensated via Force Account to mobilize, remove temporary concrete weights and replace with the permanent steel weight plates. Refer to ICE dated 6/8/18

Time Impacts: A determination of the delay in completion of the contract due to work specified by Change Order No 009-3 for work performed from 8/11/18 to 8/30/18 has been made. Contractor shall be granted an additional 14 working days for the additional work described in CCO 9.

Total Force Account = \$70,000.00

Item 9-3 Provide 300 E messenger Wire Mechanical splice: Extra Work at Agreed Unit Price

At the Merlin Crossing, there are currently 2 messenger wires which are too short to allow the complete rehabilitation of the BWA. CCO9 item 9-2 provides compensation for labor and equipment costs to splice in additional lengths of salvaged messenger wire using a compression 300E splice. At the direction of MTS, the contractor is to procure 12 compression 300E splices and hand over any unused 300E splices to MTS for use for future maintenance work. For this work, the contractor will be compensated at the agreed lump sum price of \$172.50 (material only) for each splice. Refer to

		CCO MEMORANDUM		Report Date: 12/17/2018
Contract: 5007014		Catenary and Broadway Wye Improvements Project		CIP: 1129200
Contractor:	HMS Construction, Inc.	CCO No.	9	
To:	SANDAG Director of MMPI	Supplement No.	0	
From:	Lucas Rathe	Amount of Change:	\$75,364.71	(INCREASE)
Description:	Balance Weight Modifications		Page	2
ICE dated 2/19/18 (for material costs only)				
12 ea @ \$172.50 = \$2,070.00				
Item CCO 9-4 Item 36 "Furnish New Balance Weight Plate" Adjustment: CCO 9-4 -An item adjustment was calculated for the total quantity of Bid item 36 ""Furnish Balance Weight Plates" that exceeded the bid amount by 125%. The contractor submitted all the required backup for the actual costs of procuring the additional plates. The Engineer used this information to calculate the actual costs of the item and calculate the adjustment over 125%. The total adjustment credits the contract in the amount of (\$6,418.09). Refer to Adjustment Calculation attachment made part of this CCO.				
1 ea @ (\$6,418.09) = (\$6,418.09)				
DBE Required?	No			
DBE Explanation	This project has a DBE commitment of 2.56%. The work in this change order is an adjustment of contract work covered by existing NAICS codes for the Project. Therefore, the work will be performed by existing contractor/listed subcontractors			

WBS TOTALS:		
WBS	CHANGE	WBS BALANCE
1129200-1000	\$75,364.71	\$226,470.94
REASONS FOR CHANGE ORDER		
Unforeseen Condition		100%

Encumber from Contract Contingency? Yes

ESTIMATE OF COSTS:		
COMPENSATION METHOD	THIS SUPPLEMENT	TOTAL TO DATE THIS CCO
Bid Item Adjustments	\$4,928.00	\$4,928.00
Force Account	\$70,000.00	\$70,000.00
Agreed Price	\$436.71	\$436.71
Adjustment of Comp.	(\$6,418.09)	(\$6,418.09)
Total	\$75,364.71	\$75,364.71

PENDING CONTRACT CONTINGENCY BALANCE
(including this change)
\$226,470.94

Approved by:

Name Lucas Rathe Date 11/06/18
Resident Engineer DHS Consulting

Name Dale Neuzil Date 11/08/18
Project Manager

Name N/A Date _____
Client Agency Approver

Name John Anderson Date 11/07/18
Construction Manager



Chapter 6

Environmental

Construction Division
Department of Mobility Management and Project Implementation



SANDAG Construction Manual

Chapter 6 – Environmental

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6-1 GENERAL

6-1.1 Purpose

This chapter provides information and guidelines for administering the various environmental requirements for SANDAG construction contracts.

The SANDAG construction engineer and resident engineer are responsible for ensuring that applicable environmental commitments and permits have been obtained and the requirements are enforced during construction. To ensure environmental compliance during construction, SANDAG construction staff must coordinate and communicate with the SANDAG environmental unit and appropriate consultant staff who possess appropriate skills to supplement their expertise. The SANDAG environmental unit and appropriate consultant staff will provide appropriate training and an understanding of the roles during construction to successfully carrying out environmental commitments, including permits within the contract requirements.

6-2 ENVIRONMENTAL COMMITMENTS RECORD AND COMPLIANCE MATRIX

The Environmental Commitments Record and Compliance Matrix (ECRCM) prepared for each project is an established method to ensure that SANDAG fulfills its environmental requirements by:

- Documenting all environmental requirements (e.g., conservation measures, mitigation measures, permit conditions) made for an individual project.
- Specifying how each requirement will be met.
- Documenting the status/completion of each requirement.

The ECRCM contains all relevant environmental compliance information and requirements; basic environmental project information, including each environmental commitment, mitigation measure, permit condition, and person or unit responsible for requirement completion; timing and manner of implementation; location of environmental requirement in the specifications; and a reference document. The ECRCM is part of the resident engineer's working file and it is necessary to oversee and track the status of the project environmental requirements.

The resident engineer will review the ECRCM with the SANDAG project manager (PM), the SANDAG environmental unit, and the environmental design consultant during the preconstruction meeting with SANDAG personnel before meeting with the contractor. All environmental documents, including the ECRCM, regulatory permits, applicable environmental documents, shall be included in the resident engineer transfer file from the designer of record. The SANDAG construction manager will obtain these documents from the PM prior to the start of construction. The SANDAG environmental unit will assist the resident engineer in discussing the requirements at the preconstruction meeting. In consultation with the SANDAG environmental unit, the resident engineer monitors the progress of all construction-related environmental requirements on an ongoing basis throughout the life of the contract and ensures their implementation.

6-2.1 Resident Engineer Responsibilities

The resident engineer will use all available assistance and expertise to understand and meet the commitments listed in the ECRCM. This assistance may come from the SANDAG environmental unit and/or environmental consultant.

Before work begins, the resident engineer is responsible for the following:

- Reviewing the construction contract and the resident engineer file for instructions and environmental requirements.

- Reviewing the ECRCM, construction contract, and the specifications in addition to the Special Provisions for environmental requirements.
- Identifying notices and required approvals and actions necessary to meet regulatory requirements.
- Meeting with the project biologist, environmental compliance officer (ECO), and appropriate environmental and engineering experts at SANDAG to ensure a full understanding of the contract requirements for environmental compliance.
- Depending on the project's size and complexity, an additional preconstruction meeting may be needed to exclusively review environmental commitments and requirements.
- Providing the contractor with a copy of the ECRCM. If none has been provided, contacting the SANDAG environmental unit to obtain the ECRCM for the project. The SANDAG environmental unit or project biologist will assist the resident engineer and contractor in responding to any questions or request for information regarding environmental matters. The resident engineer must verify that the contractor has a copy of all applicable regulatory resource agency permits and other applicable environmental documentation obtained for the construction of the project. Documentation must be kept on site, or in a location that is readily available, in the event a request is made to review the documentation.
- Environmental Awareness Training (AWT) shall be conducted by the project biologist to the contractor and all sub-contractor personnel prior to starting construction. The AWT material will be presented in a PowerPoint (PPT) presentation. Following the initial AWT, it is the responsibility of the contractor to provide subsequent training utilizing the provided PPT and other training presentation materials to all new construction personnel. The contractor must keep and maintain training sign-in sheets documenting training of all construction personnel. Sign-in sheets must be provided to SANDAG as part of the standard weekly/monthly reporting. Updated AWT is typically required on a yearly basis. Workers shall have current AWT. Note that the specifications prohibit any work that has the potential to adversely impact protected species and their habitat without permission from regulatory agencies.

During the course of work, the resident engineer is responsible for the following:

- In compliance with the specifications and ECRCM, maintaining a copy of the AWT PPT and other supporting materials and a complete copy of all applicable regulatory resource agency project permits on the project site. Ensuring that construction staff completes required environmental training.
- Periodically meeting with the SANDAG environmental unit and/or environmental consultant to review the ECRCM and confirm that the environmental commitments required by the contract will be met.
- Before submitting a change order or an authorization to proceed with change order work, reviewing the change order work with the SANDAG environmental unit or environmental consultant to confirm that the proposed change does not adversely affect environmental commitments.
- Ensuring the contractor notifies and obtains the resident engineer's approval in advance for each new activity, as required and ensuring the contractor's schedule is coordinated with necessary environmental activities.

- Directing the contractor to correct identified deficiencies in compliance efforts and/or the construction management consultant (CMC) team’s evaluation reports.
- Should noncompliance occur, initiating contractual enforcement procedures appropriate to the nature and severity of the situation and immediately contact the SANDAG environmental unit.

Before accepting the project as complete, the resident engineer is responsible for the following:

- As required by the specifications and ECRCM, determining that all environmental requirements are complete and fulfilled.
- Requiring the contractor to remove temporary environmentally sensitive area (ESA) fences, and best management practices (BMPs) such as, sandbags, fiber rolls, and/or other measures that are not part of permanent BMPs and/or that the construction plans do not specify should be left in place. Prior to removal obtain written concurrence from the SANDAG environmental unit.
- Conducting a final walk-through of the project area with the SANDAG environmental representative(s) (could be SANDAG environmental unit personnel and/or environmental consultant), SANDAG construction manager, and entity who will be maintaining the area post-construction, such as the North County Transit District (NCTD), Metropolitan Transit Services (MTS), or a local agency.

6-3 PROTECTION OF ENVIRONMENTAL RESOURCES

The following are necessary for fulfilling the responsibility for protecting and preserving environmental resources such as, cultural, Native American, or paleontological items, and administering the contract’s environmental resources requirements during construction as required by SANDAG policy and applicable environmental law.

6-3.1 Biological Resources and Species Protection

Both state and federal laws are designed to protect designated plant and animal species along with their respective habitats. As a result, very strict prohibitions often exist on certain types of work, work during certain times of the year, and/or work at specific locations. Even inadvertently impacting protected species can result in fines and/or jail sentences. The contract will specify the necessary measures and restrictions, and the plans will show ESAs. However, during construction, project crews may discover protected species that were not anticipated, and details may not be included in the contract. If such a discovery occurs, suspend work in the area and immediately notify the SANDAG environmental unit.

The Migratory Bird Treaty Act and the California Fish and Game Code make it illegal to harm migratory birds, nongame birds, and their occupied nests. Activities that are most likely to encounter migratory birds, non-game birds, and their occupied nests include clearing and grubbing; vegetation trimming/removal; and bridge demolition, maintenance, and retrofit work. The ECRCM, specifications, environmental document, and bird protection or species protection measures in the contract will specify the necessary protection measures and restrictions, and the plans will show any ESAs.

When occupied nests are found within the project area, the resident engineer will evaluate, with the assistance of the SANDAG environmental unit and project biologist, whether work in the area can continue or if suspension of work is necessary. The resident engineer will immediately contact the SANDAG environmental unit or environmental consultant for assistance with this evaluation.

6-3.2 Resident Engineer Responsibilities

The resident engineer will use all available assistance and expertise to protect natural resources. This assistance may come from the SANDAG environmental unit and/or environmental consultant.

Before work begins, the resident engineer is responsible for the following:

- When the contract specifies the contractor-supplied biologist will be provided, the SANDAG environmental unit or environmental consultants will be required to review and approve the biologist's qualifications prior to accepting the contractor-supplied biologist. Do not accept submittals from the contractor-supplied biologist until approval from the SANDAG environmental unit is obtained. Understanding that the contractor-supplied biologist work for the contractor and does not speak for SANDAG. It also is recommended to have a designated alternate biologist approved in the event the primary project biologist is unavailable or cannot meet all the obligations on a given day.
- Meeting with the project biologist, and appropriate environmental and engineering experts at SANDAG to ensure a full understanding of the contract requirements for species and natural resource protection.
- Before commencing any earthwork or clearing and grubbing activities, verifying that required preconstruction biological surveys have been completed and results have been provided to SANDAG to facilitate understanding associated regulatory requirements that may delay activities. All required preconstruction biological survey results must be provided to the SANDAG environmental unit and subsequently provided to the appropriate regulatory agency(ies) as required by the permits.
- When work occurs in water, or where vibrations and/or sounds from construction and/or other project-related activities may pass into waters, reviewing hydroacoustic requirements for the protection of water-dependent species and ensuring that necessary protections, approvals, monitoring activities, and reports are complete or active as required.
- Designate appropriate qualified staff to assist in preventing impacts to biological resources, as needed.

During the course of the work, the resident engineer is responsible for the following:

- Inspecting the contractor's operations for compliance with the specifications and ECRCM and whenever an inspector is in the field.
- Ensuring that the contractor adheres to the monitoring or survey schedule set forth in the compliance ECRCM and provides written reports of these inspections on schedule.
- Ensuring that the contractor maintains the proper access for species, so that they function as planned.
- Ensuring that the contractor has the necessary staff and materials on hand to inspect and maintain species and other protection measures.
- Immediately notifying the SANDAG environmental unit and project specialist (e.g. biologist, archaeologist, etc.) when protected resources are impacted or may be impacted by project activities, or whenever there is a suspected violation of any regulatory permit or other environmental condition. The project specialist will determine what action is necessary and will advise the resident engineer.

- After noncompliance has been identified, meeting with the contractor-designated ECO appropriate project specialist, and the SANDAG environmental unit to discuss the noncompliance incident (or violation). The SANDAG environmental unit will be the point of contact for all communications with personnel from regulatory agencies, such as the U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; National Oceanographic and Atmospheric Agency National Marine Fisheries Service; California Coastal Commission; Regional Water Quality Control Board (RWQCB); and the California Department of Fish and Wildlife, to discuss noncompliance and necessary measures to protect resources. The project specialist will assist SANDAG in discussions and negotiations with the agencies.

Before accepting the project as complete the resident engineer is responsible for the following:

- As required by the specifications and ECRCM, determining that all environmental requirements are complete and fulfilled.
- Ensuring that the project has not maintained or created barriers to aquatic species passage.
- Conducting a final walk-through of the project area with the project specialist, SANDAG environmental representative(s) (could be SANDAG environmental unit personnel and/or environmental consultant), SANDAG construction manager, and entity who will be maintaining the area post-construction, such as NCTD, MTS, or a local agency.

6-3.3 Contractor Inspections

The Special Provisions and/or requirements (e.g., permit conditions, mitigation measures, and environmental commitments) for environmental protection may require the contractor to inspect the job site periodically for the proper implementation, performance, and maintenance of environmental protection measures. The contractor must follow the environmental protection measure procedures specified in the project specifications, Special Provisions, and the ECRCM and may be required to report on activities.

If any situation constitutes noncompliance with the ECRCM, the resident engineer must conduct a verification inspection and, if a noncompliant condition(s) exists, report it to the SANDAG environmental unit, project specialist, and ECO. The SANDAG environmental unit will determine the actions required, including timely reporting to regulatory agencies and necessary options for compliance. The resident engineer must require the contractor to immediately declare a stand down of all construction operations and all construction personnel shall again receive environmental awareness training; the contractor must document personnel at the training with a sign-in sheet, which is to be turned into the SANDAG environmental unit. The resident engineer and contractor shall amend the natural resource protection procedures, if necessary, and implement additional environmental protection measures as needed to achieve compliance. The ECO, on behalf of the contractor, shall prepare a written report that documents the incident (noncompliant condition), including date/time of incident, cause of the incident, site conditions including any damage caused by the incident, remedial action, and corrective measures to ensure the incident does not occur again. The ECO report shall be provided to the resident engineer, appropriate project specialist, and the SANDAG environmental unit.

The resident engineer shall keep records of all work time expended on the noncompliant incident from the resident engineer, project biologist, consultant staff, and the SANDAG environmental unit. The resident engineer and the SANDAG construction manager in consultation will determine resolution with the contractor in regard to cost incurred (e.g., damage, worker cost, violation fines) due to the noncompliant incident.

6-3.4 Project Files

The resident engineer must keep copies of all documents related to environmental protection measures required in the specifications and ECRCM and retain copies in the project files. All the required documents should be retained for at least three years after contract completion, or longer if required in the contract. These documents include the following:

- Survey, inspection, and biomonitoring reports, including daily logs
- Periodic reports and photographs related to species protection, as required
- Take notification documentation of regulated species
- All correspondence related to species protection, including notices of noncompliance
- Inspection reports from the resident engineer and assistant resident engineer
- ECO reports
- Completed ECRCM
- Copies of the approvals and certifications required by the specifications

6-3.5 Environmentally Sensitive Area

The ESA is shown on the plans and creates a secure area within the plan boundaries enclosed by an ESA temporary fence. If the ESA is breached, immediately secure the area and stop all operations (see the [Resident Engineer Responsibilities](#) section in this chapter). Ensure the contractor follows the directions in Standard Specifications Section 10-13, Environmentally Sensitive Area. The resident engineer will consult with the ECO, the appropriate project specialist, and the SANDAG environmental unit prior to approving construction to resume and when identifying or assessing damage. If the ESA is damaged, document the damage (in writing and with photos) and consult with the SANDAG environmental unit and/or the environmental consultant to determine the necessary remediation, including the party to perform the remediation work. The contractor is responsible for addressing the damage and is financially responsible for any fines, mitigation, and other requirements as a result of the violation imposed by regulatory agency(ies) and/or environmental document. Any intrusion into an ESA is considered a noncompliant incident and must be immediately reported to the SANDAG environmental unit. The SANDAG environmental unit will be the point of contact for all communications with the regulatory resource agencies.

6-3.6 Cultural and Historical Resources

Mitigating a project's potential impact on historical and archaeological resources during construction may require the recovery and curation of artifacts. Mitigation also may require Native Americans, archeologists, and/or historians to monitor and coordinate the recovery process. Although, archaeological evaluations will be done in advance of construction to determine the potential for encountering cultural resources, occasionally unanticipated finds can occur during construction. If human remains or previously unknown historic and archaeological artifacts are unearthed, immediately suspend work in the vicinity until the find can be evaluated and properly treated and contact the SANDAG environmental unit. Seek additional assistance from the PM, environmental design consultant, and/or project cultural resources specialist. The specifications and ECRCM will identify applicable project requirements for the protection of historical and archaeological resources. The project construction may be subject to specific requirements as a result of the State Historic Preservation Office Section 106 consultation, and Native American consultations, such as those conducted in compliance with Assembly Bill 52 (Gatto, 2014). The resident engineer shall monitor the contractor for compliance with these requirements as applicable. These requirements may include archeological and paleontological monitoring during earthwork activities.

6-3.7 Community Impacts and Environmental Justice

Mitigating project impact on communities during construction may require actions in the community. These requirements may be included as part of the contract, including change orders but also can be listed as an item on the ECRCM. Refer to the [Equal Employment Opportunity](#) section in [Chapter 7](#) of this manual regarding Title VI and environmental justice.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority and low-income populations in the United States. All projects must comply with the SANDAG procedures for addressing environmental justice and social equity.

6-3.8 Native American Concerns

If resources of concern to Native Americans such as the unearthing of human remains, or previously unknown associated artifacts immediately suspend work in the vicinity until the concern can be evaluated and properly resolved. Seek assistance from the PM, the SANDAG environmental unit, the project qualified archeologist, or the environmental design consultant. Refer to the [Cultural and Historical Resources](#) section of this chapter, which pertains to cultural resources.

6-3.9 Aesthetics

Aesthetics are considered during the planning and design phase to adequately address a project's visual impacts and to help integrate the facility into the surrounding context. Aesthetic features included in the construction documents are the result of requirements included in the environmental document or commitments made to the community to address scenic, aesthetic, historic, cultural, environmental, and/or recreational values. The integration and construction of these aesthetic features on a project is critical to fulfilling the aesthetic commitments and/or requirements of the project.

Proposed changes to the plans and specifications that affect the aesthetic features must be coordinated with and approved by the PM and the SANDAG environmental unit to ensure that the SANDAG aesthetic commitments and/or requirements are accomplished as intended.

6-3.10 Paleontological Resources

Paleontological resources are evidence of ancient life, not including human life, preserved as fossils in sediments and rock. In geologically diverse California, vertebrate, invertebrate, and plant fossils are found throughout the state. Paleontological resources have unique scientific value and as a result must be protected.

Paleontological resources may be encountered when a project includes invasive activities such as excavation or drilling of previously undisturbed sediments and rock. If paleontological resources are anticipated, the contract should include Special Provisions in the Standard Specifications. Protection of paleontological resources usually includes preservation of scientific information through monitoring and fossil and data recovery. This work is normally performed by a consultant working directly for the resident engineer or SANDAG, not the contractor. In these cases, the resident engineer must ensure the coordination and cooperation of the contractor with the paleontological consultant. This is accomplished by including the paleontological consultant in preconstruction meetings, providing the paleontological consultant with an accurate and updated schedule of subsurface disturbing activities, and, when required, ensuring that the contractor's staff attends paleontological awareness training presented by the paleontological consultant. If paleontological monitoring is needed to monitor construction activities (per the ECRCM and/or specifications) the resident engineer must contact and schedule the monitor at least 48 hours in advance of construction activities.

In most cases, paleontological monitoring and fossil and data recovery can be performed with minimal impact to construction activities. However, when large specimens or fossil-rich areas are encountered, excavation activities may need to be temporarily diverted while the paleontological team stabilizes and removes them. In these cases, the resident engineer must facilitate coordination and cooperation between the paleontological monitoring team and the construction contractor.

If unanticipated paleontological resources are encountered, the contractor is directed to immediately stop work within a 50-foot radius (or distance as determined in consultation with the project paleontologist) of the discovery and contact the resident engineer and SANDAG environmental unit immediately. The SANDAG environmental unit will enlist the assistance of the project paleontologist to investigate the discovery. Work in the area of discovery cannot resume until the find has been properly evaluated and recovery activities completed as necessary. The remaining construction activities must be evaluated in context of the discovery and monitoring may be required. If monitoring is required, it may be accomplished through the CMC team that is providing resident engineer services.

After excavation is complete, a paleontological mitigation report will be prepared by the paleontological consultant. If fossils are recovered from the project, they will be properly curated. The resident engineer must coordinate with the SANDAG construction manager and SANDAG environmental unit to ensure that funding is made available to pay for reporting and curation activities performed by the consultant.

6-3.11 Disposal, Staging, and Borrow Sites

SANDAG construction projects often require contractors to make use of either public agency-owned lands or private off-site lands and facilities for the disposal of excess materials, the acquisition of necessary borrow materials, the staging and storage of equipment and supplies, and for office space. Contract documents generally require the contractor to show that construction activities on these sites comply with all local, state, and federal environmental and permitted use regulations. However, in some geographic locations there have been issues regarding final compliance responsibility. To resolve these issues and to foster better cooperation with regulatory agencies, the option of designating disposal, staging, and borrow (DSB) sites has been facilitated.

Construction projects that cannot accommodate the DSB material needs of the project within the right-of-way (ROW) may designate sites for these purposes outside the project limits. However, even when such sites are made available, the contractor will continue to have the flexibility of using alternative sites. Alternative sites selected by the contractor require the contractor to prepare and submit a DSB site to the resident engineer for approval.

The need for identifying and obtaining environmental approvals for a designated DSB site will generally have been made by the design engineer on a case-by case-basis, considering historical and geographical issues and practices, project design requirements, environmental concerns, economic factors, and other aspects specific to projects and their locale. During project development, the design engineer should consider and identify sites readily available for use by the contractor. These sites should include, but not be limited to, commercial dumpsites, recycling plants, private property, and other local sites. If it is determined necessary that one or more DSB sites need to be designated, the design engineer would propose sites evaluated during the environmental review process, and as necessary, include them in the environmental compliance documentation. To ensure their availability to the contractor, ROW agreements should be obtained for private sites selected as designated DSB sites. Any necessary permits for selected DSB sites would have been included among those obtained during the plans, specifications and estimate development. Information or documents regarding arrangements made by SANDAG to ensure the availability of designated sites are provided to prospective bidders or contractors in a materials information handout.

Summaries are provided below for the minimum items expected in: (1) a DSB site submittal for a site designated by SANDAG; and (2) a summary of the minimum items expected in a DSB site submittal for a contractor to get approval for the use of an alternate site. The submittal and support documents are then filed in the project files.

6-3.11.A SANDAG and Contractor Designated Disposal, Staging, and Borrow Sites

For SANDAG designated DSB sites:

- SANDAG will:
 1. Provide a general site plan, including site limits and access roads.
 2. Obtain temporary property owner agreements, as necessary to “reserve” property.
 3. Prepare California Environmental Quality Act and/or National Environmental Policy Act (NEPA) documentation, as needed and applicable in consultation with the SANDAG environmental unit.
 4. Verify the existence of or obtain the necessary permits, licenses, agreements, and certifications to satisfy regulatory agencies and ensure site availability and documenting suitability of material in consultation with the SANDAG environmental unit.
 5. Review and approve contractor’s submittal.
- The contractor will:
 1. Prepare a final grading plan in conformance with the specifications.
 2. Provide a release of liability.
 3. Provide final property owner agreements.
 4. Submit a written plan for water pollution prevention in conformance with the specifications.

For alternative sites selected by the contractor:

- SANDAG will review and approve contractor’s submittal.
- The contractor will:
 1. For borrow sites, demonstrate that the site is either not subject to or in compliance with Surface Mining and Reclamation Act (SMARA). If the borrow site is not subject to SMARA, confer with the SANDAG environmental unit to ensure that the borrow site is not a potential contamination source.
 2. For all DSB sites:
 - Provide a site plan, including site limits and access roads.
 - Obtain and provide property owner agreements.
 - Provide a release of liability.
 - Provide environmental documentation prepared by appropriately qualified environmental specialists.
 - Obtain or update all necessary permits, licenses, agreements, and certifications.
 - Determine final grading plan in conformance with specifications.
 - Submit a written plan for water pollution prevention in conformance with the specifications.

6-3.11.B Surface Mining and Reclamation Act

Section 10295.5 of the Public Contract Code requires that SANDAG buy or accept sand, gravel, aggregates, or other mined materials (including imported borrow) from mining operations in compliance with or not subject to SMARA. The resident engineer can use the list of mining operations in compliance with SMARA, also called the "AB 3098 List," to verify which mining operations are in compliance. The current list may be obtained from the Department of Conservation website:

http://conservation.ca.gov/omr/SMARA%20Mines/ab_3098_list/Pages/Index.aspx

Mining operations that meet the following criteria are not subject to SMARA and are not required to be on the AB 3098 List:

- A total amount of mined materials less than 1000 cubic yards in any one location of 1 acre or less.
- On site excavations and on-site earth-moving activities on a SANDAG construction project, which are an integral and necessary part of the project.
- Materials mined from federal lands, except for lands that the Bureau of Land Management and U.S. Forest Service regulate.
- Materials mined from tribal lands, when mined by a tribal mining operator.
- Materials mined from outside of California.

Review contractor-proposed sources and verify that the source is on the current AB 3098 List. If the contractor proposes to use mined material from a mining operation not on the AB 3098 List, obtain from the contractor proof that the operation is not subject to SMARA, in accordance with the criteria above.

SMARA allows the State Mining and Geology Board (SMGB) to exempt certain mining operations or construction projects. SANDAG can accept material from exempted sources if the contractor provides proof of the SMGB-granted exemption.

If the proposed site is not on the AB 3098 List, and the contractor cannot demonstrate that the site is not subject to SMARA or that an exemption has been granted, the resident engineer must not accept the contractor's submittal.

6-3.12 Other Contractor Uses of the SANDAG Defined Right-of-Way

The contractor's use of parcels that are outside of the project limits will be contingent upon approval by the resident engineer, based on:

- DSB site submittal
- Execution of a fair marker rental agreement with SANDAG
- Execution of an encroachment permit. The resident engineer should consult with the design engineer and SANDAG environmental unit before approving the DSB site submittal.

6-4 AIR, WATER, AND NOISE POLLUTION CONTROL

This section contains guidelines for administering the contract's air, water, and noise requirements.

6-4.1 Air Pollution Control

6-4.1.A Air Quality

All SANDAG projects must comply with the Clean Air Act. Contractors must take appropriate measures to ensure their equipment is properly maintained and to apply water and other dust palliatives as frequently as necessary. Violations can result in fines and sanctions against the contractor and SANDAG. The specifications and ECRCM provide information and details regarding project specific measures.

6-4.1.B Dust Control

Under the terms of the project contract, the contractor must control dust (including but not limited to dust suppression measures, covering stockpiles, haul trucks, and other sources of dust). The contractor must maintain such control whether payment is included in the prices paid for the various items of work involved or whether payment is made separately. Refer to the Dust Palliative section of the Caltrans Construction Manual for additional guidance related to dust control.

During the preliminary inspection, before work begins, take the following steps:

- Determine whether a planned method to control dust is included in the contractor's accepted plan for water pollution prevention.
- Whenever it is proposed to handle temporary traffic changes on an unpaved roadway, anticipate the necessity for dust control. Notify and require corrective action whenever the contractor is not adequately controlling dust. In cases of neglect, work may be suspended under the authority of the resident engineer, pursuant to the Temporary Suspensions of Work section of the Special Provisions.

6-4.2 Water Pollution Control

Successfully protecting water resources (streams, waterways, and other bodies of water) and protected water-dependent species from pollution is critical to the project's success. These waters must be protected from chemical pollutants including petroleum products, paint residues, and curing compounds, and from sediment in storm water runoff.

To ensure the control of pollutants in discharges of storm water runoff and dewatering activities, SANDAG projects may be subject to federal law under the Clean Water Act and state law under the California Water Code. Under certain criteria, the regulations require compliance to a National Pollutant Discharge Elimination System Construction General Permit (CGP) (storm water permit), issued by the State Water Resources Control Board. The project specifications and ECRCM identify which permits are applicable to the project. For projects located within the NCTD-owned ROW (such as Los Angeles – San Diego – San Luis Obispo [LOSSAN] Rail Corridor segments outside of the City of San Diego and the SPRINTER), these areas also are subject to compliance with NCTD's MS4 permit requirements.

For each construction project, the contractor must prepare a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the contract Special Provisions and the CGP. The SWPPP describes the measures the contractor must implement to prevent storm water contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act. The SWPPP must be reviewed by the PM, resident engineer, SANDAG construction manager, SANDAG environmental unit, and NCTD (if the project is located in the LOSSAN corridor). After approval from all parties, the SWPPP should be uploaded to the Stormwater Multiple Application and Report Tracking System (SMARTS) with the additional permit registration documents (PRDs): Notice of Intent (NOI), Risk Assessment, Post-Construction Calculations, site map, the signed certification statement by the Legally Responsible Person (LRP), and annual fee. Once these components have been submitted and are deemed complete by SMARTS, a Waste Discharge Identification number will automatically be emailed to the LRP.

The first step in the SMARTS registration process is to select the user account type. SMARTS allows three types of user accounts: LRP, Data Entry Person (DEP), or Approved Signatory (AS).

For SANDAG, the LRP is the department director of Mobility Management and Project Implementation, although up to three backup LRPs may be designated to perform the same duties. The LRP is responsible for compliance with the CGP and is the approved signatory for the project. The LRP may assign additional approved signatories is accomplished by the linking process in SMARTS as detailed in the SMARTS User Manual. The SMARTS User Manual is posted on the Division of Construction stormwater training website: dot.ca.gov/hq/construc/stormwater/swppp_training.html

A project can have more than one AS. The resident engineer is responsible for the project data submitted in SMARTS and must be designated as a backup LRP, AS, or DEP, depending on the user account type. The LRP or AS may link other approved signatories to the project as necessary to support project delivery (Note: A DEP has no authority to delegate). A DEP may be any SANDAG staff member or contractor's personnel designated by the LRP or AS to input information into SMARTS. Only the LRP or designated AS (SANDAG) can certify within SMARTS.

Documentation for SMARTS submittals comes from various members of a project development team; however, the LRP, AS, or DEP is responsible for submitting PRDs, annual reports, ad hoc reporting, and Notice of Termination (NOT).

Reporting in SMARTS is accomplished by entering data into specific tabs or by uploading documents. For example, the NOI is created by entering data in the fields under the NOI tab, whereas the project SWPPP and its amendments are uploaded into the system. There also are screens for ad hoc reporting, annual reports, and other permit-related project reports. The LRP or AS may certify submittals in SMARTS and, when applicable, will need to provide the qualified SWPPP developer's certification. Hard copies of these documents must be maintained in the project files.

Filing a NOT should coincide with the acceptance of the construction contract but project conditions may justify a different submittal time. Section II.D, Conditions for Termination of Coverage, of the CGP details when a project is complete according to the CGP. Project-specific information regarding conditions to satisfy permit requirements is detailed in the contract, SWPPP, and the project Stormwater Data Report. Consult with the project engineer to ensure the conditions have been satisfied.

6-4.2.A SANDAG Construction Stormwater Coordinator Responsibilities

Each project should designate a construction storm water coordinator with a qualified SWPPP practitioner/developer (QSP/D) certification to carry out necessary administrative functions to prevent water pollution. This coordinator reviews the contractor's SWPPP or Water Pollution Control Plan, visits projects, reviews and/or populates reports in SMARTS, and acts as technical advisor to the resident engineer. The coordinator evaluates projects for potential threats to water quality, verifies BMPs are installed on site and the effectiveness of stormwater contract administration. The coordinator will assist the resident engineer to ensure compliance and ensure that field construction personnel are appropriately trained.

6-4.2.B Resident Engineer Responsibilities

The resident engineer uses all available assistance and expertise in preventing water pollution. This assistance may come from the SANDAG environmental unit, ECO, QSP/D, or environmental consultants.

Before work begins, the resident engineer is responsible for the following:

- Confirming with the contractor that all SWPP-related activities can be accomplished within the permitted environmental footprint for the project.
- Designating appropriate staff as storm water inspectors to assist in preventing storm water pollution.
- Reviewing the construction contract and the resident engineer file for instructions and environmental requirements.
- Ensuring that the PRDs are submitted/uploaded to SMARTS.
- Ensuring that all proper forms have been filed with the RWQCB.
- Meeting with the appropriate environmental and engineering experts to ensure a full understanding of the contract requirements for water pollution prevention.
- Conducting a preconstruction meeting with the contractor to discuss all required storm water measures and requirements. Depending on the project's size and complexity, this preconstruction meeting may be used exclusively for discussing water pollution prevention or the topic may be included in a general preconstruction meeting.
- Providing the contractor with a copy of the conceptual SWPPP to assist with the preparation of the SWPPP required to be uploaded to SMARTS, if one has been prepared by the design consultant for the project. It is the contractor's responsibility to prepare a final SWPPP.
- Reviewing, distributing for review, and completing final acceptance of the contractor's SWPPP as required by the specifications. Note that before the resident engineer has accepted the plan, the specifications prohibit any job site activities. If the RWQCB requires review of the authorized SWPPP, job site activities are prohibited until the board reviews and comments on the authorized SWPPP.
- Before any job site activities begin, ensuring the contractor deploys any storm water "BMPs" called for in the SWPPP.

During the course of work, the resident engineer is responsible for the following:

- In compliance with the CGP, maintaining a copy of the SWPPP on the project site.
- Inspecting the contractor's operations for compliance with the specifications and SWPPP, including deployment of BMPs.

- Ensuring that the contractor adheres to the inspection schedule set forth in the SWPPP and provides written reports of these inspections.
- Ensuring that the contractor prepares and submits a Rain Event Action Plan (REAP) for Risk Levels 2 and 3 dischargers. A REAP must be developed 48 hours prior to any likely precipitation event (50 percent or greater probability of producing precipitation – this is determined by visiting the National Oceanic and Atmospheric Administration [NOAA] website).
- Ensuring that an annual report is prepared in SMARTS and certified by the LRP no later than September 1st of each year or at project termination.
- Ensuring that the contractor deploys stormwater and non-stormwater BMPs whenever associated construction activities are taking place.
- Ensuring that the contractor maintains BMPs so that they will function as planned.
- Ensuring that the contractor has the necessary materials on hand to deploy any necessary additional BMPs in the event of a storm.
- Ensuring that the contractor uses appropriate measures to stabilize slopes at the times specified. In accordance with the specifications, ensure the contractor submits an implementation schedule for soil stabilization and sediment control for disturbed soil areas.
- Ensuring that the contractor complies with the specifications that restrict the size of the contractor's disturbed soil area.
- Ensuring that the contractor notifies and obtains the approval of the resident engineer in advance for each first-time non-storm water discharge, excluding exempted discharges.
- Monitoring the contractor's active and non-active disturbed soil areas.
- Ensuring that the contractor conducts soil stabilizing activities as specified.
- Ensuring that the contractor's water pollution protection plan addresses avoiding water quality impacts related to pre-nesting season removal of existing bird nests on bridges and other structures over or near water.
- Directing the contractor to correct any deficiencies in compliance efforts identified in the ECO and/or biomonitoring reports by the project QSD/P and/or the construction stormwater coordinator.
- If any pollutants are discharged into waters, notifying the SANDAG construction manager, ECO, and SANDAG environmental unit. Review the applicable permits (including the RWQCB 401 Certification) to determine the required reporting timeframe to the RWQCB and SMARTS and provide the draft report of noncompliance (to be prepared by the contractor) to the SANDAG construction manager and SANDAG environmental unit for review and concurrence before finalizing the report. The report should be completed by the ECO or project QSP/D. The final report will be submitted to the RWQCB by the SANDAG environmental unit.
- Reporting to the SANDAG construction manager any illegal discharges or illicit connections. Requiring the contractor to prepare a notice of discharge as specified in the SWPPP.
- Should noncompliance occur, initiating contractual enforcement procedures commensurate with the nature and severity of the noncompliance. Contract enforcement may include the following:
 1. Withholding funds from contract payment as specified in the contract.

2. Suspending any work that would exacerbate the noncompliance and/or interfere with or prevent the contractor's efforts to correct the deficiency. For example, earthwork operations may be suspended until the contractor controls sediment or stabilizes soil as specified. Other work performed by a crew might be suspended if that crew is needed to install or fix BMPs.
- As requested and per consultation with the SANDAG construction manager and SANDAG environmental unit, participating in meeting(s) held with personnel from regulatory agencies, such as the Environmental Protection Agency (EPA) and the RWQCB, to discuss storm water issues and measures.
 - Ensuring that the contractor submits an annual certification of compliance.
 - At 90 percent construction completion, conducting a field review with the appropriate agency's stormwater coordinator, and complete documentation for the Construction to Maintenance 90 percent BMP Completion Walkthrough.

Before accepting the contract, the resident engineer is responsible for the following:

- Determining that all slopes are stabilized, as required by the contract.
- Requiring that the contractor to remove temporary BMPs, such as silt fences, fiber rolls, and other measures that are not a permanent BMP or that the SANDAG construction manager and/or the SANDAG environmental unit have not requested to be left in place.
- Conducting a final walk-through of the project area with the system operator. During the final inspection, update final project inspection documentation to reflect changes and corrective actions implemented since the 90 percent construction completion field review with maintenance.
- Ensuring that the NOT has been submitted and reviewed in SMARTS.

6-3.4.C Storm Water Inspector's Responsibilities

The resident engineer may assign an assistant resident engineer as the storm water inspector or complete the tasks himself/herself. The storm water inspector will assist the resident engineer in carrying out work described above, as determined by the resident engineer. Typically, the storm water inspector will do the following:

- Review and become familiar with the Standard Specifications and project special provisions pertaining to water pollution control.
- Review and become familiar with the SWPPP.
- Conduct site inspections. Verify that BMPs are properly installed and are functioning properly. Look for areas that may require BMPs that are not deployed or not addressed in the SWPPP. Observe and identify any discharges, illicit connections, and/or illegal discharges. Take photographs of all areas.
- Prepare daily reports on storm water pollution prevention. Record all storm water management activities, or inactivity, and conversations with the contractor regarding storm water pollution prevention.
- Document site visits from regulatory agencies, such as the RWQCB or EPA and any inspections the agencies perform.

- Monitor the NOAA website for weather reports for rainfall predictions. Ensure the contractor prepares a REAP 48 hours prior to (Risk Levels 2 and 3 dischargers) a forecast of 50 percent or greater probability of precipitation in the project area. Ensure deployment of appropriate BMPs, as identified in the REAP and/or SWPPP.
- Inform the resident engineer immediately of any problems with BMPs during the implementation of the SWPPP and any observed discharges.
- Identify changes in construction that may require amendment(s) to the SWPPP and notify the resident engineer of these findings.
- For applicable projects, ensure site access and the safety of representatives of regulatory agencies and local agencies when they are on site for any reason. Access in certain ROWs require safety training be completed, such as that required by NCTD and/or MTS (Roadway Worker Protection Contractor Training).

6-4.2.D Contractor's Inspections

The Special Provisions for water pollution control require the contractor to inspect the construction site at least once a week for the proper implementation, performance, and maintenance of BMPs identified in the SWPPP. The contractor must follow the site inspection procedure specified in the SWPPP. The project construction stormwater coordinator, project QSP/D, or trained personnel under the supervision of the SWPPP project coordinator, must conduct the site inspections and prepare an inspection report.

The contractor must notify the resident engineer whenever the SWPPP or BMPs may not reduce or have not reduced the discharge of sediment or other pollutants into a waterway or outside of the project limits. The contractor must follow the verbal notification with a written report, which must be submitted to the resident engineer, SANDAG construction manager, and SANDAG environmental unit.

If the situation constitutes noncompliance with the permit, the resident engineer must conduct a verification inspection, and if a noncompliance condition exists, report it to the SANDAG construction manager and SANDAG environmental unit. The SANDAG environmental unit will then report it to the RWQCB. The resident engineer must require the contractor to amend the SWPPP, if necessary, and to install additional BMPs.

6-4.2.E Amendment and Review Processing

During construction, conditions may occur that affect the ability of the contractor to implement the SWPPP as initially accepted or the ability of the accepted SWPPP to meet the objectives for water pollution control. A change in construction operations or site conditions may result in the discharge of significant quantities of pollutants to surface waters, municipal storm drain systems, or outside of the project limits. The resident engineer, the SANDAG construction manager, and the SANDAG environmental unit should be immediately consulted regarding any said discharges. The project biologist also will need to be notified of such releases, asked to determine the effect on protected species and their habitats, and asked to determine the need for required notices to regulatory agencies. These changes can include construction staging or schedule changes, staging area modifications, unanticipated off-site drainage impacts, and failures of BMPs. The contractor must amend the SWPPP if either the effectiveness of the plan is diminished by any such changed condition.

Upon the resident engineer authorization, the contractor must incorporate all SWPPP amendments into the on-site documents. The resident engineer must review the contractor's proposed SWPPP amendment for completeness and conformance with the revised conditions and give written acceptance to the contractor if the amendments are acceptable. The accepted revised SWPPP must be uploaded into SMARTS.

6-4.2.F Project Files

The resident engineer must keep copies of all documents related to water pollution control in the project files and retain the following documents:

- All PRDs, including SWPPP amendments
- ECO reports
- Daily reports and photographs related to the prevention of storm water pollution
- The weekly contractor-prepared stormwater site inspection report
- The Notice of Discharge reports, ad hoc reports, annual reports, and REAPs
- All correspondence related to storm water pollution prevention, including notices of noncompliance
- Inspection reports including but not limited to those reports from the resident engineer and assistant resident engineer
- Copies of the certifications required by the specifications
- The printout from SMARTS after filing the NOT

6-4.2.G Contractor's Files

The specifications require the contractor to keep at the project site copies of the SWPPP and all accepted amendments and monitoring records (inspections, sampling, and REAPs).

6-4.3 Noise Control

Construction, rail, and traffic noise is often a sensitive issue in neighborhoods and communities adjacent to rail, highway, and transit ROWs. Prior to the start of construction, contractors are required to comply with applicable local sound control and noise level rules, regulations, and ordinances. Special restrictions may be employed on night work in sensitive areas, such as residential neighborhoods, schools, or hospitals near the project site. Special restrictions may be imposed based on the environmental document (environmental commitments and mitigation measures) and permits for the construction project. Mitigation and noise control may include all equipment to have commercially available mufflers installed and/or minimize the use of backup alarms by laying out construction sites and using flagmen to keep the area behind maneuvering vehicles clear.

6-5 PERMITS, LICENSES, AGREEMENTS, AND CERTIFICATIONS

This section covers environmental related permits issued by regulatory agencies. For assistance regarding these requirements, such as project permits and environmental requirements, contractor submittals on reporting requirements, protocols, or information training, contact the SANDAG environmental unit.

6-5.1 Special Use Permits

The U.S. Forest Service, Bureau of Land Management, Marine Corps, and other federal agencies issue permits to SANDAG to construct facilities across lands under their jurisdictions. There can be temporary use permits, U.S. Department of Transportation (U.S. DOT) easements, federal land transfers, and, in the case of already existing roadways, there may be prescriptive ROWs.

6-5.2 List of Potential Permits, Licenses, Agreements, and Certifications

Table 6-1 in this chapter may be used as a guideline for determining when permits or approval of contract plans may be required from state or local governmental agencies. The first column lists the activity or a resource affected by a construction activity. The second column lists the agency(ies) that may have jurisdiction in the area shown in the first column. The third column indicates the type of permit or plan approval that may be required by an agency or agencies.

Table 6-2 in this chapter lists federal environmental statutes and regulations. The first column lists resources or activities, the second column shows the federal agency having jurisdiction in the area, and the third column lists the statute or regulation that applies to the resource or activity.

Most required permits and plan approvals are obtained during the project's design phase. However, the following tables may be used as a reminder of the types of permits and plan approvals that may be required when making changes to the original plans. Any changes to plan approvals must be coordinated with the SANDAG environmental unit.

Table 6-1 State and Local Agency Permits, Licenses, Agreements, and Certifications

Resource or Activity	Agency	Permit or Approval
Commercial, industrial, and residential development	Local Agency (county or city)	Land Use, General Plans, Specific Plan, Conditional Use, or Subdivision
Conversion of timberland to non-forest uses through timber operations and immediate timberland production zone rezoning	California Department of Forestry; California Department of Fish and Wildlife	Timberland conversion permit; California Endangered Species Act (CESA) (Consultation)
Power transmission lines, pipelines, and railroad crossings	Public Utilities Commission	Review of plans and approval
Solid waste disposal	Department of Resource Recycling and Recovery (CalRecycle)	Disposal requirements
Sewage disposal	County health department or local agency	Disposal requirements
Waste discharge	State Water Resources Control Board; Regional Water Quality Control Board	Waste discharge requirements
Re-use of soil containing hazardous concentrations of aerially deposited lead (ADL)	Department of Toxic Substances Control	Soil Management Agreement for ADL Contaminated Soils (ADL Agreement)
Storing, treating, or disposing of hazardous waste	Department of Toxic Substances Control	Hazardous Waste Facilities Permit required for facilities receiving hazardous waste from Caltrans
ROW across state parkland	California Department of Parks and Recreation	ROW permit, license, easement, joint agreement, or lease
Encroachment on or across a local street or highway	Local agency (county or city) Caltrans	Encroachment permit

Resource or Activity	Agency	Permit or Approval
Encroachment on 100-year floodplain, intermittent streams, and desert washes	California Department of Fish and Wildlife	Lake/Streambed Alteration Agreement (1602 agreement); CESA (Consultation). Note, does not apply to 100-year floodplains. Local Floodplain Manager review for 100-year floodplain areas.
Encroachment on or across cove, bay, or inlet	California Department of Parks and Recreation, Division of Boating and Waterways	Review of plans
Air quality	Air Resources Board (ARB) or local air pollution control district	Authority to construct and permit to operate for activities emitting stationary source pollutants to the atmosphere
Fish and wildlife habitat; state-listed threatened or endangered species	California Department of Fish and Wildlife	Lake/Streambed Alteration Agreement for activities in lakes, streams, and channels and crossings; CESA
Coastal zone	California Coastal Commission; local government local coastal program	Coastal Consistency Certification, Coastal Development Permit; No Effects Determination; California Coastal Act
Water	California State Lands Commission; State Water Resources Control Board; Regional Water Quality Control Board; Department of Public Health, Division of Drinking Water and Environmental Management; or local health office	Land use lease (for encroachments, crossings on tidelands, submerged lands, and so forth); National Pollutant Discharge Elimination System Permit for stormwater discharges to surface water; waste discharge requirements for nonstorm discharges to surface water or groundwater to the waters of the state; Permit to operate a public water system
Dredging	California Department of Fish and Wildlife; State Lands Commission	Standard or special suction dredging permit; dredging permit
Surface (material borrow sites, and so forth)	Local agency (county or city)	SMARA permit
Burning	Local air pollution control district; California Department of Forestry and Fire; local fire control agency	Burn permit
Grading	Local agency (county or city)	Grading permit
Entering private property to gather information for temporary use	Caltrans district ROW unit; Property owner right of entry approval	Property owner approval for temporary encroachment
Entering surface waters to gather information or for construction	Regional Water Quality Control Board, Property owner	Water quality certification or waiver permission
All activities involving dams or reservoirs	California Department of Water Resources, Division of Safety of Dams	Approval of plans

Table 6-2 Federal Agency Permits, Licenses, Agreements, and Certifications

Resource or Activity	Agency	Federal Statute, Regulation, or Executive Order
Water	U.S. Army Corps of Engineers; U.S. EPA; Bureau of Reclamation; U.S. Fish and Wildlife Service; National Oceanic and Atmospheric Administration	Federal Clean Water Act (Section 404) Regulations concerning the National Pollutant Discharge Elimination System (40 CFR); Federal Endangered Species Act
Air	U.S. EPA	Clean Air Act, Title 42, Sections 7401– 7414
Fish and Wildlife Habitat; federally threatened or endangered species	U.S. Fish and Wildlife Service; U.S. Forest Service; National Park Service; National Oceanic and Atmospheric Administration	Federal Endangered Species Act (Section 7) Biological Opinion for protection of species and habitats
Navigable Waters	U.S. Army Corps of Engineers; U.S. Coast Guard	Federal Clean Water Act (Section 404 and 401); Rivers & Harbor Act (Section 10) Bridge Act
Federal Lands	U.S. Forest Service; Bureau of Land Management; National Park Service; U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; National Oceanic and Atmospheric Administration	NEPA: Various Land Use permit/leases; Federal Clean Water Act (Section 404); Federal Endangered Species Act (Section 7)
Historic Properties	Advisory Council on Historic Preservation; State Historic Preservation Office	National Historic Preservation Act (Section 106)
Paleontological Resources	Bureau of Indian Affairs; Bureau of Land Management, National Forest Service; National Park Service; U.S. Army Corps of Engineers	Antiquities Act of 1906; Paleontological Resources Preservation Act of 2009; Federal Land Policy and Management Act of 1976
Coastal Zone	Coastal Commission; U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; National Oceanic and Atmospheric Administration	Federal Coastal Zone Management Act, Federal Consistency Certification; No Effects Determination
Wild and Scenic Rivers	National Park Service; U.S. Forest Service, Bureau of Land Management	Code of Federal Regulations (CFR): 36 CFR 297; 43 CFR 8350
Wetlands	U.S. Army Corps of Engineers; U.S. EPA/RWQCB	Clean Water Act (Section 401 and 404); Executive Order 11990 (Protection of Wetlands)
Floodplains	Federal Emergency Management Agency	Executive Order 11988 (Floodplains Management)
Dredging	U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; National Oceanic and Atmospheric Administration; U.S. Coast Guard	Rivers and Harbors Act.
Airport Airspace	Federal Aviation Administration	Federal Aviation Regulations, Part 77
Farmland	Natural Resources Conservation Service	Farmland Protection Policy Act

6-6 HAZARDOUS MATERIALS

Many hazardous materials are used during construction activities. Employees must take appropriate precautions to minimize their exposure and use protective clothing and equipment. Contractors must submit safety data sheets (SDS) and obtain permission from the resident engineer before bringing any hazardous material onto the job site.

For guidance regarding special permit and variance requirements and procedures, contact the SANDAG construction manager.

Key sources of SDS information are available at the website listed below. The information these websites provide could be critical in the event the contractor fails to provide an SDS or should additional information or clarification be required.

For SDS information, use the following free online database provided by MSDS Catalog Service LLC: <http://msdsdigital.com/msds-database> SDS information may also be obtained by entering the product name followed by SDS in a web search engine.

6-7 HAZARDOUS WASTE AND CONTAMINATION

Hazardous waste may be generated as a result of construction activities. Examples of hazardous waste include the removal of stripe and/or pavement marking containing high levels of lead, removing lead-based paint from a bridge or other structure, and excavating soil containing aurally deposited lead.

Removing hazardous waste and contamination that has been released into the environment may be part of the project activities. For example, the work may include excavating a defined area of contaminated soil at an old gas station location.

Special permits may be required when generating hazardous waste during construction. For example, demolishing a bridge, whether new, old, or temporary, requires an asbestos survey and a permit from the local air quality management district. For guidance regarding special permit and variance requirements and procedures, contact the SANDAG environmental unit.

The environmental consultant and/or CMC will need to have on-call staff or sub-consultants that can evaluate potential hazardous waste and provide suggested action plans. The SANDAG environmental unit and SANDAG construction manager must enforce this requirement through the task order.

If the resident engineer determines hazardous waste may be present, then they will work with their environmental or geotechnical on-call firm for further analysis and recommendation. Simultaneously the resident engineer will inform the PM, SANDAG construction manager, and SANDAG environmental unit. The resident engineer will lead the action plan established by their on-call environmental or geotechnical firm.

The contractor is responsible for ensuring that hazardous waste and contamination is managed in compliance with all applicable laws and regulatory requirements.

For information about the applicable laws and regulations, refer to Volume 1, Chapter 10 of the Standard Environmental Reference. Additional information regarding hazardous waste management is available at the California Department of Toxic Substances Control (DTSC): <http://www.dtsc.ca.gov>.

For information regarding hazardous waste transportation, refer to the DTSC: <http://www.dtsc.ca.gov/HazardousWaste/Transporters/index.cfm>

The Hazardous Waste and Contamination section of the Standard Specifications (Section 14-11) defines the contractor's responsibilities, including requirements for proper storage and handling. Guidance for managing hazardous waste during construction can be found at:

https://dot.ca.gov/hq/env/haz/hw_contaminants.htm

Guidance for implementing specific standard Special Provisions can be found at:

http://www.caltrans.ca.gov/hq/env/haz/hw_sp.htm

6-7.1 Contractor-Generated Hazardous Waste Versus SANDAG-Generated Hazardous Waste

Contractor-generated hazardous wastes are hazardous materials that the contractor brings to the job site that have no further use and must be disposed of. Examples include extra or spent chemicals and waste generated as a result of contractor spills and leaks. SANDAG does not pay for disposal of contractor-generated hazardous wastes. The contractor obtains the EPA generator identification number and signs manifests for contractor-generated hazardous waste disposal.

SANDAG-generated hazardous wastes result from removal of materials that exist within the project limits such as stripe on the highway and soil containing aerially deposited lead. The SANDAG-generated hazardous waste must be labeled consistently, and the resident engineer obtains the EPA temporary generator identification number and signs the hazardous waste manifests. SANDAG-generated hazardous waste is required to be disposed of within a facility that holds a DTSC permit to accept the waste.

At the preconstruction meeting, have the contractor identify the permitted site for disposal of project hazardous waste. The resident engineer should follow up and confirm the disposal site's ability to dispose of the waste stream.

During the course of work, the resident engineer is responsible for the following:

- Retaining a copy of the manifest.
- Reviewing the manifest for accuracy before signing it as the generator. If any errors are identified at the time, lining them out, correcting them, and initialing the correction. If an error is identified after the waste is transported, preparing a manifest correction letter.
- Checking that the load is transported by a hauler with a valid hazardous waste hauler certification.

6-7.2 Aerially Deposited Lead

ADL from leaded gasoline emissions still exists in unpaved areas along California highways, and lead is ubiquitous in the environment. Sample and analysis of soil is normally performed during project development to determine whether the lead is present at hazardous waste concentrations. Sample results are analyzed statistically. The sampling and analysis methods were developed and are required by the EPA and DTSC. For safety purposes do not allow SANDAG staff and contractor staff that have not completed a lead safety training program provided by the contractor to work in areas where soil is being disturbed.

6-7.2.A Non-Hazardous Waste Concentrations

If lead concentrations are non-hazardous, a lead compliance plan is required for safety precautions, but special disposal of the soil is not required. The requirements for the lead compliance plan are found in the Special Provisions. The Special Provisions will specify whether soil must be retained on the job site or will be relinquished to the contractor. The Special Provisions may contain handling requirements (e.g., excavate to total depth, not in lifts). These requirements are included and must be followed in situations where mismanagement of the soil could result in unintended misclassification of the soil and unnecessary hazardous waste generation. For more information about these special provisions refer to the guidance at:

http://env.dot.ca.gov/haz_waste/haz_sp_provisions/hw_sp.shtml

6-7.2.B Hazardous Waste Concentrations

If lead concentrations are hazardous and soil will be disturbed by project activities, the contract special provisions will require worker protection and soil management and disposal at a Class I Disposal Facility or reuse under the variance issued to Caltrans by the DTSC. For projects in Caltrans ROW, reuse of ADL soils with lead concentrations exceeding regulatory thresholds is allowed when the DTSC ADL variance requirements are met and the variance is properly invoked through notification of DTSC and the appropriate RWQCB.

Soil that can be re-used is designated in the Special Provisions and on the plans as Y-1 (can be buried under soil) or Y-2 (must be placed under pavement). When the project includes excavation and placement of Types Y-1 or Y-2, the resident engineer must verify, before contract award if possible that the SANDAG environmental unit has submitted the paperwork to invoke the statewide variance to the DTSC and notified the RWQCB. If not in Caltrans ROW, then reuse of ADL soils is prohibited.

If the submittals were not sent, the resident engineer must work with the designer to prepare and send the submittal which must be received by DTSC at least five days before the start of construction affecting ADL.

The RWQCB normally requires at least 30 days' notice prior to project advertisement. If the notification was not submitted, notify the RWQCB and negotiate a special time allowance. More information about the DTSC ADL variance is available at: http://env.dot.ca.gov/haz_waste/haz_contaminant_waste/adl.shtml

The resident engineer must be aware of the requirements for burying soil containing ADL and must adequately record information on the daily reports so that the burial locations of ADL can be found.

The contractor must submit Form CEM-1901 to equivalent, Burial Location of Soil Containing Aerially Deposited Lead, and an electronic geospatial vector data shapefile to the resident engineer within five business days of completing placement of soil containing ADL at a burial location. The resident engineer should verify the information submitted on the form and notify the contractor within five business days if the information must be corrected. The contractor must then submit the corrected form to the resident engineer.

The resident engineer is responsible for showing on the as-built plans the locations where ADL was buried. Information submitted on Form CEM-1901 (or equivalent) should be used as the basis for the plotting locations.

The resident engineer must coordinate with and provide the following to the SANDAG environmental unit:

- Lead compliance plan, within ten days of accepting the plan
- Excavation and transportation plan, within ten days of accepting the plan
- Start of construction notification (at least five days before construction)
 - List of contractor and subcontractors
 - Anticipated start and end (contract acceptance) construction dates

- Resident engineer contact information
- Project-defined corridor if soil will be moved from one SANDAG project to another
- Completion report (within 180 days of contract acceptance)
 - Actual start and end (contract acceptance) construction dates
 - List of all U.S. EPA and state identification numbers, including temporary identification numbers, issued by DTSC for the project. The list must include the identification numbers obtained by the contractor for contractor-generated hazardous waste.
 - Survey data at each burial location as signed by the contractor’s surveyor
 - Volume of soil at each burial location
 - The historical maximum elevation of the water table underlying each burial location
 - Copies of all bills of lading used for transporting ADL soil. These must be kept on file with the project as-built plans
 - Laboratory data if soil is tested for lead during construction

To comply with the record retention requirements of the ADL Agreement (six years minimum), the resident engineer must retain ADL-related records in Category 19, Hazardous Waste and Hazardous Materials, of the project records as follows:

- All ADL-related correspondence, reports, data, and records
- All ADL-related documents included with the resident engineer pending file.

6-7.2.C *Minimal Disturbance of Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead*

The EPA allows certain discrete areas of generally dispersed contamination to be considered an individual waste management unit (equivalent to a landfill). These discrete areas are defined as areas of contamination (AOCs). An AOC is equated to a single unit; therefore, movement, consolidation, or in-situ treatment of hazardous waste within the AOC does not create a new point of hazardous waste generation. For an AOC, contamination must be contiguous but can have various concentrations.

The DTSC allows SANDAG to apply the AOC approach to projects that will only cause minimal disturbances of soil containing hazardous waste concentrations of ADL. Minimal or minor disturbances include installing guardrail, fencing, sign posts, traffic operation systems, highway planting and irrigation; minor clearing and grubbing; shoulder backing, pavement, and trenches for electrical systems. All soil disturbed must remain in the immediate area of disturbance and not be transported elsewhere. Health and safety precautions and dust control for hazardous waste must be implemented.

When the AOC approach can be applied, the contract specifications will require a lead compliance plan for worker safety and dust control and require that disturbed soil be placed back in the immediate area that it came from.

6-7.2.D *Naturally Occurring Asbestos*

If naturally occurring asbestos (NOA) exists within the project area, the contract will include specifications that contain safety and management requirements. The specifications require that the contractor must, at all times, comply with the dust mitigation requirements of the local air pollution control district or the county air quality management district and the California Occupational Safety and Health Administration code of safe work practices for working with asbestos (California Code of Regulations [CCR] Title 8, Section 1529 [8 CCR 1529]).

The ARB restricts the use of material containing detectable NOA (equal to or greater than 0.25 percent) and the DTSC regulates material containing hazardous levels of NOA (defined as equal to or greater than 1 percent asbestos). However, the DTSC does not require that NOA be managed as a hazardous waste for disposal purposes, and, therefore, disposal at a Class I facility is not required. Because of this determination, an EPA generator identification number is not necessary for disposing of excess NOA material, nor are waste manifests or DTSC-registered hazardous waste transporters required. However, surplus material containing 1 percent or greater of NOA must be disposed of by the contractor in a Class II or Class III landfill facility permitted to receive it and may not be relinquished for reuse on a site that is not a permitted disposal facility.

Ultramafic rock that has been tested and found to contain below 0.25 percent asbestos and all NOA material containing less than 0.25 percent asbestos may be used in a surfacing application per the ARB Airborne Toxic Control Measure for Surfacing Applications, Title 17, Section 93106, (i) 20. Restricted material is defined as ultramafic rock and serpentine rock, any material extracted from a region defined on geologic maps as an ultramafic rock unit, and any material that has been tested and found to have an asbestos content of 0.25 percent or greater. Surplus material with an NOA content greater than or equal to 0.25 percent, but less than 1 percent NOA must be disposed of in a licensed landfill facility if it is not relinquished to the contractor. If material containing less than 1 percent NOA is relinquished to the contractor for reuse in non-surfacing applications, the contractor must provide the following warning to the entity receiving the NOA material:

W A R N I N G!

This material may contain asbestos.

It is unlawful to use this material for surfacing or any application
in which it would remain exposed and subject to possible disturbances.

Extreme care should be taken when handling this material to minimize the generation of dust.

The resident engineer must obtain written documentation from the contractor stating that the relinquished NOA material will not be reused in a surfacing application and what the final disposition of the restricted material is.

6-7.2.E SANDAG-Generated Contaminated Soil

If contaminated soil exists within the project area, the contract will include specifications that contain safety and management requirements. Depending on the depth to groundwater within the project area and the depth of construction activities, management of contaminated water also may be included. These specifications will vary depending upon the site-specific conditions and, therefore, must be reviewed carefully by the resident engineer to ensure that they are properly implemented.

6-7.2.F Removing Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue

The resident engineer must review the construction contract to determine whether yellow traffic stripe and pavement marking material must be removed. If so, the resident engineer must also determine whether special handling as a hazardous waste is specified.

If yellow traffic stripe and pavement markings are to be removed and the removal has not been addressed in the contract, the resident engineer must consult with the district hazardous waste coordinator to determine whether a change order is needed.

The resident engineer must ensure the following:

- Training: The contractor must provide a safety training program that meets the requirements of 8 CCR 1532.1, Lead. Before performing any yellow traffic stripe and pavement marking removal, personnel (including SANDAG employees) who have had no prior lead training must complete the safety training program.

- Lead compliance plan: Work practices and worker health and safety must conform to 8 CCR 1532.1. The contractor must submit the written compliance programs required in Subsection (e)(2), Compliance Program, of Section 1532.1, to the resident engineer before starting to remove yellow traffic stripes and pavement markings and at such times when a program revision is required. An industrial hygienist certified by the American Board of Industrial Hygiene must prepare the compliance program. A competent person capable of taking corrective action must monitor the program. Require that copies of all inspection reports made in accordance with Section 1532.1 are given to the resident engineer.
- Work plan: The contractor must submit a work plan that documents the removal equipment that will be used, removal and waste collection procedures, storage containers, storage location and security, sampling procedures, sampling personnel qualifications, certified laboratory that will run the analyses, hazardous waste hauler certifications, and receiving disposal site and requirements. Removal work may not start until the resident engineer has reviewed and accepted the work plan.
- Storage of residue: The contractor must store the residue from traffic stripe and pavement marking removal as follows:
 1. While waiting for any test results required by the disposal facility, store the collected residue as hazardous waste in properly labeled metal containers approved by the U.S. DOT for hazardous waste transport.
 2. Cover and handle the containers in such a manner that no spillage will occur.
 3. Enclose the stored containers with temporary chain link fencing or a lockable shipping container at a location within the project limits approved by the resident engineer.
 4. Begin disposing of the contained residue no more than 90 days after accumulating 220 lbs. of residue.
- Testing and disposal: Before disposal, the contractor is required to test the residue collected in the containers for proper waste classification. The level of lead waste contained in the removed material will be diluted by pavement debris that has also been removed. Depending on the test results, disposal of the stored material is as follows:
 1. Dispose of the stored residue as hazardous waste when its lead content is detected to be at levels greater than 1,000 mg/kg total lead or greater than 5 mg/L soluble lead. Keep records in accordance with current requirements for hazardous waste handling and disposal, and file them in the project files. The contractor must dispose of all hazardous waste residues resulting from yellow traffic stripe and pavement marking removal at an approved DTSC-permitted Class I disposal facility in accordance with the requirements of the disposal facility operator. A transporter currently registered with the DTSC using correct manifesting procedures must haul the yellow traffic stripe and pavement marking residue.
 2. The contractor must make all arrangements with the disposal facility operator and perform any testing of the yellow traffic stripe and pavement marking debris required by the operator. The resident engineer must obtain the EPA temporary generator identification number and sign all manifests as the generator. The resident engineer also must pay the manifest fees that may be billed several months after project completion.

3. Unless the lead removal work was already contemplated in the construction contract, pay as change order work all work performed for testing, additional removal costs, retesting, and additional disposal.
4. If the analytical test results demonstrate that the waste is actually non-hazardous, a change order must be prepared to direct the contractor to dispose of the waste at a Class II or Class III facility with no additional payment provided.

6-7.2.G Disturbance of Existing Paint Systems on Bridge

Bridge paints contained high levels of lead, zinc, and chromium before being reformulated to reduce their toxicity. Even though the phase-out of those paints occurred many years ago, lead, zinc, and chromium are still a concern because when bridges are repainted, not all of the prior layers of paint are completely removed. In addition, lead from the paint is absorbed into the steel and, as a result, even steel that no longer has paint on it can be a hazard if heated because heating causes the lead to be released as a toxic fume.

When bridge paints are disturbed, the paint debris must be properly contained to protect waterways and workers. It has been determined that the grime and debris that collects on bridges also contains elevated concentrations of lead. Consider this grime and debris part of the existing paint system.

When bridge paint will be disturbed as part of the project, the contract specifications will require a lead compliance plan for worker safety, waste management, and verification sampling to document that heavy metals are not released during the work.

When applicable, the resident engineer is to secure the following:

- Training: The contractor must provide a safety training program that meets the requirements in 8 CCR 1532.1, Lead. Before performing any bridge paint removal, personnel (including SANDAG employees) who have had no prior lead training must complete the safety training program.
- Lead compliance plan: Work practices and worker health and safety must conform to 8 CCR 1532.1. The contractor must submit the written compliance programs required in Subsection (e)(2), Compliance Program, of Section 1532.1, to the resident engineer before starting to remove bridge paint and at such times when a program revision is required. An industrial hygienist certified by the American Board of Industrial Hygiene must prepare the compliance program. A competent person capable of taking corrective action must monitor the program. Require that copies of all inspection reports made in accordance with Section 1532.1 are given to the resident engineer.
- Debris Containment and Collection Plan: The contractor must submit a plan that documents the removal equipment and containment systems that will be used, removal and waste collection procedures, certified laboratory that will run the analyses, hazardous waste hauler certifications, and receiving disposal site and requirements. Work that will disturb the paint system may not start until the resident engineer has reviewed and accepted the plan.
- Storage of residue: The contractor must store the residue from paint disturbance or removal as follows:
 1. While waiting for any test results required by the disposal facility, store the collected residue as hazardous waste in properly labeled metal containers approved by the U.S. DOT for hazardous waste transport.
 2. Cover and handle the containers in such a manner that no spillage will occur.

3. Enclose the stored containers with temporary chain link fencing or a lockable shipping container at a location within the project limits approved by the resident engineer.
 4. Begin disposing of the contained residue no more than 90 days after accumulating 220 lbs. of residue.
- Waste testing and disposal: Before disposal, the contractor is required to test the residue collected in the containers for proper waste classification. Depending on the test results, disposal of the stored material is as follows:
 1. Dispose of the stored residue as hazardous waste when its lead content is detected to be at levels greater than 1,000 mg/kg total lead or greater than 5 mg/L soluble lead. Keep records in accordance with current requirements for hazardous waste handling and disposal, and file them in the project files. The contractor must dispose of all hazardous waste residues at an approved DTSC-permitted Class I disposal facility in accordance with the requirements of the disposal facility operator. A transporter currently registered with the DTSC using correct manifesting procedures must haul the residue.
 2. The contractor must make all arrangements with the disposal facility operator and perform any testing of the residue required by the operator. The resident engineer must obtain the EPA temporary generator identification number and sign all manifests as the generator. The resident engineer must also pay the manifest fees which may be billed several months after project completion.
 3. Unless the lead removal work was already contemplated in the construction contract, pay as change order work all work performed for testing, additional removal costs, retesting, and additional disposal.
 4. If the analytical test results demonstrate that the waste is actually non-hazardous, a change order must be prepared to direct the contractor to dispose of the waste at a Class II or Class III facility with no additional payment provided.
 - Work area monitoring: The contractor must perform air monitoring to demonstrate that lead is not being released from the containment structure and perform soil sampling before and after the work to demonstrate that lead has not been released to the ground beneath the work area. Consult the hazardous waste coordinator to determine the adequacy of the reports and whether a release has occurred requiring corrective action. If the area beneath the bridge is paved soil, sampling will not be included in the specifications. In these cases, look for color changes on the pavement which indicate a release of paint residue.

6-7.2.H Treated Wood Waste

Treated wood has been used to support metal beam guard railing, beam barrier, piles, bridges, and roadside signs. These wood products are typically treated with preserving chemicals that protect against insect attack and fungal decay. These chemicals may be hazardous and include, but are not limited to, arsenic, chromium, copper, creosote, and pentachlorophenol. The DTSC requires that treated wood waste (TWW) either be disposed of as hazardous waste or, if not tested, the generator may presume that TWW is a hazardous waste and manage the waste using DTSC's Alternative Management Standards (AMS). The AMS are described in 22 CCR 67386.1–67386.12. The AMS lessen storage requirements, extend accumulation periods, allow shipment of TWW without manifests and use of a registered hazardous waste hauler, and permit disposal at specific non-hazardous waste landfills.

Whenever TWW will be removed as part of the project, the contract specifications will direct the contractor to follow the AMS, including providing training to all personnel who may come into contact with TWW.

For projects that will generate more than 10,000 lbs. of TWW per calendar year, the DTSC must be notified within 30 days of exceeding this weight threshold. Notification must include the name and mailing address of the generator, EPA generator identification number, date that the 10,000-lb. limit was or is expected to be exceeded, the weight of the TWW as measured by the receiving facility, and the name and address of the receiving facility. The resident engineer requests the EPA temporary generator identification number from the DTSC and files an electronic form available on DTSC's website for TWW. The DTSC will forward a copy to the Board of Equalization (BOE) who, in turn, sets up an administrative record. If a project will generate more than 10,000 lbs. of TWW, a Basic Engineering Estimating System item 066915, BOE TWW Generation Fee, will be included as a department-furnished material. This item will be paid prior to or during the closeout process of the project, up to one year after construction contract acceptance.

TWW can be shipped off site by a hauler with a shipping document, bill of lading, or invoice serving as documentation. If TWW is less than 10,000 lbs. per calendar year per project, an EPA generator identification number is not required. Records must be kept for three years from the date of the last waste shipment.

If there is limited space or no area to temporarily store TWW on the jobsite, it may be transferred to a remote consolidation site, such as a maintenance facility, or a location that meets all the requirements of 22 CCR 67386.7(c).

6-7.2.1 Disposal of Electrical Equipment Requiring Special Handling

California law requires special handling of electrical waste such as ballasts containing polychlorinated biphenyl (PCB), batteries, and fluorescent or mercury tubes, bulbs, and lamps. PCBs found in ballasts and thionyl chloride found in vehicle sensor node batteries are considered extremely hazardous wastes if they are released from the equipment.

PCB disposal is regulated by the EPA under the Toxic Substances Control Act and by the 40 CFR Part 761. PCB wastes also are regulated as hazardous waste by the DTSC under the California Health and Safety Code and 22 CCR. All PCB wastes must be packaged in a container approved to transport PCB, marked, "Contains PCBs," and transported with a proper hazardous waste manifest by an authorized PCB or hazardous waste transporter to an appropriately permitted disposal facility. If a ballast containing PCBs is damaged, it may leak and, therefore, requires special management. Damaged ballasts containing PCBs must be contained and transported to an EPA-approved high-temperature incinerator.

Waste batteries and fluorescent or mercury tubes, bulbs, and lamps are considered universal wastes under 22 CCR 66273.1–66273.90. These are wastes generated by everyone, hence the term "universal." The management requirements are more relaxed than those for hazardous wastes. However, universal wastes can adversely impact public health and the environment if not properly managed, and, therefore, must be disposed of at appropriately permitted facilities. Damaged vehicle sensor node batteries may leak thionyl chloride and, therefore, must be contained. Once damaged, these batteries are no longer considered universal waste and must be managed and disposed of as a hazardous waste.

When these types of electrical equipment will be removed as part of the project, the contract specifications will alert the contractor to the special management requirements for these wastes.

6-7.2.J Unanticipated Discovery of Hazardous Waste and Contamination

SANDAG construction employees, including consultants, must follow safe practices and minimize their exposure when dealing with unanticipated and unidentified hazardous wastes and contamination. Minimize potential risks during project construction by having all construction personnel follow the general procedures below:

- After unknown and potentially hazardous wastes and contamination (including underground tanks) are discovered, cease construction work in that area. When a waste is discovered, follow the procedure described in [Figure 6-1](#), Unknown Hazards Procedure, in this chapter.
- Secure the vicinity of the find by cordoning off the area with barriers or fences and evacuate the vicinity.
- Prohibit construction personnel from any exploratory or investigative work that would result in further personal exposure. Such personnel are prohibited from taking samples or testing potentially hazardous waste and contamination. This prohibition includes activities such as the following:
 1. Touching, smelling, or ingesting suspected materials.
 2. Climbing into trenches or enclosed areas where contamination is suspected.
 3. Reaching, looking, or placing a foreign object (such as a stick to probe or a rock to test depth or to determine the presence of a liquid) into exposed or leaking tanks or other enclosed spaces.
 4. State law specifically prohibits the use of the prime contractor's forces (including sub-contractors) to respond to an unanticipated discovery if the type of hazard was not identified in the original contract documents. The contractor must stop work in the area and SANDAG must independently hire a contractor with a Class A Haz certification to respond.
- For any necessary exploratory, investigative, or cleanup work, use specialized consultants or safety workers who are fully trained, licensed, and qualified for hazardous waste work in accordance with state and federal regulations.
- Because of potentially catastrophic health effects, 29 CFR 1910.120 requires that no one enter the designated exclusion zones until the establishment of a complete and effective "hazardous waste worker protection program" or until the consultant has determined no exposure danger exists (the designated exclusion zones are delineated in the consultant prepared hazardous waste site safety plans).

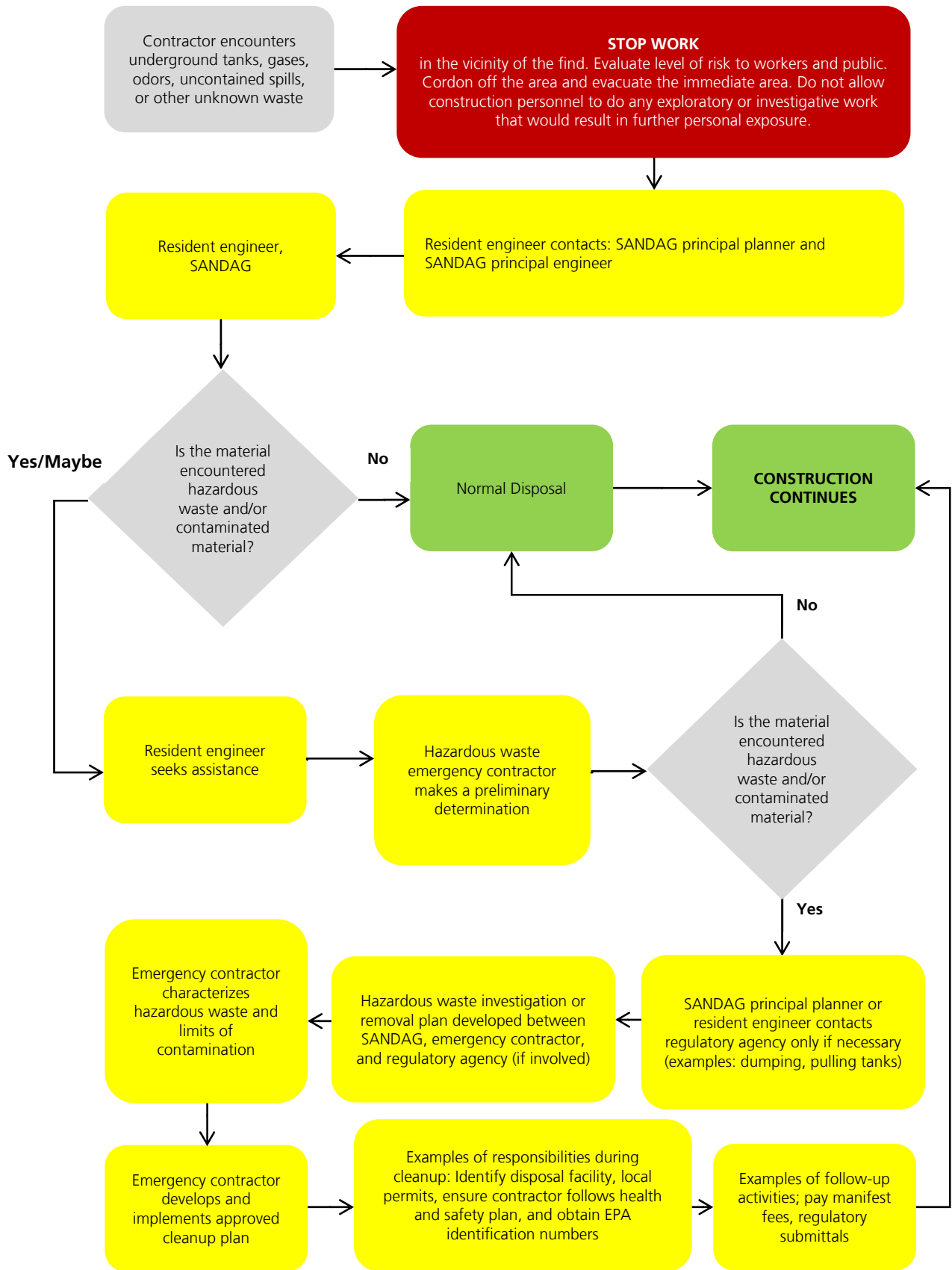
6-8 HAZARDOUS SPILLS

For instructions on reporting hazardous spills, see the [Major Construction Incidents/Accidents and Reporting](#) section in [Chapter 2](#) of this manual. If the contractor spills hazardous materials, the contractor must comply with applicable laws and regulations, as well as cleanup and disposal.

If an unidentified spill is expanding and threatening adjacent sensitive areas, begin containment immediately if it can be done without personal exposure.

Conventional methods for containment include interception with dikes or ditches at sufficient distance downstream to avoid contact with the material. Prevent employees, workers, or the public from being exposed to any unknown spilled material.

Figure 6-1 Unknown Hazard Procedure





Chapter 7

Employment Practices

Construction Division
Department of Mobility Management and Project Implementation



SANDAG Construction Manual

Chapter 7 – Employment Practices

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7-1 LABOR COMPLIANCE

7-1.1 General

This section presents the guidelines for administering the labor compliance provisions of the contract. These guidelines apply to all projects, whether state- or federally-funded. The California Labor Code; the Code of Federal Regulations (CFR), Title 29, Part 5; laws of the California Department of Industrial Relations (DIR), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), or U.S. Department of Transportation (DOT); the California CFR; and the U.S. Department of Labor (DOL) provide the basis for contract administration protocol and the statutory authority to enforce labor compliance contract provisions. Additionally, see the Contractor Administration and Contractor Assurances section of [SANDAG Board Policy No. 024, Procurement and Contracting – Construction](#), for applicable provisions and guidance.

State and federal laws require contractors working on public works contracts to pay prevailing wages to their employees. Prevailing wages are predetermined hourly rates for each craft that are set by both the DIR and the U.S. DOL. In addition, these laws set guidelines for the following:

- Overtime
- Length or shifts of workday
- Substantiation of wages
- Fringe benefits paid
- Covered work (work done under contract and paid for in whole or in part out of public funds, thus requiring the payment of prevailing wages) and non-covered work

These laws are intended to ensure that laborers and mechanics employed on federal aid projects are paid at wage rates generally prevailing for the same type of work on similar construction in the immediate locality. The applicable wage rate determinations are included in the SANDAG contract document applicable to the public works project (contract).

The California Labor Code provides that the DIR determines and publishes the general prevailing wage rates for California.

As with all decisions involving legal risk for SANDAG, individuals using this manual shall work with the SANDAG construction managers on consulting with the SANDAG Office of General Counsel for assistance with assessing the risk and obtaining advice on legal options.

7-1.2 Labor Compliance Responsibilities

The responsibilities and procedures when administering the contract's labor compliance requirements are described as follows:

7-1.2.A Resident Engineer

7-1.2.A.1 Resident Engineer General Responsibilities

At the project level, the resident engineer has the responsibility for enforcing the labor requirements that are in the contract. To fulfill this responsibility, the resident engineer and support staff must have an adequate working knowledge of the contract's labor requirements.

Early surveillance and detection of labor compliance violations are preferable to conducting belated investigations and implementing formal enforcement actions. The resident engineer will bring labor compliance issues to the attention of the contractor and the SANDAG labor compliance staff (LCS) or the labor compliance consultant for the project (SANDAG labor compliance designee [LCD]) immediately upon detection. The resident engineer also will resolve minor issues, such as clerical errors or inadvertent acts, at the project level. If the issue is not resolved timely, the decision to withhold funds should be based on the recommendation of the LCS or LCD.

The LCD for the contract will send corrective action notices to the contractor for immediate correction. The withhold of funds from the progress payment will be made in accordance with the Labor Compliance Non-Conformance Escalation Process (Appendix 7-1). If the contractor corrects the deficiency items after progress payment is made, the contractor will receive full or partial restitution based on the revised submittals.

When the contractor knowingly violates labor law or refuses to comply with the contract labor requirements, these actions will be considered willful in nature. Willful violations include situations such as fraud, wage kickback schemes, or falsification of certified payrolls, fringe benefit statements, evidentiary source documents, and daily extra work bills. These violations require that the SANDAG LCS conduct a full investigation and report the findings to the resident engineer and the SANDAG construction manager.

7-1.2.A.2 Resident Engineer Project Responsibilities

The resident engineer's specific responsibilities are:

- Ensuring that labor compliance, equal employment opportunity (EEO), and disadvantaged business enterprise (DBE) requirements are discussed at the preconstruction conference. The resident engineer should document this discussion and file the information in the project records; and should request the attendance of the LCD to communicate these topics. The LCD will provide a standard checklist covering the topics, a copy of the signed checklist is to be uploaded in the SANDAG Labor Compliance Monitoring System (LCMS).
- Forwarding all labor compliance documentation to the LCS.
- Forwarding all DBE and Small Business (SB) documents submitted by the prime contractor or any subcontractor to the SANDAG contracts and procurement manager.
- Forwarding all EEO and discrimination complaint documentation to the SANDAG director of administration, who serves as the EEO officer.
- Forwarding all Title VI complaint documentation to the SANDAG special counsel, who serves as the Title VI officer.
- Referring all employee complaints regarding wage underpayments to the LCD for further investigation and recommended action; and verifying that required EEO posters are properly displayed at all job sites and that the "Equal Employment Opportunity is the Law" poster also is posted in the resident engineer's and the contractor's office(s).
- After receiving recommendations from the LCD, LCS, or EEO officer, as applicable, authorizing deductions from progress pay estimates for labor compliance, DBE, and EEO violations.
- Following the Labor Compliance Non-Conformance Escalation Process (Escalation Process) set forth in this manual to determine contractor and its subcontractor's compliance with the provisions of the Labor Code and SANDAG contract requirements concerning labor compliance.

- Documenting the presence of contractor employees and owner-operators at the job site on the assistant resident engineer’s daily report; minimally, this documentation must include the following information:
 1. Contract number
 2. Name of contractor with name of employee or owner-operator
 3. Hours worked per employee or owner-operator
 4. Classifications of employees
 5. Items of work
 6. Contractor and subcontractor’s activity with description, and operated equipment with name of operator and name of operator’s employer
 7. DBE Information – See the [Disadvantaged Business Enterprise](#) section of this chapter for additional information required
- Confirming that names of employees, wage rates, and hours listed on extra work bills match information listed on the contractor’s certified payrolls; if they do not match, the resident engineer must resolve before extra work bills get paid.
- Conducting employee interviews or direct the LCD to do so and ensure a copy of the interview documentation is placed in the LCD’s files for the project; refer to the [Interviews with Contractor Personnel](#) section of this chapter.
- Tracking apprentices and journeymen used on the contract and record the information in daily reports.
- Ensuring that certified payrolls are uploaded to LCMS.
- Evaluating the impacts of any significant change order or other actions during construction that cause Title VI or environmental justice concerns or requirements and obtain advice from the Title VI officer as needed.

7-1.2.A.3 Interviews with Contractor Personnel

The contract requires the contractor to allow authorized SANDAG personnel or designees to interview contractor employees during working hours. The interviews described in this section should be conducted by the resident engineer or the resident engineer may request that they be conducted by the LCD.

Interviews should be conducted at the rate of four employees per contract, per month, including at least one interview from the prime contractor and each subcontractor until such time as the contract is accepted or that all employees on the project have been interviewed. The number of interviews taken must constitute a representative sample of workers employed on the project.

In the case of a small contractor having two or three employees on the project for several months, do not continue taking interviews once all the contractor’s staff have been interviewed. The resident engineer should contact the LCD to confirm the contractor is fully compliant with the labor requirements of the contract and no additional interviews of the contractor’s staff are necessary.

If the resident engineer chooses to suspend further interview activity, document the decision in the project records and notify the LCD.

During the interviews, assure the interviewees that their statements, whether oral or written, will be confidential. Interview employees individually and away from supervisory personnel and other contractor staff. Do not disclose to the employer the identity of the employee without the employee's consent.

In addition to conducting contractor employee interviews, interview truck and equipment operators designated as "owner-operator" to determine the correctness of this classification. Interview at least one equipment owner-operator and a sampling of truck owner-operators to adequately determine owner-operator status. Factors that establish the validity of the "owner-operator" classification are described in the [Payrolls and Listings Involving Owner–Operator](#) section of this chapter.

7-1.2.B SANDAG Labor Compliance Designee

The LCS and LCD administer labor compliance requirements and procedures by assisting the resident engineer in the enforcement of the labor requirements in the contract.

7-1.2.B.1 Project or SANDAG LCD Responsibilities

The LCD's specific responsibilities, in assisting the resident engineer to administer contracts, include:

- Attending the preconstruction conference; discussing the labor compliance, DBE, SB, EEO, and subcontracting provisions of the contract; and preparing necessary documentation to be distributed at the preconstruction conference.
- Providing appropriate labor compliance training for the SANDAG project personnel.
- Reviewing employee interviews conducted by the resident engineer and cross-checking wage rates and classifications against certified payrolls; and forwarding one copy of the employee interview to the construction manager if LCD performs employee interviews, cross check wage rates and classifications against certified payrolls and forward the copy of the employee interviews to construction manager and resident engineer.
- Assisting the LCS and resident engineer by preparing paperwork regarding complaints for the DIR and submitting it to the LCS for review and further processing.
- For investigation and follow-up, verifying the contractor has corrected any deficiencies and notifying the construction manager and resident engineer of corrections.
- Reviewing and confirming all contractor certified payroll records according to current labor compliance program policy utilizing the LCMS.
- When necessary, recommend to the resident engineer that funds be withheld from progress payments made to the contractor for missing or inadequate certified payroll records or established violations in accordance with Appendix 7-1).
- Determining if the labor compliance provisions of the contract have been breached and verifying the accuracy of payrolls, reviewing source documents at the contractors' office, and collecting evidence.
- During the life of a contract, reviewing contractors and subcontractors with a history of poor labor standards practices. The LCD should maintain a master file of contractors' payroll source documents reviews using the LCMS. The objective of the master file is to avoid unnecessary or repetitious source document reviews. Therefore, when a review has been completed, a deficiency report will be generated, even if no deficiencies were found. This form will be uploaded into the LCMS.
- Following escalation procedures outlined in this manual.

- When apparent prevailing wage violations have been encountered, following procedures outlined in Appendix 7-1 and sending a deficiency notice to the contractor for correction.
- Providing monthly written reports to the SANDAG director of Mobility Management and Project Implementation (MMPI) or designee on any contractor's noncompliance with labor law or prevailing wage requirements.

7-1.2.C Contractor

The prime contractor is responsible for labor compliance for its own company as well as all subcontractors and owner-operators. In this chapter, the term "subcontractor" applies to all subcontractors (approved or not) employed by the prime contractor and all lower-tier subcontractors who perform "covered" employment as described in the Covered and Non-Covered Employment section. The term "contractor" is sometimes used generally to cover all contractors, whether prime or subcontractors at any tier. The prime contractor must insert the labor regulations and other contract requirements in all subcontracts and in turn subcontractors must include these regulations in all lower-tier subcontracts. Contract labor requirements apply the same standard of performance to prime contractors and subcontractors as expected of all other requirements of the contract. SANDAG has statutory and contractual authority to withhold payment to the prime contractor for back wages and penalties.

7-1.2.D SANDAG Labor Compliance Staff

The LCS responsibilities include:

- Conducting labor compliance investigations, report on findings, and making recommendations to the resident engineer and other SANDAG management.
- Researching and advising the resident engineer and other SANDAG management when disputes occur regarding whether particular entities should be covered by the labor compliance requirements of the contract.
- Researching and advising the resident engineer and other SANDAG management when disputes occur regarding whether particular persons are entitled to prevailing wages.
- Making DIR enquiries and providing advice regarding the prevailing wage amounts, which particular persons working on a SANDAG project may be entitled to.
- Finalizing paperwork regarding complaints for the DIR and assisting SANDAG management in the decision-making process regarding complaints.
- Maintaining the Labor Compliance Debarment Log.
- Assisting with providing other SANDAG staff general oversight and assistance on work performed by a project's LCD.
- Attending preconstruction conferences at the request of the resident engineer.

7-1.3 Certified Payroll Requirements

Contractors and subcontractors must enter or upload all required labor compliance documents into the LCMS. Contractors also must upload the required labor compliance documents to the DIR. Visit the DIR website at www.dir.ca.gov for further information.

For every person employed at the job site that performed a part of the work, the following information must be contained on the certified payroll form:

- The employee's full name, address, and social security number.

- The employee’s classification, including craft, group, and level of expertise; the labor classification used must be descriptive of the work performed and match the nomenclature used in the prevailing wage decisions.
- The employee’s straight time and overtime hourly wage rate.
- The daily and weekly hours worked in each classification, including actual overtime hours worked; add any premium for overtime hours worked to the rate of pay, not the reported number of hours worked.
- The gross wages, itemized deductions, withholdings, and net wages paid.

7-1.3.A Review of Payrolls

Payrolls must conform to federal and state labor laws. The resident engineer will use the payrolls to verify extra work bills. The LCD will conduct the payroll review using the following information and processes needed for the LCMS.

7-1.3.A.1 Fringe Benefit Statement

Contractors may use Caltrans Form CEM-2501, Fringe Benefit Statement, or equivalent to indicate payment of fringe benefits as a supplement to the certified payroll. A fringe benefit statement is a breakdown of benefits in addition to hourly wage rates that the contractor pays on behalf of the employee. Typical fringe benefits include vacation, health benefits, pension plans, and training funds listed in the prevailing wage rates. The fringe benefit statement also should indicate to whom the fringe benefits have been paid, such as a union trust fund or as a cash payment made directly to the employee.

7-1.3.A.2 Travel, Subsistence, and Zone Pay

When a project is located in a geographic area designated as a subsistence area, contractors are required to make travel, subsistence, or zone payments to their employees in accordance with the current DIR craft classification regulations. Subsistence is to be paid as a lump sum daily payment or as an increased hourly wage rate, depending on the craft, classification, and any approved agreements.

7-1.3.A.3 Workday and Hours of Labor

Each workday is considered to begin at 12:01 a.m. and to extend a full 24-hour period, ending at 12 noon. For those contractors working at night, for instance a Friday evening and Saturday morning, the payrolls should reflect regular pay rates of hours worked on Friday, and applicable premium rates of pay for all work beginning at 12:01 a.m. on Saturday morning if applicable to the craft. Eight hours labor constitutes a legal day’s work. The contractor or any subcontractor under the contractor shall forfeit, as a penalty to SANDAG, \$25 for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which that worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the requirements of the Labor Code, and in particular, Sections 1810 to 1815, thereof, inclusive, except that work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half times the basic rate of pay, as provided in Section 1815 thereof.

7-1.3.A.4 Assistant Resident Engineers’ Daily Reports

Using assistant resident engineers’ daily reports, the project’s LCD is to confirm that the payroll reflects the labor used and the hours worked for each day of work at the job site, including weekends and holidays. The LCD should ensure the method of reporting hours is accurate; that the actual number of hours worked is clear; and that the classification and rate of pay can be readily determined.

7-1.3.A.5 Wage Rates

The prevailing hourly wage rate is composed of the basic hourly wage rate plus fringe benefits. When state and federal wage rates differ, the contractor is required to pay the higher of the two. On federally-funded projects, if payment is made at an hourly rate in excess of the prevailing rate, this hourly rate, less fringe benefit payments, is the basic hourly rate for computing overtime compensation.

7-1.3.A.6 Overtime

After an employee works 8 hours in a calendar day or 40 hours in a calendar week, the employee is entitled to be paid at the proper prevailing overtime rate at a rate not less than one and one-half times the basic wage rate plus fringe benefits. Work performed on Saturday and Sunday generally must be paid at premium rates of pay at time and a half and double time, respectively. For exemptions to this rule, contact the LCD or LCS. The federal wage decisions do not differentiate between weekday rates of pay and Saturday or Sunday rates of pay; however, all hours worked over 40 in a work week must be paid at the overtime rate of pay.

7-1.3.A.7 Apprentices

Resident engineers are responsible for tracking apprentices used on the contract and recording that information in daily reports. The LCD will ensure apprentice classifications are correctly identified on certified payroll records and that the type of work and ratio of apprentices to journeyman meet the requirements of the apprenticeship agreement on file with the Division of Apprenticeship Standards (DAS). Generally, the minimum ratio of apprentices to journeymen for SANDAG projects is no less than one hour of apprentice work for every five hours of journeyman work pursuant to California Labor Code Section 1777.5. Certain projects; however, such as design-build projects, have higher ratio requirements that increase over time pursuant to California Public Utilities Code Section 22164. A disproportionate employment of apprentices to journeymen could indicate that some of the apprentices are working outside the limits of their classification. When this occurs, excess apprentices must be paid at the journeyman rate. Additionally, the LCD will verify that apprentices are registered in appropriate state and/or federal programs.

FHWA-funded projects will have a specific minimum number of apprentices to be used on the contract.

7-1.3.A.8 Payroll Deductions

Payroll deductions should have a complete, clear, and concise breakdown. The contractor may not combine payroll deductions on the payroll form without proper identification unless an attachment specifies supplemental data with the purpose and amount of each deduction.

All deductions must comply with the DOL regulations in 29 CFR 3, which are promulgated pursuant to the "Copeland Anti-Kickback Act." Additional regulatory language regarding payment of wages can be found in Chapter 1 of Division 2, Part 1 of the California Labor Code.

7-1.3.B Wage Calculation Methods

Various calculation methods are used to verify the accuracy of certified payrolls. The following are examples of methods commonly used by contractors. Payrolls are acceptable if they are prepared in accordance with either of the methods shown below. These examples illustrate a situation where an employee worked ten hours on a given day, overtime premium of one and a half times the basic hourly rate of \$14 per hour, \$2 per hour subsistence, and with fringe benefits amounting to \$6 per hour.

Method One: Basic reported hours of work

8 hours @ \$22/hour = \$176

(\$14 + \$2 + \$6) = \$22/hour

2 hours @ \$29/hour = \$ 58

(\$14 x 1.5) + \$2 + \$6 = \$29/hour

Subsistence and fringe benefits are not paid at overtime rates.

Total pay for the day = \$234

Method Two: Adjusted rate of pay

10 hours @ \$22/hour = \$220

(\$14 + \$2 + \$6) = \$22/hour

2 hours @ \$ 7/hour = \$14

(\$14 ÷ 2) = \$7/hour

This is the difference between straight-time and overtime pay for hours in excess of eight hours – subsistence and fringe benefits are not paid at overtime rates. Total pay for the day equals \$234.

7-1.3.C Discrepant, Delinquent, or Inadequate Payrolls

This section covers payroll violations, discrepancies, delinquencies, or inadequacies. The contractor must submit payrolls and accompanying statements of compliance in accordance with the contract documents. The LCD shall follow procedures for contractor's Escalation Process outlined in [Appendix 7-1](#) of this chapter.

7-1.3.C.1 Discrepant payrolls

When discrepancies are found during payroll review, the LCD will reject payrolls and is responsible for ensuring the following steps are taken:

- The LCD must request that the contractor submit a supplemental payroll correcting the discrepancy in LCMS or manually. Under no circumstances should incorrect or incomplete certified payrolls be returned to the contractor for revision. The contractor may, however, make corrections to certified payrolls if those corrections are written in ink and the contractor initials each correction in the presence of SANDAG personnel.
- The contractor must then make the corresponding correction to its payroll records and provide proof of wage restitution for all affected employees within 30 days, if applicable. This can be in the form of cancelled checks, copied both front and back or the payroll register.
- To ensure that payroll inadequacies or discrepancies are corrected, the LCD should use a tabulation or summary sheet to record discrepancies and note when and how each error was corrected. This record need not be elaborated. In most cases, a simple tabulation showing the name of the person or firm, the payroll period or week ending date, the discrepancy, and the method of correction is sufficient. In the event corrections are not made, the project's LCD must fill out Caltrans Form CEM-2507, Labor Violation: Case Summary, or equivalent suitable for SANDAG use and coordinate a meeting in accordance with [Escalation Process](#) outlined in this chapter.

7-1.3.C.2 Delinquent or Inadequate Payrolls

If payrolls and statements of compliance have not been received for all weeks that the contractor or subcontractors worked on the project, the payrolls are considered delinquent. If payrolls and statements of compliance received are incomplete, the records are considered inadequate. The LCD must notify the resident engineer and the contractor who certified the payroll that documents are missing.

The resident engineer must deduct monies due to the contractor on the monthly progress pay estimate in accordance with the contract provisions and the Escalation Process outlined in this chapter. The withholds should be made separately for each estimate period in which a new delinquency or inadequacy appears. When all delinquencies or inadequacies for a period have been corrected, the withhold covering that period on the next progress pay estimate can be released. Withholds can only be taken once and do not compound on each monthly estimate. The LCD will advise the resident engineer when funds should be withheld or returned during a payment period. The resident engineer will follow SANDAG Escalation Process outlined in this chapter.

7-1.3.C.3 Payment Withholds for Missing or Inadequate Payroll

The following examples illustrate the process for taking and releasing withholds on the monthly progress payment when the percentage of withhold in the contract is 10 percent.

Example Progress Payment Number One:

- Progress pay estimate Number One has a value of \$9,500
- Value of the withhold is 10 percent of \$9,500 or \$950
- Therefore, the resident engineer would withhold the minimum amount of \$1,000

Example Progress Payment Number Two:

- Progress pay estimate Number Two has a value of \$49,000
- One or more pay documents are still delinquent under a previous month's deduction plus one or more new delinquencies for this period
- Value of the withhold is 10 percent of \$49,000 or \$4,900
- Last month's withhold was a total of \$1,000
- Therefore, the resident engineer should have a total withhold of \$5,900 from the current progress payments and is still withholding \$1,000 from the previous month's payment, for a total of \$5,900 withheld from contractor payments for labor compliance issues.

Example Progress Payment Number Three:

- The delinquencies are all cleared up for the previous months, but new delinquencies have originated during this period. Estimate number three has a value of \$55,000
- Value of the withhold is 10 percent of \$55,000 or \$5,500
- Total withhold for this pay period is \$5,500
- The Resident Engineer should return \$5,900 to the contractor for the current progress payment. Since the current withhold is \$5,500, the contractor will only see a return of \$400 in the pay documents

Example Progress Payment Number Four:

- The contractor has not corrected the problems with the payrolls in question during progress payment Number Three
- No new delinquencies have occurred
- No additional withhold is warranted

- Make no change to the amount of money previously withheld from the contractor, and continue to hold \$5,500

Example Progress Payment Number Five:

- Progress payment Number Five is for a total of \$120,000
- The contractor has a carryover withhold from progress payment Number Four of \$5,500
- There are new payroll delinquencies for this pay period. The value of the current deduction is 10 percent of \$120,000 or \$12,000. If the recommended maximum allowable deduction for missing labor compliance documents of \$10,000 per pay estimate is used, the resident engineer would withhold \$10,000 from the current estimate
- The total value for labor compliance violations is \$10,000 plus \$5,500 from progress payment Number Three to equal \$15,500 in total withholds

7-1.3.C.4 Refusal to Provide Payrolls

The refusal to provide certified payroll documents is to be treated similarly as payroll documents that are inadequate or delinquent.

7-1.3.C.5 Correlation of Payrolls and Change Order Bills

Resident engineers compare the labor charged by the contractor for a change order bill with the corresponding payrolls. The certified payrolls and fringe benefit statements serve as source documents for approval of every change order bill. The change order bill must show the identical labor classifications, hours worked, and wage rates, including fringe benefits, that are shown on the certified payroll documents. The resident engineer should notify the project's LCD immediately of any discrepancy on the payroll records and should not approve payment of the change order bill until the discrepancy is corrected or it is determined by the project's LCD to be a labor compliance violation, not an extra work overcharge.

7-1.3.C.6 Deducting Payment for Violations

The resident engineer and LCD shall follow the Escalation Process set forth in this chapter to determine contractor and its subcontractor's compliance with the provisions of the Labor Code and the SANDAG contract's requirements concerning labor compliance. When contractors do not comply with the LCD's request for correction of discrepancies, missing certified payroll records, or correction of inadequate certified payroll records, follow the procedures outlined in the Escalation Process for monies to be withheld from contractor's progress payment. The LCD will notify the resident engineer when it is appropriate to release any associated withholds for labor compliance deficiencies. SANDAG will withhold monies from progress payments until resolved or until the DIR directs that the monies are forfeited.

7-1.3.C.7 Payroll Documents Outstanding at the Time of Contract Acceptance

When there are outstanding documents, such as payrolls, the resident engineer should take an Other Outstanding Documents (OOD) deduction from payment to the contractor on the after-contract acceptance, estimate as covered in [Measurement and Payment](#) section in [Chapter 3](#) of this manual.

7-1.3.D Review of Owner-Operator Payments

Contractors are required to pay or supervise the payment of the persons reported as owner-operators by the contractor on SANDAG public works. Owner-operators must be paid the full weekly sums that they have earned, and contractors shall not take rebates or deductions either directly or indirectly to or on behalf of said owner-operators from the full sums they are owed or from the full weekly sums earned by any person. No deductions shall be made either directly or indirectly from the full sums earned by any person, other than permissible deductions, as must be described in detail to SANDAG or other entities with authority upon request. Contractors must certify that the wage rates for laborers or mechanics are not less than the applicable wage rates contained in any wage determination incorporated into the contract and that the classifications set forth therein for each laborer or mechanic conform with the work the laborer or mechanic actually performed. Contractors are required to list all owner-operators used on covered work and certify owner-operator status by providing at least the following information:

- Operator name
- Business address of the owner-operator
- The owner-operator's social security number
- The equipment license number; if the equipment is used off highway, the contractor must provide a complete description and include the dates it was operated on the project
- Operator labor classification
- Hours worked by the owner-operator as reported on a daily basis
- Combined hourly rental rate and labor rate paid for the owner-operated equipment
- Gross estimate or actual payments earned

This information may be provided by the contractor to the LCD by using Form CEM-2505, Owner-Operator Listing Statement of Compliance, or by providing equivalent information. Form CEM-2505 can be found on the LCMS. Certification will be accepted only from the contractor employing the owner-operator. It is not appropriate to accept certified payrolls or an owner-operator listing directly from the owner-operator unless that owner-operator is a licensed contractor and also is an approved subcontractor or recognized lower tier subcontractor.

7-1.3.D.1 Calculating Equipment Owner-Operator Payment Breakdown

From the information shown in the payroll, the LCD can determine the hourly wage rate that should be due by deducting the prevailing equipment rental rate for the area from the gross hourly rate shown on the owner-operator listing. The contract rental rate (without markup) may be used as a guide. Since this may not be the local prevailing rate, it may be necessary to canvass local rental agencies or other sources to determine the actual prevailing equipment rental rate.

The LCD can compare the hourly wage rate so determined to the applicable basic wage plus fringe benefits to determine compliance.

7-1.3.D.2 Payrolls and Listings Involving Owner-Operator

The following requirements can be used to differentiate an owner-operator from a contractor's employee:

- If review of payroll records shows that deductions for social security taxes or state unemployment insurance taxes are withheld for the owner-operator, it is an indication that the operator is an employee rather than an independent contractor

7-1.3.D.2.a *Truck Owner-Operators*

- To verify truck owner-operator status, the Contractor must provide an owner-operator completed Form CEM-2510, Truck Owner-Operator Certification of Ownership, or its equivalent to the LCD.
- The operator should be the registered owner of the vehicle; the name of the driver should match the name of the registered owner on the Department of Motor Vehicles registration.
- If the legal owner is a firm or corporation, and the firm or corporate name is shown on the vehicle registration slip, the LCD should request that the driver furnish evidence that he/she is leasing or purchasing the vehicle. It is common for the name of the finance or leasing company to be listed on the registration. If the owner-operator is leasing or financing the vehicle, then the operator should be able to furnish such evidence. If the owner-operator is unable to substantiate purchase or lease of the equipment, the resident engineer should disallow use of the owner-operator classification for this truck and contact the LCD.
- Insurance for the vehicle should be carried in the driver's name; further checking is required if the name on the policy does not match the name of the driver.
- The California Identification (CAID) number issued by the California Highway Patrol (CHP) should be in the driver's name; if the name on the CAID number doesn't match the name of the driver, further investigation is warranted.
- If the ownership of a vehicle cannot be determined from the insurance, registration, or title, forward the license number or a CAID number to the SANDAG LCS for further review.

7-1.3.D.2.b *Equipment Other than Trucks*

If the owner-operator is leasing or financing the equipment, the operator should be able to furnish such evidence. If the owner-operator is unable to substantiate that they are purchasing or leasing the equipment, the resident engineer should disallow use of the owner-operator classification for this piece of equipment. The contractor must establish proof of ownership in cases where there is doubt as to the validity of the owner-operator designation. If difficulty is encountered in determining truck ownership, all pertinent data should be forwarded by the LCD to the LCS with a copy to the resident engineer.

7-1.4 Covered and Non-Covered Employment

SANDAG monitors compliance with both federal and state labor and prevailing wage requirements for all public works contracts it advertises and awards. The California Labor Code requires that all public works projects are subject to the payment of prevailing wages for the immediate geographic area in and adjacent to public works projects.

Every laborer or mechanic employed at a public works job site who performs a part of the contract work is subject to the labor provisions of the contract. The laborer or mechanic may be either an employee of the prime contractor, an employee of an approved or listed subcontractor, or some other person or firm who furnishes on-site labor, including specialists, sole owners, partners, corporate officers, and rental companies furnishing equipment with an operator.

The terms “job site” or “site of the work” as applied to labor compliance are not limited to the actual geographic location or limits of the project. In addition, these terms include any location or facility established for the sole or primary purpose of contributing to the specific project. Typical examples of these types of locations or facilities include material sites, processing plants, fabrication yards, garages, or staging sites set up for the exclusive or nearly exclusive furtherance of work required by the project. Essential criteria for job site or off-site work is whether these facilities have been operating on a commercial basis for a period of at least two months prior to the award of the contract or whether that site performs a commercially useful function exclusively for the SANDAG project.

Employees working at a job site or site of work are covered by the prevailing wage law and the provisions of the specific contract under investigation. The interpretation of covered work can change with new legislation, coverage determinations issued by the DIR, federal agency memorandums, and court decision forming case law. In those cases when the distinction between covered and non-covered employment is not clear, the matter should be documented by the LCD and referred to the LCS for evaluation and recommendations.

7-1.4.A Materials Sites

For labor compliance purposes, materials sites used exclusively for a SANDAG project are considered as being on site. Employees at these sites must be paid prevailing wages. Factors that determine coverage of material sites include:

- Commercial or noncommercial nature of the operation
- Amount of contractor or supplier control of the site
- Exclusiveness of the material site to the project
- Location of the materials site relative to the project limits
- Which party has control of the materials loading operation

Typical situations for coverage determinations favoring the payment of prevailing wages include:

- Fuel trucks that fuel heavy equipment and trucks on the construction site
- An imported borrow pit, located outside the project limits used exclusively by the contractor for one or more SANDAG projects
- A pit established exclusively for a SANDAG project to supply materials

In all three of the above cases the work is covered and the contractor is required to pay prevailing wages to employees.

If material is delivered to the project site by the prime contractor or any on-site subcontractor’s employees, the hauling will likely be covered under prevailing wage requirements. If material is delivered from a commercial establishment by a third party or independent hauler, prevailing wages may not be required to be paid as long as the establishment meets the following criteria:

1. Must be in the business of selling supplies to the public
2. Cannot have been opened specifically for the contract
3. The plant cannot be located at the site of work
4. The materials delivered from the plant cannot be immediately incorporated into the project with no re-handling out of the flow of construction

In those cases when the distinction between covered and non-covered employment is not clear, the matter should be documented by the LCD and referred to the LCS for evaluation and recommendations.

7-1.4.B Material Plants

Roadside production of materials produced by other than the contractor's forces is considered "subcontracted" work with respect to the contract labor requirements.

Materials, including aggregates, produced with any kind of portable, semi-portable, temporary crushing, screening, proportioning, batching, or mixing plant are considered to have originated at a materials plant.

When a materials plant has been established or reopened exclusively or nearly exclusively for the purpose of supplying materials to a specific contractor for specific projects, and when these plants are not generally operated commercially, they are considered to be a site of the work and therefore, covered for the payment of prevailing wages. Work involved in the establishment, reopening, and general operation of such plants also will likely be covered. The following guidelines are used to determine if a plant is commercial and therefore, not covered:

- The operator has obtained a permit to operate as a commercial plant
- A business license has been obtained for the operation of the plant
- A public weigh master operates scales at the materials plant
- The contractor provides proof of sales to other agencies or individuals
- The plant is in operation before the project begins and remains in operation after the project is completed

The contractor must demonstrate that the primary purpose of this materials plant is for general commercial operations and must provide proof that more than token sales have originated at this material plant.

7-1.4.C Equipment Furnished by Equipment Rental Firms

Equipment is often rented or leased by contractors from established commercial equipment rental firms. The prevailing wage rate provisions of the contract do not cover drop off, pick up, and incidental repair of this equipment if such repair is done off site. When rented equipment used in the work, including extra work, is operated and maintained by employees of the equipment rental firm, the equipment rental firm is considered to be a "subcontractor" with respect to labor compliance. The employees of the rental firm are, in this situation, covered by the labor compliance requirements of the contract.

7-1.4.D Equipment Furnished by Owner-Operators

Owner-operators of general construction equipment such as graders, cranes, or excavators are considered covered by the state and federal prevailing wage requirements. The hiring contractor must list them on Form CEM-2505, Owner-Operator Listing Statement of Compliance, or in equivalent documentation satisfactory to SANDAG. The owner-operator must be paid at least the minimum prevailing wage rate in effect for the type of equipment operated. On federally-funded contracts, the Form CEM-2505 or its equivalent also must include the rate for the equipment rental.

7-1.4.E Repair of Equipment

General repair of equipment used on the job site or located at the site of work, including installing, overhauling, assembling, repairing, reconditioning, or other work on machinery, equipment, or tools used in or upon the work, are covered by prevailing wage requirements. Established, independent commercial repair shops that have been in business prior to the award of the contract are not covered. Mechanics and other employees working on such machinery, equipment, or tools are covered by the contract labor provisions. Such employees must be listed on the contractor's or subcontractor's certified payroll records.

7-1.4.F Work Performed by Vendors, Suppliers, and Fabricators

Suppliers and fabricators of materials who are not subcontractors and who do not work at the job site other than delivering materials are not subject to the contract labor requirements. However, a supplier or fabricator is a subcontractor subject to the labor provisions for that portion of the work performed at the job site. For instance:

- Shop work during fabrication of structural steel is not subject to the contract labor requirements. The contract labor provisions cover any structural steel work performed subsequent to delivery of material to the job site even though shop personnel may perform it; this includes repair of damaged or defective work, as well as normal installation or erection.
- Oil spreading by employees of asphalt suppliers is subject in certain conditions:
 1. Only the time spent on site spreading the material is covered work – standby time is not
 2. Coverage will apply only when the employee, during one workweek, has actually spent at least 20 percent of the total time worked spreading material on the specific project. Once a particular employee qualifies for coverage, all the actual spreading time that week is retroactively covered. Staggering employees to avoid coverage is permissible.

Treat spreading of pavement reinforcing fabric in the same way that oil spreading work is treated.

At the job site, installation of any manufactured product, such as mechanical and electrical equipment, bridge deck expansion and bearing assemblies, sign frames, precast or precast-prestressed concrete beams, and all similar fabricated items is covered work and subject to the contract's labor provisions.

7-1.4.G Work Performed by Specialists

An independent firm that furnishes a special service or performs work of a specialized nature is considered to be a "subcontractor" with respect to the labor provisions.

Work performed by specialty firms is subject to all contract labor requirements, regardless of the nature of the work, service, or method of payment.

7-1.4.H Engineering Consultants, Materials Testers, and Land Surveyors

All firms that furnish engineering and construction management services such as construction inspection, materials testing, and land surveying at the job site, regardless of whether that firm is hired by the contractor or SANDAG, are subject to California Labor Code prevailing wage requirements; the payment of prevailing wage rates is mandatory.

7-1.5 Classification of Labor and Wage Rate Determinations

Labor standards require the proper classification and payment of workers for the work they actually perform. To meet these standards, the contractor and persons or firms performing the work on the project must:

- Use only the classification listed in the wage determination decision or prevailing wage rate determination applicable to the contract
- Use classifications that describe the work being performed; for example, if carpenters are used to place reinforcing steel, they should be shown as “ironworkers” and paid accordingly
- Maintain an accurate record of the time spent in each work classification, and show this time by means of separate entries in the payroll records and on the certified payroll

A single worker may perform many different tasks covered by more than one craft or classification during the course of a single day. In this situation, the contractor may break up the work into the different classification and pay accordingly or it may pay the worker the highest applicable wage rate for the entire day. If the highest-wage rate is paid for the entire day, separate entries in the payroll records are not required.

Since most construction work is performed by recognized craft classifications, prevailing practice in the industry and union rules will usually determine the proper classification. Workers must be classified and paid according to the work they actually perform, regardless of union affiliation, other titles, or designations.

Occasionally, the wage rate may not be provided in the federal or state wage determinations for a particular labor classification. When this occurs, the workers should be reclassified, if possible, to a comparable classification. If it is not possible to reclassify the work, contact the LCS and request that a wage classification be determined by DIR.

To request an applicable wage rate determination for a construction project not covered by a State of California published wage determination, a Determination of Classification by writing can be sent to the DIR by the LCS. Reference DIR webpage for instructions. For federally-funded (Davis-Bacon) contracts, the LCS can use Davis-Bacon and Related Acts standard form “Request for Wage Determination and Response to Request” from the DOL.

In no case may a construction contract be considered effectively amended until a response has been received from the DIR or DOL indicating approval of the proposed classification or reclassification requests.

7-1.5.A Prevailing Wage Requirements

In most cases, the wage rates as determined by the DIR and the DOL will be the same for any given labor classification. If there is a difference between DOL and DIR wage rates for similar classifications of labor, the contractor must pay the higher-wage rate.

When there is an error in the published rate, the LCD should notify the LCS. The LCS will contact the DIR or DOL, depending on which agency’s rate is in error.

7-1.5.B Special Wage Determinations

The state general prevailing wage rates contain most crafts and classifications of workers required on SANDAG projects. Occasionally, however, a unique labor classification may be anticipated for future state-funded major construction projects or for minor or miscellaneous service contracts but is not listed in the general prevailing wage rates. In this situation, the LCS will seek a special wage determination from the DIR.

To initiate the request, the LCS, with assistance from the LCD will prepare a memorandum to the DIR describing the following:

- Job duties and the nature of the work
- The locality (county) where the work is to be performed
- The anticipated advertisement and award dates
- A list of contractors or employers, including complete addresses and telephone numbers, who perform work of a similar nature within the same geographical area
- The most recent determination number of any prior requests

The DIR will prepare a special wage determination and send it to the LCS. The LCS will send the special wage determination by cover memo to all resident engineers for appropriate handling or future reference.

In case of a jurisdictional dispute, such as a dispute between cement masons and operating engineers, a non-signatory contractor may pay either wage rate, as long as it is recognized by the DIR.

7-1.5.C Supervisory and Managerial Personnel

As a general rule, when administering the prevailing wage requirements, those employees whose work is supervisory or non-manual in nature are not considered as laborers or mechanics just because an employee is paid a salary or is called a foreman; however, does not mean that the person is not a laborer or mechanic.

If a supervisor, regularly and for a substantial period of time, performs journeyman work, then that supervisor is subject to the prevailing wage requirements of the contract.

If the time that the supervisor performs the work of a journeyman is negligible and does not establish a definite pattern, that supervisor's entire employment should be considered supervisory and not subject to prevailing wage requirements.

7-1.5.D Corporate Employees as Officers and Directors

A corporation is a single legal entity represented by the corporate officers acting pursuant to the corporate bylaws and applicable state law.

Any corporate officer that works on a project as a laborer or mechanic, regardless of an employment relationship to the corporation, must be paid not less than the prevailing hourly wage rates established for the type of work performed. The only exception is when corporate officers act in a supervisory capacity and do not perform the function of a workman or laborer.

7-1.5.E Employment of Apprentices

The California Labor Code limits payment of apprentice wage rates to persons registered as apprentices in an approved apprenticeship training program with the DIR and the DAS.

An apprentice who is not so registered is not "properly indentured" within the meaning of the term as it is used in the California Labor Code and the Contract. Under the provisions of the contract, a non-indentured apprentice is not considered to be an apprentice and must be paid the journeyman wage rate for their classification.

For each project, the Contractor is required to furnish evidence of its apprentices' registration. This evidence must be on a DAS Form DAS-1, Apprenticeship Agreement, or a letter giving notice of registration from the DAS. Either Form DAS-1, a letter from the DAS, or a completed Apprentice Request Form available on the LCMS can provide acceptable evidence of apprentice registration.

The LCD also may identify apprenticeship status through the DAS online registration database located at: dir.ca.gov/das/appcertpw/AppCertSearch.asp.

If an apprentice is scheduled to work on the project before the contractor receives evidence of registration, the LCD must telephone the nearest DAS office and confirm proper registration. This procedure will expedite the verification of apprentices but does not preclude the obligation of the contractor to supply written evidence of the apprentice's registration and to satisfy California statutory requirements, including California Labor Code Section 1777.5.

In addition to evidence of registration in its program, the contractor is required to use the appropriate apprentice-journeyman ratios and wage rate percentages, as addressed in state prevailing wage determinations and contractor's union agreements. Generally, the minimum ratio of apprentices to journeymen for SANDAG projects is no less than one hour of apprentice work for every five hours of journeyman work pursuant to California Labor Code section 1777.5.

Certain projects, however, such as design-build projects, have higher ratio requirements that increase over time pursuant to California Public Utilities Code section 22164.

California Labor Code Section 1777.5 also requires the Contractor to contribute the training fund portion of the fringe benefit to the appropriate apprentice trust fund or to the California Apprenticeship Council.

On federal-aid projects, the prime contractor and subcontractor must furnish evidence of federal registration for apprentices performing work on the contract. Federal registration must be provided on U.S. DOL Form ETA-671, Program Registration and Apprenticeship Agreement, or identified in a letter from the U.S. Office of Apprenticeship providing notice of registration. Form ETA-671 will provide the wage schedule for each registered apprentice.

Some federal-aid projects will contain a requirement for a minimum number of apprentices that must be used on the project. Contractors must provide the resident engineer and LCD with a plan identifying the specific training program to be used and how the contractor will achieve the number of apprentices to be used before work begins on the project.

7-1.5.F Partial Coverage

Contractors or subcontractors who are engaged in more than one SANDAG construction project at a time may use the same employees on two or more projects during a given work-week. Separate certified payrolls must be provided for individual contracts.

7-1.6 Labor Compliance Case Write Ups

After investigating the facts and determining that an apparent labor compliance violation has occurred with the assistance of the LCD, the LCS will determine the amount of penalty assessment and wage restitution due from the contractor in compliance with the contract's documents and the SANDAG Labor Compliance Manual and make recommendations to the resident engineer.

State labor compliance violation cases must be documented to include:

- A description of the facts and evidence collected to build the labor compliance violation case
- A spreadsheet showing a summary of wages and penalties due each employee
- Evidence provided by and statements made by the Contractor
- An analysis of the facts
- A case history

- Recommendations to the DIR

Investigations and case write ups for Title VI, Title VII, or other discrimination-related complaints will be carried out by either the SANDAG EEO officer or Title VI officer as appropriate.

7-1.6.A Withhold of Funds Hearing

Legal authority to withhold funds from the Contractor for labor compliance violations is provided by California Code of Regulations, Title 8, Section 16410-16414 and further discussed in the Public Works Manual by the DIR and Division of Labor Standards Enforcement (DLSE).

If SANDAG withholds, retains, or forfeits monies contract was due pursuant to direction from the DIR, the DIR will provide written notice to the contractor and to any affected subcontractor of a decision to withhold, retain, or forfeit funds. The notice must contain the following information:

- The amount to be withheld, retained, or forfeited.
- A short statement of the factual basis as to why the funds are to be withheld, retained, or forfeited; include the computation of any wages found to be due and the computation of any penalties assessed under the California Labor Code.
- Notice of the right to request a hearing and the manner and time within which a hearing must be requested.
- Notice that penalties can be recovered by the prime contractor from an offending subcontractor.
- The notice must be sent by certified mail to the last known address of the contractor and the offending subcontractor.

Once the notice has been provided to the contractor and/or offending subcontractor, SANDAG will withhold enough money to cover wage restitution and penalties as stated in the notice.

A contractor or subcontractor desiring a hearing regarding the withholding, retention, or forfeiture of an amount may request such a hearing by letter postmarked within 30 days of the date of the mailing of the notice provided above, mailed to the awarding body, and to the DLSE. Upon receipt of a timely request for a hearing, the Labor Commissioner, or his or her deputy or agent shall, within 30 days, hold a hearing to determine whether reasonable cause exists to withhold and retain the funds pursuant to Title 8, California Code of Regulations section 16414.

7-1.7 Debarment of Contractors

7-1.7.A SANDAG

SANDAG may debar contractors and deem them ineligible to bid on SANDAG procurement and construction contracts as outlined in Board Policy No. 024.

7-1.7.B Process for Filing a Debarment Complaint with the DIR

The DIR has the authority to debar contractors from bidding on public works projects at the state level. SANDAG can prepare a written complaint requesting the debarment of a contractor to the DIR for a final debarment determination. Anyone may file a debarment complaint, including an individual party. The requirements and procedures for debarment can be found in Section 1777.1, of the California Labor Code. Additional legal authority to debar contractors can be found in Title 8, Industrial Relations, of the California Code of Regulations.

The SANDAG director of MMPI may request that the LCS prepare a complaint for SANDAG with the DIR. The following information should be provided:

- An individual case summary of all SANDAG labor compliance enforcement actions
- A summary of prevailing wage cases filed against the Contractor
- Dollar amount of all withholds taken and penalties assessed
- Status of whether the cases were approved by the State Labor Commissioner’s office

The LCS will maintain a “SANDAG Labor Compliance Debarment Log” showing the dates of complaint preparation and when the complaint was sent to the DIR for a final decision.

The investigation and final determination for debarment rests solely with the DIR.

Final determinations will be forwarded to complainant and the awarding body.

7-1.7.C Federal Suspension and Debarment

Suspension and debarment apply to all federal-aid construction projects and are discretionary administrative actions taken to protect the federal government by excluding persons from participation in the federal assistance programs.

A suspension and debarment action ensures that the federal government does not conduct business with a person who has an unsatisfactory record of integrity and business ethics. The suspension and debarment actions are administered government wide; consequently, a person excluded by one federal agency is excluded from doing business with any federal agency.

7-1.8 Summary of Labor Compliance Law, Act, and Statute

This section provides an overview and content summary of labor compliance law, acts, and statutes.

7-1.8.A Federal Law

This is not an exhaustive list of applicable federal laws; however, it is a summary of the most frequently cited federal labor laws. The provisions of the law and citations are subject to change.

7-1.8.A.1 Copeland Act

- Full wages earned must be paid
- Deductions from wages must be authorized
- Proper payroll records must be kept for a period of three years after contract completion
- Statements of compliance must be submitted weekly by the prime contractor and all persons or firms performing work on the contract

7-1.8.A.2 Prevailing Wage Provisions of Davis-Bacon Act

- Wages paid to laborers and mechanics must not be less than the predetermined hourly rates (including fringe benefits) shown in the appropriate wage schedule
- Laborers and mechanics must be properly classified and paid according to the work actually performed
- Laborers and mechanics must be paid at least once a week
- The prevailing wage schedule, including fringe benefits and supplements (which can be the one printed in solicitation for the contract), and the minimum wage poster must be posted in a prominent place at the project site

7-1.8.A.3 *Work Hours Act of 1962*

- Forty hours is the standard workweek, any work over this limit must be compensated at no less than one and one-half times the basic hourly wage rate paid
- The contractor is liable to employees for unpaid wages
- The contractor is liable to the federal government for liquidated damages of \$10 per day per worker for each violation of the provisions of this act
- In the event of violations of the provisions of this act, the state may withhold from the progress pay estimate sufficient money to guarantee unpaid wages and liquidated damages
- Intentional violations are a federal misdemeanor (\$1,000 fine and/or six months' imprisonment)

7-1.8.A.4 *False Information Act*

- The making or use of false statements is a felony (\$10,000 fine and/or five years' imprisonment)
- The false statement poster shall be posted at one or more places where it is readily available to all personnel concerned with the project

7-1.8.B State Law

Following are some of the more frequently cited California Labor Code sections. The provisions of law and citations are subject to change.

- Sections 213 and 214 disallow a contractor from withholding funds improperly and requires employee authorization to withhold portions of the employee's wages
- Section 1725.5 requires a contractor to register with the California DIR to qualify to bid and be listed on a bid proposal
- Section 1729 holds the subcontractor liable for failure to comply with the prevailing wage requirements)
- Section 1742 allows the contractor to pursue a hearing on a determination of a willful wage violation case through the California DIR
- Section 1771.1 prohibits a contractor or subcontractor from qualifying to bid or be listed on a bid proposal and contract for public works if not registered with the California DIR. This requirement applies to bid proposals submitted on or after March 1, 2015, and any contract for public works entered into on or after April 1, 2015
- Section 1771.3 pertains to the State Public Works Enforcement Fund that serves to monitor and enforce the public works requirements.
- Section 1774 requires all workers be paid not less than the specified prevailing wage rate
- Section 1775 requires that penalties be assessed against the contractor for failure to pay employees prevailing wages
- Section 1776, requires the contractor and subcontractor to keep accurate records of wages paid, specifies which persons and under what circumstances these records may be inspected, and provides penalties for failure to comply
- Section 1777.5 pertains to apprenticeship standards and ratios, and nondiscrimination
- Section 1778 prohibits misuse of another person's wages

- Section 1779 prohibits a fee for employing a person in public works
- Section 1780 prohibits a fee for placing an order for employment on public works
- Section 1810 defines eight hours as a legal day's work
- Section 1811 restricts work to 8 hours per day and 40 hours per calendar week without overtime compensation
- Section 1812 requires the contractor to keep accurate records of hours worked and have records available for inspection by the awarding body
- Section 1813 provides penalties for violations of provisions of Sections 1810-1815 by any contractor
- Section 1814 provides that persons violating provisions of Sections 1810-1815 are guilty of a misdemeanor
- Section 1815 provides overtime payment at one and one-half times the basic rate of pay for hours of worked in excess of 8 hours per day and 40 hours per calendar week
- Section 2750.5 provides that a worker is presumed to be an employee unless proven to be an independent contractor

7-2 EQUAL EMPLOYMENT OPPORTUNITY

7-2.1 General

This section presents the requirements for administration of the nondiscrimination and EEO provisions of the Contract. The total EEO program is complex and involves functional units outside of construction. Requirements in this section apply primarily to activities and responsibilities resulting from contractual requirements and are not necessarily complete for either SANDAG or the contractor insofar as the total responsibilities and activities. The SANDAG policies regarding discrimination and harassment prevention, EEO, [SANDAG Board Policy No. 009, Discrimination Compliant Procedures](#), and DBE Programs Policy provides additional information from what is set forth in this manual and the contract.

7-2.2 Laws, Regulations, and Specifications

Federal and California requirements for public works contractors on the subjects of nondiscrimination and EEO are located in various places, including Title VI and Title VII of the Civil Rights Act of 1964, Section 12900 et seq. of the California Government Code, and Title 2 of the regulations of the Fair Employment and Housing Commission.

The contract sections concerning labor nondiscrimination and standard EEO requirements call the contractor's attention to these and other requirements. Under the terms of the contract, the contractor has responsibility for compliance by its subcontractors.

SANDAG EEO and DBE policy require the contractors and consultants that it contracts with to have EEO policies in place that forbid discrimination in violation of Titles VI and VII.

SANDAG also complies with the nondiscrimination laws and regulations set forth in Title VI and Title VII of the Civil Rights Act of 1964. Title VI is a federal law that prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance. Title VII is a federal law that protects individuals from discrimination in employment practices on the basis of race, color, religion, sex, or national origin.

7-2.3 Preconstruction Conference

The resident engineer or construction manager must discuss the nondiscrimination and EEO provisions of the contract at the preconstruction meeting or request that the LCD do so, and advise the contractor of the requirements in Titles VI and VII of the Civil Rights Act of 1964.

7-2.4 On-Site Interviews Related to Equal Employment Opportunity

The resident engineer and LCD, as well as the DIR, or project personnel conduct on-site interviews with employees of the contractor and subcontractors and can all play a role in monitoring compliance with EEO requirements. The LCD should conduct interviews for nondiscrimination and EEO at the rate of two employees per contract, per month, including at least one interview from the prime contractor and each subcontractor until such time as the contract is accepted or that all employees on the project have been interviewed. The number of interviews taken must constitute a representative sample of workers employed on the project.

In the case of a small contractor having two or three employees on the project for several months, it is unnecessary to keep taking interviews once all the contractor's staff have been interviewed and the resident engineer is satisfied that the contractor is fully compliant with the EEO provisions of the contract. If the resident engineer chooses to suspend further interview activity, he/she should document the decision in the project records.

During the interviews, person conducting the interviews should assure the interviewees that their statements, whether oral or written, will be kept confidential from the contractor if they request confidentiality. Interviewers should not disclose to the employer the identity of the employee without the employee's consent.

EEO interviews are done in conjunction with the labor compliance interviews as a means of verifying that the contractors and subcontractors are in compliance with the EEO and the labor nondiscrimination contract provisions as mandated by state and federal statutes and regulations.

In the event the resident engineer or LCD is put on notice that an EEO violation has or may have occurred or an EEO complaint is made, whether during the interview process or otherwise, the resident engineer should immediately report the matter to the SANDAG EEO Officer or Title VI Officer, as applicable, for investigation.

7-2.5 Federal-Aid Project Equal Employment Opportunity Posters

The resident engineer must ensure the EEO policy and the "Equal Employment is the Law" poster are posted in a prominent location for all employees on the project to review for the duration of the contract.

The resident engineer should check to see that the contractor has posted the correct notices when visiting each construction location as required by the Contract. The "Equal Employment Opportunity is the Law" poster also must be posted in the resident engineer's and the contractor's office.

7-2.6 Employee Complaints – Discrimination Complaint Processing

The process for investigation and handling of discrimination complaints is outlined in Board Policy No. 009.

A complaint that implicates the contractor's employment practice is discriminatory is considered an EEO complaint, and also may implicate Title VI. EEO complaints may originate as a direct complaint from the contractor's employees, as a result of a contractor employee interview, or based on other information concerning discrimination from an individual relating to the project of which SANDAG becomes aware. The resident engineer documents all EEO and Title VI complaints in a diary or on a memo to the project files. The public, contractors, suppliers, vendors, or employees may present these complaints. Complaints regarding EEO or Title VI are directed to the resident engineer, who provides the initial documentation regarding the complaint to the SANDAG EEO officer or Title VI officer, as applicable.

The EEO Officer may include the following items to the complainant:

- Form DFEH-159, Guide for Complainants and Respondents, a Department of Fair Employment and Housing brochure, available at <http://www.dfeh.ca.gov>
- Instructions on Filing a Charge of Employment Discrimination, an EEO Commission informational guide is available at <http://www.eeoc.gov/employees/howtofile.cfm> and <http://www.eeoc.gov/employees/charge.cfm>

During the investigation, the EEO officer or Title VI officer may send a notification letter to the contractor putting it on notice that an employee has alleged discrimination and that an employee or other individual was given notice of available recourse. The EEO officer or Title VI officer should not divulge the employee's or other complainant's name unless the employee/complainant has authorized such disclosure. The letter reminds the contractor of its obligation to conduct an investigation pursuant to contract requirements. Further SANDAG construction actions should be taken only on the advice and guidance of the EEO officer or Title VI officer.

7-2.7 Title VI and Environmental Justice Matters and Contract Administration

The Civil Rights Act of 1964, Title VI, Section 601 states in part, "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." Additionally, Executive Order 12898, which concerns environmental justice, prohibits discrimination against persons who are low income.

Any complaint implicating that the practices of SANDAG on a project may have the effect of discrimination based on race, color, national origin or income, whether involving a person working on the project or a person impacted by the project is considered a Title VI or environmental justice complaint. Such complaints may originate from a direct complaint made by the public or by a contractor or contractor's employee. Title VI or environmental justice complaints that occur during construction should be referred to the Title VI officer, who will investigate the complaint.

During construction, amendments to the contract may occur by contract change orders. Some contract change orders (CCOs) may invoke Title VI concerns or violate the principles of environmental justice. Environmental justice is the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. Examples of actions that could trigger Title VI or environmental justice concerns include new traffic detours, changes in the length or limits of the project, mitigation measure changes, materials changes, changes in contract-mandated material borrow or disposal sites, setup of portable hot asphalt concrete or concrete plants, or additional equipment or construction noise.

The resident engineer reviews significant contract changes and takes affirmative measures if needed to ensure nondiscrimination and preservation of environmental justice. If a change requires Title VI mitigation measures, the resident engineer will coordinate with SANDAG staff to determine if there is a need to conduct community meetings, prepare press releases, translate materials into other languages, or hire public relations consultants to keep communities informed and advised on project scope and schedule. The resident engineer evaluates the impacts of any significant change during construction including compliance with Title VI requirements and obtains advice from the Title VI officer as needed.

7-2.8 Contracts Containing “Federal Requirements Training Special Provision”

The training special provision (TSP) could be used on federal-aid projects when it is determined that the project is of sufficient size and duration to support full training periods and the federal agency(ies) providing funding for the project have directed that a training program be used on the project. The intent of the TSP is to enhance contractors’ EEO programs through on-the-job training. Training and upgrading of minorities and women are the primary objectives of the TSP. However, the contractor may not use the training program to discriminate against any applicants for training.

The TSP states the number of apprentices or trainees the contractor is required to use on the project and provides guidance on actions the contractor must take to meet the training provision.

In addition, the TSP may provide for reimbursement to the contractor at 80 cents per hour for each apprentice or trainee used on the project. If the TSP provision is used, additional information regarding its implementation and requirements will be set forth in the Contract.

7-2.9 Contractor’s Annual Equal Employment Opportunity (EEO) Report – Form FHWA-1391, Federal-Aid Highway Construction Contractors Annual EEO Report

The U.S. CFR, Title 23, Section 230.121 requires all prime contractors and subcontractors, regardless of tier, to submit the FHWA Form–1391 in July of each year. The form shows the composition of the contractor’s workforce by race and gender for each job category. The requirement is applicable to all prime contractors and subcontractors, regardless of tier, who have federal-aid contracts that exceed \$10,000 and that worked all or any part of the last full week of July. Contractors are subject to a progress pay deduction for failure to submit a satisfactory form. The applicable procedures and amounts are listed in the [Deducting Payment for Failure to Submit Reports](#) section of this chapter.

7-2.10 Deducting Payment for Failure to Submit Reports

The authority for initiating a deduction is contained in the contract, and more specifically, within the federal requirements for federal-aid construction projects, of federal-aid construction contracts. EEO deductions should be made in those situations when the contractor or subcontractor fails to submit the required training plans, fails to post the necessary EEO information, or when the contractor or subcontractor fails to provide the FHWA Form–1391, Federal-Aid Highway Construction Contractors Annual EEO Report.

7-3 DISADVANTAGED BUSINESS ENTERPRISE

7-3.1 General

The SANDAG policy is to ensure equal opportunity in the award and performance of its contracts. Part of this policy involves a program designed to increase the use of DBEs on federally-funded (FHWA and FTA) contracts. The DBE Program and SB Program is supervised by the director of Administration, who serves as the DBE Liaison Officer (DBELO).

Federal regulations define DBEs as firms owned and controlled by individuals who are both socially and economically disadvantaged. For the overall SANDAG federally-assisted program, SANDAG establishes an annual participation goal by DBEs.

Contract goals are set based upon the type of work in the contract and the availability of DBE firms to participate on the project in the geographical area used by SANDAG.

For every advertised contract containing DBE goals or percentage requirements, the contractor must submit information to SANDAG regarding the proposed use of DBEs.

Projects funded only by the state and local monies have no specific requirement for the use of DBEs. If the contractor uses DBEs or SBs; however, the contractor is required to provide documentation to the Contracts and Procurement manager at the close of the contract showing utilization of such firms. In addition, federal funding agencies have added SBs as a component to the DBE program. Therefore, SBs participation is an objective for locally- and state-funded projects as well as federal projects and must be monitored, tracked, and reported. SANDAG encourages the use of DBEs and SBs on all contracts, and contractors are urged to obtain such participation.

The contract contains the federal DBE requirements. Specific restrictions exist regarding the removal, termination, and replacement of DBEs listed on the contractor's commitment documents provided at the time of bid or proposal submission. DBE requirements are in addition to the requirements of Sections 4100–4114, Subletting and Subcontracting Fair Practices Act, of the Public Contract Code, which are described in the [Subletting and Subcontracting Fair Practices Act](#) section in [Chapter 3](#) of this manual.

7-3.2 Before Work Begins

The following procedures are to be used in the monitoring and enforcement of the subcontracting, DBE requirements, and the prompt payment clauses of the contract.

7-3.2.A DBE Commitment Form

The DBE commitment percentage is found on the first page of the contract. The DBE Commitment Form within the contract provides the resident engineer or designee with a listing of specific work to be done or materials to be furnished by specific DBEs and is based on information the contractor submitted during the bidding/proposal process. The resident engineer or designee will receive the approved commitment of DBE participation in the award package. For DBE participation commitments, bidders/proposers may use one of several forms to show their DBE commitment (i.e., Caltrans Exhibit 15-G or Caltrans Exhibit 10-O2). The advertised DBE goal may differ from what is shown in the commitment form, which is a specific contractual commitment by the contractor. The contractor must meet the DBE contractual commitment, regardless of the DBE goal that was advertised in the solicitation for the contract.

The resident engineer should review the commitment forms with inspection staff before work begins to ensure that field staff knows who should be performing DBE contract work. If the commitment form has not been provided in the award package or is incomplete, the resident engineer should contact the Contracts and Procurement manager or the construction manager to obtain complete information.

7-3.2.B Subcontractor List Versus DBE Commitment Form

The resident engineer should not construe the commitment of DBE subcontractors as a request to subcontract or a notice of intent to subcontract as required by the Subcontracting section of the contract's Special Provisions. However, the approved form does equate to a commitment from the contractor to meet the DBE requirements of the contract. In those instances where a DBE subcontractor is expected to exceed the dollar figure threshold (half of 1 percent of the total bid or when applicable, \$10,000, whichever is greater) specified in the Subletting and Subcontracting Fair Practices Act (FPA), the DBE also must be listed on the subcontractor list required by the FPA. Conversely, a DBE whose value of work falls below the FPA threshold will not be listed on the subcontractor list. Because the DBE may not be on the subcontractor list, the DBE commitment form and the subcontractor list may not match. First tier subcontractors listed on the Contractor's Local Agency Underutilized/Disadvantaged Business Enterprises (U/DBE) Commitment Form (Exhibit 15-G) must be listed on the Construction/Job Order Contract — Subcontractor Request Form. Refer to the [Procedure for Approval or Acknowledgment of Subcontractors](#) section in [Chapter 3](#) of this manual for additional information on first-tier subcontractors.

To cross-check DBE commitments, the resident engineer should compare the subcontractors and contract items listed on the subcontractor list and the relevant DBE commitment form. Identify any irregularities during the preconstruction conference.

7-3.2.C *Preconstruction Conference*

During the preconstruction conference, the LCD should review the DBE commitment details with the prime contractor and other attending parties. Inform the contractor of the contract requirements to use the committed DBE firms. Also inform the contractor that unless the work is performed or supplied by the listed DBEs or a substitution is approved, the contractor is not entitled to any payment for work or materials or may be subject to a 10 percent contract withhold. The preconstruction conference is a good opportunity for the prime contractor to inform SANDAG staff of any known issues prior to the work starting. If the contractor identifies any issues, follow the process identified in the [Substitution or Termination of Listed Firms](#) and [Adding DBEs](#) sections in this chapter. The SB Division must be notified of any DBE termination or substitution prior to work beginning by the replacement contractor, whether it is the prime contractor self-performing or a subcontractor.

7-3.3 *Activities During Construction*

7-3.3 A *Monitoring and Enforcement*

SANDAG is required by federal and state regulations to monitor worksites to ensure work committed to a DBE is actually being performed by the respective firms through ensuring a commercially useful function. The resident engineer or designee must certify in writing that a field review of DBE records occurred and the worksite was monitored by SANDAG staff.

The following procedures should be used by field staff to monitor and enforce the DBE requirements of the contract, including prompt payment.

1. When a DBE firm performs work on the contract, inspection staff must document in the daily inspection report the name of the firm, whether they are a DBE, who is supervising their work, and the associated contract items performed. Cross-check the inspection reports against commitment forms to ensure the appropriate firm is performing the work or providing the materials.
2. The resident engineer or LCD should interview workers of DBE subcontractors. For additional information on conducting interviews, refer the [Interviews with Contractor Personnel](#) section of this chapter.
3. The resident engineer should confirm with the SANDAG LCD that certified payroll records have been received for the DBE, if applicable.
4. If the DBE firm is a materials supplier, the LCD should request that the contractor provide documents such as delivery confirmation reports and canceled payment checks to confirm that the DBE supplied the materials.
5. If trucking is part of the contractor's DBE commitment, the resident engineer should ensure that trucking firms and drivers and associated items of work for each trucking firm are identified in daily inspection reports. In addition, the Resident Engineer or LCD should ensure the contractor submits Form CEM-2404F, Monthly DBE/UDBE Trucking Verification, by the 15th of the month for the previous month's trucking activities. The LCD should randomly confirm the information on these forms by requesting copies of weight tickets and cancelled payment checks from the contractor and cross-check the information against daily inspection reports as well.

6. The resident engineer should not allow a contractor to terminate or substitute a listed DBE from the contract without written consent. For information on the termination and substitution process, refer to the [Substitution or Termination of Listed Firms](#) section in this chapter. Bring to the attention of the SANDAG principal construction engineer and SB development manager any DBE-related topics needing discussion including DBE terminations and/or substitutions.
7. The resident engineer should withhold contract funds, as applicable, for improper substitutions, terminations, or failure to meet the contract's DBE commitments.
8. The resident engineer or LCD should bring to the attention of the SANDAG principal construction engineer and SB manager any complaints of failure by a contractor to promptly pay DBE firms.
9. The resident engineer should require the contractor to notify the resident engineer or designee in writing of any changes in DBE certification status; that is, if a DBE becomes decertified or a business entity becomes certified as a DBE. For additional information on changes in DBE certification status, refer to the [Substitution or Termination of Listed Firms](#) section of this chapter.
10. Consulting with the principal construction engineer and SB manager for questions on implementing DBE enforcement activities.
11. The resident engineer or designee must also is responsible for ensuring that:
 - a. All subcontractors are added into the SANDAG Compliance Information Systems (CIS)
 - b. All subcontractors payments and audits are completed in CIS; if not completed, the resident engineer must follow up with the contractor
 - c. The DBE commitment is being monitored and tracked in CIS and notifies the SANDAG SB manager if the DBE commitment is not being met
12. Ensuring that DBEs are performing a Commercially Useful Function based on the scope of work and it is documented on the daily diaries.
13. Performing DBE monitoring and Commercially Useful Function (CUF) reviews on work performed by DBE contractors, subcontractors, truckers, regular dealers, or manufacturers through the life of the project to ensure all DBE Program requirements are met as required under the terms established in 49 CFR Part 26. Specific requirements include but are not limited to the following:
 - a. CUF reviews shall be in accordance with the terms established in 49 CFR §26.55. The resident engineer or designee will conduct CUF reviews to ensure each listed DBE firm is responsible for execution of the work of the contract or a distinct element of the work by actually performing, managing, and supervising the work involved. The resident engineer or designee is responsible for will identifying the following key factors that will be analyzed when determining whether a CUF is being performed:
 - i. Evaluating the amount of work subcontracted and whether it is consistent with normal industry practices
 - ii. Evaluating of whether the amount the firm is paid under the contract is commensurate with the work that is actually being performed to be credited towards the goal

- iii. When the DBE furnishes materials, confirming that the DBE rather than a third party is responsible for negotiating the price, for determining the quality and quantity of the material, ordering the material, and paying for it.; a DBE firm would typically be hired to both furnish the material and install it with its own labor force;
 - iv. Evaluating whether the DBE's role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. The resident engineer or designee will determine if the role of the DBE merely is a contrived arrangement for the purpose of meeting the DBE contract goal by the contractor.
- 14. Conducting CUF site visit reviews. If at a project site, the resident engineer or designee will sign-in with at the prime contractor's office and inform the prime contractor that they are performing a CUF review and ask to be shown where the DBE firm(s) is currently working. Before approaching the DBE firm, the resident engineer or designee will take pictures of the work area and review that the DBE is actually performing work. The resident engineer will identify the foreman or supervisor and interview him/her regarding the work being performed. The resident engineer or designee shall ensure it has taken necessary safety training and wears appropriate safety equipment before entering the worksite.
- 15. Filling out and submitting Subcontractor/Subconsultant Commercially Useful Function Questionnaires to the Office of Small Business.
- 16. Providing monthly written reports to Office of Small Business on contractor(s) noncompliance issues, CIP payment audits on all subcontractors, and any other DBE related matters.
- 17. Discussing with the Office of Small Business should a CCO need a DBE goal. Refer to the [Contract Change Orders](#) section in [Chapter 5](#) of this manual for details.

7-3.3.A.1 When the Listed DBE Does Not Perform the Work

If SANDAG personnel or designee observe that firms other than those listed are doing the work or providing the materials, promptly notify the contractor in writing that an apparent violation is taking place and that failure to comply with the DBE contract requirements will result in a withhold in the full amount of the items or work listed. If you make an initial verbal warning, note this fact in the resident engineer's daily report. Also, for this work, hold an administrative deduction on the next estimate for the dollar amount of work that should have been performed to date as listed on the DBE Commitment Form for the specific firm.

If the first notice is ineffective for any reason, send another written notice describing the violation to the contractor. Include a warning that failure to comply with the DBE contract requirements will result in a withhold in the full amount of the items of work listed.

If the written notice fails to achieve results, the resident engineer will submit to the Contracts and Procurement Division a memorandum noting the following:

- The apparent violation
- Actions taken
- The contractor's subsequent action or inaction
- Documentation of the notices sent to the contractor

The Contracts and Procurement Division should review the memorandum with the Small Business Development manager for consistency the actions taken and then forward this documentation to the DBELO. Include any SANDAG contracts/SB recommendations for action. When necessary, the DBELO will investigate the apparent violation and notify the federal authorities as appropriate.

The actions described above are in addition to any that must be taken for violations of the subcontracting provisions of the contract special provisions and of the FPA.

7-3.3.A.2 Monthly DBE Trucking Verification Form

When DBE trucking is approved on the Local Agency U/DBE Commitment Form (Exhibit 15-G), the contractor must submit to the resident engineer Form CEM-2404 (F), Monthly DBE Trucking Verification, before the 15th of each month (this form is found in the contract). The form must include the following for all trucking performed during the reporting period:

- The truck owner's name
- The truck number
- The CA number issued by the CHP
- The truck owner's DBE certification number
- The company name and address
- The commission or amount paid
- The date paid
- The lease arrangement

If the prime contractor fails to submit the form, the resident engineer must hold an administrative deduction for missing documents.

In determining how much credit percentage to allow for the trucking company toward the DBE contract commitment, refer to the DBE Crediting Provisions section of the contract's Special Provisions.

7-3.3.B Substitution or Termination of Listed Firms

The resident engineer must not allow a prime contractor to terminate or substitute a listed DBE firm without prior written consent from SANDAG. This includes allowing the prime contractor to self-perform work originally committed to a DBE firm. Requests for termination or substitution of a listed DBE firm must be in writing. Such requests will be reviewed by the Small Business Development manager.

7-3.3.B.1 DBE Substitutions

For DBE substitutions, follow the process listed below. The prime contractor is required to replace the listed DBE with another certified DBE or conduct a good faith effort to do so to the extent needed to meet the DBE committed dollar value, committed goal, and percentage commitment.

Require the contractor to submit a written request for substitution of a listed DBE. Section 7-3.01, DBEs, Performance of Subcontractors, of the contract identifies the information required for a contractor-requested substitution. Review the contractor's written request and ensure it includes all of the following:

- One of the reasons for substitution as identified in the special provisions
- A copy of the five-day notice from the contractor to the DBE regarding the substitution, including verification that the DBE received the notice

- The DBE's response to the five-day notice
- If applicable, the contractor's good faith effort documentation addressing the eight requirements found in Section 2-1.12B(3), Good Faith Efforts Submittal, of the Standard Specifications.

If the request for substitution does not include the required information, notify the contractor of the requirement to comply with the contract and do not proceed with the substitution request.

If the DBE objects to the five-day notice of substitution, SANDAG must conduct a hearing on the substitution request. The prime contractor and DBE must be provided at least a five-day written notice of the scheduled hearing. If the DBE does not object to the substitution or does not respond to the contractor's notice within the five-day timeframe, the substitution can occur with another DBE or non-DBE as a result of an approval of the good faith effort. To document written substitution approval, complete Caltrans Form CEM-2401, Substitution Report for DBE, or equivalent and provide a copy to the contractor.

If the prime contractor replaces a listed DBE without written approval from the SANDAG Office of Small Business and resident engineer, payment for the items of work committed to the DBE must be temporarily withheld from the next progress payment. Send the prime contractor written notice of the improper substitution and payment withhold. In addition, if the DBE also is a subcontractor required to be listed at bid time by the FPA, the substitution process must comply with the [Hearing Process for Substitution Violations](#) section in [Chapter 3](#) of this manual. If the substitution is found to be in violation of the FPA, the hearing officer may assess the prime contractor a penalty of up to 10 percent of the subcontract amount. Any temporary withholds become permanent when a violation is confirmed.

Federally-funded contracts require the contractor to report a DBE firm that becomes certified or decertified during the course of the project. A DBE subcontractor that becomes decertified during the course of the project must notify the contractor in writing with the date of decertification. In the same manner, a subcontractor that becomes a certified DBE during the course of the project must notify the contractor in writing with the date of certification. See the Disadvantaged Business Enterprises Certification Status Change form provided with the contract.

The prime contractor must notify the resident engineer or designee if the contractor becomes aware of a DBE obtaining or losing its certification during construction.

The contractor must still honor contractual commitments with a DBE firm performing work on the contract even if the DBE loses its certification during construction. No substitution is required.

For federal reporting purposes only, DBE credit for SANDAG will be limited to payments made while the firm was certified. This has no effect on the Final Report – Utilization of all Subconsultants/Subcontractors, U/DBEs, and SBs form, which should show the total paid to the DBE. For additional information on the final report, refer to the [Final Report – Utilization of all Subcontractors, U/DBEs, and SBs](#) section in this chapter.

7-3.3.C Adding DBEs

SANDAG permits and encourages the contractor to increase the amount of work to DBEs over what was originally listed for contract commitment. If a portion of the work will be subcontracted, the contractor must comply with Section 8-1.01, Subcontracting, of the contract special provisions and with the FPA. For the procedures for subcontracting see the [Prosecution and Progress](#) section in [Chapter 3](#) of this manual. Place a copy of the Contractor's request in the project file for later reference when approving Final Report – Utilization of all Subconsultants/Subcontractors, U/DBEs, and SBs form, the SANDAG Contracts and Procurement Division will review the add DBE subcontractor requests from CIS and notify the resident engineer if the listed DBE is not performing a commercially useful function.

7-3.4 Forms Required After Contract Acceptance

The following forms are required after contract acceptance. Refer to the contract for the specific due date of each form.

7-3.4.A Final Report – Utilization of all Subcontractors, U/DBEs, and SBs

The specifications require the contractor to submit to the resident engineer the Final Report – Utilization of all Subconsultants/Subcontractors, U/DBEs, and SBs form (aka Final Utilization Report [FUR]) upon completion of the contract work. This final report provides key information required to certify that DBE firms participated on the contract and were paid for the work performed including non-certified firms.

The resident engineer and contractor should ensure the FUR includes the following information:

- The names and addresses of DBE/SB firms and all first-tier subcontractors
- The date each of the firms completed the work
- The date of final payment to the firms
- The total dollar figure paid to each firm
- All actual expenditures (not the contract item prices) paid to DBEs
- Any lower-tier DBEs or SBs that were used, even if the firms were not originally listed in the bid submittals for the purposes of goal attainment

If the prime contractor is a DBE firm, the records also must show the date of work performed by its own forces, along with the corresponding dollar value of the work claimed toward DBE commitments. The Small Business manager will require that the contractor submits a complete form if any of the required information is not included.

The resident engineer or designee must compare the contractor's original dollar commitment with the amount shown on the final report and SANDAG's CIS. The resident engineer also must review the contractor's calculations to verify that the appropriate amount is credited for participation of DBE suppliers, truckers, SBs, and all subcontractors. Below are the criteria for crediting DBE supplier and trucker participation:

- One hundred percent credit if the materials or supplies are obtained from a DBE manufacturer.
- Sixty percent credit if the materials or supplies are obtained from a DBE regular dealer.
- Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies, if they are obtained from a DBE that is neither a manufacturer nor regular dealer. CFR, Title 49, Section 26.55 defines "manufacturer" and "regular dealer."
- One hundred percent credit for the total value of the transportation services the DBE provides on the contract using trucks it owns, insures, and operates using drivers it employs or leases from another DBE.
- Actual fee or commission amount for participation by non-DBE trucks leased by DBEs.

If any question exists concerning the report's accuracy the resident engineer should require a written explanation from the contractor. The response must explain any differences between the initial DBE commitment form and the FUR, unless the contractor's comments on the FUR are in sufficient detail to provide the explanation. Examples of items the contractor would need to explain in writing include why the names of lower-tier subcontractors, the work items, or dollar figures do not match the contractor's initial plan. The resident engineer should attach an additional explanation to the FUR. (Note: Submission of the FUR does not relieve the contractor of all of its DBE obligations. If it does not meet the DBE commitment, the resident engineer should consult with the SB manager prior to release of final \$10,000 payment.)

For federally-funded projects only, if the contractor's DBE attainment falls short of the contract's DBE commitment, hold only the amount of contract funds necessary to meet the original contract's DBE commitment. If funds were previously withheld from the contractor for failure to meet DBE participation requirements, continue to hold only the amount of contract funds necessary to meet the original DBE contract goal. Any penalties previously assessed for violations of the FPA are not returned to the contractor, even if the contractor meets the DBE commitment with other DBE firms. If the contractor does not attain the original DBE commitment for reasons beyond its control, then it is possible that no funds should be withheld; however, the reasons for the failure to meet the commitment must not be based on a unilateral decision by the contractor. For example, if a CCO eliminates all or a portion of an item originally designated to be performed by a DBE, this situation is beyond the contractor's control. In such a situation, the contractor should consult with the resident engineer and SB manager concerning an adjustment to the DBE commitment. The resident engineer should consult with the SANDAG SB manager for questions regarding withheld funds for DBE participation.

If no issues with the FUR are identified, the resident engineer or designee signs the FUR. The signature of the resident engineer provides written certification of DBE participation through onsite monitoring and record review activities. The FUR (together with the contractor's narrative) must be sent to the SANDAG Contracts and Procurement Division by email at constructioncontracts@sandag.org. A copy should also be sent to the SANDAG SB manager and SANDAG principal construction engineer.

At contract completion, the contractor must submit the FUR to the resident engineer or designee within 90 days from the date of contract acceptance. The amount of \$10,000 will be withheld from payment until a satisfactory form is submitted. The contractor also may be required to submit additional documentation per Contract Special Provisions, Section 7-3.01, DBE.

7-3.4.B DBEs Certification Status Change (Federal-Aid Contracts)

To document and report changes to DBE certification, the contractor must complete the DBE Certification Status Change form (Caltrans Exhibit 17-O). The form must list the amount of money paid to the DBE while it was certified.

The contractor must submit the form at the contract's completion, regardless of any changes in DBE status. If no change in DBE status occurs during the life of the contract, the contractor must write, "no change" across the fields of Form CEM-2403(F). If the prime contractor fails to submit the form, the resident engineer may include this report as part of the OOD deduction when preparing the after-acceptance payment.

7-4 SKILLED AND TRAINED WORKFORCE

7-4.1 General

This section presents guidelines for administering the skilled and trained workforce requirements of Public Contract Code (§2600-§2603). Under § 132354.7 of the Public Utilities Code, SANDAG is not to enter into a construction contract over one million dollars with any entity unless the entity provides an enforceable commitment that the entity and its subcontractors at every tier will utilize a skilled and trained workforce to perform all work on construction contracts.

7-4.2 Specifics

The Public Contract Code §2601 defines a skilled and trained workforce as a workforce that meets all of the following.

All workers performing work in an apprenticeable occupation in the building and construction trades are either:

- Skilled journeypersons
- Apprentices registered in an apprenticeship program approved by the chief

A skilled journeyperson is defined as a worker who has either:

- Graduated from an apprenticeship program for the applicable occupation
- Has at least as many hours of on the job experience in the applicable occupation as would be required to graduate from an apprenticeship program for the applicable occupation

Additionally, the Public Contract Code requires a percentage of the skilled journeypersons on the job to be program graduates. Specifically, for work performed on or after January 1, 2019, at least 50 percent of the skilled journeypersons employed to perform work on the contract or project by every contractor and each of its subcontractors at every tier are graduates of an apprenticeship program for the applicable occupation. (PCC §2601). This percentage increases to 60 percent effective January 1, 2020 (there are currently no published increases after 2020).

However, specific crafts are either exempt from achieving any percentage of apprenticeship program graduates or are capped at a 30 percent. The craft that is exempt from achieving any percentage of apprenticeship program graduates is:

- Teamster

The crafts capped at a 30 percent are as follows:

- Acoustical installer
- Bricklayer
- Carpenter
- Cement mason
- Drywall installer or lather
- Marble mason
- Finisher or setter
- Modular furniture or systems installer

- Operating engineer
- Pile driver
- Plasterer
- Roofer or waterproofer
- Stone mason
- Surveyor
- Terrazzo worker or finisher
- Tile layer, setter, or finisher

Per Public Contract Code §2601 (4), during a calendar month, the graduation percentage requirements can be satisfied by one of the following:

- Employing at least the required percentage of skilled journeypersons to perform work on the job.
- Ensuring that the hours of work performed by skilled journeypersons on the job is at least equal to the required graduation percentage.

The Public Contract codes also outlines two exemptions from the percentage of graduate requirements entirely. These exemptions are as follows:

- If, during the calendar month, the contractor or subcontractor employs skilled journeypersons to perform fewer than ten hours of work on the contract or project.
- If the subcontractor was not a listed subcontractor under § 4104 or a substitute for a listed subcontractor and the subcontract does not exceed one-half of 1 percent of the price of the prime contract.

7-4.3 Skilled and Trained Workforce Responsibilities

7-4.3.A Contractor Responsibilities

The Public Contract Code §2602 requires contractors and subcontractors at every tier to comply with the skilled and trained workforce requirements. To do so, the contractor and each subcontractor at every tier will, on a monthly basis, provide a report demonstrating compliance with the Code. A complete report must include the following (at a minimum) in a form provided or acceptable by SANDAG:

- Name of each apprenticeable occupation on project.
- Hours worked during the month for each apprenticeable occupation (hours must distinguish between number of employees who are apprentice program graduates and hours of employees who have equivalent on the job experience).
- Number of Skilled Journeyperson (number must distinguish between number of employees who are apprentice program graduates and the number of employees who have equivalent on the job experience).
- The percentage of graduated journeypersons for each classification employed.
- The signature of an authorized agent of the contractor/subcontractor.

In the event the report provided demonstrates non-compliance with skilled and trained workforce requirements, the contractor and/or subcontractor must provide a plan to achieve substantial compliance with the requirements.

7-4.3.B Project or SANDAG Labor Compliance Designee Responsibilities

The LCS and LCD are required to administer compliance with the skilled and trained workforce requirements. The LCD's specific responsibilities include the following (refer to the Skilled and Trained Workforce Flowchart in Appendix 7-2):

- Collecting and reviewing the monthly reports submitted by each contractor/subcontractor.
- If the contractor provides a report that is incomplete, the LCD shall work with the resident engineer to withhold further payments until a complete report is provided.
- If a monthly report is incomplete due to the failure of a subcontractor to timely submit the required information to the contractor, withholding an amount equal to 150 percent of the value of the monthly billing for the relevant subcontractor
- If a monthly report submitted does not demonstrate compliance with the skilled and trained workforce requirements, the LCD shall work with the resident engineer to do the following:
 - Withhold 150 percent of the value of the monthly billing for the relevant contractor/subcontractor until the contractor/subcontractor provides a plan to achieve substantial compliance with the Public Contract Code (§2600-§2603) prior to the completion of the contract or project
- Upon receipt of a complete report and an acceptable plan to achieve compliance, notifying the resident engineer to immediately resume making payments to the contractor/subcontractor
- Forwarding, on a monthly basis, a copy of all non-compliant monthly reports to the Labor Commissioner at the following address for issuance of a civil wage and penalty assessment:
Division of Labor Standards Enforcement
2031 Howe Avenue No.100
Sacramento, CA 95825
- Forwarding, on a monthly basis, a copy of the plan, if any, submitted by the contractor/subcontractor to achieve substantial compliance and SANDAG's response to that plan to Labor Commissioner.

7-4.3.C SANDAG Resident Engineer Responsibilities

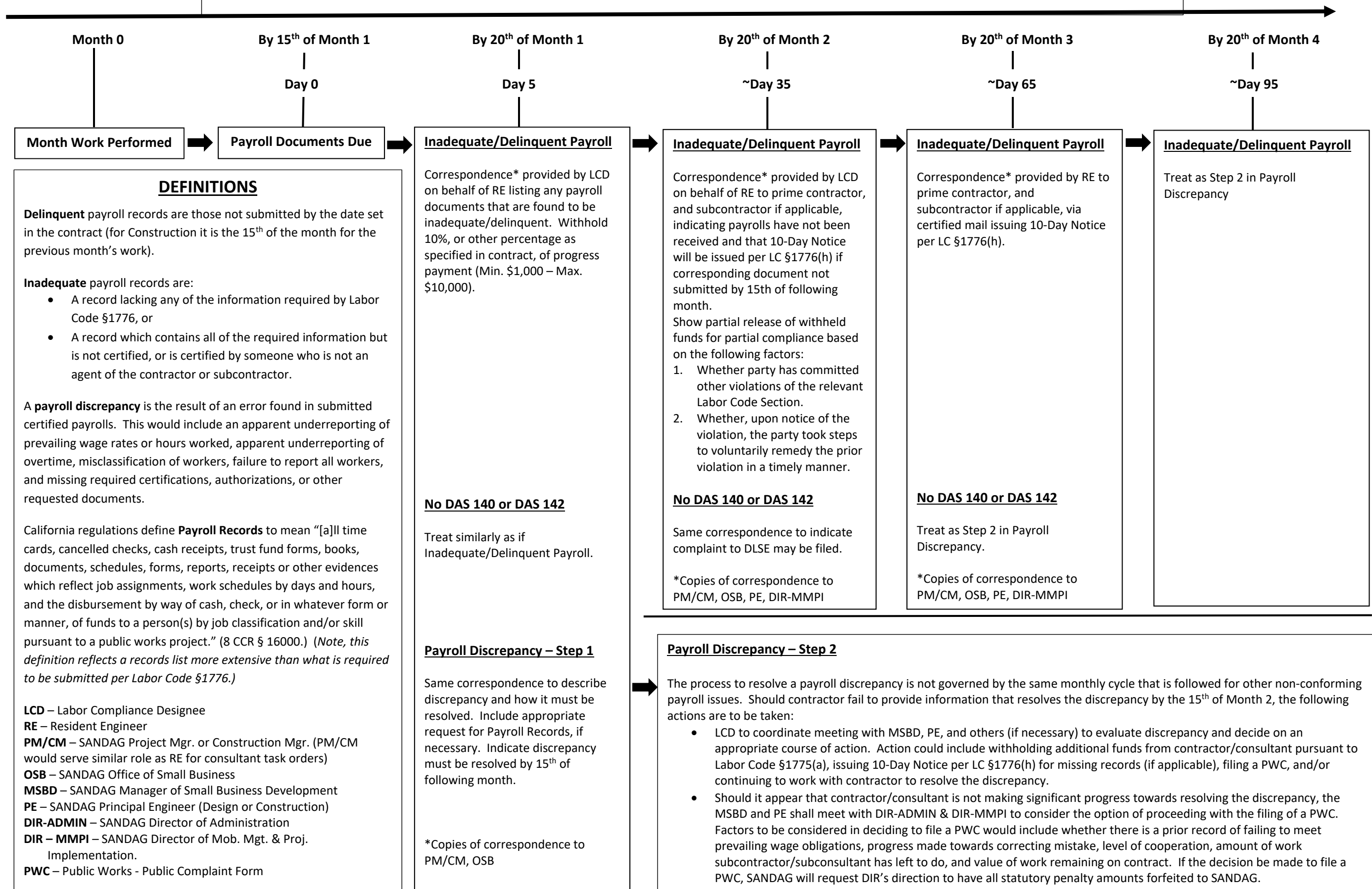
The SANDAG resident engineer is required to work alongside the LCS and LCD to ensure compliance with Public Contract Code (§2600-§2603) and the contract are met. The resident engineer's responsibilities include, but may not be limited to:

- Reviewing the monthly skilled and trained deficiency report provided by the LCD, along with list of non-compliant entities.
- Obtaining a breakdown of the monthly billing by the prime contractor, which must include the monthly billing for each subcontractor on the project during the calendar month.
- Per the Deficiency Report and non-compliant entity list provided by the LCD:
 - Withholding 150 percent of the value of the monthly billing for the relevant contractor/subcontractor
 - Releasing additional monthly billing funds to the prime contractor
- Resume making payments and release previous withholds upon the receipt of an update by the LCD that the contractor/subcontractor has submitted a plan to achieve substantial compliance.
- Maintaining records of all DLSE submissions made by the LCD on behalf of SANDAG.

Appendix 7-1: Labor Compliance Non-Conformance Escalation Process

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LABOR COMPLIANCE NON-CONFORMANCE ESCALATION PROCESS

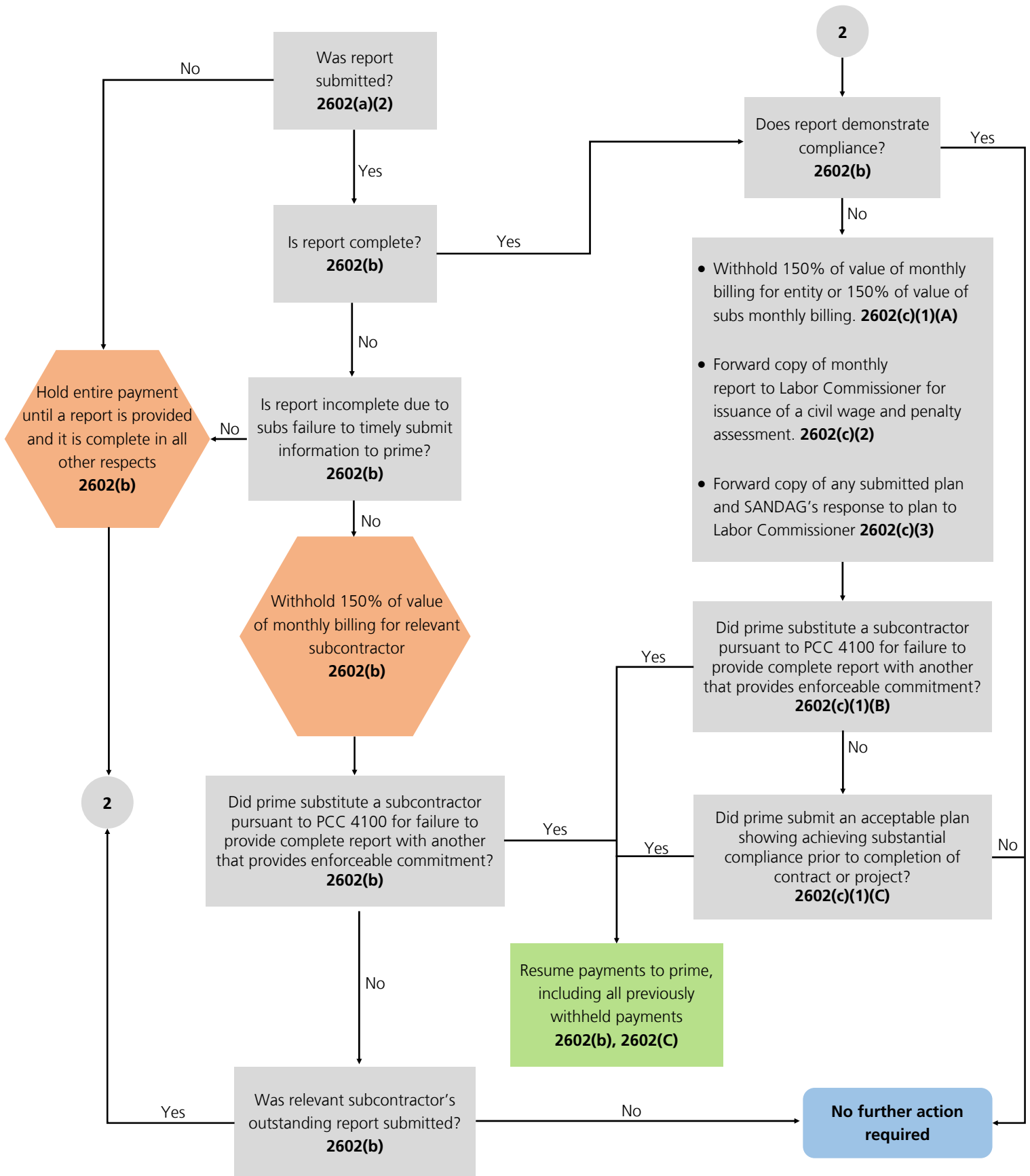


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Appendix 7-2: Skilled and Trained Workforce Flowchart

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Skilled and Trained Workforce Monthly Report Review Process Workflow



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Appendix 7-3: Skilled and Trained Workforce Monthly Certification Form

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Skilled and Trained Workforce Certification Form

Month: _____ Year: _____

In accordance with Public Utilities Code section 132354.7 and Public Contract Code sections 2600-2602,
_____ (the “Prime Contractor”) certifies that all the

(Prime Contractor Name)

workers performing work in an apprenticeable occupation utilized on the project known as
_____ (the “Project”) during this monthly reporting

(Project Name)

period are either skilled journeypersons or apprentices registered in an apprenticeship program approved by the Chief of the Division of Apprenticeship Standards of the California Department of Industrial Relations (the “Chief”).

“Skilled journeyperson” means a worker who either:

- (1) Graduated from an apprenticeship program for the applicable occupation that was approved by the Chief or apprenticeship program located outside California and approved for federal purposes, pursuant to the apprenticeship regulations adopted by the Federal Secretary of Labor.
- (2) Has at least as many hours of on-the-job experience in the applicable occupation as would be required to graduate from an apprenticeship program that is approved by the Chief.

In addition, the Prime Contractor certifies that it has met the requirements of Public Contract Code 2601(d), subject to certain exceptions set forth therein, that the required percentage of the skilled journeypersons or skilled journeyman hours employed to perform work on the Project by the Prime Contractor and all subcontractors are graduates of an apprenticeship program for the applicable apprenticeable occupation¹.

A graduate of an apprenticeship program means either of the following:

- (1) An individual that has been issued a certificate of completion under the authority of the California Apprenticeship Council for completing an apprenticeship program approved by the Chief pursuant to Section 3075 of the Labor Code, or
- (2) An individual that has completed an apprenticeship program located outside California and approved for federal purposes pursuant to the apprenticeship regulations adopted by the federal Secretary of Labor.

I declare, under penalty of perjury under the laws of the State of California, that the foregoing is true and correct. I certify that the attached Skilled and Trained Workforce Monthly Compliance Reports are complete and accurate.

Full Name: _____

Title: _____

Signature: _____ Date Signed: _____

Please upload the completed form to the Labor Compliance Monitoring System (LCMS) monthly.

¹ But for certain exceptions set forth in PCC §2601, skilled journeypersons employed to perform work on the Project by Contractor or subcontractors at every tier must be graduates of an apprenticeship program for the applicable occupation at the following percentages per Section 2601: at least 30 percent for work performed on or after January 1, 2017; at least 40 percent for work performed on or after January 1, 2018; at least 50 percent for work performed on or after January 1, 2019; and at least 60 percent for work performed on or after January 1, 2020. The requirement for 2018, 2019, and 2020 shall not apply to work performed in the following occupations: acoustical installer, bricklayer, carpenter, cement mason, drywall installer or lather, marble mason, finisher, or setter, modular furniture or systems installer, operating engineer, pile driver, plasterer, roofer or waterproofer, stone mason, surveyor, terrazzo worker or finisher, and tile layer, setter, or finisher. These apprenticeable occupations must meet a minimum apprenticeship graduate ratio of 30 percent.

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Appendix 7-4: Skilled and Trained Workforce Monthly Compliance Report

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Insert contractor name/letterhead here

Skilled and Trained Workforce Monthly Compliance Report

DIRECTIONS: This form is required to be submitted by the Prime for all contractors regardless of tier by the 15th of the following month for work performed corresponding to this reporting period. Items with a red asterisk (*) indicate a required field.

Project Title *	<input type="text"/>		
Project Number *	<input type="text"/>		
Prime Contractor *	<input type="text"/>		
Subcontractor *	<input type="text"/>		
Contact Name *	<input type="text"/>		
Contact Number *	<input type="text"/>		
Work Month & Year *	Month	Year	
	<input type="text"/>	<input type="text"/>	
Exemptions *	The contractor or subcontractor need not meet the apprenticeship graduation requirements if either (1) is true, or (2)(A) and (2)(B) are both true:	Please select * (True/False)	Exempt or non-exempt?
	(1) The contractor or subcontractor employed skilled journeypersons to perform fewer than 10 hours of work on the project during this reporting period?	<input type="text"/>	Exempt if (1) is "True".
	(2) (A) The subcontractor was not a listed subcontractor under Section 4104 or a substitute for a listed subcontractor. (2) (B) The subcontract does not exceed one-half of 1 percent of the price of the prime contract.	<input type="text"/>	Exempt if both (2)(A) and (2)(B) are "True".

Report * Please fill out the following report for all apprenticeable occupations utilized in this reporting period.

SKILLED JOURNEYPerson (SJ) REPORT							
Apprenticeable Occupation (use dropdown menu) *	Required minimum SJ: Apprentice Graduate percentage (see 2nd page attachment) *	Number of Skilled Journeypersons (SJ) employed by the contractor to perform work on the project		SJ ratio between the number of SJ: Apprentice Graduates to SJ: On-The-Job Experience workers	Number of hours worked by SJ employed by the contractor to perform work on the project		SJ ratio of hours worked by SJ: Apprentice Graduates compared with SJ: On-The-Job Experience workers
		SJ: Apprentice Graduate *	SJ: On-The-Job Experience *		SJ: Apprentice Graduate *	SJ: On-The-Job Experience *	
EXAMPLE Laborer	40%	7	3	70%	30	70	30%

Terms	Definitions
Apprentice	Defined in Labor Code 3077
Skilled Journeyperson: Apprentice Graduate	Defined in Public Contracts Code 2601 (e) (1)
Skilled Journeyperson: On-The-Job Experience	Defined in Public Contracts Code 2601 (e) (2)

Apprenticeable Occupations (San Diego County)	Annual Apprenticeship Graduation Rate Minimum Requirements for Employed Skilled Journeypersons (%)		
	January 1 2018	January 1 2019	January 1 2020
Asbestos Worker, Heat and Frost Insulator	40	50	60
Boilermaker - Blacksmith	40	50	60
Bricklayer	30	30	30
Bricktender	40	50	60
Bridge Carpenter	30	30	30
Building Construction Inspector and Field Soils and Material Tester	30	30	30
Carpenter	30	30	30
Carpet, Linoleum and Resilient Floor Layer	40	50	60
Cement Mason	30	30	30
Drywall Finisher	40	50	60
Drywall Installer/Lather (Carpenter)	30	30	30
Electrician: Inside Wireman	40	50	60
Electrician: Sound and Signal Technician	40	50	60
Electrical Utility Lineman	40	50	60
Elevator Constructor	40	50	60
Field Surveyor: Chainman/Rodman	30	30	30
Field Surveyor: Chief of Party	30	30	30
Glazier	40	50	60
Horizontal Directional Drilling (Laborer)	40	50	60
Ironworker	40	50	60
Laborer	40	50	60
Landscape/Irrigation Fitter	40	50	60
Landscape/Irrigation Laborer	40	50	60
Marble Finisher	30	30	30
Metal Roofing Systems Installer	40	50	60
Millwright	40	50	60
Modular Furniture Installer (Carpenter)	30	30	30
Operating Engineer	30	30	30
Operating Engineer: Dredger	30	30	30
Operating Engineer: Landscape Construction	30	30	30
Painter	40	50	60
Painter: Industrial Painter	40	50	60
Parking and Highway Improvement (Striper-Laborer)	40	50	60
Pile Driver (Carpenter)	30	30	30
Plasterer	30	30	30
Plaster Tender	40	50	60
Plumber, Pipefitter, Steamfitter	40	50	60
Roofer	30	30	30
Sheet Metal Worker	40	50	60
Sprinkler Fitter (Fire Protection/Fire Control Systems)	40	50	60
Stator Rewinder	40	50	60
Terrazzo Finisher (Carpenter)	30	30	30
Terrazzo Installer (Carpenter)	30	30	30
Terrazzo Finisher	30	30	30
Terrazzo Worker	30	30	30
Tile Finisher	30	30	30
Tile Layer	30	30	30

Please visit the California Legislative Information website for further information on Public Contracts Code (PCC) 2600-2602, <https://leginfo.ca.gov/>.



Appendix A

Glossary – Abbreviations

Used in the SANDAG

Construction Manual

Construction Division
Department of Mobility Management and Project Implementation

Glossary

A

ADL	Aerially Deposited Lead
AMS	Alternative Management Standards
AOC	Area of Contamination
ARB	Air Resources Board
AS	Approved Signatory
AWS CWI	American Welding Society Certified Welding Inspector
AWT	Awareness Training

B

BMP	Best Management Practice
BOE	Board of Equalization

C

CAD	Computer-Aided Design
CAID	California Identification
Cal/OSHA	California Division of Occupational Safety and Health Administration
CCO	Contract Change Orders
CCR	California Code of Regulations
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CHP	California Highway Patrol
CIS	Compliance Information Systems
CMC	Construction Management Consultant
CMT	Construction Management Team
CMT	Construction Management Team
COSP	Code of Safe Practices
COZEEP	Construction Zone Enhanced Enforcement Program
CPUC	California Public Utilities Commission
CQC Plan	Contractor Quality Control Plan
CSC	Construction Safety Coordinator
CUF	Commercially Useful Function

D

DAS	Division of Apprenticeship Standards
DBE	Disadvantaged Business Enterprise
DBELO	Disadvantaged Business Enterprise Liaison Officer
DEP	Data Entry Person
DIR	Department of Industrial Relations
DLSE	Division of Labor Standards Enforcement
DRB	Dispute Review Boards
DSB	Disposal, Staging, and Borrow
DTSC	California Department of Toxic Substances Control

E

ECO	Environmental Compliance Officer
ECRCM	Environmental Commitments Record and Compliance Matrix
EEO	Equal Employment Opportunity
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
Escalation Process	Labor Compliance Non-Conformance Escalation Process

F

FHWA	Federal Highway Administration
FPA	Subletting and Subcontracting Fair Practices Act
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FUR	Final Utilization Report

I

IIPP	Injury and Illness Prevention Program
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L

LCD	Labor Compliance Designee
LCMS	Labor Compliance Monitoring System
LCS	Labor Compliance Staff
LRP	Legally Responsible Person

M

MAZEEP	Maintenance Zone Enhanced Enforcement Program
MMPI	Mobility Management and Project Implementation
MOU	Memorandum of Understanding
MTS	Metropolitan Transit System

N

NAICS	North American Industry Classification System
NCTD	North County Transit District
NDT	Non-Destructive Testing
NEPA	National Environmental Policy Act
NOA	Naturally Occurring Asbestos
NOI	Notice of Intent
NOT	Notice of Termination

O

OOD	Other Outstanding Documents
OSHA	Division of Occupational Safety and Health Administration

P

PCB	Polychlorinated Biphenyl
PIO	Public Information Office
PM	Project Manager
PMP	Project Management Plan
PO	Public Outreach
PPE	Personal Protective Equipment
PPT	PowerPoint
PRD	Permit Registration Documents

Q

QA	Quality Assurance
QAP	Quality Assurance Program
QC	Quality Control
QM	Quality Manager
QSP/D	Qualified Storm Water Pollution Prevention Plan Practitioner/Developer

R

RE/CMC	Resident Engineer/Construction Management Consultant
REAP	Rain Event Action Plan
ROW	Right-of-Way
RTA	Rail Trail Agency
RWP	Roadway Worker Protection
RWQCB	Regional Water Quality Control Board

S

SB	Small Business
SDS	Safety Data Sheets
SDS	Safety Data Sheets
SDTI	San Diego Trolley, Inc.
SMARA	Surface Mining and Reclamation Act
SMARTS	Stormwater Multiple Application and Report Tracking System
SMGB	State Mining and Geology Board
SO	System Operator
SSPP	System Safety Program Plan
Standards Board	Occupational Safety and Health Standards Board
SWPPP	Storm Water Pollution Prevention Plan
SWPPP	Storm Water Pollution Prevention Plan

T

TSP	Training Special Provision
TWW	Treated Wood Waste

U

U.S. DOT	U.S. Department of Transportation
U/DBE	Underutilized/Disadvantaged Business Enterprises

W

WPCP	Water Pollution Control Plan
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