

CONTRACTOR SAFETY STANDARDS

April 5, 2024 (Revision 11)



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1. INTRODUCTION

1.1. SAFETY PHILOSOPHY

- 1.1.1. The Orange County Sanitation District (OC SAN) is dedicated to the principle that a safe project is a successful and profitable project for OC SAN, the CONTRACTOR, Subcontractors, and members of the public.
- 1.1.2. OC SAN is committed to the safety of the Project employees, the surrounding community, and the environment.
- 1.1.3. Safety is viewed as an integral component of the construction process, the other key components being production and quality. However, safety is a primary component of the success of this Project.
- 1.1.4. The CONTRACTOR shall be responsible for initiating, maintaining, supervising, and enforcing all safety precautions and programs relating to the performance of the Contract. Their employees share in that responsibility as well. All employees are expected to work safely and to contribute to the safety of others.
- 1.1.5. Incident prevention contributes to the CONTRACTOR's well-being by avoiding injury or illness to the CONTRACTOR, its Subcontractors, and OC SAN employees, improving productivity, contributing to quality, and reducing costs. The community also benefits directly from incident prevention efforts when the environment or members of the community are protected from potential harm.
- 1.1.6. Injury-causing errors people make can be significantly reduced efficiently and cost effectively by eliminating sources of hazards and unsafe acts and by incorporating safety controls such as, proper training, safe operating procedures, and personal protective equipment.
- 1.1.7. For the CONTRACTOR to understand this safety philosophy and to meet its expectations, both general and specific training is required. Safety training and the prevention of incidents are logical and appropriate parts of how OC SAN expects the operations of the CONTRACTOR and Subcontractors to be conducted.

1.2. PROGRAM OBJECTIVES

- 1.2.1. The Contractor Safety Standards have been designed to establish the minimum standards in which the CONTRACTOR's Site-Specific Safety Program (SSSP) must meet or exceed. The CONTRACTOR shall develop and operate an effective safety and health management system.
- 1.2.2. The Contractor Safety Standards contained in this document were developed to establish the minimum standards for assisting the CONTRACTOR in the elimination or reduction of hazards and risk associated with the Project.
- 1.2.3. The Contractor Safety Standards also assist the CONTRACTOR's efforts to prevent incidents, ensure the safety of the public, reduce employee injuries, prevent damage to property, promote efficiency, and effect savings by reduction of unplanned business interruption.
- 1.2.4. No attempt has been made to restate applicable local, State, or Federal regulations or the consensus standards of the American National Standards Institute (ANSI) and the National Fire Protection Agency (NFPA).
- 1.2.5. The CONTRACTOR is reminded of its responsibility to have at least one

copy of applicable State of California Occupational Safety and Health Administration (Cal/OSHA) regulations, as well as other consensus standards incorporated by reference at the Project for use and review.

- 1.2.6. The CONTRACTOR is required to meet or exceed these Contractor Safety Standards, Title 8 CCR Subchapter 4 Construction Safety Orders, and Title 8 CCR Subchapter 7 General Industry Safety Orders.
- 1.2.7. OC SAN and its authorized representatives will neither assume nor relieve any CONTRACTOR, Service Vendor, or Visitor of their direct responsibility for the safety and health of their employees, the protection of visitors and the public, or the protection of equipment and property.
- 1.2.8. OC SAN will advise the CONTRACTOR of known hazards associated with OC SAN processes; however, the CONTRACTOR is ultimately responsible for the identification of hazards and ensuring they are controlled or eliminated.
- 1.2.9. OC SAN reserves the right to remove from the Project any employee of the CONTRACTOR and/or its Subcontractors for a violation of the Contractor Safety Standards.
- 1.2.10. OC SAN reserves the right to stop work of a CONTRACTOR because of a near miss or incident. Following an investigation with corrective actions satisfied, the CONTRACTOR, Subcontractor, Service Vendor, or Visitor may return to the Work site. If OC SAN determines that an incident could have resulted in or did result in a major injury or fatality because of CONTRACTOR or CONTRACTOR employee negligence, then OC SAN reserves the right to permanently remove individuals from the Work site. Examples of unsafe observations that would warrant removal include:
 - 1.2.10.1. Failing to join an active LOTO while performing craft.
 - 1.2.10.2. Failing to secure permits for high-risk craft.
 - 1.2.10.3. Fall protection deviations.
 - 1.2.10.4. Unauthorized entry into confined spaces.
 - 1.2.10.5. Other Cal/OSHA violations that can be determined to be life critical if not followed properly. OC SAN's Risk Management Division (Risk Management) has discretion in determination of life critical safety.
- 1.2.11. CONTRACTOR, Subcontractors, and Services Vendors may reduce incidents, injuries, and illnesses through completion of the following:
 - 1.2.11.1. Performing or attending new hire safety orientations.
 - 1.2.11.2. Conducting daily toolbox/tailgate safety meetings.
 - 1.2.11.3. Receiving safety training (i.e., hazard communication, confined space, excavation and trenching, shoring, fall protection, lockout/tagout, personal protective equipment including respiratory protection, hot work, incident reporting, equipment specific training).
 - 1.2.11.4. Implementing mandatory personal protective equipment (PPE) programs.
 - 1.2.11.5. Injury reporting, incident investigation, root cause analysis, corrective action, and recordkeeping.
 - 1.2.11.6. Implementing appropriate and effective safety management systems that includes the timely identification, correction, and tracking of

uncontrolled hazards in the CONTRACTOR and Subcontractor work areas.

- 1.2.11.7. Using safety planning tools such as Job Safety Analysis (JSA) and Pre-Use Inspections to eliminate workplace injuries and property damage.
- 1.2.11.8. Conducting safety audits and inspections to identify, prioritize, and correct non-compliance conditions.
- 1.2.11.9. Protecting public and private property adjacent to all construction site work zones.
- 1.2.11.10. Informing Risk Management and the ENGINEER of any visit from a regulatory agency such as Cal/OSHA, EPA or SCAQMD.
- 1.2.11.11. Educating and training employees by implementing their respective safety programs.
- 1.2.11.12. Maintaining a positive and proactive safety culture. A proactive safety culture may mitigate the first incident or accident. A reactive safety culture may prevent the second.

1.3. HARASSMENT AND DISCRIMINATION

- 1.3.1. OC SAN does not tolerate any form of harassment or discrimination and is committed to providing a work environment that is free of harassment and discrimination.
- 1.3.2. CONTRACTOR and all Subcontractors, Service Vendors, and Visitors are expected to support and comply with OC SAN's harassment and discrimination policies. Any CONTRACTOR supervisor or manager observing or knowing of a harassing situation shall take immediate action to stop it and report the matter to the ENGINEER.
- 1.3.3. No employee shall be subjected to any form of retaliation for reporting any violation of this policy when it is reported truthfully and in good faith. A report is made in good faith when the complainant reasonably believes there is a violation of policy.

1.4. RETALIATION AND WHISTLEBLOWING

- 1.4.1. It is OC SAN policy to prohibit retaliation or reprisals toward employees or contractors who engage in the following:
 - 1.4.1.1. Disclosing information to a government or law enforcement agency or internally to OC SAN, where there is reasonable cause to believe that the information discloses a violation of state or federal statute or is not in compliance with state or federal regulation.
 - 1.4.1.2. Disclosing the filing of a false claim for money, goods, or services to OC SAN.
 - 1.4.1.3. Filing a written complaint, under penalty of perjury, of gross mismanagement, a significant waste of funds, an abuse of authority or a substantial and specific danger to public health or safety.
 - 1.4.1.4. Complaints of discrimination or harassment or any other prohibited conduct or violation of federal law.
 - 1.4.1.5. Complaints about unfair labor practice.
 - 1.4.1.6. Participating in an administrative investigation either as the

complainant, a witness, or the accused, or conducting an administrative investigation.

- 1.4.1.7. CONTRACTOR is expected to maintain similar policies for its own employees regarding the prevention of retaliation or reprisal.

1.5. EMPLOYEE CONDUCT

- 1.5.1. All project employees must always maintain professional behavior.
- 1.5.2. Horseplay, fighting, harassment, hostile work environments, possession, or use of alcohol and/or illegal drugs, possession of firearms, and gambling are not allowed and shall result in disciplinary action, up to and including immediate removal of the CONTRACTOR, Subcontractor, Service Vendor, Visitor, or the employee(s) from the site.

1.6. WORKPLACE VIOLENCE AND WEAPONS

- 1.6.1. The CONTRACTOR and its Subcontractors shall adopt and enforce their written workplace violence policy that covers harassment, intimidation, threats, violence, and weapons.
- 1.6.2. Before the on-site Work commences, the CONTRACTOR shall submit the CONTRACTOR's and its Subcontractors' workplace violence prevention plan per Section 01701 Project Control Management System (PCMS).
- 1.6.3. OC SAN reserves the right to remove from the Project any employee of the CONTRACTOR and/or its Subcontractors for violation of the respective policies adopted by the CONTRACTOR and its Subcontractors.
- 1.6.4. OC SAN strictly prohibits persons, excluding armed security services, from possessing weapons including, but not limited to, firearms, explosives, knives, clubs, and incendiary devices on OC SAN premises, in vehicles, or in possession of the person.
- 1.6.5. Persons who engage in prohibited conduct are subject to leave action by law enforcement authorities. Examples, while not all-inclusive, are considered prohibited conduct:
 - 1.6.5.1. Causing physical injury to another person.
 - 1.6.5.2. Making threatening remarks, whether with intent to harm or in jest.
 - 1.6.5.3. Aggressive, hostile, or harassing behavior that creates a reasonable fear of injury to another person or subjects another individual to emotional distress.
 - 1.6.5.4. Intentionally damaging property.
 - 1.6.5.5. Possession of a weapon while on OC SAN property.
 - 1.6.5.6. Committing actions motivated by, or related to, sexual harassment or domestic violence.
 - 1.6.5.7. Other acts or threats of violence as determined by OC SAN.
- 1.6.6. CONTRACTOR labor force terminations should not occur on OC SAN property. CONTRACTOR shall make every attempt to have terminations occur on CONTRACTOR property. Notification of terminations or layoffs shall be made to OC SAN so badging can be terminated, and security can be informed.

1.7. NEWS MEDIA

- 1.7.1. CONTRACTOR and Subcontractors shall refer questions from news media personnel (e.g., social media, radio, television, newspaper) to the ENGINEER.
- 1.7.2. Project accidents/incidents resulting in news media coverage (radio, television, newspaper) shall be immediately reported to the ENGINEER.
- 1.7.3. CONTRACTOR and Subcontractors must obtain written approval from OC SAN prior to taking photos or videos of OC SAN projects and/or property if such photos or videos are not related to normal business.

1.8. CONFLICT BETWEEN REGULATIONS

- 1.8.1. In the case of conflict between regulations, codes, consensus standards (regulatory supported), and the Contract Documents (includes Contractor Safety Standards and Specifications), the most stringent requirements shall govern.
- 1.8.2. Conflicts shall be brought to the attention of the ENGINEER. OC SAN reserves the right to issue a final determination for conflicts.
- 1.8.3. The CONTRACTOR shall bid for the most stringent regulatory supported and applicable reference standards.

2. EMERGENCY RESPONSE PROCEDURES

2.1. REPORTING AND NOTIFICATION

- 2.1.1. Reporting and notification times vary depending on the type of incident or emergency. The CONTRACTOR and its Subcontractors shall notify the ENGINEER and/or Risk Management in accordance with the following:
 - 2.1.1.1. First aid, work-related injuries, property or equipment damage, vehicle accidents, minor utility strikes, minor spills (5 gallon or less), and near miss events must be immediately reported to the INSPECTOR, ENGINEER, and/or Construction Safety Inspector. A written preliminary report documenting the event must be emailed to ENGINEER and Construction Safety Inspector within 24 hours. A written incident report documenting root cause analysis with appropriate corrective actions must be emailed to ENGINEER and Construction Safety Inspector within 5 business days.
 - 2.1.1.2. Fatalities, severe or catastrophic injuries, hospitalizations, significant property or equipment damage, fires, significant utility strikes, and medium to large spills must be immediately reported to the ENGINEER, INSPECTOR, and/or Construction Safety Inspector. A written preliminary report documenting the event must be emailed to ENGINEER and Construction Safety Inspector within 8 hours. A written incident report documenting root cause analysis with appropriate corrective actions must be emailed to ENGINEER and Construction Safety Inspector within 5 business days.
- 2.1.2. Immediately following a near miss or incident, the CONTRACTOR shall stop Work until it is determined that it is safe to resume. If a person sustains a major injury, or if the incident is classified as a significant near miss, the Work must be stopped, and the investigation initiated immediately. First Aid and CPR trained individuals shall begin treatment on injured employees.
- 2.1.3. When working at Plant 1 or Plant 2, the CONTRACTOR shall contact the OC

SAN Operations Control Center for medical emergencies requiring off-site emergency medical services, fires, large spills or chemical releases, and workplace violence by dialing the following:

- 2.1.3.1. Plant 1 Emergencies
 - 2.1.3.1.1. Dial 2222 from OC SAN Landline, or
 - 2.1.3.1.2. Dial 714-593-7133 from mobile phone.
- 2.1.3.2. Plant 2 Emergencies
 - 2.1.3.2.1. Dial 2222 from OC SAN Landline, or
 - 2.1.3.2.2. Dial 714-593-7677 from mobile phone.
- 2.1.4. When working off site at OC SAN's wastewater lifting stations, sewer lines, or other facility, the CONTRACTOR shall contact emergency medical services, and report fires, chemical spills or releases, and workplace violence by dialing 911. Immediately after 911 has been contacted, the CONTRACTOR shall contact the ENGINEER, INSPECTOR, and/or Risk Management.
- 2.1.5. For wastewater releases, the CONTRACTOR shall contact the OC SAN Operations Control Center by dialing 714-593-7025 from a mobile phone.
- 2.1.6. Emergency telephone numbers listed above shall be posted at the job site or made readily available for employee use.
- 2.1.7. The CONTRACTOR shall prepare maps clearly identifying the Project area, active entrances, location of first aid stations and other emergency supplies, as well as location of the nearest hospital.

2.2. MEDICAL EMERGENCY

- 2.2.1. Assess the scene to make sure it is safe and that hazards are not present that could result in injury to medical responders.
- 2.2.2. Render first aid or cardiopulmonary resuscitation (CPR) promptly to the injured employee(s). Only employees trained in first aid and CPR shall render medical treatment. One or more employees shall be trained in first aid and CPR and be available at the job site always.
- 2.2.3. Follow reporting and notification procedures outlined in Section 2.1 Reporting and Notification.
- 2.2.4. If outside emergency medical services are required, the CONTRACTOR shall escort emergency medical personnel to the location of the injured person(s).
- 2.2.5. The CONTRACTOR shall notify OC SAN of injuries that require outside medical services.
- 2.2.6. Injured persons shall not drive themselves to the hospital or clinic. The CONTRACTOR shall have supervisor or designee drive the person.

2.3. FIRES

- 2.3.1. Only fires that are in the incipient stage (initial or beginning) shall be extinguished by portable fire extinguishers or small hose systems. Only individuals that have been trained to use a fire extinguisher shall use one.
- 2.3.2. The CONTRACTOR shall provide fire extinguishers for its own craft work and hot work, and not rely on the nearest OC SAN plant fire extinguishers designated for plant process fires.

- 2.3.3. For fires beyond the incipient stage, evacuate the immediate area and activate the fire alarm system (if available).
- 2.3.4. The CONTRACTOR shall follow reporting and notification procedures outlined in Section 2.1 Reporting and Notification.
- 2.3.5. The CONTRACTOR shall not block, cover, or restrict exit routes, exit doors, fire extinguishers, fire alarm panels, or fire suppression systems without prior written acceptance by the ENGINEER. The CONTRACTOR shall submit using OC SAN's PCMS appropriate plans for approval to block, cover, or render these systems inoperable.

2.4. EARTHQUAKES

- 2.4.1. The CONTRACTOR and Subcontractors are expected to be prepared to respond in the event of an earthquake by training their employees to "duck, cover, and hold".
- 2.4.2. Once the shaking has stopped, report to an assembly area agreed upon with OC SAN so that all employees may be accounted for.

2.5. TSUNAMI

- 2.5.1. The CONTRACTOR and Subcontractors will be notified by OC SAN using the PA system and word of mouth. OC SAN relies on Tsunami Watch or Warning issued by the National Tsunami Warning Center. Immediately after a strong earthquake is felt at Plant 2 or one of the pumping plants located along the coast, the CONTRACTOR and Subcontractors must take action to move to a safe location.
- 2.5.2. OC SAN will direct the CONTRACTOR or Subcontractor to either retreat to Plant 1 or shelter in place at a designated Tsunami evacuation site at Plant 2. Tsunami inundation areas and evacuation sites are provided in the Contractor Safety Orientation. The CONTRACTOR and Subcontractors are expected to have a communication system in place to account for all its employees and to notify OC SAN of their condition.

2.6. PANDEMICS

- 2.6.1. The CONTRACTOR and Subcontractors shall adhere to all recommendations made by public health officials to keep their employees safe. This may include physical distancing, face coverings, hygiene practices, training, symptom screening, cleaning and disinfection, and implementation of other engineering and administrative controls.
- 2.6.2. The CONTRACTOR and Subcontractors are responsible for implementing their own controls and training for their employees in compliance with public health recommendations. OC SAN is not responsible for implementation.

3. ROLES AND RESPONSIBILITIES

3.1. GENERAL

- 3.1.1. The CONTRACTOR shall be responsible for initiating, maintaining, supervising, and enforcing all safety precautions and programs regarding the performance of the Contract for the on-site safety of its employees and Subcontractors performing Work for the benefit of this Project. This includes responsibilities for the public, OC SAN staff, OC SAN representatives, vendors, delivery and transportation services, and service providers at the Project location.

- 3.1.2. The CONTRACTOR shall comply with all applicable provisions of Federal, State, and local laws, ordinances, codes, and regulations affecting safety and health.
- 3.1.3. Each CONTRACTOR and Subcontractor shall comply with the most stringent of the following:
 - 3.1.3.1. California OSHA Safety Orders.
 - 3.1.3.2. Federal OSHA Safety Orders.
 - 3.1.3.3. The CONTRACTOR's Site-Specific Safety Program.
 - 3.1.3.4. Applicable consensus standards, including ANSI, NFPA, etc., if specified before or during Work by Risk Management.
 - 3.1.3.5. Contractor Safety Standards.
 - 3.1.3.6. Contract Documents.
- 3.1.4. Each CONTRACTOR shall designate in its SSSP, a responsible, competent, and qualified member of its organization at the work site who has the following:
 - 3.1.4.1. Authority to enforce the CONTRACTOR's Safety and Substance Abuse programs.
 - 3.1.4.2. Responsibility to assure compliance with the OSHA Act.
 - 3.1.4.3. Responsibility to identify and obtain correction of hazards.
- 3.1.5. In addition to requirements described elsewhere in this document, the CONTRACTOR's Safety Manager, Safety Representative, Project Manager, Superintendent, and Foremen shall have at minimum:
 - 3.1.5.1. Authority to stop Work when a serious safety hazard or imminent danger is identified.
 - 3.1.5.2. Authority to implement corrective actions.
 - 3.1.5.3. Relevant construction safety experience in the type of Work the CONTRACTOR is performing under this Contract.
 - 3.1.5.4. Evidence of completion of either the OSHA 30 Hour Construction Training, OSHA 30 Hour General Industry Training, Certified Health and Safety Technician, or Certified Safety Professional as applicable to the hazards expected to be encountered in the Work.
 - 3.1.5.5. Current First Aid training from a provider recognized by OSHA.
 - 3.1.5.6. Current CPR training from a provider recognized by OSHA.
- 3.1.6. The CONTRACTOR shall prepare and maintain an Injury and Illness Prevention Program (IIPP) and Site-Specific Safety Plan (SSSP).
- 3.1.7. The CONTRACTOR shall ensure that its Subcontractor(s) develop, maintain, and implement effective IIPPs and SSSPs. Upon request by OC SAN, the CONTRACTOR shall submit to OC SAN its Subcontractor(s) IIPP and SSSP for review.
- 3.1.8. The CONTRACTOR shall enforce that the Subcontractors are responsible for initiating, maintaining, supervising, and enforcing the safety requirements outlined by the Contractor Safety Standards and the CONTRACTOR's Site-Specific Safety Program, even though the requirements may be above and beyond the Subcontractor's own safety policies, and Federal and State

OSHA requirements.

- 3.1.9. The CONTRACTOR shall provide additional safety resources to address poor safety performance and demonstrated inability to manage safety in accordance with the Contract Documents. At the ENGINEER's request or where required by the Contract Documents, the CONTRACTOR shall be required to employ a full-time CONTRACTOR Safety Manager for projects that do not meet the criteria for a CONTRACTOR dedicated safety professional. The CONTRACTOR may require its Subcontractors to provide their own Safety Managers and Safety Representatives to fulfill the requirements of this Section for the Subcontractors work.
- 3.1.10. Any CONTRACTOR who places, installs, erects, or connects any electrical wires, fixtures, appliances, apparatus, raceways, conduits, solar photovoltaic cells, or any part thereof, which generate, transmit, transform, or utilize electrical energy in any form or for any purpose shall be an electrician certified by the State of California or a C-10 Electrical CONTRACTOR Licensed in the State of California. Contractors shall submit C-10 credentials to the ENGINEER for review via OC SAN's PCMS prior to mobilization.
- 3.1.11. Any CONTRACTOR who installs, services, and maintains all types of communication and low voltage systems which are energy limited and do not exceed 91 volts shall be a C-7 Low Voltage Systems CONTRACTOR. These systems include, but are not limited to telephone systems, sound systems, cable television systems, closed-circuit video systems, satellite dish antennas, instrumentation and temperature controls, and low voltage landscape lighting. Low voltage fire alarm systems are specifically not included in this section.
- 3.1.12. Any CONTRACTOR who lays out, fabricates, and installs all types of fire protection systems, including equipment associated with the systems (excluding alarm systems) shall be a C-16 Fire Protection CONTRACTOR.

3.2. CONTRACTOR SAFETY MANAGER (CSM)

- 3.2.1. This position is required when listed within the Special Provisions of the Contract Documents.
- 3.2.2. The Contractor Safety Manager (CSM) shall be identified in writing to the ENGINEER prior to the commencement of the Work. The CONTRACTOR shall submit the resume of the CSM candidate to the ENGINEER and Risk Management for review, prior to the start of on-site Work. The resume shall be submitting using OC SAN's PCMS. OC SAN reserves the right to direct the removal and replacement of the CSM as necessary.
- 3.2.3. The CSM shall have a minimum of five years of qualified construction safety (primary project duty) experience, from similar type construction projects. A Certified Safety Professional (CSP), Associate Safety Professional (ASP), Safety Trained Supervisor Construction (STSC), or Construction Health and Safety Technician (CHST) is preferred.
- 3.2.4. The CSM shall be provided for the duration of the Work when the CONTRACTOR and its' Subcontractors are at the Project site. The CSM's sole responsibility shall be safety. The CSM shall be onsite daily unless a different schedule is agreed upon by the ENGINEER and Risk Management.
- 3.2.5. If the CONTRACTOR has multiple distinct projects with OC SAN, the CSM can assign a CONTRACTOR Safety Representative (CSR) for each of the projects. The CSR(s) shall report directly to the CSM.

- 3.2.6. Alternate CONTRACTOR Safety Manager meeting the same qualifications as the CSM shall be provided when the designated CSM is not available, unless agreed upon by the ENGINEER and Risk Management. The Alternate CSM shall hold the same responsibilities as the CSM.
- 3.2.7. Specific responsibilities of the CSM include, but are not limited to, completing, or overseeing the completion of the following:
 - 3.2.7.1. Conduct Project-specific safety orientation sessions for employees who are new to the site, prior to their beginning work.
 - 3.2.7.2. Conduct, participate in, or assist Field Supervisors with daily toolbox safety meetings.
 - 3.2.7.3. Instruct and inform supervisors and management on safety rules and regulations.
 - 3.2.7.4. Instruct supervisors and employees in the proper use and care of personal protective equipment (PPE).
 - 3.2.7.5. Instruct supervisors and employees concerning special procedures (e.g., confined space entry, trench shoring, lockout/tagout, etc.).
 - 3.2.7.6. Complete incident investigation reports in accordance with the Contractor Safety Standards. Records are to be maintained at the site and distributed as described in these Contractor Safety Standards.
 - 3.2.7.7. Conduct and document weekly Project safety inspections. Inspections shall be documented and include date of inspection, description of finding, corrective actions, and date the corrective action was taken. Records of inspections are to be submitted using OC SAN's PCMS.
 - 3.2.7.8. Maintain training documentation. Records are to be maintained at the site available for review upon request.
 - 3.2.7.9. Implement, update, and maintain the SSSP including safe work procedures and practices.
 - 3.2.7.10. Demonstrate, by example, proper safety behavior and a proactive safety culture.
 - 3.2.7.11. Ensure that required emergency medical supplies are adequate, clean, and stocked.
 - 3.2.7.12. Coordinate transportation of employees with minor injuries to the designated Medical Clinic.
 - 3.2.7.13. Inform CONTRACTOR employees and Subcontractors, the ENGINEER, and Risk Management of any safety related problems that have either developed or be reasonably be expected to develop.
 - 3.2.7.14. Maintain records in accordance with OSHA Recordkeeping requirements.
 - 3.2.7.15. The OSHA 300 Log for the CONTRACTOR is to be available for review upon request by the ENGINEER or Risk Management.
 - 3.2.7.16. Support the CSR at their designated work locations.
 - 3.2.7.17. Develop and/or review confined space entry procedures, ventilation plans, rescue plans, hot work procedures, lift plans, and other safety

submittals for Project Work.

3.3. CONTRACTOR SAFETY REPRESENTATIVE(S)

- 3.3.1. When OC SAN does not require a CONTRACTOR Safety Manager to be staffed on a project (refer to Special Provisions of the Contract Documents), a CONTRACTOR Safety Representative shall be provided.
- 3.3.2. The CSR shall be identified in writing to the ENGINEER prior to the commencement of the Work. The CONTRACTOR shall submit the resume of the CSR candidate to the ENGINEER and Risk Management for review, prior to the start of on-site Work. The resume shall be submitted using OC SAN's PCMS. OC SAN reserves the right to direct the removal and replacement of the CSR if necessary.
- 3.3.3. The CSR shall be employed in a supervisory position, empowered by their employer to take corrective action, be present on the Project while Work is being performed, and spend the amount of time necessary to ensure the CONTRACTOR's and compliance with the Contractor Safety Requirements.
- 3.3.4. The CSR shall be present at the Project site while Work is being performed by the CONTRACTOR and its' Subcontractors.
- 3.3.5. Alternate CONTRACTOR Safety Representative meeting the same qualifications as the CSR shall be provided when the CSR is not available. The Alternate CSR shall hold the same responsibilities as the CSR. Alternate CSR duties may be assumed by a similarly qualified project Supervisor.
- 3.3.6. Specific responsibilities of the CSR include, but are not limited to, completing, or overseeing the completion of the following:
 - 3.3.6.1. Conduct Project-specific safety orientation sessions for employees who are new to the site, prior to their beginning work.
 - 3.3.6.2. Conduct, participate in, or assist Field Supervisors with daily toolbox safety meetings.
 - 3.3.6.3. Instruct and inform supervisors and management on safety rules and regulations.
 - 3.3.6.4. Instruct supervisors and employees in the proper use and care of personal protective equipment (PPE).
 - 3.3.6.5. Instruct supervisors and employees concerning special procedures (e.g., confined space entry, trench shoring, lockout/tagout, etc.).
 - 3.3.6.6. Complete incident investigation reports in accordance with the Contractor Safety Standards. Records are to be maintained at the site and distributed as described in these Contractor Safety Standards.
 - 3.3.6.7. Conduct and document weekly Project safety inspections. Inspections shall be documented and include date of inspection, description of finding, corrective actions, and date the corrective action was taken. Records of inspections are to be submitted using OC SAN's PCMS. Forward copies of inspection and corrective action records to the ENGINEER and Risk Management.
 - 3.3.6.8. Maintain training documentation. Records are to be maintained at the site available for review upon request.
 - 3.3.6.9. Implement, update, and maintain the SSSP including safe work

- procedures and practices.
- 3.3.6.10. Demonstrate, by example, proper safety behavior and a proactive safety culture.
 - 3.3.6.11. Ensure that required emergency medical supplies are adequate, clean, and stocked.
 - 3.3.6.12. Coordinate transportation of employees with minor injuries to the designated medical clinic.
 - 3.3.6.13. Inform CONTRACTOR employees and Subcontractors, the ENGINEER, and Risk Management of any safety related problems that have either developed or be reasonably be expected to develop.
 - 3.3.6.14. Maintain records in accordance with OSHA Recordkeeping requirements.
 - 3.3.6.15. Consult with the CONTRACTOR Safety Manager regarding CONTRACTOR safety.
 - 3.3.6.16. Develop and/or review confined space entry procedures, ventilation plans, rescue plans, hot work procedures, lift plans, and other safety submittals for Project Work.

4. PROGRAM ELEMENTS

4.1. INJURY AND ILLNES PREVENTION PROGRAM

- 4.1.1. The CONTRACTOR shall establish, implement, and maintain an effective, written Injury and Illness Prevention Program (IIPP) in accordance with Title 8 of the California Code of Regulations Section 1509 and Section 3203.
- 4.1.2. The IIPP shall identify persons responsible for the safety program, system for ensuring employees comply with the safety and health practices, communication, procedures for identifying and controlling hazards, safety incentive, disciplinary action programs, procedures for investigating incidents and injuries, and training.
- 4.1.3. The CONTRACTOR shall submit a copy of their IIPP to OC SAN for review and retention through OC SAN's PCMS.
- 4.1.4. The CONTRACTOR shall review the contents of the IIPP with their employees.
- 4.1.5. The CONTRACTOR shall maintain a copy of the IIPP onsite. The CONTRACTOR shall make available a copy of the IIPP when requested by OC SAN or Cal/OSHA. The CONTRACTOR's IIPP will be audited by OC SAN at least annually.

4.2. SITE-SPECIFIC SAFETY PROGRAM

- 4.2.1. The CONTRACTOR and its Subcontractor(s) shall establish, implement, and maintain an effective, written Site-Specific Safety Program (SSSP) in accordance with OC SAN requirements.
- 4.2.2. The SSSP shall be developed and submitted prior to the start of the Work. The SSSP will be submitted for review and acceptance using OC SAN's PCMS. The SSSP shall be updated as Project hazards change. The SSSP shall be made available to OC SAN upon request. The CONTRACTOR's SSSP will be audited by OC SAN at least annually.
- 4.2.3. The SSSP must be endorsed by OC SAN prior to mobilization and start of

field Work. The CONTRACTOR may conduct field walks without an endorsed SSSP with ENGINEER acceptance.

- 4.2.4. The SSSP shall be specific to the Work performed by the CONTRACTOR and Subcontractor(s). The SSSP shall include the following at a minimum (not necessarily in this order):
- 4.2.4.1. Assignment of accountability and responsibilities for key personnel responsible for implementation of the SSSP and safety performance on the
 - 4.2.4.2. Project (responsibilities listed shall have a focus on safety, and may include Project Managers, Superintendents, Foreman, CSMs, or CSRs).
 - 4.2.4.3. Emergency Contact List (Contact information for key personnel, including local police, fire department, hospital, and poison control).
 - 4.2.4.4. Emergency Action Plan (detail and describe potential emergency situations arising from the Work and the procedures that will be followed to manage them, include map to hospital).
 - 4.2.4.5. Brief Description of Project Work (high-level overview of the Work to be performed).
 - 4.2.4.6. Hazard Assessment and Risk Analysis (identify high-level hazards associated with the Work, assign a risk level to each).
 - 4.2.4.7. Control Measures (identify appropriate engineering controls, administrative controls, work practices and PPE to address the hazards identified that are associated with the Work).
 - 4.2.4.8. Job Safety Analysis (also referred to as activity hazard analysis, task hazard analysis, job hazard analysis). The CONTRACTOR shall either submit prepared JSAs as part of the SSSP or have a process in place to develop them in the field prior to the start of each Work task. JSAs prepared in the field prior to start of Work shall be submitted to Risk Management for review.
 - 4.2.4.9. Personal Protective Equipment (detail the types and levels of PPE to be used onsite by employees for high-level tasks; must comply with OC SAN minimum requirements).
 - 4.2.4.10. Personal and Environmental Monitoring (describe and detail equipment, action levels, exposure limits, frequency, or as otherwise required by regulations to monitor for various hazards agents (dust, asbestos, vapors, etc.)).
 - 4.2.4.11. Hazard Identification, Corrective Action, and Inspection (describe how hazards will be identified and corrected; describe how weekly inspections will be completed and to what criteria).
 - 4.2.4.12. Safety Training Program (describe/list required training to be completed by employees for the hazards they are likely to encounter in the scope of their Work; maintain and provide table with trainings completed and due for each employee. The CONTRACTOR and its Subcontractor(s) shall ensure that all personnel are properly trained and instructed for all jobs that require specific training and/or competency to meet all applicable OSHA regulations, Federal, State, and local law, and the requirements herein. The CONTRACTOR

shall submit a copy of their employees' training records to OC SAN for review using OC SAN's PCMS.

- 4.2.4.13. Project-Specific Safety Orientation Program (requirement to orientate employees to the Project hazards and controls, emergency action procedures, and OC SAN requirements). Copies of CONTRACTOR's orientation program and a roster of those that have completed the orientation shall be submitted using OC SAN's PCMS.
- 4.2.4.14. Recordkeeping and Retention Requirements (provisions for maintaining orientation, training, inspections, corrective action, and investigation records).
- 4.2.4.15. Hazard Communication (how will chemicals be managed onsite, stored, handled, and hazards communicated to employees; safety data sheets shall be available onsite for all chemicals brought and/or used onsite; attach safety data sheets to SSSP or maintain in separate binder).
- 4.2.4.16. Identify and properly label all waste handling bins according to the Global Harmonized System (GHS).
- 4.2.4.17. Identification of Competent Persons and Qualified Persons (if performing excavation and trenching, shoring, cranes, rigging, fall protection, confined space, rescue, lockout tagout, forklift operation, electrical work, etc.).
- 4.2.4.18. Fire Prevention (describe how fires will be prevented and equipment to be used, etc.).
- 4.2.4.19. Housekeeping (describe how housekeeping will be maintain on the Project).
- 4.2.4.20. Drug, Alcohol and Substance Abuse Prevention Program (can reference to IIPP as needed).
- 4.2.4.21. Near Miss and Incident Investigation Program (process for investigating incidents and near misses, including reporting; can reference to IIPP as needed).
- 4.2.4.22. Heat Illness Prevention Program (compliance with 8 CCR 3395; can reference to IIPP as needed).
- 4.2.4.23. The CONTRACTOR's Policy on Whistleblower Rights and Anti-Retaliation Protection for their employees (can reference to IIPP as needed).
- 4.2.4.24. Cal/OSHA Required Safety Programs or Plans (attach where applicable based on the Work):
 - 4.2.4.24.1. Fall Prevention Plans and Program (training, inspections, identification, and rescue plan requirements shall be addressed in the program).
 - 4.2.4.24.2. Scaffold Plans (shall include inspection, erection, dismantling, training)
 - 4.2.4.24.3. Respiratory Protection Program
 - 4.2.4.24.4. Confined Space Entry Plans and Program (training, entry procedure, and rescue plans shall be addressed in the program)
 - 4.2.4.24.5. Control of Hazardous Energy Program (Lockout/Tagout)
 - 4.2.4.24.6. Hearing Conservation Program

- 4.2.4.24.7. Excavation and Trenching Safety Plans and Program
- 4.2.4.24.8. Hot Work and Fire Prevention Program
- 4.2.4.24.9. Other programs as required by Cal/OSHA
- 4.2.5. The CONTRACTOR shall submit its Injury and Illness Prevention Program (IIPP), Site Specific Safety Plan (SSSP), and list of proposed Safety Manager and Representatives no later than 15 days from the effective date of the Notice to Proceed for review by OC SAN. The SSSP must be accepted by OC SAN prior to mobilization and start of field Work. The CONTRACTOR may conduct field walks without an endorsed SSSP with acceptance by the ENGINEER. These documents must be submitted using OC SAN's PCMS.
 - 4.2.5.1. The acceptance of the IIPP and SSSP will be based solely on the content of those programs relative to conformance with these Contractor Safety Standards and the Specifications. Receipt of program by OC SAN does not constitute OC SAN acceptance of the program.
 - 4.2.5.2. Failure to attain acceptance of the IIPP and SSSP prior to the scheduled commencement of Contract Work is not grounds for a time extension.
 - 4.2.5.3. All CONTRACTOR and Subcontractor Project Superintendents and General Foreman(s), and all on-site trade foremen shall complete either the OSHA 30-hour General Industry or the Construction Safety Course as applicable to the Work. OSHA 30-hour certifications shall be submitted using OC SAN's PCMS.
- 4.2.6. All CONTRACTOR and Subcontractor employees shall receive a Project specific safety orientation, that at a minimum review the Project safety rules, OC SAN general safety rules, Project hazards and controls, emergency notification and reporting procedures, and PPE requirements.
 - 4.2.6.1. Service vendors and visitors shall be provided with an orientation that is appropriate for their exposures during their time on site.
 - 4.2.6.2. The CONTRACTOR is to provide this orientation to its employees and Subcontractors.

4.3. PRE-SHIFT CREW MEETINGS

- 4.3.1. The CONTRACTOR and Subcontractor(s) shall conduct daily tailgate/toolbox safety meetings with its employees. The meeting should be 10-15 minutes and held to keep employees alert to Work-related hazards and prevent injuries.
- 4.3.2. The meeting should address the specific hazards and safe work practices for the Work tasks that employees are performing, to include the following:
 - 4.3.2.1. Tasks for the shift, including review of applicable Job Safety Analysis.
 - 4.3.2.2. Tools and equipment needed for those tasks.
 - 4.3.2.3. Materials needed for those tasks.
 - 4.3.2.4. Proper material handling techniques.
 - 4.3.2.5. Safe work procedures to perform those tasks.
 - 4.3.2.6. PPE needed to safely perform those tasks.

- 4.3.2.7. Lessons learned from prior shifts.
- 4.3.2.8. Questions from the crew.
- 4.3.3. Employees shall be encouraged to actively participate by asking questions, having discussions, and having employees describe personal experiences.
- 4.3.4. The toolbox meeting shall be documented with daily attendance roster and maintained by the CONTRACTOR throughout the duration of the Project.
- 4.3.5. The daily toolbox safety meeting form shall be made available for review by the ENGINEER or Risk Management, upon request.

4.4. PROJECT PLANNING AND PROJECT MEETINGS

- 4.4.1. Safety and loss control activities are key elements in the success of any project.
- 4.4.2. Safety and loss control activities are to be integrated into the Work plan such that safety is an integral component of the construction process, rather than treated as a separate activity.
- 4.4.3. There are five main elements to the planning and meeting component of the Contractor Safety Standards.
 - 4.4.3.1. Project Survey: Prior to the start of the Work, the CONTRACTOR shall conduct a physical survey of the job site. The CONTRACTOR shall also review the Plans and Specifications.
 - 4.4.3.2. Construction Process Plan: From the Project Survey, the CONTRACTOR shall develop a written Construction Process Plan. The Construction Process Plan shall identify tasks and activities under four main categories:
 - 4.4.3.2.1. Construction Sequence and Procedures
 - 4.4.3.2.2. Temporary Structures / Shoring / Reshoring / Bracing / Retention Systems Required
 - 4.4.3.2.3. Critical Structures or Processes
 - 4.4.3.2.4. Description of Required Tests and Approvals
 - 4.4.3.3. Job Safety Analysis: Job Safety Analysis (JSA) needs may be pre-determined in part by reviewing the Construction Process Plan and Construction Schedule. The JSA should be prepared far enough in advance of the task or activity to ensure that changes or revisions will not affect the scheduled execution of the task or activity.
 - 4.4.3.4. Construction Progress Meetings: These meetings are typically held on a weekly or bi-weekly basis and are typically chaired by the ENGINEER.
 - 4.4.3.5. Pre-Phase Planning Meetings: Pre-phase meeting needs may be identified from the Construction Process Plan.
 - 4.4.3.5.1. The CONTRACTOR shall schedule the Pre-Phase Planning Meeting far enough in advance of the start of the relevant phase to ensure that changes or revisions to JSA's and coordination efforts will not affect the scheduled execution of the relevant phase of the Work.
 - 4.4.3.5.2. The Pre-Phase Meeting shall include the ENGINEER and Risk Management, as well as the CONTRACTOR and Subcontractors involved in that phase of the Work. This meeting shall identify and

address the safety and coordination issues of the relevant phase of the Work.

- 4.4.3.5.3. Pre-Phase Safety Analysis' shall be prepared using the JSA form (or an acceptable equivalent); specific JSAs are to be prepared using the Pre- Phase Hazard Analysis as a guide.
- 4.4.3.5.4. Subsequent meetings may be required throughout the phase of the Work to maintain safety and coordination efforts.

4.5. INCIDENT REVIEW MEETINGS

- 4.5.1. The CONTRACTOR's Safety Manager or Safety Representative shall schedule an Incident Review Meeting within 48 hours of the occurrence of an incident with the ENGINEER and Risk Management.
- 4.5.2. The intent and purpose of the incident review meeting is to interactively and cooperatively identify causal factors that had, or may have had, a role in the incident, and to identify corrective action(s) and practice(s) to implement to avoid potential reoccurrence of the incident. It is NOT a faultfinding or blame-finding event. Attendees should include:
 - 4.5.2.1. ENGINEER
 - 4.5.2.2. CONTRACTOR Project Manager
 - 4.5.2.3. CSM / CSR
 - 4.5.2.4. Risk Management
 - 4.5.2.5. CONTRACTOR / Subcontractor (Assistant) Superintendent(s) accountable via functional structure of the Project for the incident
 - 4.5.2.6. CONTRACTOR / Subcontractor (General) Foreman / Foremen accountable via functional structure of the Project for the incident
 - 4.5.2.7. Craftsperson(s) involved with the incident (if available).
- 4.5.3. The CONTRACTOR shall submit a written report detailing the root cause analysis and corrective actions to OC SAN via email within five business days of the occurrence of the incident.
- 4.5.4. The CONTRACTOR shall work with Risk Management if additional corrective actions are required to satisfy the OC SAN safe worksite mandate.
- 4.5.5. For the purposes of this section, "Incident" may be defined as any or all the following: (as determined by owners authorized representatives.)
 - 4.5.5.1. Near-Miss
 - 4.5.5.2. First-Aid
 - 4.5.5.3. Recordable Injury
 - 4.5.5.4. Vehicular Incident
 - 4.5.5.5. General Liability / Third-Party Incident
 - 4.5.5.6. Property Damage
 - 4.5.5.7. Other, as determined by OC SAN

4.6. CONTRACTOR SAFETY ORIENTATION

- 4.6.1. The CONTRACTOR and its Subcontractors shall attend a Contractor Safety Orientation (CSO), administered by Risk Management, prior to start of the

Work.

- 4.6.2. The CSO is designed to orient the CONTRACTOR to general hazards at the work location; identifying OC SAN expectations for safety performance; reviewing emergency notification capabilities; and discussing CONTRACTOR activities that may pose a hazard to OC SAN employees, visitors, and other contractors.
- 4.6.3. The CONTRACTOR is expected to don the CSO helmet sticker for the same year they are working for OC SAN.
- 4.6.4. The CONTRACTOR is responsible for communication of the CSO to its Subcontractors and its employees.
- 4.6.5. The CONTRACTOR shall develop and maintain its own safety orientation (see section 4.2.4.13), which is to be provided to its employees and Subcontractors. The CONTRACTOR's safety orientation is to include overview of the Work, hazards, and controls to be taken, location of first aid kit and other emergency supplies, PPE requirements, emergency assembly process and location, etc.
- 4.6.6. The CONTRACTOR's safety orientation is expected to be distributed to every contractor prior to Work being performed. The CONTRACTOR's safety orientation is also required to be updated at least annually.

4.7. JOB HAZARD ANALYSIS

- 4.7.1. Certain activities that are part of the Project shall trigger additional safety evaluation and review by OC SAN. The CONTRACTOR is required to participate in the completion of this document prior to the start of the Work. The CONTRACTOR is required to notify the ENGINEER at least two weeks prior to initiation of the tasks below and when the Work activities or environment changes, unless otherwise stated elsewhere. Evaluations are as follows:
 - 4.7.1.1. Confined Space Entry Job Hazard Analysis (JHA)
 - 4.7.1.2. Use of OC SAN Equipment – In the event the CONTRACTOR is permitted to use OC SAN-owned equipment, the CONTRACTOR shall be required to demonstrate proficiency on the specific equipment, as well as knowledge of the applicable regulatory requirement(s), and to complete a specific hold harmless agreement prior to such use.
 - 4.7.1.3. Hot Work Permit
 - 4.7.1.4. Energized Electrical Work Permit
 - 4.7.1.5. Hazardous Materials Usage – All hazardous materials identified by OSHA as a carcinogen or reproductive hazard are subject to use restriction and/or prohibition from use on OC SAN facilities. In addition, the CONTRACTOR shall provide a written plan of how the CONTRACTOR and OC SAN employees will be protected from exposure to these materials. A Job Hazard Analysis (JHA) will be conducted by OC SAN with mandatory participation by the CONTRACTOR for operations involving these materials.
 - 4.7.1.6. Cement Deep Soil Mixing (CDSM) - Develop a hazard mitigation plan for controlling exposures to hazardous substances to air, water, and soil.

- 4.7.1.7. Aboveground Fuel Storage Tank Permit.
- 4.7.1.8. Concurrent Work/Dual Employer Work Activities – If concurrent Work activities within the same general area are to be performed at the same time by more than one CONTRACTOR, a permit shall be obtained by the CONTRACTORS at least one week before the Work is scheduled to begin.
- 4.7.1.9. Respiratory hazards - Whenever harmful dust, fumes, mists, vapors, or gases exist or are produced by construction activities in quantities giving rise to harmful exposure to employees, such hazards shall be controlled. Engineering controls are the preferred means of controlling respiratory hazards. If the engineering controls have not reduced the exposure for the employees below the Permissible Exposure Limit (PEL), the CONTRACTOR shall implement administrative controls and provide PPE for their employees if needed.
- 4.7.1.10. The CONTRACTOR must provide industrial hygiene data showing that employees are not being exposed over the PEL for the PPE they have selected. As new data is collected, it shall be submitted to Risk Management for review.
- 4.7.1.11. Spray Painting, Blast Cleaning, or Hydro Blasting – The CONTRACTOR shall not conduct any spray painting, blast cleaning, or hydro blasting without written authorization from OC SAN. Authorization will only be provided after receipt and review of an acceptable detailed plan that addresses, as a minimum, the following:
 - 4.7.1.11.1. All spray application of coatings, blast cleaning, or hydro blasting at the Project site which is performed outside of a totally enclosed booth shall be kept to a minimum. Alternative application methods (brushing, rolling, etc.) or off-hour Work shall be considered and may be required to minimize potential overspray damage.
 - 4.7.1.11.2. If spray painting, blast cleaning, or hydro blasting is required, the CONTRACTOR shall submit a work plan for review by the ENGINEER in advance outlining specific areas where the Work will take place. The work plan shall be submitted using OC SAN's PCMS. The work plan must include a schedule and the preventative measures utilized to eliminate the possibility of overspray damage to facilities and vehicles.
 - 4.7.1.11.3. Tenting or other means of containment shall be utilized for spray coating applications. A minimum of 3 test panels, 2 feet by 3 feet, with a contrasting background to the material being sprayed, shall be placed 10 feet outside of the local work area at elevations to be determined by the INSPECTOR. Spraying shall be stopped if the test panels exhibit overspray.
 - 4.7.1.11.4. Tenting and/or wet blasting shall be considered when grit blasting. Under no circumstances shall dust or coating particulates be permitted to leave the immediate work area.
 - 4.7.1.11.5. Spraying/Blasting operations shall be stopped if winds exceed 5 mph.
 - 4.7.1.11.6. A minimum 14-day notice shall be required prior to painting and blasting to provide adequate notification prior to the scheduled start date.

4.7.1.11.7. For Work within Treatment Plant Sites, the CONTRACTOR shall provide and install signs at Plant entrances, work areas, and roadways to direct traffic as needed to alternate parking areas to prevent overspray damage to vehicles. Parking areas immediately downwind or otherwise in high-risk areas shall be delineated to prevent vehicles from parking in these areas.

4.7.1.11.8. Any damage incurred by OC SAN or its employees due to paint, solvent or sandblasting materials from blasting or coating operations shall be promptly repaired by the CONTRACTOR to the satisfaction of OC SAN and its employees at no cost to OC SAN.

4.7.2. Regulatory Requirements

4.7.2.1. Scaffold Erection and Use – OC SAN requires a copy of the CONTRACTOR's competent person evaluation and sign off on all scaffolding erected. Signed copies of the CONTRACTOR's competent person evaluation shall be forwarded to OC SAN no later than the day the scaffolding is completed and prior to scaffolding use. Scaffolding shall be inspected daily prior to use.

4.7.2.2. Cranes/Hoists – A copy of the operator's training certification shall be submitted to OC SAN prior to any crane use. Certifications shall be submitted using OC SAN's PCMS. CONTRACTOR shall obtain a permit from OC SAN for any crane lift over a building/structure at least one week prior to the scheduled crane lift.

4.7.2.3. Excavation and Trenching – The CONTRACTOR is required to provide a copy of the applicable Cal/OSHA permit, the name of the designated CONTRACTOR's competent person and stamped engineering designs as applicable. Documentation shall be provided prior to the start of the excavation.

4.7.2.4. Fall Protection – The CONTRACTOR shall submit a fall protection plan for all Work exceeding 6 feet in elevation. The plan shall be submitted using OC SAN's PCMS. The plan shall include a licensed (California) engineer's approval for the use of all lifelines and specify how an employee will be rescued in the event of a fall. Documentation shall be provided prior to the start of the Work. All Service Vendors shall submit a fall protection plan for all Work exceeding 4 feet in elevation.

4.7.2.5. Demolition – Demolition Work on OC SAN facilities may contain regulated quantities of asbestos or lead. The CONTRACTOR shall be licensed by the California Department of Industrial Relations for demolition involving these materials. The CONTRACTOR shall submit copies of appropriate licenses, work plans, SCAQMD notifications as applicable, copies of worker training certificates and third-party monitoring registrations as applicable. OC SAN will be responsible for the disposal of all hazardous waste generated from these operations. Notifications shall be in accordance with applicable Federal, State, and local requirements. Specifications Section 01900 Hazardous Materials Mitigation and Controls contains additional guidance for asbestos, lead, and other regulated wastes.

4.8. CONTRACTOR / SUBCONTRACTOR SAFETY NON-COMPLIANCE

4.8.1. OC SAN has the right to stop any Work activity deemed unsafe. Work may resume once the unsafe condition or behavior is corrected.

4.8.2. Non-compliance with these Contractor Safety Standards by a CONTRACTOR's/Subcontractor's employee will result in a notification to the

CONTRACTOR's supervisory personnel when observed by Risk Management or OC SAN staff.

- 4.8.3. Willful or repeat non-compliance with these Contractor Safety Standards may result in the ENGINEER or Risk Management requiring a CONTRACTOR employee to be excluded from the site for a period designated by OC SAN.
- 4.8.4. Failure of the CONTRACTOR's onsite project management to enforce the Progressive Disciplinary Action Program included in the Site-Specific Safety Program (SSSP) may result in the CONTRACTOR's onsite project manager's removal from the Project.
- 4.8.5. The removal procedure may be accelerated and/or expanded to include removal of a CONTRACTOR's/Subcontractor's entire workforce by the ENGINEER or Risk Management where the violation of these Contractor Safety Standards is widespread, or where the CONTRACTOR and/or Subcontractor does not demonstrate good faith effort.
- 4.8.6. CONTRACTORS that are unresponsive to safety issues or that have an unsatisfactory safety evaluation may be deemed ineligible to bid additional contracts for a period designated by OC SAN.
- 4.8.7. CONTRACTORS may report legitimate unsafe actions/activities of other CONTRACTORS to the ENGINEER or Risk Management.
- 4.8.8. Each CONTRACTOR and Subcontractor (through the CONTRACTOR) shall submit to the ENGINEER a list of (a) Competent Persons and Qualified Persons as applicable to the Work, and (b) First Aid / CPR trained personnel prior to starting the Work. Each list shall be clearly dated and updated as required throughout the Contract duration. Each time the list is updated, a copy shall be provided to Risk Management and the ENGINEER. The list shall be submitted using OC SAN's PCMS.
- 4.8.9. Each CONTRACTOR is responsible for handling, daily, rubbish and debris generated by its Work. The CONTRACTOR must keep the workplace clean.
- 4.8.10. The CONTRACTOR will cooperate in inspections by OC SAN, Cal/OSHA, and other regulatory agencies.
- 4.8.11. The CONTRACTOR will abate all safety violations or findings made by those agencies and report their corrections to the ENGINEER and Risk Management.
- 4.8.12. The cited Employer(s) shall submit copies of all regulatory agency citation notices to the CONTRACTOR (if applicable), the ENGINEER or Risk Management immediately upon receipt. The CONTRACTOR shall ensure that it posts copies of all citations as required by OSHA or the applicable regulatory agency. Citations shall be submitted using OC SAN's PCMS.

4.9. SUBSTANCE ABUSE PREVENTION POLICY

4.9.1. Purpose

- 4.9.1.1. To maintain a safe, healthful, and efficient work environment, and to minimize absenteeism and tardiness, all CONTRACTORS shall implement a Substance Abuse Prevention Policy that, at minimum, includes screening and testing as prescribed by this section.
- 4.9.1.2. CONTRACTOR and Subcontractor employees who will be on site, drug testing shall be completed at least 30 days prior to the effective date of the Notice to Proceed. The CONTRACTOR and

Subcontractor must only provide a list of those employees who have successfully passed their drug screening. OC SAN does not want and cannot accept the actual results. The section requirement for submission of testing results does not apply to consultants working under a professional services agreement.

- 4.9.1.3. The CONTRACTOR's program shall utilize a testing procedure and protocol that mirrors or exceeds US DOT parameters and protocols with the exception that the testing results will adhere to "zero tolerance" for the presence of alcohol detected in the system. This testing protocol will be required for all post-incident and for reasonable suspicion assessments of individuals.
- 4.9.1.4. An industry-accepted, commercially available, drug screening protocol can be used for pre-project assessments for workers, providing all positive result cases are referred for participation in the formal testing program. The screening method shall be capable of detecting, at a minimum, nanogram per milliliter (ng/ml) quantities of methamphetamine, MDMA (Ecstasy), THC (marijuana), cocaine, amphetamines, opiates, phencyclidine (PCP), and benzodiazepines in human body fluids.
- 4.9.1.5. This drug screening protocol can be utilized to obtain preliminary results only and would be unacceptable for obtaining any results which could have a legal impact, such as post-incident and for suspicion assessments. The drug screening method must be scientifically derived with supporting studies confirming the detection capabilities and sensitivities.

4.9.2. Requirements

- 4.9.2.1. CONTRACTORS shall implement and enforce a policy that prohibits the possession, distribution, promotion, manufacture, sale, use or abuse of illegal and unauthorized drugs, drug paraphernalia, controlled substances and alcoholic beverages by employees, agents, or any person otherwise under the control of the CONTRACTOR, including employees and agents of Subcontractors and consultants while on the work site while working on the Project. Further, employees shall be prohibited from reporting to the premises under the influence of drugs or alcohol.
- 4.9.2.2. The Policy must apply to all personnel, including but not limited to regular, part-time, probationary, casual and contract employees of the CONTRACTOR, as well as to employees and agents of Subcontractors. The CONTRACTOR shall take whatever legally permissible steps are necessary or appropriate to enforce compliance with this policy.
- 4.9.2.3. Workers governed by this policy may possess a prescription medication in its original container and prescribed for current use of the person in possession by an authorized medical practitioner; provided that the CONTRACTOR provides a mechanism to ensure that employees taking prescription medicine inform the CONTRACTOR about potential side effects of medication which may affect the employee's work ability (particularly their alertness and coordination), safety and the safety of others.
- 4.9.2.4. At a minimum, any worker shall be subjected to a pre-project drug

screening protocol for drug use in accordance with the provisions of the CONTRACTOR's program. A negative assessment result must be obtained prior to commencement of employment on this Project.

- 4.9.3. Drug Screening. Any worker shall be subject to a drug screening protocol prior to commencing Work on the Project in accordance with the CONTRACTOR's program:
 - 4.9.3.1. At the time of the Project safety orientation training. No person showing preliminary positive screening results will be permitted to work on the Project.
 - 4.9.3.2. All preliminary screening results will be managed as medical records that protect the employee's confidentiality.
- 4.9.4. Drug and Alcohol Testing. Any worker shall be drug and alcohol tested in accordance with the provisions of the CONTRACTOR's program:
 - 4.9.4.1. When preliminary drug screening results are positive indicating potential substance abuse and effected worker elects to have validated testing results. Prescription medication and potential test interferences will be considered during the collection and analysis process.
 - 4.9.4.2. When involved in any type of incident, whether injury or property damage was incurred or not.
 - 4.9.4.3. For reasonable suspicion of impairment which has been validated by a third party.
- 4.9.5. Any employee who fails or refuses to take a drug screen or drug and alcohol test in accordance with the terms of the Contract Documents shall be removed from the Project.

5. GENERAL SAFETY REQUIREMENTS

5.1. ATMOSPHERIC MONITORING EQUIPMENT

- 5.1.1. Wastewater facilities are commonly associated with a potential for hazardous atmospheres because of gasses present in the wastewater or inherent to the treatment process. CONTRACTORS who enter wastewater process areas (including confined spaces such as vaults, pits, tanks, basins, digesters, and excavations greater than 5 feet in depth) are to have on their person an atmospheric monitor that measures for Hydrogen Sulfide, Oxygen, Carbon Monoxide, and flammable gasses (Lower Explosive Limit (LEL)). When it is reasonable to suspect that other atmospheric hazards may be present, those hazards must be monitored as well.
- 5.1.2. The CONTRACTOR or Subcontractor entering these spaces is responsible for the provision and safe use of said equipment. All air monitoring equipment must be fully functional, maintained, tested, and calibrated as required by the manufacturer's instructions before each use. Air testing equipment shall be UL classified for use in Class I, Division 1, Groups A, B, C, and D hazardous locations as defined by the National Electrical Code.
- 5.1.3. Prior to use, employees must be trained per manufacturer requirements on the use, limitations, and alarm modes of each air-testing device that they use.
- 5.1.4. Employees must immediately leave a work area whenever an equipment alarm sounds due to any of the following alarms:

- 5.1.4.1. Low or high oxygen level (acceptable range is 19.5% to 23% oxygen).
- 5.1.4.2. Combustible gas detected above 10% lower explosive limit (LEL).
- 5.1.4.3. Set point for a toxic gas level is reached (e.g., 10 ppm hydrogen sulfide)
- 5.1.4.4. Sensor failure
- 5.1.4.5. Low battery alarm.
- 5.1.5. Equipment must be carried with the employee or placed immediately adjacent to the work area and set to operate in a continuous monitor mode. If working in a group and not mobile, at least one employee in the group shall have an atmospheric monitor that is properly calibrated and on. The monitor can provide coverage for a 10-foot radius. If the group is working over an area greater than 10 feet, then more monitors will be needed to provide coverage.
- 5.1.6. Air Contaminant Exposure
 - 5.1.6.1. The CONTRACTOR is responsible for determining if their employees are being exposed to harmful air contaminants or chemicals with recognized standard industrial hygiene analytical methods.
 - 5.1.6.2. If the CONTRACTOR determines that their employees are being exposed over the Permissible Exposure Limit (PEL) then they must implement protective measures for their employees following Cal/OSHA Construction Standards Section 1528.
 - 5.1.6.3. If the area is new construction, and where approved by the ENGINEER and Risk Management, the use of personal air monitors can be waived temporarily.

5.2. ASBESTOS

- 5.2.1. Asbestos is to be handled only by trained and licensed abatement CONTRACTOR or Subcontractor. Abatement CONTRACTOR or Subcontractor must be approved in accordance with applicable Federal, State, and local requirements to perform removal of asbestos containing materials (ACM).
- 5.2.2. OC SAN will make known building materials known to contain or suspected to contain asbestos to the CONTRACTOR. The CONTRACTOR must identify the materials within the structure or system prior to any construction, remodeling, or demolition activities. The CONTRACTOR shall properly protect in place or abate materials identified in the Contract Documents.
- 5.2.3. Upon discovery of any asbestos containing materials (ACM) or presumed asbestos containing materials (PACM), CONTRACTOR/Subcontractor shall stop Work in such areas and notify the ENGINEER and Risk Management.
- 5.2.4. All asbestos abatement activities must follow Cal/OSHA, National Emission Standards for Hazardous Air Pollutants (NESHAP), Asbestos Hazard Emergency Response Act (AHERA), and South Coast Air Quality Management District rules and regulations.
- 5.2.5. The CONTRACTOR or Subcontractor performing abatement Work shall prepare an Asbestos Abatement Plan in accordance with Specifications Section 01900 Hazardous Materials Mitigation and Controls.

5.3. HAZARDOUS (CLASSIFIED) LOCATIONS

- 5.3.1. Electrical equipment and wiring that is used in these areas must meet specific electrical code requirements for hazardous areas.
- 5.3.2. Before considering the installation of equipment in any process area, the area classification of that location should be determined by reviewing its area class map and/or checking with Risk Management and the ENGINEER.
- 5.3.3. Work that may produce a spark or other source of ignition, or the opening of enclosures with energized electrical systems in Class I, Division 1 or Class I, Division 2 locations will require Hot Work Permits and may require specialized tools, equipment, and training.
- 5.3.4. Requirements for Activities in Classified Areas
 - 5.3.4.1. No vehicle parking will be permitted in classified areas.
 - 5.3.4.2. Personal electronic devices are not permitted in classified areas. This includes cell phones, personal digital assistants, laptops, cameras, etc. The only exceptions to this policy are those devices specifically approved by the Risk Management. All non-approved devices shall be kept out of the classified area. Powering down a device is not sufficient to comply with this requirement.
 - 5.3.4.3. In cases where use of unapproved devices is unavoidable, continuous atmospheric monitoring for combustible gases shall be provided at the location where the device is being used. If the monitor alarms at any time, personnel are to cease use of the unapproved device, de-energize any potential ignition sources, and evacuate the classified area until such time that the atmosphere has been tested as clear and management approves entry back to the work area.
 - 5.3.4.4. Any activity in a classified area that could provide a source of ignition must be reviewed and approved in a Hot Work permit process prior to the start of such activity.

5.4. BARRICADES

- 5.4.1. Barricades or fencing is required around excavations, holes or openings in floor or roof areas, edges of roofs and elevated platforms, around certain types of overhead work, and wherever necessary to warn, protect people, or vehicles against falling in, through or off.
- 5.4.2. Barricades used around an opening in the floor or roof, at the edge of a roof or along an elevated platform shall meet the Cal/OSHA requirements of a standard guardrail.
- 5.4.3. Barricades may also be used to isolate people (such as employees of other crews or employers, other project, OC SAN personnel, and the public) from Work activities as required by the activity, potential hazards created by the activity, or the location of the activity.
- 5.4.4. Barricades must be of suitable construction and selected for the area of use (i.e., blinker type barricade for high vehicle traffic areas).
- 5.4.5. To ensure the safety of the public, the CONTRACTOR shall provide and maintain adequate protection, such as chain link fences, gates, and barricades, to separate work areas from areas outside job site limits.

- 5.4.6. A fall protection system accepted by the ENGINEER and Risk Management in writing shall be provided around excavation and trench leading edges.
 - 5.4.6.1. If the trench or excavation depth is greater than 6 feet: barricades, guardrails, or chain link fencing shall be provided around all open sides. Any person working along the unprotected edge of the trench or excavation shall be protected by an approved fall restraint system.
 - 5.4.6.2. If the trench depth is less than 6 feet, a warning line system accepted by the ENGINEER and Risk Management in writing, placed at least 6 feet from the leading edge, may be used in lieu of barricades, guardrails, or chain-link fence.
- 5.4.7. Portable fencing shall be installed around construction work areas, the CONTRACTOR storage areas, and the CONTRACTOR's heavy equipment if they are not otherwise protected within the confines of the Project's perimeter barricade.

5.5. FENCING

- 5.5.1. Chain link fencing shall be free from barbs, icicles (excess galvanizing material that may form sharp projections) or other projections that may cause injury.
- 5.5.2. Fencing must be in good repair and installed to ensure stability of the fencing from being knocked over by employees or the public.
- 5.5.3. Portable fencing shall be installed/braced to prevent being blown over during windy conditions.
- 5.5.4. Base supports of portable fencing shall be installed/ placed to eliminate tripping hazards when fencing is placed adjacent to sidewalks and walkways.
- 5.5.5. OC SAN reserves the right to prohibit use of temporary fence panel systems that require the use of a tubular or pedestal base support system that presents a potential trip hazard to pedestrians or obstruction for vehicles. Nuisance screening shall not be used in traffic areas unless approved by the traffic control engineer and accepted by the ENGINEER.

5.6. HOT WORK

- 5.6.1. This section covers the provisions to prevent injury, loss of life, and loss of property from fire or explosion because of hot work.
- 5.6.2. Hot work includes, but is not limited to, grinding, cutting, welding, brazing, soldering, heating, heat treating, thawing pipe, powder-driven fasteners, hot riveting, fusion welding, torch-applied roofing, torch cutting, sawing, concrete chipping, heat guns, or other operations that generate heat, flames, arcs, sparks, or other sources of ignition.
- 5.6.3. The CONTRACTOR shall only conduct hot work under a permit issued by OC SAN. Risk Management will issue a hot work permit for all hot work activities conducted at an OC SAN facility. The hot work permit is only valid for one day, except where approval for longer duration hot work permits has been provided by Risk Management.
- 5.6.4. The CONTRACTOR shall notify Risk Management at least 24 hours in advance of Work that requires a hot work permit.
- 5.6.5. The CONTRACTOR's Permit Authorizing Individual (PAI) will initiate the hot work permit. Risk Management will review the proposed hot work permit. If

- acceptable, Risk Management will endorse the hot work permit with a signature.
- 5.6.6. The CONTRACTOR's Person Performing Hot Work (PPHW) shall verify all hot work equipment is in good working condition and sign the hot work permit.
 - 5.6.7. Where required, the CONTRACTOR's fire watch will close out the permit by providing the time that fire watch duties were completed and provide their initials.
 - 5.6.8. The CONTRACTOR's PAI, hot work operator (PPHW) and fire watch shall review the hot work permit, inspect the work site, implement required controls, and add additional controls as identified by the CONTRACTOR.
 - 5.6.9. Hot work permits are only good for one day.
 - 5.6.10. Hot work permits shall be returned (hand delivered or emailed) to Risk Management for retention.
 - 5.6.11. The CONTRACTOR has sole responsibility for provision of fire monitoring, fire protection system, fire watch, and site preparation required by the hot work permit, including, but not limited to, atmospheric monitoring, ventilation, personal protective equipment, firefighting equipment, fire watch, relocation of flammable and combustible materials, or covering flammable and combustible materials with approved fire blankets, curtains, or pads, where required by the permit.
 - 5.6.12. The hot work permit shall be conspicuously posted at the job site or work area.
 - 5.6.13. A fire watch shall be designated by name on the hot work permit. The designated fire watch shall remain present at the hot work location throughout the duration of the hot work activities and at least 30 minutes beyond completion of those hot work activities. OC SAN reserves the right to waive the 30-minute fire watch rule, depending on the hot work scope, and this can be authorized on the permit by the PAI and Risk Management. The fire watch shall observe the hot work operator, conduct atmospheric monitoring, and inspect the area for flammable and combustible hazards. The fire watch is permitted to perform additional tasks; however, those tasks shall not distract him or her from their fire watch duties. These tasks may include moving partitions relating to hot work, sweeping in the immediate area, and minimal assistance to the operator.
 - 5.6.14. The CONTRACTOR shall have a Hot Work Program for fire prevention during hot work activities. This Program shall meet or exceed the requirements of NFPA 51B, "Standard for Fire Prevention during Welding, Cutting and Other Hot Work".
 - 5.6.15. An approved fire extinguisher and/or other fire protection equipment are to be provided by the CONTRACTOR for each hot work operation in accordance with OSHA and local Fire Marshal / Fire Code requirements. This equipment shall be located on the same elevation and within 5 feet of the hot work activity.
 - 5.6.16. In areas where it is reasonable to expect that enriched oxygen or flammable combustible gases, vapors, dusts, or liquids may be present in sufficient concentrations to cause a fire or explosion, continuous air monitoring is required. When atmospheric monitoring is required, the Lower Explosive Limit

must be non-detectable (0% LEL) and oxygen concentrations must be within acceptable limits of 19.5 and 23.5 percent oxygen, prior to any type of burning, welding, or hot work being conducted by the CONTRACTOR. Air monitoring will be required around or near any areas that may pose a potential fire or explosion threat from flammable or combustible vapors.

- 5.6.17. Welding fumes and particulates must be ventilated to protect hot work operators, fire watch, and personnel working adjacent to the hot work. Respirators approved by the National Institute of Occupational Safety and Health (NIOSH) must be worn for protection against welding fumes, hexavalent chromium, etc., as required.

5.7. CELL PHONES

- 5.7.1. Cell phones can be a distraction in the workplace and contribute to serious injuries or fatalities. Consideration is to be given as to when and where a person uses their cell phone so as to avoid injury.
- 5.7.2. Contractors shall not operate heavy equipment or vehicles when using cell phones.
- 5.7.3. Cell phones shall not be used in classified locations where there is a potential explosive atmosphere, unless if the individual has on them a properly calibrated 4-gas meter.
- 5.7.4. It is recommended that contractors not walk and talk while on the phone. Phone calls or responding to text messages and/or emails, should be completed from a safe place on the job site.

5.8. COMPRESSED GAS CYLINDERS

- 5.8.1. All cylinders must be secured and transported in a vertical upright position.
- 5.8.2. Oxygen and fuel gas cylinders must be separated at least 20 feet or by a 5-foot-high barrier with a 1/2-hour fire rating when in storage. The cylinders shall be placed away from equipment with potential to contact the cylinders resulting in vessel rupture.
- 5.8.3. Cylinder valves shall be turned to the off position if left inactive for 30 minutes or longer.
- 5.8.4. Cylinders designed for valve protection caps must have the valve protection caps installed when in storage or when being transported. Cylinder storage areas shall have appropriate warning signage posted. Appropriate fire-fighting equipment must be provided for each cylinder storage area.
- 5.8.5. Cylinders, hoses, and fittings shall be checked for leaks and damage on prior to use.
- 5.8.6. Cylinders must be labeled as to the nature of their contents per NFPA requirements and the OSHA Hazard Communication Standard.
- 5.8.7. Cylinders shall not be taken into confined spaces.
- 5.8.8. Torches and hoses shall not be left connected to cylinders overnight.
- 5.8.9. Torches and hoses shall not be stored in unventilated gang boxes or storage containers.
- 5.8.10. Flashback arrestors and check valves shall be installed in accordance with manufacturer's instruction on all oxygen-fuel torch sets.

5.9. CONCRETE AND MASONRY CONSTRUCTION

- 5.9.1. The CONTRACTOR must guard all protruding reinforcing steel, form stakes, or other members to eliminate impalement hazards.
- 5.9.2. The CONTRACTOR must create and follow a safe work procedure to remove concrete falsework. The procedure must be reviewed by employees removing the falsework and saved with the Project files.
- 5.9.3. The CONTRACTOR must not remove any forms or shoring until a determination has been made by the testing lab and structural authorized representative that the concrete has gained sufficient strength to support its own weight and that of superimposed loads.
- 5.9.4. The CONTRACTOR must not place loads on any concrete structure until concrete has reached a compressive strength predetermined by the ENGINEER.
- 5.9.5. Where concrete shoring/reshoring is employed, a shoring/reshoring plan specific to the Project shall be available for review at the job site.
- 5.9.6. Deviations from the shoring/reshoring plan will require the issuance of a new shoring/reshoring plan that has been stamped by a California licensed Professional Engineer.
- 5.9.7. The addition of superimposed loads on the floor (such as equipment and/or materials) not considered in the reshoring plan shall be construed as a deviation from the plan.

5.10. POURING AND PUMPING OPERATIONS

- 5.10.1. Permanent and temporary power lines shall be identified prior to the start of a concrete pour. Appropriate safeguards shall be implemented for the pumping, pouring, and finishing operations.
- 5.10.2. A site traffic control plan shall be established for concrete truck traffic. Trained spotters and flaggers shall be used as necessary for worker and public safety.
- 5.10.3. Employees involved in pouring and finishing activities shall have appropriate personal protection equipment, including gloves, mud boots, and eye protection. Concrete or cementitious products shall not contact skin or clothing.
- 5.10.4. Concrete truck washout areas shall be in an area acceptable to the ENGINEER and located out of vehicular and pedestrian travel areas.
- 5.10.5. Absorbent pads or the equivalent shall be provided for the pump and concrete trucks when the truck to pump transfer occurs in a public street or other public area.
- 5.10.6. A site logistics plan shall be prepared for each pump location and shall include provisions for concrete truck traffic routing and control, as well as pedestrian traffic routing and control (if applicable).

5.11. MASONRY CONSTRUCTION

- 5.11.1. Masonry walls shall be braced and/or supported as required by OSHA and/or local requirements. A clear buffer area shall be maintained during construction and work areas shall be maintained in a workmanlike manner.
- 5.11.2. Clear Zone, unauthorized personnel shall be prohibited from entering the work area.

5.12. CUTTING, GRINDING AND PROFILING

- 5.12.1. Dry cutting, grinding, and profiling of concrete or masonry shall be prohibited except in instances where it is determined in a manner consistent with applicable safety and health standards that the use of water in the cutting, grinding, or profiling is not feasible.
- 5.12.2. If it is determined that the use of water is infeasible:
 - 5.12.2.1. The CONTRACTOR shall use work practice controls to control the dust, such as a vacuum with a high efficiency particulate air filter (HEPA), or other dust control system.
 - 5.12.2.2. Any dry cutting which occurs shall be done in a designated area away from other employees if possible; and
 - 5.12.2.3. The CONTRACTOR shall provide affected employees with appropriate respiratory protection as part of a respiratory protection program in accordance with applicable OSHA standards.

5.13. CONFINED SPACE ENTRY

- 5.13.1. The CONTRACTOR shall have a written confined space program in accordance with Cal/OSHA safety orders. The CONTRACTOR's confined space program shall not conflict with and may be used to supplement OC SAN's confined space program, whichever is more stringent.
- 5.13.2. The CONTRACTOR shall not perform any Work in a confined space until a Confined Space Job Hazard Analysis (JHA) is completed by Risk Management with mandatory participation by the CONTRACTOR for both non-permit required and permit-required confined spaces. A separate JHA will be completed for each confined space entry location unless Risk Management deems that one JHA is sufficient to cover related confined spaces. Completion of the Confined Space JHA requires the CONTRACTOR to submit the following to Risk Management for review five days prior to the start of the job:
 - 5.13.2.1. Proof of training for entrants, attendants, supervisors, and rescue personnel
 - 5.13.2.2. A copy of the CONTRACTOR's written confined space program
 - 5.13.2.3. Site-specific entry procedures
 - 5.13.2.4. Fall protection plan
 - 5.13.2.5. Rescue procedure
 - 5.13.2.6. Ventilation plan
 - 5.13.2.7. Purge plan (required for gas and chemical systems)
 - 5.13.2.8. Hot work permit (if applicable to the Work)
 - 5.13.2.9. Scaffolding plan (if applicable to the Work)
 - 5.13.2.10. Respiratory protection program, including fit testing and PFT results (if required for the Work)
 - 5.13.2.11. Daily entry permit
 - 5.13.2.12. Copies of the energy control procedures (LOTO) prepared by OC SAN Operations and Maintenance Department
 - 5.13.2.13. Safety data sheets for chemicals brought or used in the confined

space

- 5.13.2.14. Other required documentation for confined space entry
- 5.13.3. The Confined Space JHA will address:
 - 5.13.3.1. The OC SAN experience with the space, known and potential hazards that could be encountered during the confined space entry.
 - 5.13.3.2. Any special precautions that must be taken by the CONTRACTOR employees who are working in or around the confined space.
 - 5.13.3.3. Compliance with regulatory requirements and Contractor Safety Standards.
 - 5.13.3.4. Method of coordination for entry operations if more than one CONTRACTOR is entering the space or if OC SAN employees will be entering the space.
- 5.13.4. The CONTRACTOR shall identify and designate those individuals who are educated, trained, competent and/or qualified to perform specific confined space- related duties, including but not limited to, Entry Supervisors, Attendants, Entrants, hazard identification and controls, entering confined spaces, conducting atmospheric monitoring, providing for rescue, and ventilation. Confined space responsibilities shall be listed on the entry procedure and/or permit.
- 5.13.5. The CONTRACTOR shall provide required equipment for entry and rescue and ensure that it is properly inspected, tested, maintained, and used in accordance with manufacturer's instructions and applicable safety programs.
- 5.13.6. Ventilation plans for live sewer entry shall be prepared by a Certified Safety Professional (CSP), Certified Industrial Hygienist (CIH), or Professional Engineer (PE).
- 5.13.7. The CONTRACTOR shall identify, evaluate, and qualify assigned Rescuers or outside emergency services, and develop and implement procedures for summoning rescue.
- 5.13.8. The CONTRACTOR is responsible to inform all Subcontractors of the terms discussed at all pre-job meetings.
- 5.13.9. After a confined space entry, the CONTRACTOR shall conduct a debriefing meeting with the entry team to discuss any hazards encountered during the confined space entry. If the CONTRACTOR encounters a hazard(s) that was not noted on the OC SAN Job Hazard Analysis, then the CONTRACTOR must alert Risk Management or the INSPECTOR to those hazards in writing
- 5.13.10. The CONTRACTOR must abide by the applicable OSHA and any other recognized standards for all confined space entry operations and furnish all appropriate personnel, equipment, and support.
- 5.13.11. CONTRACTOR personnel must be trained and certified in the hazards of confined space work, including rescue procedures and provisions, the use of respiratory equipment, and instructions as to the hazards they may encounter. The CONTRACTOR shall submit all certifications and training documents prior to any confined space entry.
- 5.13.12. The CONTRACTOR shall develop a written, understandable, and detailed confined space operating and rescue procedure as part of their entry permit. This procedure must be made available to all affected employees.

- 5.13.13. The CONTRACTOR is required to provide all necessary entry and rescue equipment required for all entries into confined spaces (tripod, full body harness, and lifeline or equivalent, etc.) as required by the applicable regulatory Standards. Fire Department shall not be considered first responders for rescue.
- 5.13.14. Prior to entry into a confined space, the CONTRACTOR shall ensure all lines that may convey flammable, injurious, or incapacitating substances into the space are disconnected, blinded, or blocked off by other positive means in accordance with Cal/OSHA Lockout/Tagout regulations and Section 5.42 for Control of Hazardous Energy (LOTO).
- 5.13.15. Prior to and continuously throughout entry into confined space, the CONTRACTOR shall test the air with an active (pump model) atmospheric monitor for: (1) oxygen content, (2) flammable gases and vapors, and (3) potential toxic air contaminants (CO; H₂S, other as required). A written record shall be made and kept at the confined space entry point. Readings shall be recorded on an atmospheric log every 15 minutes. The CONTRACTOR can seek a variance from Risk Management for logging readings at a different interval.
- 5.13.16. The CONTRACTOR shall conduct stratified testing of each confined space before entering if there is the potential of gas to have stratified. Stratified sampling will include lowering the sampling hose at approximately 4-foot intervals and waiting sufficient time for the sampling pump to pull the air to the monitor sensors.
- 5.13.17. All entries into active, ponded, or live sewer systems shall ensure compliance with Title 8 CCR 5157 Appendix E Sewer System Entry.
 - 5.13.17.1. CONTRACTORS entering OC SAN active sewer systems who elect to use ventilation, in lieu of atmosphere-supplying respirators, must submit a Ventilation Plan. This plan shall be a component of the Confined Space Entry Procedures and be reviewed and signed by a Professional Engineer (PE) qualified to practice in the state of California, Certified Safety Professional (CSP), or a Certified Industrial Hygienist (CIH) prior to Risk Management review.
 - 5.13.17.2. The plan must include, but is not limited to:
 - 5.13.17.2.1. Determination of the internal size (volume) and configuration of the permit space.
 - 5.13.17.2.2. How have the physical properties (molecular weight, vapor pressure, etc.) of the atmospheric hazards been considered in the design of the Ventilation Plan.
 - 5.13.17.2.3. The capacity of each piece of equipment being used, and does the capacity match the requirements of the space?
 - 5.13.17.2.4. The air exchange rate required to maintain acceptable entry conditions.
 - 5.13.17.2.5. Assessment of whether the Work or activities being performed within the sewer will contribute to the atmospheric hazard.
 - 5.13.17.2.6. Description of mitigation measures
 - 5.13.17.2.7. Calculations demonstrating how identified hazards are mitigated.
 - 5.13.17.2.8. A consideration of how the atmosphere will be affected by any hazards brought into the confined space such as hot work, hazardous vapors

from industrial coatings, etc.

- 5.13.17.3. The CONTRACTOR's Ventilation Plan must be submitted and accepted by the ENGINEER and Risk Management prior to placing workers or equipment into an active sewer.
- 5.13.17.4. In absence of an accepted Ventilation Plan, the CONTRACTOR shall make entry in to the active, ponded, or live sewer system under supplied air. The CONTRACTOR shall refer to respiratory protection section for additional requirements.
- 5.13.18. The confined space will be emptied to extent possible by OC SAN or as detailed in Contract Documents. The CONTRACTOR is responsible for flushing, cleaning, and purging of flammable or injurious substances to the extent feasible. The CONTRACTOR is required to provide the proper ventilation equipment.
- 5.13.19. Whenever a hazardous atmosphere and/or oxygen deficiency cannot be ensured through ventilation, the CONTRACTOR shall provide NIOSH approved respirators to affected employees. Employees using respiratory protection shall be involved in a comprehensive respiratory protection program in accordance with applicable OSHA standards. The level of respiratory protection shall be adequate to safeguard persons against the hazardous atmosphere.
- 5.13.20. Where a Standby Rescue Employee is required, the Standby Rescue Employee must have a valid certificate in First Aid and CPR training from the American Red Cross, or equivalent training verified by documentary evidence.
- 5.13.21. Visual contact or two-way radio communication must be available always.
- 5.13.22. If radios are selected for communication, the CONTRACTOR shall provide the radios.
- 5.13.23. When the CONTRACTOR arranges to have employees of another Subcontractor perform Work that involves a permit required confined space entry, the CONTRACTOR shall:
 - 5.13.23.1. Inform the Subcontractor that the workplace contains permit required confined spaces and entry into them is allowed only through compliance with a permit confined space program that meets the requirements of the CCR Title 8 Sections 1950 through 1961.
 - 5.13.23.2. Inform the Subcontractor of the elements including the hazards identified and the host employer's experience with the space that make it permit required.
 - 5.13.23.3. Coordinate entry operations with the Subcontractor when both the CONTRACTOR and Subcontractor will be working in or near the permit required confined space.
 - 5.13.23.4. Debrief the Subcontractor after the permit required confined space operation; ensure that the following questions are asked:
 - 5.13.23.4.1. Was the permit required confined space program followed?
 - 5.13.23.4.2. Were unpredicted hazards confronted or created in the permit required confined space during the entry operations?
 - 5.13.23.4.3. Were all the tools and equipment needed for the confined space entry

and rescue on site and in good operating order?

- 5.13.24. The CONTRACTOR must establish a means of communication with outside emergency services. Outside emergency services can only be used to provide medical services. The CONTRACTOR is responsible for rescuing its employees from the confined space.

5.14. UTILITY CONNECTIONS

- 5.14.1. The CONTRACTOR shall not, or allow any Subcontractor to, make any temporary service connections to electrical, water, air, steam, or other utilities without the written acceptance of the ENGINEER.
- 5.14.2. Temporary connections shall comply with all applicable Federal, State, and local regulations.
- 5.14.3. Temporary connections shall be inspected on a regular basis.
- 5.14.4. The CONTRACTOR shall not operate any valves or equipment owned by OC SAN or other agency/municipality without authorization.

5.15. CONSTRUCTION AND PERSONAL VEHICLES

- 5.15.1. CONTRACTOR vehicles must be in authorized areas only. Do not block or obstruct intersections, fire lanes, fire hydrants, traffic lanes, driveways, or parking lot entrances. Offending vehicles may be towed or ticketed without notice at the vehicle owner's expense.
- 5.15.2. Personal vehicles are not permitted within the treatment plants, except where authorized by the Contract Documents or the ENGINEER and Risk Management.
- 5.15.3. Company and personal vehicles parked within the treatment plants shall conduct a 360-degree vehicle walk around prior to operation to ensure OC SAN structures or assets are not struck.
- 5.15.4. CONTRACTOR fleet vehicles entering and/or working at the site must have the company name/identification clearly displayed on the vehicle with door magnets or sticker labels. Window tint decals are not acceptable.

5.16. ASSIGNED WORK AREA

- 5.16.1. The CONTRACTOR and Subcontractors are confined to their assigned work areas.
- 5.16.2. The CONTRACTOR is responsible for enforcing the PPE standards inside the work area.
- 5.16.3. Wandering throughout the treatment plant and project sites is strictly prohibited.
- 5.16.4. The CONTRACTOR is responsible for establishing effective access control to their site.
- 5.16.5. The CONTRACTOR and its Subcontractors shall only travel on permitted roadways or pathways as provided by the ENGINEER or Contract Documents.

5.17. CRANES, BOOM TRUCKS AND HOISTS

- 5.17.1. The term "crane" as used in this section shall include boom trucks, hoists, and similar truck-mounted cranes.
- 5.17.2. Prior to commencing any lifting over buildings/structures, the CONTRACTOR

shall request a permit at least one week prior to the scheduled lift.

- 5.17.3. Cranes exceeding three tons rated capacity shall not be used in lifting service until an approved certifying agent has certified the equipment.
 - 5.17.3.1. Cranes that do not have such evidence of inspection shall not be permitted to operate on the Project.
 - 5.17.3.2. A qualified person shall inspect the crane, rigging, and operating mechanism prior to first operation on any work shift. Inspection shall be documented and maintained on the crane. Results of inspections shall be made available to OC SAN upon request.
 - 5.17.3.3. Periodic inspections shall be made at least four times per year. The inspection shall be documented with the latest inspection maintained on the crane. Inspection results shall be provided to OC SAN's PCMS.
 - 5.17.3.4. Annual and quadrennial (where required) certifications shall be made for each crane. Annual or quadrennial certifications can satisfy one of the periodic inspections. Crane certifications shall be maintained on the crane and submitted using OC SAN's PCMS.
- 5.17.4. Only qualified persons or service providers shall re-inspect any crane that is involved in any incident or is damaged during set-up or operation, and a new certificate of inspection issued prior to being returned to service.
- 5.17.5. Only employees authorized by the CONTRACTOR and trained, or known to be qualified, in the safe operation of cranes shall be permitted to operate such equipment.
 - 5.17.5.1. Operators shall have valid evidence of current licensing or certification in accordance with State and local requirements. Operators shall not use cell phones or radios while operating unless the cell phone or radio is required for the lift.
 - 5.17.5.2. Operators not having such evidence where required shall not be permitted to operate applicable machinery (except under terms and conditions prescribed for trainees by applicable regulations).
- 5.17.6. All mobile cranes having either a maximum rated boom length exceeding 200 feet or a maximum rated capacity exceeding 50 tons shall be equipped with a load indicating device or a load movement device.
- 5.17.7. Cranes shall be equipped with a boom angle or a boom radius indicator and clearly legible load chart in clear view from the operator's position.
- 5.17.8. An effective, audible warning and operating signal device (such as a horn) shall be provided on the outside of the crane. The controls shall be in easy reach of the operator.
- 5.17.9. When required by the manufacturers or certifying agent's instructions, outriggers shall be set so that wheels or crawler tracks within the boundary of the outriggers shall be relieved of all weight by the outrigger jacks or blocking.
- 5.17.10. Plates, pads, or mats shall be used under the outriggers or crawlers of all cranes when a lift exceeds 75% of the capacity of the crane as it is configured for that lift. The plates, pads, or mats shall be of suitable material and size to support the crane on the surface that it is set up on.

- 5.17.11. The CONTRACTOR shall ensure that a qualified person visually inspects the crane, controls, rigging and operating mechanism prior to the first operation of any work shift. Records of daily inspections by the operator or other qualified person shall be maintained on the crane and must be available for review upon request.
- 5.17.12. Adjustments and repairs to the crane shall only be made by a qualified person.
- 5.17.13. An industrial cartridge style fire extinguisher of not less than 10-B: C rating shall be kept in serviceable condition and readily accessible to the operator.
- 5.17.14. Lifting operations shall be performed in a controlled manner to prevent loads from being passed directly over workers, occupied workspaces, or occupied passageways.
- 5.17.15. A qualified signal person shall be provided when the point of operation is not in full and direct view of the operator unless a signaling or control device is provided. Only one person shall be permitted to give signals to the operator. Any employee involved in the operation may give a "stop" signal if such a signal is warranted.
- 5.17.16. A legible chart depicting and explaining the system of crane signals used shall be conspicuously posted near the hoisting operation.
- 5.17.17. All loads shall be rigged by an identified, qualified, and authorized rigger.
- 5.17.18. No Employee shall be permitted to ride on loads, hooks, or slings of any derrick, hoist, or crane.
- 5.17.19. Swing radius protection shall be provided where a rotating crane is positioned to operate in areas where persons may be caught between rotating parts and fixed objects or non-rotating crane components.
- 5.17.20. Tag lines, restraint lines, or guide ropes shall be used on all loads except where their use presents a greater hazard. Such lines or ropes should be insulated to prevent shock and shall not contain knots or splices that may snag on an object.
- 5.17.21. Cranes shall not be left unattended while the load is suspended unless the load is over water, a barricaded area, or is blocked up or otherwise supported.
- 5.17.22. Before leaving the crane unattended, which means leaving the controls of the crane, the operator shall:
 - 5.17.22.1. Land or properly secure any attached load
 - 5.17.22.2. Disengage clutch (if applicable)
 - 5.17.22.3. Set travel, swing, boom brakes, and other locking devices unless otherwise specified by the certifying agents
 - 5.17.22.4. Put controls in the "off" position
 - 5.17.22.5. Stop the engine
 - 5.17.22.6. Secure the crane against accidental travel
- 5.17.23. In all operations where the weight of the load being handled is unknown and may approach the rated capacity, a qualified person shall determine the magnitude of the load unless the crane is equipped with a load-indicating device.

- 5.17.24. The CONTRACTOR shall provide a qualified person to direct the lift. The qualified person shall see that:
 - 5.17.24.1. The crane is properly leveled for the work being performed and blocked where necessary.
 - 5.17.24.2. The load is well secured and properly balanced in the sling or lifting device before it is lifted more than a few inches.
- 5.17.25. A designated person shall monitor the clearance between crane booms, load lines, and loads, and power lines and alert the operator when necessary.
- 5.17.26. For power lines rated 50kV, or less, minimum clearance between the lines and any part of the crane or load is 10 feet. For power lines rated over 50kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for every 1kV over 50kV.
- 5.17.27. Magnetic lifting devices are not allowed to lift material or equipment.

5.18. OC SAN OWNED OVERHEAD CRANES

- 5.18.1. Prior to use of an OC SAN owned overhead crane, CONTRACTOR must complete and sign OC SAN's Hold-Harmless Agreement. A copy of the Hold-Harmless Agreement can be obtained from Risk Management.
- 5.18.2. The CONTRACTOR shall submit a signed training verification letter stating the names of the individual(s) who are trained, competent, and qualified to operate the overhead crane.
- 5.18.3. The Hold-Harmless Agreement and training verification letter shall be submitted prior to use of the crane using OC SAN's PCMS.
- 5.18.4. The CONTRACTOR is responsible for pre-use inspection of the crane for which authorization has been granted. Inspections must be documented. The CONTRACTOR shall not overload the crane and must report any damage immediately to OC SAN.

5.19. RIGGING, SLINGS AND HOOKS

- 5.19.1. Hoisting hooks shall be of the safety latch-type.
- 5.19.2. Crane hooks with cracks or with deformation of throat opening more than 15% more than normal opening or more than 10-degree twist from plane of unbent hook shall be removed from service.
- 5.19.3. Ropes shall be inspected for proper lubrication, excessive wear, broken strands, and proper weaving.
- 5.19.4. To determine proper time for replacement, a continuing inspection record shall be maintained for hoisting ropes. Conditions such as the following shall be reason for replacement:
 - 5.19.4.1. In running ropes, 6 randomly distributed broken wires in one rope lay, or three broken wires in one strand in one lay.
 - 5.19.4.2. Wear of 1/3 the diameter of outside individual wires.
 - 5.19.4.3. Kinking, crushing, bird caging, or other damage resulting in distortion of the rope structure.
 - 5.19.4.4. In stranding ropes, more than two broken wires in one lay in sections beyond end connections or more than one broken wire at an end connection.

- 5.19.4.5. Reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires.
- 5.19.5. Fixtures are usually attached to wire rope using wire rope clips. The clips must be attached with the inside curve of the U-bolt against the dead, or short end of the wire rope, and flat clip (saddle) against the live, or long end of the wire rope.
- 5.19.6. Each day before being used, wire rope slings, metal mesh slings, and natural and synthetic fiber rope slings, and all fastenings and attachments shall be inspected for damage or defects by a qualified person.
- 5.19.7. Slings shall have permanently affixed tags stating the following:
 - 5.19.7.1. Manufacturer's name or trademark
 - 5.19.7.2. Rated capacity
- 5.19.8. Chains shall not be used for rigging.

5.20. CRITICAL LIFTS

- 5.20.1. A Critical Lift Plan shall be prepared and submitted to Risk Management for all lifts that:
 - 5.20.1.1. exceed 75% of the lifting device's capacity as configured for that lift,
 - 5.20.1.2. is deemed a critical lift by the ENGINEER, INSPECTOR or Risk Management due to potential negative consequences to safety, structure, or schedule,
 - 5.20.1.3. over a building that normally has occupants, or
 - 5.20.1.4. Involves two or more cranes or lifting devices.
- 5.20.2. A qualified person shall prepare the Critical Lift Plan. The qualified person preparing the plan may be the crane operator, lift supervisor, or rigger. The crane operator, lift supervisor, and rigger shall participate in the preparation of the plan. The plan shall be documented, and a copy provided to the CONTRACTOR and the ENGINEER. The plan shall be reviewed by, and signed by, all personnel involved with the lift.
 - 5.20.2.1. The plan shall specify the exact size and weight of the load to be lifted and all crane and rigging components that add to the weight. The manufacturer's maximum load limits for the entire range of the lift as listed in the load charts shall also be specified.
 - 5.20.2.2. The plan shall specify the lift geometry and procedures, including the crane position, height of the lift, the load radius, and the boom length and angle, for the entire range of the lift.
 - 5.20.2.3. The plan shall designate the crane operator, lift supervisor, and rigger, and state their qualifications.
 - 5.20.2.4. The plan will include a rigging plan that shows the lift points and describes rigging procedures and hardware requirements.
 - 5.20.2.5. The plan will describe the ground conditions, outrigger, or crawler track requirements, and, if necessary, the design of mats, necessary to achieve a level, stable foundation of sufficient bearing capacity for the lift.
 - 5.20.2.6. For floating cranes or derricks, the plan shall describe the operating base (platform) condition and any potential list.

- 5.20.3. The plan will list environmental conditions under which lift operations are to be stopped.
- 5.20.4. The plan will specify coordination and communication requirements for the lift operation.
- 5.20.5. For tandem or tailing crane lifts, the plan will specify the make and model of the cranes, the line, boom and swing speeds, and requirements for an equalizer beam.
- 5.20.6. This plan shall be submitted to OC SAN at least two weeks prior to the lift.
- 5.20.7. The Critical Lift Plan shall be reviewed by Risk Management prior to start of the lifting operation.

5.21. DEMOLITION

- 5.21.1. CONTRACTOR shall prepare a demolition plan that contains the following:
 - 5.21.1.1. Describe scope of demolition.
 - 5.21.1.2. List construction equipment or materials intended to be used for demolition work and how they will be used.
 - 5.21.1.3. Identify/describe utilities to be shut off, capped, or otherwise controlled.
 - 5.21.1.4. Prepare/describe evacuation plan for work area.
 - 5.21.1.5. Describe processes and controls for preventing unauthorized access to demolition work area.
 - 5.21.1.6. Describe processes and controls for how access will be maintained for OC SAN O&M or inspectors (if needed).
 - 5.21.1.7. Describe how construction debris will be loaded out and where. Identify controls for this area.
 - 5.21.1.8. Provide high level hazard assessment and describe controls to control each hazard.
 - 5.21.1.9. Describe dust control measures to be employed.
 - 5.21.1.10. Prepare/describe fire prevention measures to be employed.
 - 5.21.1.11. Describe hazard warning devices to be used.
 - 5.21.1.12. Identify personal protective equipment required for the protection of the head, eyes, ears, respiratory system, hands, feet, and other parts of the body.
 - 5.21.1.13. Identify competent persons who will be performing inspections during demolition to detect hazards resulting from weakened or deteriorated floors, walls, or loosened material.
 - 5.21.1.14. Submit shoring drawings and scaffolding drawings where applicable.
 - 5.21.1.15. Utility companies shall be notified, and all utility service shut off, capped, or otherwise controlled, at the building or curb line before starting demolition. The CONTRACTOR is responsible to verify that these actions have been taken.
 - 5.21.1.16. The CONTRACTOR shall develop an Emergency Call List for all known utility owners prior to the start of demolition activities.
 - 5.21.1.17. A site plan shall be marked up to show the locations of known

utilities, and the nearest identified shut-off valves/controls. This plan shall be available in the CONTRACTOR's site office. The ENGINEER and Risk Management shall be provided with a copy.

- 5.21.1.18. The CONTRACTOR shall research available documents to identify all utilities prior to digging or boring. The CONTRACTOR shall pothole to locate critical utilities prior to digging or boring.
- 5.21.2. Existing alarm systems shall be identified and taken out of service prior to commencing demolition operations. Alarm services shall be notified that the alarm will be taken out of service before taking the system out of service.
- 5.21.3. The CONTRACTOR shall determine if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property.
- 5.21.4. When the presence of hazardous substances is apparent or suspected, testing and purging shall be performed, and the hazard eliminated prior to demolition.
- 5.21.5. Pipe-covering insulation, steel beam and column fire protection, and HVAC duct shall be surveyed for asbestos.
- 5.21.6. During demolition, continuing inspections shall be made as the Work progresses to detect hazards resulting from weakened, load burdened, or deteriorated floors or walls or loosened materials.
 - 5.21.6.1. The CONTRACTOR shall ensure that floor load limits are not exceeded during demolition operations.
 - 5.21.6.2. Disperse demolition equipment throughout the structure and remove demolished materials to prevent excessive loads on supporting walls, floors, or framing.
- 5.21.7. Adequate dust control measures shall be provided during demolition, stockpiling, and loading operations with potable water sources only. The CONTRACTOR shall inspect for accumulated dust and clean regularly.
- 5.21.8. Walking across exposed floor joists, steel beams, or girders is prohibited.
- 5.21.9. Standing on pipes, conduits, or other structures (i.e., cable trays, motors) used for the treatment process is prohibited.
- 5.21.10. The CONTRACTOR shall ensure safe passage of persons around the area of demolition. Conduct operations to prevent damage to adjacent buildings, structures, other facilities, and people.
- 5.21.11. Provide interior and exterior shoring, bracing, or supports to prevent movement, settlement, or collapse of structures to be demolished, and to adjacent facilities.
- 5.21.12. Demolish concrete and masonry in sections. Use bracing and shoring to prevent collapse.
- 5.21.13. Indoor concrete demolition shall have a dust control plan in place that is effective and accepted by the ENGINEER. Continuous inspection of indoor dust and the efficacy of the plan must be conducted.

5.22. ELECTRICAL

- 5.22.1. General

- 5.22.1.1. The CONTRACTOR and all its employees must follow the NFPA 70 and 70E standards to determine work practices with appropriate arc-resistant personal protective equipment.
- 5.22.1.2. Any CONTRACTOR who places, installs, erects, or connects any electrical wires, fixtures, appliances, apparatus, raceways, conduits, solar photovoltaic cells, or any part thereof, which generate, transmit, transform, or utilize electrical energy in any form or for any purpose shall be an electrician certified by the State of California or a C-10 Electrical CONTRACTOR Licensed in the State of California.
- 5.22.1.3. Any CONTRACTOR who installs, services, and maintains all types of communication and low voltage systems which are energy limited and do not exceed 91 volts shall be a C-7 Low Voltage Systems CONTRACTOR. These systems include, but are not limited to telephone systems, sound systems, cable television systems, closed-circuit video systems, satellite dish antennas, instrumentation and temperature controls, and low voltage landscape lighting. Low voltage fire alarm systems are specifically not included in this section.
- 5.22.1.4. During the commissioning phase of a project, a state certified electrician shall be available to make any changes or adjustments to electrical installations that the commissioning coordinator requires. This would include testing equipment, checking voltage, and installing wire jumpers.
- 5.22.1.5. All temporary power panels must have covers installed always. All circuits must be clearly labeled.
- 5.22.1.6. The CONTRACTOR is to supply ground fault circuit interrupters (GFCI) for all temporary electrical wiring cords and equipment. Ground Fault Circuit Interrupters shall be tested in accordance with manufacturer's requirements. Logs shall be maintained of all such testing. GFCI with automatic reset feature are not permitted for use at OC SAN.
- 5.22.1.7. Temporary lighting shall not be suspended by its extension/power cord and must be equipped with guards to prevent contact with the bulb.
- 5.22.1.8. Extension cords must be at minimum 12-gauges, three-wire cords. Extension cords shall be used only in continuous lengths without splice or tap. The terminals and insulation shall be free of defects such as cracked, split, or nicked insulation; exposed wires; knots; burn marks; loose connectors; or other damage that may present a fire or an electrocution hazard. The ground prong shall not be removed.
- 5.22.1.9. Power tools must be double insulated or grounded properly. Power tools shall be inspected before each use. Damaged or defective tools and cords shall be removed from service.
- 5.22.1.10. To protect all employees on the Work site, each CONTRACTOR shall use either or both a ground-fault circuit interrupters or an assured equipment ground conductor program as required by 8 CCR section 2405.4.
- 5.22.1.11. The CONTRACTOR must properly tagout and lockout any

equipment within the CONTRACTOR's responsibility. Control of the lock and tag is also the CONTRACTOR's responsibility. The CONTRACTOR shall coordinate instances that require multi-employer lockout/tagout activities.

- 5.22.1.12. The CONTRACTOR shall ensure that all electricians are trained on NFPA- 70E (Electrical Safety in the Workplace) to identify electrical hazards. The CONTRACTOR shall provide all personal protection equipment (PPE) as required by NFPA 70E. The CONTRACTOR shall request the latest arc flash hazard study from OC SAN 45 days prior to performing any Work on existing live systems and/or equipment. The CONTRACTOR shall use care when working around energized parts so as not to contact live parts, causing an electrical outage and/or injury.

5.22.2. Electrically Safe Work Condition

- 5.22.2.1. Energized electrical conductors and circuit parts operating at voltages equal to or greater than 50 volts shall be locked out and tagged out before an employee performs Work within the limited approach boundary or the employee interacts with equipment where conductors or circuit parts are not exposed but an increased likelihood of being burnt from an exposure to an arc flash hazard exists.
- 5.22.2.2. Energized electrical Work or exposure to open energized panels shall be prohibited without authorization from the ENGINEER, unless required in the Contract Documents or as listed below.
- 5.22.2.3. The CONTRACTOR shall Work in the following equipment and locations while energized:
 - 5.22.2.4. The CONTRACTOR shall perform Work inside existing electrical cable trays or 480V manholes and pull boxes while existing cables are energized and in operation. The CONTRACTOR shall wear appropriate personal protective equipment per NFPA 70E.
 - 5.22.2.5. The CONTRACTOR shall perform Work inside PLC and Remote I/O Panels while the panel are energized and in operation. The CONTRACTOR shall wear appropriate personal protective equipment per NFPA 70E.
 - 5.22.2.6. The CONTRACTOR shall perform testing, troubleshooting and voltage measuring of control circuits while energized. The CONTRACTOR shall wear appropriate personal protective equipment per NFPA 70E.
 - 5.22.2.7. De-energizing electrical conductors and circuit parts to which an employee may be exposed shall be performed by de-energizing and locking out the sources of electrical energy in accordance with the Control of Hazardous Energy (LOTO) section. Electrically safe working conditions shall be established by qualified persons only.
 - 5.22.2.8. When the possibility of induced voltages or stored electrical energy exists, the phase conductors or circuit parts shall be temporarily grounded in accordance with NFPA 70E before touching them.
 - 5.22.2.9. Documentation, including facility drawings, shall be reviewed to ensure that no electrical circuit interlock operation can result in

reenergizing the circuit being worked on.

- 5.22.2.10. Locks and tags shall only be installed on circuit disconnecting means. Control devices such as pushbuttons or selector switches shall not be used as the primary isolating device.

5.22.3. Energized Work

- 5.22.3.1. If Work on or near energized electrical systems is required, the CONTRACTOR shall be trained in NFPA-70E and shall obtain the ENGINEER's written acceptance of and adhere to a plan for such energized Work that includes the following:
 - 5.22.3.1.1. Description of energized Work to be performed, estimated duration of energized Work, arc flash hazard category and the required PPE.
 - 5.22.3.1.2. Safety Plan and Procedures.
 - 5.22.3.1.3. Performance of energized Work by the CONTRACTOR's qualified, experienced electrician who are NFPA-70E trained and licensed in the State of California.
 - 5.22.3.1.4. Installation of barriers, if possible, to isolate the energized parts and/or devices that may cause a shutdown of a process.
 - 5.22.3.1.5. Obtaining the ENGINEER's acceptance of the plan prior to the notification of OC SAN.
 - 5.22.3.1.6. Written Notification shall be provided to OC SAN as required per Contract Documents.
- 5.22.3.2. Shutdown requests shall be submitted as specified in the General Requirements section entitled "Advance Notification for Plant Shutdown".
- 5.22.3.3. Working on energized equipment shall be performed by qualified persons, where authorized by the ENGINEER, or where it can be demonstrated that de-energizing equipment introduces additional hazards or increased risk. The authorization will be in the form an Energized Electrical Work Permit.
- 5.22.3.4. Energized Work is permitted where the task is infeasible in a de-energized state due to equipment design or operational limitations, or for equipment operating at less than 50 volts.
- 5.22.3.5. The CONTRACTOR shall implement safety-related work practices consistent with the electrical hazard and associated risk. The safety-related work practices shall be determined before any person is exposed to the energized equipment using shock and arc flash risk assessments. The shock risk assessment will determine the limited approach boundary and the restricted approach boundary. The arc flash risk assessment will determine the arc flash boundary, including the level of personal protective equipment to protect against arc flash hazards.
- 5.22.3.6. Employees are prohibited from blindly reaching into areas that might contain exposed energized electrical conductors or circuit parts.
- 5.22.3.7. Conductive articles of jewelry and clothing (watches, bracelets, rings, key chains, necklaces, metal framed glasses) shall not be worn within restricted approach boundaries or where they present an

electrical contact hazard. Additionally, any conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent contact with exposed energized conductors or circuit parts.

- 5.22.3.8. When working within a confined or enclosed space that contains exposed energized electrical conductors or circuit parts operating at 50 volts or more, protective shields, protective barriers or insulating materials shall be used to avoid inadvertent contact with these parts.

5.22.4. Limited Approach Boundary

- 5.22.4.1. The limited approach boundary is the established safe distance for unqualified persons. The limited approach boundary is a calculated distance from an exposed live part where a shock hazard may exist. Only qualified persons are permitted to cross this boundary, if needed.

- 5.22.4.2. Where there is a need for unqualified persons to cross the limited approach boundary, qualified persons shall advise the unqualified person of the hazards and continuously escort the unqualified person while inside the boundary limit. Unqualified persons shall never cross the restricted approach boundary.

5.22.5. Restricted Approach Boundary

- 5.22.5.1. The restricted approach boundary is closer to live parts and may only be crossed by qualified persons. The restricted approach boundary is a calculated distance from an exposed live part where there is an increased risk of shock due to electrical arc combined with inadvertent movement for personnel working near the live part. Energized electrical permits are required when crossing this boundary to perform Work on the energized conductor or circuit.

- 5.22.5.2. No qualified person shall approach or take any conductive object closer to exposed energized electrical parts within the restricted approach boundary, except where authorized by the ENGINEER in writing.

- 5.22.5.3. Unqualified persons are prohibited from working within the restricted approach boundary.

5.22.6. Arc Flash Boundary

- 5.22.6.1. The arc flash boundary is the calculated distance at which the incident energy equals 1.2 calories per square centimeter (energy capable of causing a curable second-degree burn). In theory, persons working outside of the arc flash boundary would only sustain a curable second degree burn or less should an arc flash occur. Work performed inside of the arc flash boundary requires a level of PPE to reduce the incident energy on the human body to quantities lower than 1.2 calories per square centimeter.

- 5.22.6.2. The incident energy analysis is based on the working distance of the employee's face and chest from a prospective arc source for the specific tasks to be performed. The analysis is performed as part of the arc flash risk assessment, which considers overcurrent protective devices, fault clearing time, and condition of maintenance.

- 5.22.6.3. The incident energy analysis shall be evaluated when changes occur

in the electrical system or every five years, whichever occurs first.

5.22.7. Demolition

- 5.22.7.1. Demolition of the following equipment and systems shall be performed by an electrician certified by the State of California, or a C-10 Electrical Contractor licensed in the State of California. The individual(s) shall also be deemed to be a Qualified Person(s), as defined by OSHA and NFPA 70E.
 - 5.22.7.1.1. Electrical systems, equipment, and connections that have a potential of 50 volts or greater.
 - 5.22.7.1.2. Electrical conductors, cables, cable bus, cable trays, and bus ducts.
 - 5.22.7.1.3. Conduits terminating at equipment that is to remain in operation after demolition Work is performed.
- 5.22.7.2. Prior to performing any electrical demolition Work, the following activities at a minimum, shall be completed by a Qualified Person(s) who is an electrician certified by the State of California or a C-10 Electrical Contractor licensed in the State of California, to ensure the system or equipment have been made safe for demolition Work:
 - 5.22.7.2.1. Review applicable drawings
 - 5.22.7.2.2. Locate source, destination, and routing (end to end) of the conductors, cables, cable bus, cable trays, bus ducts, and conduits to be demolished.
 - 5.22.7.2.3. Identify voltage levels and other hazards
 - 5.22.7.2.4. Walk through the entire length of the demolition route from the power source to the termination point at end device. Ensure all conductors, cables, cable bus, cable trays, bus ducts, and conduits have been adequately identified (end to end wire checks) for demolition.
 - 5.22.7.2.5. Mark all the equipment to be demolished from the power source to the end device destination using a contrasting means that cannot be easily removed (paint, tape, adhesive wire ID tags, etc.) as acceptable to the ENGINEER. The equipment shall be marked at five feet intervals. The equipment shall also be tagged where the conductors, cables, cable bus, cable trays, bus ducts, and conduits enter an underground installation and/or penetrate a wall.
 - 5.22.7.2.6. Unless accepted by the ENGINEER, the demolition of the conductors, cables, cable bus, cable trays, bus ducts, and conduits shall never start in the middle of the route. It shall always start from one end and work toward the other end.

5.23. ELEVATING WORK PLATFORM AND AERIAL DEVICES

5.23.1. General

- 5.23.1.1. Only authorized and trained personnel shall operate an aerial device or elevating work platform.
- 5.23.1.2. Boom, basket, platform load limits specified by the manufacturer shall not be exceeded.
- 5.23.1.3. Employees shall not sit or climb on the edge of the basket or platform or use planks, ladders, guardrails, or other devices to gain greater height.

- 5.23.1.4. Employees shall not work from elevated work platforms or aerial devices when exposed to high winds. OSHA defines “high winds” as any wind condition above 40 mph.

5.23.2. Aerial Devices

- 5.23.2.1. An aerial device is any vehicle-mounted or self-propelled device, telescoping extensible or articulating, or both, which is primarily designed to position personnel.
- 5.23.2.2. Belting off to an adjacent pole, structure, or equipment while working from an aerial device is not permitted.
- 5.23.2.3. Lift controls shall be tested in accordance with the manufacturer’s recommendations or instructions prior to use to determine that such controls are in safe working condition.
- 5.23.2.4. Aerial baskets or platforms shall not be supported by adjacent structures when workers are on the platform or in the baskets while in an elevated position.
- 5.23.2.5. An employee, while in an elevated aerial device shall be secured to the identified anchorage point using a full body harness and lanyard for fall protection.
- 5.23.2.6. An employee shall not exit the aerial device to gain access to an elevated work area (i.e., use it as an “elevator”).
- 5.23.2.7. The total load shall not exceed the weight allowed by the manufacturer.

5.23.3. Elevating Work Platforms

- 5.23.3.1. An elevating work platform is a device designed to elevate a platform in a substantially vertical axis. (Vertical Tower, Scissor-Lift)
- 5.23.3.2. Scissor lifts and vertical tower lifts equipped with a personal tie off anchor point, as designed by the equipment manufacturer, personal fall arrest system for aerial lifts shall be used. The CONTRACTOR shall refer to equipment manufacturer instructions for safe use of the anchor point. If the scissor lift or vertical tower is not equipped with a personal tie off anchor point, then personal fall arrest systems are not required. At no time shall the employee tie off to a guardrail system or other unapproved system or structure.
- 5.23.3.3. The platform guardrail shall be 42 inches high, plus, or minus 3 inches, with a middle railing. Where the guardrail is less than 39 inches high, a personal fall protection system accepted by the ENGINEER and Risk Management in writing shall be used.
- 5.23.3.4. Powered elevating work platforms shall have both upper and lower control devices. Controls shall be plainly marked as to their function and guarded to prevent accidental operation.
- 5.23.3.5. An emergency stopping device shall be provided at the upper controls of elevating work platforms.
- 5.23.3.6. Ladders or other objects shall not be placed on top of units to gain greater height.
- 5.23.3.7. An employee shall not exit the elevating work platform to gain access to an elevated work area (i.e., use it as an “elevator”), unless a

manufacturer approved procedure is available.

- 5.23.3.8. The work platform shall be operated according to manufacturer instructions.

5.23.4. Rescue Plan

- 5.23.4.1. Before Work begins, necessary rescue equipment should be determined and made available at the work area.
- 5.23.4.2. Appropriate emergency rescue procedures shall be in place for an emergency rescue of a person using a fall-arrest system or aerial lift device, as follows:
- 5.23.4.3. Rescue shall be provided in less than six minutes to prevent suspension trauma. For most Work, this shall necessitate a full-time safety watch.
- 5.23.4.4. If a rescue cannot be performed in less than six minutes, the fall-arrest system shall have a device that automatically lowers the person to the ground safely.
- 5.23.4.5. If compliance with the above cannot be achieved, a safe and alternative working procedure shall be used.
- 5.23.4.6. Emergency rescue procedures shall consider the immediate rescue of a person after an arrested fall without the need to rely on emergency services or appropriately trained and competent standby rescue teams.

5.24. EMERGENCY ACTION AND EVACUATION PLAN

- 5.24.1. The CONTRACTOR is responsible for the development of a Project-specific emergency action plan that shall consider probable and possible emergency situations. This plan shall be included in the SSSP.
- 5.24.2. The plan shall be revised throughout the course of the Project to reflect changed conditions. The plan shall be maintained at the site, and available for review upon request. The plan shall contain the following at a minimum:
 - 5.24.2.1. Project site map
 - 5.24.2.2. Street map of immediate area showing Project location that clearly identifies one-way and dead-end streets.
 - 5.24.2.3. Building plan, including a plan for each floor
 - 5.24.2.4. Emergency notification list
 - 5.24.2.5. Emergency notification procedures
 - 5.24.2.6. Evacuation procedures
 - 5.24.2.7. Evacuation route
 - 5.24.2.8. Evacuation refuge area
 - 5.24.2.9. How employees will be trained on the contents of this plan
 - 5.24.2.10. Intervals for refresher training
- 5.24.3. The plan shall contain an Emergency Contact List. The list shall include 24-hour contact information for key Project personnel that will respond to emergencies. The CONTRACTOR shall maintain this list throughout the duration of the Contract and provide a revised copy to all parties when made

necessary by changes to personnel or their contact information.

5.25. ENVIRONMENTAL CONTROLS

- 5.25.1. Spills of hazardous materials (including cutting oil, fuel, solvents, antifreeze, sewage, etc.) must be reported immediately to the appropriate regulatory agencies and to OC SAN. The party responsible for the spill is responsible for cleanup costs.
- 5.25.2. Cutting equipment must have secondary containment (drip pans, sandboxes).
- 5.25.3. Drums, jugs, and other containers must have secondary containment.
- 5.25.4. All containers must be maintained in good condition and must be appropriate for the materials to be stored in them.
- 5.25.5. All containers must be labeled with their contents and precautions for use.
- 5.25.6. Containers containing hazardous waste must be labeled "Hazardous Waste" in addition to listing their contents on the label.
- 5.25.7. Weekly inspections of the Project must be performed by the CONTRACTOR to assure compliance with this section.
- 5.25.8. Hazardous waste owned by OC SAN prior to the notice to proceed will be considered OC SAN-generated hazardous waste, which requires Risk Management personnel to sign and receive copies of manifested paperwork.
 - 5.25.8.1. The CONTRACTOR shall coordinate with the ENGINEER on the storage of hazardous waste before remediation begins. The CONTRACTOR shall request each storage container from OC SAN a minimum of ten workdays in advance of remediation of hazardous materials.
 - 5.25.8.2. Risk Management will contact an OC SAN approved hazardous waste transportation and waste disposal vendor to transport OC SAN-generated hazardous waste offsite and dispose of in compliance with applicable Federal and State regulations. The CONTRACTOR is responsible for all other construction generated waste.

5.26. EQUIPMENT AND TOOLS

- 5.26.1. CONTRACTOR equipment and tools must be in proper working condition and routinely (i.e., daily or prior to use) inspected for defects.
- 5.26.2. Any equipment or tool found to be damaged or defective must be removed from service and repaired before it can be returned to service.
- 5.26.3. Manufacturer's instructions shall be followed with respect to equipment/tool operation and training requirements.
- 5.26.4. Equipment is not to be used with loads that exceed the recommended rated capacity.
- 5.26.5. The CONTRACTOR is to use only their equipment and tools, and not those of others, unless employees are properly trained and authorized.
- 5.26.6. Tools and equipment are to be used for their designated purpose.
- 5.26.7. Tools and equipment are to be used only by trained and authorized employees.
- 5.26.8. Proper guards or shields must be installed on all power tools before use. All

guards must be manufactured by and/or approved by the manufacturer for that piece of equipment.

- 5.26.9. The practice of “wedging or pegging” guards on circular saws or other equipment, rendering them non-functional, is not permitted.
- 5.26.10. No internal combustion vehicle or machinery is to be operated inside structures, confined spaces, or excavations unless proper engineering controls have been implemented to minimize carbon monoxide levels. In such cases where vehicles or machinery are operated inside structures, carbon monoxide levels shall be monitored continuously to ensure a safe work environment.
- 5.26.11. All material handling equipment must have an audible backup alarm unless a designated spotter is used.
- 5.26.12. Tools and equipment must be properly stored, secured, and located away from unauthorized access.
- 5.26.13. For pneumatic power tools, all air hoses exceeding ½ inch inside diameter shall have a safety device (commonly known as an “OSHA valve” or “safety check valve”) at the source of air supply or branch line origin (such as a manifold) to reduce pressure in case of hose failure.

5.27. MACHINE GUARDING

- 5.27.1. CONTRACTORS and Subcontractors shall use tools with manufacturer provided guards. Guards and safety devices shall not be defeated or manipulated.
- 5.27.2. CONTRACTORS and Subcontractors shall secure any fixed tool or equipment to prevent shaking or jumping.

5.28. EXCAVATION AND TRENCHING

- 5.28.1. The Contract Documents require that all excavations be performed, protected, and supported as required for safety and in a manner set forth in the operational rules, orders, and regulations prescribed by the Cal/OSHA Construction Safety Orders.
- 5.28.2. The CONTRACTOR shall submit to the ENGINEER for acceptance, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of any trench or trenches 5 feet or more in depth. The plan shall be submitted using OC SAN’s PCMS. The plan shall be prepared and signed by a Civil or Structural Engineer registered in the State of California as required by all applicable laws including Cal/OSHA construction safety orders. As a part of the plan, a note shall be included stating that the registered Civil or Structural Engineer certifies that the plan complies with the Cal/OSHA Construction Safety Orders, or that the registered Civil or Structural Engineer certifies that the plan is not less effective than the shoring, bracing, sloping, or other provisions of the Safety Orders.
- 5.28.3. The detailed plans showing the design of shoring, etc., shall include surcharge loads for nearby embankments and structures, for spoil banks, and for construction equipment and other construction loading. The plans shall indicate, for all trench conditions, the minimum horizontal distances from the side of the trench at its top to the near side of the surcharge loads.

- 5.28.4. Nothing contained in this section shall be construed as relieving the CONTRACTOR of the full responsibility for providing shoring, bracing, sloping, or other preventive measures which are necessary for worker protection, nor for the liability resulting from the failure to do so.
- 5.28.5. The CONTRACTOR shall obtain an excavation permit for excavations when required by the ENGINEER or local or State law.
- 5.28.6. Trenching or excavating activities must be under the supervision of a trained Competent Person.
- 5.28.7. The CONTRACTOR's materials for the protection of personnel (i.e., bracing, shoring, shielding, and trench boxes) must be in good condition and of proper dimensions/materials.
- 5.28.8. The CONTRACTOR's Competent Person must inspect excavations daily and whenever condition change. The CONTRACTOR's Competent Person shall perform daily inspections of each trench and excavation for possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions. Results of such inspections shall be made available to those working within the trench or excavation.
- 5.28.9. The CONTRACTOR's Competent Person must determine the soil classification (Type A, B, or C) to determine the appropriate type of protective system required for the excavation.
- 5.28.10. Excavated soils, materials or equipment are to be kept at least 2 feet from the edge of the excavation.
- 5.28.11. The CONTRACTOR must provide appropriate barriers to protect people and vehicles from falling into the trench. Lighted barricades must be provided at night. Danger and/or caution tape is not an acceptable barrier.
- 5.28.12. Ladders or other means of egress must be provided by the CONTRACTOR for access and spaced within 25 feet of any worker inside the excavation when the depth of the excavation exceeds 4 feet (48-inches).
- 5.28.13. Walkways are to be provided over any excavation or trench point that an employee may need to cross. Walkway must have handrails, midrails, and toeboards.
 - 5.28.13.1. Where pedestrian traffic must be accommodated over excavations, suitable non-skid plates, or other suitable material capable of withstanding at least twice the maximum intended load must be provided to serve as a pedestrian runway for safe passage.
 - 5.28.13.2. The edges of the runway shall be tapered (or chamfered) to minimize trip hazards. In the alternative, the approach to the runway shall be tampered with a suitable and durable material or the runway set into the surface to minimize trip hazards.
- 5.28.14. Rescue equipment must be provided by the CONTRACTOR (full body harness and lifeline, breathing apparatus, basket stretcher, etc.) when hazardous atmospheric conditions or engulfment hazards are expected to exist.

5.29. UTILITY LOCATION

- 5.29.1. The CONTRACTOR must locate buried utilities before digging in accordance with the law.

- 5.29.2. Prior to excavation, all known owners of underground facilities in the area shall be notified by calling the regional One Call Notification System at 811.
- 5.29.3. The nearest shut off valve or control point for known utilities shall be identified on a site plan to be maintained by the CONTRACTOR.
- 5.29.4. The CONTRACTOR shall check the entire job site for visual signs of substructures. This includes such items as manhole covers, water meter boxes, ditch lines, pavement patches, previous location marks, pole risers, and the obvious absence of overhead utilities.
- 5.29.5. Most utilities inside of treatment plants are not within USA jurisdiction and are not required to be marked. The CONTRACTOR shall meet with the ENGINEER to view the excavation plans and all utility information resources prior to potholing.
- 5.29.6. The CONTRACTOR must expose substructures utilizing hand and/or soft digging methods, such as air-knifing, hydro-excavation, or hand shovel after locations are determined.
- 5.29.7. Utilities within 24 inches of the proposed location of excavation, drilling or other intrusive Work activities shall be exposed and identified using hand and/or soft digging methods identified above.
- 5.29.8. The CONTRACTOR shall be careful not to damage the utility substructure by scraping, hammering, or other forms of excavation or locating efforts.
- 5.29.9. The CONTRACTOR shall be aware of the possibility of joint use of an excavation/trench for power, telephone, gas, fiber optics, cable, etc.
- 5.29.10. The subsurface utilities shall be marked during excavation, drilling, and other intrusive activities. The markings shall be visible and maintained throughout the intrusive activities.

5.30. FALL PROTECTION

5.30.1. General

- 5.30.1.1. The CONTRACTOR must have a written fall protection program if Work is required to be performed at elevated locations. The fall program shall be developed by a competent person and in accordance with applicable governmental regulations and this procedure. The program may be part of the Injury and Illness Prevention Program or maintained as a separate program.
- 5.30.1.2. The CONTRACTOR shall conform to all applicable Federal and State OSHA regulations.
- 5.30.1.3. The CONTRACTOR shall submit a fall protection plan as part of the SSSP for all Work exceeding 6 feet in elevation. The plan shall include a California licensed Professional Engineer's approval for the use of all lifelines. Documentation shall be provided to OC SAN prior to the start of the Work. The plan shall be submitted using OC SAN's PCMS.
- 5.30.1.4. Personal fall restraint, fall arrest, work positioning, horizontal lifelines, and vertical lifeline systems shall be designed and installed under the supervision of a California licensed Professional Engineer.
- 5.30.1.5. The CONTRACTOR shall meet with Risk Management prior to the start of the job and complete a Contractor Safety Orientation (CSO)

that addresses where fall protection may be required and how fall protection is to be achieved.

- 5.30.1.6. The CONTRACTOR shall verify the use, inspection, storage, and maintenance of fall protection equipment with the requirements outlined in this document and all other applicable regulations.

5.30.2. Hierarchy of Fall Protection Controls

- 5.30.2.1. The hierarchy of controls listed below shall be utilized to eliminate or reduce fall hazards. When elimination is not feasible, various engineering and administrative controls will be evaluated to determine appropriate personal protection against the fall hazard. Fall hazards and existing controls shall be periodically reassessed to determine if a greater level of protection can be applied or if the hazard can be eliminated.
- 5.30.2.2. Elimination - Eliminating the fall hazard or preventing exposure to a fall hazard is the most effective control measure and should be considered for existing hazards or during new construction. This can be achieved by modifying a structure, isolating the authorized person from the hazard, changing a process, substituting equipment, or using work procedures so that the authorized person is not exposed to the fall hazard.
- 5.30.2.3. Passive Fall Protection - If it is not possible to eliminate the risk of a fall, reduce the risk using passive fall protection equipment. Passive fall protection offers a greater level of protection than active fall protection systems since there is no reliance on the authorized person. Passive systems include guardrails, covers capable of supporting weight, scaffolds, and aerial lift devices. Note: Aerial lift devices require the use of a personal fall restraint system.
- 5.30.2.4. Personal Fall Restraint System – These systems allow the authorized person access to conduct their work but prevent them from reaching a point of where a fall could occur. The system is generally suited if the authorized person needs to work at the edge of a hazard, such as a roof's edge or at a hatchway in a process area. The fall hazard shall be positioned a greater distance away as compared to the fixed length of lanyard.
- 5.30.2.5. Personal Fall Arrest System - If it is not possible to use the above options, the use of a personal fall arrest system (PFAS) to arrest a fall after it occurs shall be used. This system provides the maximum freedom of movement for workers to conduct Work. In the event of a fall, the fall will be arrested requiring the person to be self-rescued or be rescued.
- 5.30.2.6. Work Positioning System - These systems are different from a PFAS in that the length of the lanyard is shorter and rigged in such a way that will both restrict the range of movement of the authorized person and prevent falls of more than 2 feet. These systems secure the worker in place, allowing the authorized person to perform tasks with both hands. This requires the use of special harnesses and lanyards.
- 5.30.2.7. Administrative Controls - If none of the above measures are feasible or the risk of a fall remains, the risk shall be further reduced using administrative controls to reduce the risk of falling. These controls

may include erection of a controlled access zone, warning line system, warning signs, training, or a safety monitoring system. The use of controlled access zones, warning line systems and safety monitoring systems shall be accepted by the ENGINEER and Risk Management before they are implemented. These controls attempt to increase worker awareness of fall hazard and alone should not be relied upon.

5.30.3. Passive Fall Protection Systems

5.30.3.1. Guardrails

- 5.30.3.1.1. Guardrails shall consist of a top rail, midrail and vertical posts. Mid-rails shall be installed at a height midway between the top edge of the guardrail system and the walking/working level. Guardrails shall be installed within 42 inches to 45 inches from the upper surface of the top rail to the working level.
- 5.30.3.1.2. Guardrails used around floor openings will be erected on all unprotected edges of the hole, except on the side with a cover that can be locked in a vertical position and can provide equivalent fall protection. Note: cover must be at least 42 inches in height.
- 5.30.3.1.3. Guardrails may be temporary or permanent. Temporary guardrails may be relocatable or job-made, and typically used while more permanent systems are being installed or when Work is of short duration or at a space not intended as a permanent work area.
- 5.30.3.1.4. Access and egress openings in guardrails shall be equipped with a swinging, self-closing gate or shall be offset so that a person cannot walk directly into the opening. As a minimum, guardrails shall be able to withstand 200 pounds of force in any direction, except upwards, at the midpoint between posts without exceeding 1 ½ inches of deflection.
- 5.30.3.1.5. Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the mid-rail or other member.
- 5.30.3.1.6. All guardrail posts shall not exceed a separation distance of 8-foot on center.

5.30.3.2. Toe-Boards

- 5.30.3.2.1. When used as falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below.
- 5.30.3.2.2. Toe-boards shall be capable of withstanding, a force of 50 pounds applied in any downward or outward direction at any point along the toe- board without failure.
- 5.30.3.2.3. Toe-boards shall be a minimum of 3 ½ inches in vertical height from their top edge to the level of the walking/working surface. They shall have not more than ¼-inch clearance above the walking/working surface. They shall be solid or have openings not over 1 inch in greatest dimension.

5.30.3.3. Covers

- 5.30.3.3.1. Shall be designed by a qualified person and capable of supporting at

least 400 pounds or twice the weight of the employee, equipment and materials imposed on 1 square foot.

- 5.30.3.3.2. Shall be secured to prevent accidental displacement.
- 5.30.3.3.3. Covers in the process areas shall only be opened by authorized persons.
- 5.30.3.3.4. Covers used in temporary construction shall bear painted or stenciled sign stating: "Opening – Do Not Remove".
- 5.30.3.3.5. Shall not project more than 1 inch above the surface.
- 5.30.3.3.6. When covers are not in place, the opening shall be constantly attended by an authorized person or protected by guardrails.

5.30.3.4. Personal Fall Prevention Equipment

5.30.3.4.1. Body Harness

- 5.30.3.4.1.1. Only ANSI-approved full body harnesses shall be used for personal fall protection systems.
- 5.30.3.4.1.2. The full body harness shall be equipped with self-retracting lanyards.
- 5.30.3.4.1.3. The weight limit of the harness and other system components shall be determined and not exceeded. Weight limit is determined by calculating the body weight of the user and weight of any tools and materials being carried.
- 5.30.3.4.1.4. All full body harnesses must come equipped with both a back and front "D-ring".
- 5.30.3.4.1.5. Body or safety belts are not permitted for use as part of a personal fall protection system.
- 5.30.3.4.1.6. Harnesses should be equipped with suspension trauma safety straps.

5.30.3.4.2. Lanyards

- 5.30.3.4.2.1. Only ANSI-approved lanyards shall be used for personal fall protection.
- 5.30.3.4.2.2. The length of fixed length lanyards used for fall protection shall be determined by the competent person shall be less than the distance that allows its user to impact the level below in the event of a fall.
- 5.30.3.4.2.3. Lanyards shall be connected to secure anchor points in such a manner that will limit an employee free fall distance to 6 feet or less.
- 5.30.3.4.2.4. Lanyards shall be protected from abrasions, cuts, or deterioration caused by ultra-violet light, dirt, adverse weather conditions and chemicals.
- 5.30.3.4.2.5. Synthetic rope lanyards shall be rated to support at a minimum 900 pounds.
- 5.30.3.4.2.6. Lanyards with a shock absorbing device shall be used with the lanyard to reduce fall arresting forces to 500-600 pounds.
- 5.30.3.4.2.7. Lanyards shall be free from knots.

- 5.30.3.4.2.8. Lanyards shall not be tied back to themselves, except where designed to do so and approved by a qualified person.
- 5.30.3.4.2.9. Self-retracting lanyards shall only be attached using rated shackles or carabineers.
- 5.30.3.4.2.10. Lanyards shall only be connected to the “D” ring on a harness.
- 5.30.3.4.3. Self-Retracting Devices (Lanyards)
 - 5.30.3.4.3.1. Only ANSI-approved self-retracting devices shall be used for personal fall protection.
 - 5.30.3.4.3.2. Self-retracting devices that automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device, with the line in the fully extended position.
 - 5.30.3.4.3.3. Self-retracting devices that do not limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device, with the line or lanyard in the fully extended position.
 - 5.30.3.4.3.4. Self-retracting devices shall not be used on horizontal or vertical lifeline systems unless the length of the lanyard on the drum of the device will not permit the worker to reach the hazard even when fully deployed.
 - 5.30.3.4.3.5. Each employee shall be attached to a separate self-retracting device.
 - 5.30.3.4.3.6. Self-retracting devices shall be protected against being cut or abraded. Self-retracting lanyards and fixed-length lanyards shall be leading edge certified.
- 5.30.3.4.4. Anchorages
 - 5.30.3.4.4.1. All anchorages shall be designed and certified by a California licensed Professional Engineer regarding strength, location, and compatibility with fall protection equipment.
 - 5.30.3.4.4.2. Anchorage points for personal fall arrest systems shall be capable of supporting 5,000 pounds per employee attached.
 - 5.30.3.4.4.3. Anchorage systems for personal fall restraint systems shall be capable of supporting 4 times the intended load.
 - 5.30.3.4.4.4. Anchorage systems for horizontal lifeline systems shall be capable of supporting two times the maximum tension developed in the lifeline during a fall. The number of persons attached to a horizontal system shall be used in determining the maximum tension in the lifeline. The system shall be designed, installed, and used, under the supervision of a qualified person.
 - 5.30.3.4.4.5. Vertical lifelines shall have a minimum breaking strength of at least 5,000 pounds.
 - 5.30.3.4.4.6. The anchorage systems are to be inspected for physical damage by the user prior to each use and a documented inspection by the competent person at a minimum frequency of two times per year and more frequently if environmental

conditions warrant.

5.30.3.4.4.7. The correct placement of anchorage systems for personal fall arrest should be installed at or above shoulder height to reduce the fall distance. The anchor point should be located to minimize swinging, should not be affected by the environment or contamination, and should prevent contact with lower level or an object.

5.30.3.4.4.8. The following may never be used as an anchor point:

5.30.3.4.4.8.1. Top rails, midrails or vertical posts associated with a guardrail system

5.30.3.4.4.8.2. Handrails or stair rails

5.30.3.4.4.8.3. Ladders, except approved ladder safety systems

5.30.3.4.4.8.4. C-Clamps

5.30.3.4.4.8.5. Piping or conduit

5.30.3.4.4.8.6. Wood structures

5.30.3.4.4.8.7. Unistrut support systems

5.30.3.4.4.8.8. Motors or mechanical objects

5.30.3.4.5. D-Rings and Snap Hooks

5.30.3.4.5.1. D-rings and snap hooks shall have a minimum tensile strength of 5,000 pounds.

5.30.3.4.5.2. D-rings and snap hooks shall be proof-tested to a minimum tensile strength of 3,600 pounds without cracking, breaking, or taking permanent deformation.

5.30.3.4.5.3. Snap hooks shall be of locking-type designed and used to prevent disengagement.

5.30.3.4.5.4. Snap hooks shall not be used unless they are a locking type and designed for the following connections:

5.30.3.4.5.5. Directly to webbing, rope, or wire rope.

5.30.3.4.5.6. To other snap hooks.

5.30.3.4.5.7. To a D-ring to which another snap hook or other connector is attached.

5.30.3.4.5.8. To a horizontal lifeline.

5.30.3.4.5.9. To any object that is incompatibly shaped in relation to the snap hook.

5.30.3.4.5.10. D-rings and snap hooks shall have a minimum tensile strength of 5,000 pounds.

5.30.3.4.5.11. Lanyard snap hooks shall not be wrapped around anchor points and connected back to the lanyard, except where designed for such use.

5.30.3.5. Personal Fall Restraint

5.30.3.5.1. A Personal Fall Restraint System shall not allow the employee to fall.

Fall restraint and horizontal/vertical lifeline systems shall be designed and installed under the supervision of a California licensed Professional Engineer who has been trained in fall protection and is a Qualified Person.

- 5.30.3.5.2. Fall restraint systems shall be limited to flat or low sloped working surfaces.
- 5.30.3.5.3. The fall restraint system shall include anchorage, connecting devices (lanyard/lifeline) and full body harnesses. Equipment shall be approved by the American National Standards Institute (ANSI).
- 5.30.3.5.4. The connecting device shall be of sufficient length to allow movement of the authorized person only as far as the sides of the working level or working area. The authorized person shall not be capable of reaching the fall hazard.
- 5.30.3.5.5. The connecting device may only be connected to the back D-ring of the fully body harness.
- 5.30.3.5.6. Non-certified anchorages are not permitted for horizontal or vertical lifeline systems.
- 5.30.3.6. Personal Fall Arrest Systems
 - 5.30.3.6.1. Fall arrest systems shall be designed and installed under the supervision of a California licensed Professional Engineer who has been trained in fall protection and is a Qualified Person.
 - 5.30.3.6.2. The fall arrest system shall be designed such that the authorized person subjected to a fall shall not strike an obstruction or encounter a lower level or object.
 - 5.30.3.6.3. The fall arrest system shall include anchorage, connecting devices (lanyard), deceleration device and full body harnesses. Safety belts are not permitted for fall arrest or fall restraint.
 - 5.30.3.6.4. The connecting device may only be connected to the back D-ring of the body harness.
 - 5.30.3.6.5. Personal Fall Arrest Systems shall limit the fall distance to a maximum of 6 feet and prohibit the employee from contacting a lower level or structural element.
 - 5.30.3.6.5.1. Where practicable, the anchor end of the lanyard shall be secured at a level that is higher than the D-ring of the employee's fall protection harness.
 - 5.30.3.6.6. When using a lifeline, the CONTRACTOR shall submit a fall protection plan for all Work exceeding 6 feet in elevation and the plan shall include a California licensed Professional Engineer's stamp of approval.
 - 5.30.3.6.7. Self-retracting devices that automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device, with the line in the fully extended position.
 - 5.30.3.6.8. Self-retracting devices that do not limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device, with the line or lanyard in the fully extended

position.

5.30.3.6.9. Anchorages used for attachment of personal fall arrest equipment:

- 5.30.3.6.9.1. shall be independent of any anchorage being used to support or suspend platforms, and
- 5.30.3.6.9.2. capable of supporting at least 5,000 pounds per employee, or
- 5.30.3.6.9.3. Part of a complete personal fall protection system used under the supervision of a qualified person that maintains a safety factor of at least two.

5.30.3.6.10. The system shall be designed to bring an employee to a complete stop and limit the maximum deceleration distance an employee travels to 3.5 feet (shock-absorbing lanyards).

5.30.3.6.11. The system shall limit the maximum arresting force on an employee to 1,800 pounds and withstand twice the potential impact energy of an employee free- falling 6 feet or the free fall distance permitted by the system, whichever is less.

5.30.3.6.12. Personal fall arrest systems and components subjected to impact loading will be immediately removed from service and will not be used again for employee protection until inspected by a competent person and determined to be undamaged and suitable for re-use according to the manufacturers' specifications.

5.30.3.6.13. Personal fall arrest systems shall be inspected at least two times per year by a competent person. The date of the inspection shall be documented.

5.30.3.6.14. Personnel shall avoid carrying tools or sharp objects in their front or back pockets. Should a fall occur, these objects may become a puncture hazard.

5.30.3.6.15. The use of non-locking snap hooks is prohibited.

5.30.3.6.16. Body belts shall not be used for fall protection, fall restraint nor fall arrest.

5.30.3.7. Positioning Device Systems

5.30.3.7.1. Work positioning systems shall be designed and installed under the supervision of a California licensed Professional Engineer.

5.30.3.7.2. Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet.

5.30.3.7.3. Positioning device systems shall be inspected prior to each use.

5.30.3.7.4. Anchorage points for positioning device systems shall be capable of supporting 2 times the intended load or 3,000 pounds, whichever is greater.

5.30.3.8. Permanent Platforms

5.30.3.8.1. Walking/working surfaces 6 feet and above shall be guarded by standard railing and toe board.

5.30.3.8.2. No fall arresting equipment is required when working on a platform with fall protection (handrails, mid-rails, and toe boards) designed to regulatory specifications.

- 5.30.3.8.3. When employees perform Work outside of the guarded area, they shall have on a full body harness and lanyard. The lanyard must be secured to the back- D ring of the harness and to a suitable anchor point.
- 5.30.3.8.4. OSHA requires gates on ladders on work platforms. For this reason, all fixed ladders on work platforms should have gates at the top. Chains are not an acceptable substitute for ladder gates. Spring loaded double bar gates should be installed at the top of ladders on work platforms.
- 5.30.3.9. Elevated Work Surfaces
 - 5.30.3.9.1. Standard guardrails shall be provided on all open sides of unenclosed elevated work locations, such as: roof openings, landings, balconies or porches, platforms, runways, ramps or working levels more than 30 inches above the floor, ground, or other working areas.
 - 5.30.3.9.2. Fall protection systems, or other measures will be required whenever employees who are exposed to fall hazards from work/walking surfaces which are 6 feet or more above the adjacent ground, floor, or other work surface, or when elevated Work involves a potential hazard for falling outside existing railing that surrounds the platform below.
 - 5.30.3.9.3. Elevated platforms shall be maintained as to eliminate hazards from slips and trips.
 - 5.30.3.9.4. Guardrails used around holes will be erected on all unprotected edges of the hole. If the hole is used for the passage of materials, no more than two sides may have removable guardrail sections.
- 5.30.3.10. Floor Holes
 - 5.30.3.10.1. Holes in the floor that are greater than 2 inches in its least dimension shall be covered.
 - 5.30.3.10.2. Holes through which materials or tools may fall and create a hazard or through which parts of a person's body may contact dangerous moving parts, shall be completely covered except when in use.
- 5.30.3.11. Roof Fall Protection
 - 5.30.3.11.1. Guardrail systems shall be provided for Work within 15 feet of the roofs edge. When temporary or leading-edge Work is being performed, a fall restraint/arrest system accepted by the ENGINEER and Risk Management in writing may be implemented. Toeboards shall be installed at guardrail locations. Guardrails may be permanent or temporary. Routine walkways should be identified on the roofs. Parapet walls meeting the height and strength requirements of a guardrail are an acceptable form of fall protection.
 - 5.30.3.11.2. Guardrails shall extend at least 6 feet beyond the areas occupied by employees accessing, servicing, or repairing permanently mounted rooftop equipment.
 - 5.30.3.11.3. When roof access is provided along the roof edge, guardrails shall extend 15 feet on both sides along the roof edge. When roof access is provided through a roof hatch, guardrails shall be provided around the access hatch, except along the side with the hatch cover. A swinging gate shall be provided.
 - 5.30.3.11.4. Personnel who need to travel beyond the protection of the guardrails must be protected by a personal fall arrest or restraint system.

- 5.30.3.11.5. Roof work shall be prohibited during lightning storms, heavy rain, high winds, or dense fog conditions. Roof work shall be prohibited after dusk, except during emergency repairs or planned Work where all appropriate safety precautions have been implemented in advance (i.e., portable lighting). Use of a personal flashlight is acceptable as a back-up only.
- 5.30.3.11.6. If personal fall protection is utilized, provisions need to be made to protect people below from falling object hazards. This may include delineating surfaces below the elevation location or positively securing equipment/tools on the roof.
- 5.30.3.11.7. Skylights shall be protected using skylight screens, approved covers or guardrails.
- 5.30.3.12. Ramps, Walkways and Sloped Surfaces.
 - 5.30.3.12.1. Employees on ramps, runways, and other walkways shall be protected from falling 6 feet or more to lower levels by guardrail systems.
 - 5.30.3.12.2. Ramps or Sloped Surfaces with an incline greater than 40 degrees will require an employee to use fall protection while on the ramp or sloped surface.
- 5.30.3.13. Leading Edge
 - 5.30.3.13.1. All personnel working within 15 feet from a leading edge that could cause a fall of 6 feet or more (including diagonal falls of 40 degrees or more) shall be protected from falling by guardrails systems, personal fall arrest systems, body positioning device, warning line system including a Safety Monitor/ Attendant.
 - 5.30.3.13.2. Personnel working within 15 feet of the roof edge will be required to use personal fall arrest or fall restraint devices that will not allow them access to the roof edge. Self-Retractable Lanyards (SRL) cannot be used as part of a personal fall protection or fall restraint system unless the full length of the lanyard is less than the distance to the roof edge.
 - 5.30.3.13.3. When a fall protection plan utilizes a warning line system in lieu of railing, fall arrest or fall restraint systems, warning lines constructed of ropes, wires or chain, and support stanchions shall be erected as follows:
 - 5.30.3.13.3.1. Warning line shall be installed no less than 15 feet from the roof edge.
 - 5.30.3.13.3.2. Warning line shall be rigged and supported in such a way that its lowest point including sag is no less than 34 inches from the walking surface and its highest point is no more than 39 inches from the walking surface.
 - 5.30.3.13.3.3. The warning line shall be flagged at not more than 6-foot intervals with high visibility material.
 - 5.30.3.13.3.4. After being erected, warning line stanchions shall be capable of resisting without tip over a force of at least 16 pounds.
 - 5.30.3.13.3.5. Warning line shall have a minimum tensile strength of 500 pounds and after being attached to the stanchion, shall be capable of supporting 16 pounds without breaking.

- 5.30.3.13.3.6. No Work or Work-related activity is to take place in the area between the warning line and the edge.
- 5.30.3.13.3.7. The use of warning lines closer than 6 feet from the edge is not permitted as substitute for conventional fall protection for Work other than roof construction/repair.

5.30.3.14. Excavations

- 5.30.3.14.1. Excavations 6 feet or more in depth shall be protected from falling by wooden sawhorse style barriers, K-rails, fences, or similar appropriate devices. The authorized individual shall determine the degree of hazard and implement an effective method of control.
- 5.30.3.14.2. Personnel shall travel directly to the point of entry of the excavation.
- 5.30.3.14.3. The CONTRACTOR who created the hole or opening is responsible for implementing the preventative measure(s).

5.30.3.15. Wells, Service Pits, Shafts, Manholes, and Sumps

- 5.30.3.15.1. Each person at the edge of a service pit, shaft, manhole, sump 6 feet or more in depth (or 4 feet if an OC SAN employee is exposed to the fall hazard) shall be protected from falling by guardrails systems, fences, rigid barricades, or covers.
- 5.30.3.15.2. When performing Work activities near the edge of an open manhole or vault, the opening shall be guarded with a temporary cover or portable guardrail system.
- 5.30.3.15.3. During the performance of any task where a manhole or vault will be open without a temporary cover, barricade, or protective hand-railing. A crew member shall be assigned the responsibility of a Safety Monitor, whose sole duty is to warn co-workers and bystanders when they exceed the 6-foot safety perimeter around the hole or opening.
- 5.30.3.15.4. All floor holes and floor openings located in shut down or abandoned structures must be covered or guarded.

5.30.3.16. Confined Spaces

- 5.30.3.16.1. Confined Spaces that are 5 feet or more in depth shall require the use of a mechanical retrieval device for both fall arrest and rescue. Exception – the required use of a mechanical retrieval device can be circumvented, only if the Entry Supervisor can justify that its use poses a greater hazard to the entrant(s). All exceptions must be documented on OC SAN's JHA form.
- 5.30.3.16.2. The CONTRACTOR shall develop fall protection and rescue plans and provide the equipment and personnel needed to implement their plans.
- 5.30.3.16.3. One hundred percent (100%) fall protection shall be implemented by all trades for all fall exposures of 6 feet or more.
- 5.30.3.16.4. Rescue shall be addressed in the CONTRACTOR's Confined Space Rescue Program and Confined Space Rescue Plan. The CONTRACTOR may be required to submit a site-specific fall protection and rescue plan, as well as training documentation for review by persons with authorized oversight.
- 5.30.3.16.5. Calling 911 and depending on local fire department shall not be allowed in lieu of the CONTRACTOR preparing and utilizing its own

site-specific fall protection and rescue plan.

5.30.3.17. Training

5.30.3.17.1. The CONTRACTOR is required to provide training for any employee who might be exposed to a fall hazard prior to the exposure or upon hiring. Documentation shall be maintained and available for review upon request.

5.30.3.17.2. Training must include an explanation of the company's fall protection policies and safe work practices with general instructions and precautions; specific instruction where required; hazard identification and correction; selection and proper use of protective devices; and maintenance of equipment. Instruction will also include correct procedures for donning and doffing fall harnesses, inspecting, erecting, disassembling, and maintaining fall protection systems used, and the employee's role in fall prevention and protection.

5.30.3.17.3. Retraining. When the CONTRACTOR or OC SAN has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the CONTRACTOR shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

5.30.3.17.3.1. Changes in the workplace render previous training obsolete; or

5.30.3.17.3.2. Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or

5.30.3.17.3.3. Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

5.30.3.18. Inspection, Maintenance and Storage

5.30.3.18.1. Fall protection equipment shall be inspected by the authorized person before each use to verify that it has not sustained any wear or damage that would require removal from service. These inspections are visual only, and not required to be documented.

5.30.3.18.2. Fall protection equipment (including rescue equipment) shall be inspected twice annually by a competent person to verify the equipment is safe for use. The inspections shall be documented and copies to be submitted using OC SAN's PCMS.

5.30.3.18.3. Horizontal and vertical lifelines shall be inspected prior to each use, and at least annually for any signs of degradation. Damaged or worn parts must be replaced. Check torque on any bolts against specification.

5.30.3.18.4. Inspections shall look for illegible or missing tags, elements affecting fit or function, defects or damage to hardware including cracks, sharp edges, corrosion, chemicals, elongation, alteration, heat, or excessive wear. Records of inspections shall be maintained throughout the service life of the equipment and be submitted using OC SAN's PCMS.

5.30.3.18.5. If inspections reveal damage or determined to be inadequate for service shall be tagged so equipment will not be returned to service. The competent person shall destroy the equipment.

- 5.30.3.18.6. The competent person shall verify that the equipment is maintained according to the manufacturer's instructions.
- 5.30.3.18.7. Equipment shall be stored in a manner that protects it from exposure to any conditions that could result in damage.
- 5.30.3.18.8. Anchorage systems shall be inspected by the authorized person prior to each use and by a qualified person or competent person at least annually or in accordance with the manufacturer's instructions. Inspections by qualified or competent persons shall be documented.
- 5.30.3.18.9. Damaged anchorages shall be repaired or replaced and recertified by a qualified person.
- 5.30.3.18.10. Anchorage inspections shall look for cracks, deformation or bending in the structure around the anchorage or if the connection is unstable or loose.
 - 5.30.3.18.10.1. Equipment involved in a fall arrest incident must be taken out of service immediately and handled according to the manufacturer's instructions. Out of service equipment shall not remain on the job site.
 - 5.30.3.18.10.2. Retractable lifelines/lanyards must be sent back to the manufacturer for repair and re-certification.
- 5.30.3.18.11. The service life of harnesses and lanyards is determined by the manufacturer and shall be discarded upon expiration. This information is found on a tag located on the device itself.
- 5.30.3.18.12. Fall protection equipment must be used in accordance with manufacturer instructions, including weight and size limitations, and must not be altered in any way without written manufacturer authorization.

5.31. FIRE PROTECTION AND PREVENTION

- 5.31.1. The CONTRACTOR shall be especially careful to avoid fire hazards in all welding, cutting, and equipment fueling. The CONTRACTOR shall attain a hot work permit before any Work begins.
- 5.31.2. Many areas of the treatment plant, pump stations and collection system are electrically classified as Class 1, Division 1 or Class 1, Division 2 environments. The CONTRACTOR shall ensure that equipment used in these locations is approved for use by a Nationally Recognized Testing Laboratory (NRTL) for use in these locations.
- 5.31.3. Many areas of the treatment plant and pump stations have flammable gas warning systems. The CONTRACTOR shall stop Work and evacuate the area if an alarm is activated.
- 5.31.4. The CONTRACTOR shall stop Work and evacuate the area if a fire alarm is activated, or a public-address announcement indicates a fire is possible or another emergency exists.
- 5.31.5. Sprinkler systems shall always be maintained in an operable condition by the CONTRACTOR while the building is occupied.
- 5.31.6. The CONTRACTOR shall furnish all safety devices, fire extinguishers, fire blankets, and fire watch personnel required to protect the Work and provide for worksite and public safety.

- 5.31.7. The CONTRACTOR must develop a fire protection program to be followed throughout all phases of construction. The fire protection program shall be included in the SSSP.
- 5.31.8. The program shall include the most stringent of OSHA, local Fire Marshal, and/or local Fire Code requirements and comply with the following OC SAN fire prevention procedures and controls:
 - 5.31.8.1. Housekeeping is essential to fire prevention and to a well-run operation. The following general housekeeping rules will be followed:
 - 5.31.8.1.1. Prevention of accumulation of loose debris, waste, and trash.
 - 5.31.8.1.2. Control of combustible waste and refuse in covered metal cans with at least shift-end removal from the building.
 - 5.31.8.1.3. Storage racks and stacks of materials on pallets are in a neat and orderly manner and in their designated stock locations.
 - 5.31.8.1.4. Immediate clean-up of stock or chemical spills.
 - 5.31.8.1.5. Aisles and exit ways clear and free of obstructions.
 - 5.31.8.1.6. Prohibition of any storage in exit ways, stairwells, and inside or outside fire exits doors.
 - 5.31.8.1.7. Clear 36-inch access to all fire protection and emergency equipment and electrical panels.
 - 5.31.8.2. Smoking is a recognized hazard and should be prohibited or prevented wherever possible.
 - 5.31.8.2.1. The State of California prohibits smoking within 20 feet of the entrance to a building.
 - 5.31.8.2.2. Smoking will be restricted to designated areas.
 - 5.31.8.2.3. Such areas will be provided with appropriate non-combustible ashtrays and will be emptied daily into metal trash containers not containing combustible waste.
 - 5.31.8.2.4. It is important to inform all visitors, truck drivers, etc. of OC SAN's smoking restrictions and insist on their compliance.
 - 5.31.8.3. Electrical Maintenance
 - 5.31.8.3.1. Only qualified and trained personnel will be permitted to repair or work on electrical installations and equipment.
 - 5.31.8.3.2. Any defective wiring or electrical equipment should be reported immediately to the ENGINEER. Such equipment will be immediately taken out of use, tagged as defective, and a work order issued for its repair or evaluation.
 - 5.31.8.3.3. Strict attention should be paid to cleanliness. Combustible materials should be prohibited from accumulating in substations, electrical rooms, control rooms, cable trays, around motors and other electrical installations.
 - 5.31.8.3.4. Extension cords will be permitted only for emergency or truly temporary situations (less than 90 days) and shall be properly sized for the equipment to be operated. Care should be taken to assure such temporary wiring is visible and protected from fraying or pinching.

- 5.31.8.3.5. All electrical installations will meet appropriate electrical codes and listings.
- 5.31.8.3.6. Access clearances will be maintained to all electrical panel boxes and switchgear.
- 5.31.8.4. Flammable Liquids
 - 5.31.8.4.1. Flammable liquid containers shall be stored in NFPA compliant flammable cabinets, storage rooms, or outbuildings.
 - 5.31.8.4.2. Only manufacturer's original containers or FM or UL approved flammable liquid containers shall be used.
 - 5.31.8.4.3. Proper handling and dispensing procedures shall include grounding, quantity limits, pressure relief, and required personal protective equipment needed for use.
 - 5.31.8.4.4. Spills shall be controlled and reported.
 - 5.31.8.4.5. Potential ignition sources such as faulty electrical equipment, open lights and flames shall be controlled and reported.
- 5.31.8.5. Flammable Gasses
 - 5.31.8.5.1. All storage and handling procedures for specific flammable gases and operations will be strictly observed.
 - 5.31.8.5.2. Flammable gases will be stored separately from oxygen or other oxidizers. Only exception will be one oxygen cylinder in use on an acetylene welding cart.
 - 5.31.8.5.3. Unless the cylinder valve is protected by a recess in the head, keep the metal cap in place to protect the valve when the cylinder is not connected for use.
 - 5.31.8.5.4. Do not use a cylinder of compressed gas without a pressure reducing regulator attached to the cylinder valve, except where cylinders are attached to a manifold, in which case the regulator will be attached to the manifold header.
- 5.31.8.6. Follow proper welding and cutting procedures as listed in this document.
- 5.31.8.7. Firefighting equipment must be conspicuously located or conspicuously marked.
- 5.31.8.8. A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of floor and fraction thereof. Where the floor is less than 3,000 square feet, at least one fire extinguisher is required.
- 5.31.8.9. The clear and unobstructed travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 75 feet.
- 5.31.8.10. In multi-story buildings, at least one fire extinguisher shall be provided on each floor and located adjacent to the stairway.
- 5.31.8.11. A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids are stored.
- 5.31.8.12. Portable fire extinguishers shall be fully charged, inspected monthly, and serviced annually.

- 5.31.8.13. Storage of more than 25 gallons of flammable liquids shall be in a NFPA approved storage cabinet. Not more than 120 gallons of Class I, II, or IIIA liquids may be stored in a storage cabinet.
- 5.31.8.14. A fire extinguisher, rated not less than 20-B, shall be located outside of, but not more than 10 feet from the door opening of storage rooms.
- 5.31.8.15. A portable fire extinguisher rated at least 10B: C shall be kept near operations where fuel gas cylinders/bottles are being used.
- 5.31.8.16. Portable fire extinguisher shall be readily available for use where temporary heating devices are used.
- 5.31.8.17. "No Smoking" signs shall be posted as required by operations or material exposures.
- 5.31.8.18. The OC SAN reserves the right to designate no smoking areas on the Project.
- 5.31.8.19. Fire extinguisher must be at least a 20-pound ABC and provided within 5 feet of any hot work activity.

5.32. FIRST AID

- 5.32.1. Each CONTRACTOR shall ensure the availability of at least one or more employees to render first aid and CPR. The individual shall have received training in CPR and first aid and be available at the job site always.
- 5.32.2. Field Supervisors and Safety Representatives must be trained in First Aid and CPR and identified on the Project. Evidence of training shall be available for review upon request.
- 5.32.3. Each CONTRACTOR shall provide at least one appropriately sized and stocked first-aid kit in a weatherproof container. The first aid shall be inspected regularly to ensure that the expended items are promptly replaced. The first aid kit shall be readily accessible to the job site. The CONTRACTOR shall prepare a map indicating its location.
- 5.32.4. Eye wash capabilities shall be provided by the CONTRACTOR as required by the SDS for products used at the job site.
- 5.32.5. The CONTRACTOR and Subcontractors shall submit (through the CONTRACTOR) to the ENGINEER a list of First Aid / CPR trained personnel prior to starting Work. Each list shall be clearly dated and updated as required throughout the Contract Duration. Each time the list is updated, a copy shall be provided to the ENGINEER using OC SAN's PCMS.

5.33. FLAMMABLE AND COMBUSTIBLE MATERIALS

- 5.33.1. The CONTRACTOR is required to supply extinguishers, fire blankets, and other sufficient fire protection devices for the immediate work area where flammable and combustible material is stored or used. All fire extinguishers must be provided by the CONTRACTOR and rated at a minimum of 2A, 20BC.
- 5.33.2. Fire extinguishers shall be checked to verify that they are fully charged.
- 5.33.3. All CONTRACTOR supplied flammable liquids must be stored in NFPA compliant safety containers.
- 5.33.4. All containers must be properly labeled and stored when not in use.

- 5.33.5. Only FM or UL compliant metal safety cans will be allowed for flammable storage.
- 5.33.6. The CONTRACTOR shall identify non-compatible materials in advance and provide for separate storage as required.
- 5.33.7. Storage of more than 25 gallons of flammable liquids or 60 gallons of combustible liquids shall be within cabinets constructed to the requirements of NFPA 30.
- 5.33.8. All outside flammable and combustible storage areas must be at least 20 feet from any building.
- 5.33.9. For roof Work:
 - 5.33.9.1. No more than a one-day supply of flammables may be placed on the roof during working hours.
 - 5.33.9.2. All flammables must be removed from the roof at the end of each workday by the CONTRACTOR.
 - 5.33.9.3. At least two extinguishers appropriate for the type and quality of flammable materials present must be provided if flammables are present.
- 5.33.10. All CONTRACTOR-supplied flammable and combustible materials must be kept away from sparks, heat, or ignition sources.

5.34. FORKLIFT (INDUSTRIAL TRUCKS AND TRACTORS)

- 5.34.1. Only drivers authorized by the CONTRACTOR and trained in the safe operations of industrial trucks shall be permitted to operate forklifts.
- 5.34.2. Operator training and posting of information regarding forklift operations shall be in accordance with applicable OSHA Standards.
- 5.34.3. The CONTRACTOR shall certify that each operator has been trained and evaluated as competent for each type of equipment used.
- 5.34.4. All forklifts and industrial trucks and tractors shall be equipped with an audible back-up alarm which can be normally clearly heard from 200 feet. In congested areas or areas with high ambient noise which obscures the audible alarm, a signal person in clear view of the operator shall direct the backing operation.
- 5.34.5. The rated capacity of all industrial trucks and industrial tractors and the manufacturers manual shall be displayed on the vehicle in such a manner that it is readily visible to the operator.
- 5.34.6. Every industrial truck and tractor shall be equipped with operable brakes, a parking brake, and a horn.
- 5.34.7. Seat belts shall be provided on industrial trucks and tractors where rollover protection is installed. Employees shall be instructed in their use.
- 5.34.8. No riders shall be permitted on vehicles unless the vehicles are equipped with adequate riding facilities and specifically designed for riders.
- 5.34.9. Employees shall not ride on or be elevated on the forks of lift trucks.
- 5.34.10. Industrial trucks may be used to elevate employees in accordance with applicable OSHA Standards and manufacturer's recommendations using appropriate personnel platforms.

- 5.34.11. Employees shall not be allowed to stand, pass, or work under the elevated portion of an industrial truck, loaded or empty.
- 5.34.12. Drivers shall inspect the forklift at least once per shift. Attention shall be given to tires, horn, lights, battery, controller, brakes, steering mechanism, cooling system, and the lift system (forks, cable, and limit switches). The inspection shall be documented and maintained on the forklift.
- 5.34.13. Vehicles shall not exceed the authorized or safe speed, always maintaining a safe distance from other vehicles, and keeping the truck under positive control.
- 5.34.14. The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed.
- 5.34.15. Grades shall be ascended or descended slowly.
- 5.34.16. Turns shall be restricted to flat even surfaces to prevent tip over.
- 5.34.17. The forks shall always be carried as low as possible, consistent with safe operation. When traveling forward with an obstructed view due to the load, the operator must travel in reverse or utilize a flagger.
- 5.34.18. When leaving a vehicle unattended, the power shall be shut off, brakes set, the mast brought to the vertical position, and forks left in the down position.
- 5.34.19. Forklifts (Industrial Trucks and Tractors) shall not be loaded more than their rated capacity.
- 5.34.20. Any vehicle attachments must be manufacturer approved or stamped by a California licensed Professional Engineer.

5.35. HAZARD COMMUNICATION

- 5.35.1. The CONTRACTOR shall maintain a copy of all Safety Data Sheets (SDS), and a chemical inventory list, for all hazardous substances used at the jobsite by their firm, as well as for all hazardous substances used at the jobsite by all Subcontractors regardless of tier.
 - 5.35.1.1. The location of the Project's Safety Data Sheets and chemical inventory list shall be communicated to the ENGINEER and Risk Management.
 - 5.35.1.2. All hazardous materials identified by OSHA as a carcinogen or reproductive hazard is subject to use restriction and/or prohibition from use on OC SAN facilities. In addition, the CONTRACTOR shall provide a written plan of how their own employees and OC SAN employees will be protected from exposure of these materials. A permit shall be issued by OC SAN; notification shall be made, and a permit issued one week before the material is brought on site.
- 5.35.2. In accordance with the provisions of the Hazard Communication Standard, each CONTRACTOR must have a comprehensive written Hazard Communication Program which includes:
 - 5.35.2.1. A list of hazardous substances known to be on site.
 - 5.35.2.2. Methods the CONTRACTOR will use to inform employees of the hazards of non-routine tasks.
 - 5.35.2.3. On Multi-CONTRACTOR/Subcontractor job sites, the program shall include the methods the CONTRACTOR will use to inform its Subcontractors of any precautionary measures to protect their

employees.

- 5.35.2.4. The methods used to provide other CONTRACTOR(s) with access to Safety Data Sheets.
- 5.35.2.5. The methods the CONTRACTOR will use to inform the other CONTRACTOR(s) of the labeling system in use.
- 5.35.3. The CONTRACTOR must submit a copy of its Hazard Communication Program to the ENGINEER and Risk Management using OC SAN's PCMS.
- 5.35.4. Each CONTRACTOR must have a job site binder which contains the following items:
 - 5.35.4.1. A comprehensive written Hazard Communication Policy.
 - 5.35.4.2. A chemical inventory listing all hazardous materials brought onto or used on the Project site by the CONTRACTOR.
 - 5.35.4.3. SDS for all hazardous materials used on the Project site.
- 5.35.5. The CONTRACTOR shall ensure that all employees have received training in the safe use of hazardous materials; and those employees are able to read and understand the information on the SDS. The training shall include at least:
 - 5.35.5.1. Methods and observations that may be used to detect the presence or release of a hazardous chemical.
 - 5.35.5.2. The physical and health hazards of the chemicals used in the work area.
 - 5.35.5.3. Measures employees can take to protect themselves from the hazards.
 - 5.35.5.4. Details of the hazard communication program, including the labeling systems and the use of SDS.
- 5.35.6. The CONTRACTOR shall ensure that all containers used on the construction site are properly labeled as to their contents, including gas and diesel containers.
- 5.35.7. The CONTRACTOR shall ensure that all storage silos, tanks, drums, etc. on the construction site are properly labeled as to their contents.
- 5.35.8. The CONTRACTOR will provide a SDS for any hazardous substance that will be used on the job site to OC SAN prior to its use.
- 5.35.9. Pipelines or process areas must be barricaded and/or signed to inform employees of potential dangers during testing.

5.36. HEAVY EQUIPMENT AND MATERIAL HANDLING

- 5.36.1. Equipment shall be maintained in good working order. All vital parts such as motors, chassis, blades, blade holders, tracks, drives, hydraulic and pneumatic mechanisms, and transmissions must be inspected each day.
- 5.36.2. Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.
- 5.36.3. All vehicles, or combination of vehicles, shall have brake lights in operable condition.
- 5.36.4. All vehicles shall be equipped with an adequate audible warning device

(horn) at the operator's station.

- 5.36.5. All vehicles must have a back-up alarm that is normally audible for 200 feet. In congested areas or areas with high ambient noise which obscures the audible alarm, a signal person in clear view of the operator shall direct the backing operation.
- 5.36.6. Where equipped, windshields on heavy equipment shall be maintained in good condition free of dirt/debris that would hinder visibility.
- 5.36.7. Vehicles operating in areas or conditions that causes fogging or frosting of windshields shall be equipped with operable defogging or defrosting devices.
- 5.36.8. Cracked or broken windshields shall be promptly replaced.
- 5.36.9. Windshields and mirrors shall be kept clean such that vision is not compromised or obstructed.
- 5.36.10. Seat belts with approved proper anchorage points shall be installed in all haulage, earth moving, and material handling heavy equipment.
- 5.36.11. The CONTRACTOR shall ensure employee use of seat belts on motor vehicles.
- 5.36.12. Trucks with dump bodies shall be equipped with positive means of support, permanently attached, to prevent accidental lowering of the body while maintenance or inspection work is being done.
- 5.36.13. Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device that will prevent accidental starting or tripping of the mechanism.
- 5.36.14. Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the Operator will be in the clear.
- 5.36.15. All rubber-tired motor vehicle equipment shall be equipped with fenders.
- 5.36.16. All vehicles in use shall be checked at the beginning of each shift for defects in:
 - 5.36.16.1. Service brakes, trailer brake connections, parking brake system, and emergency stopping system (brakes).
 - 5.36.16.2. Tires, horn, steering mechanism, seat belts, operating controls, and safety devices.
 - 5.36.16.3. Lights, reflectors, windshield wipers, defrosters, and fire extinguishers.
- 5.36.17. Before starting a job, the operator shall be given instructions regarding the Work to be done.
- 5.36.18. Before starting the motor, the operator shall check to make sure that all operating controls are in the neutral position.
- 5.36.19. Before starting the equipment, or moving the equipment after re-entering the cab, the operator shall walk entirely around the equipment to make sure no other personnel, equipment or material will be struck.
- 5.36.20. The CONTRACTOR shall ensure that operators of heavy equipment wear appropriate hearing protection devices.
- 5.36.21. At no time shall a piece of equipment be left unattended while the motor is running, especially if the machine is on an inclined surface or on loose

material.

- 5.36.22. Wheels must be blocked or chocked when parking on inclines.
- 5.36.23. Machines shall be operated at speeds and in a manner consistent with conditions on the Project.
- 5.36.24. No employee other than the operator shall ride on equipment.
- 5.36.25. During refueling operations, equipment motors shall be turned off. Smoking and nearby hot work are prohibited during refueling.
- 5.36.26. If possible, equipment shall be driven entirely off the roadway at night.
- 5.36.27. Unattended equipment must be left in a secure area not accessible to members of the public or unauthorized third parties.
- 5.36.28. Keys shall be removed from unattended equipment.
- 5.36.29. Spotters and/or Flaggers must be used when equipment Operator's view is obstructed whether moving forward or backward.
- 5.36.30. Equipment maintenance must be performed within a containment area where spilled fluids will not contaminate the ground and can be readily cleaned up.

5.37. HORIZONTAL BORING / PIPE JACKING

- 5.37.1. Prior to boring/jacking operations the CONTRACTOR must contact the regional One Call Notification System (811) to ensure all owners of underground facilities are notified to mark their utility locations.
- 5.37.2. The CONTRACTOR shall locate all buried utilities before commencing boring/jacking operations.
- 5.37.3. The CONTRACTOR shall open a guide hole (bore slot) over any existing utility that is in line with the bore shot.
- 5.37.4. The CONTRACTOR shall excavate bore slots, bell holes and guide holes, as necessary.
- 5.37.5. If resistance is encountered during the boring/jacking operation, cease the boring operation immediately and excavate at the point of resistance to determine necessary action.
- 5.37.6. The operator must be trained in the use of the boring/jacking machine.
- 5.37.7. At least two crewmembers must operate the bore motor always.
- 5.37.8. Stay clear of rotating bore pipe and the rotating head of boring machine. Loose clothing, long hair, or gloves can cause injury if caught in rotating bore pipe.
- 5.37.9. Only one crewmember shall transmit signals to the operator.
- 5.37.10. Do not hold rotating bore pipe with hands or feet.
- 5.37.11. Operate the boring machine only at slow RPM's when used to connect or disconnect bore pipe.

5.38. HOUSEKEEPING

- 5.38.1. Housekeeping shall be performed daily in contractor work areas and laydown areas by the CONTRACTOR.
- 5.38.2. All construction materials must be stored in an orderly manner and barricade taped off.

- 5.38.3. All exits and access ways must be kept unobstructed.
- 5.38.4. Puncture hazards (nails, staples, fasteners, etc.) created by stripped formwork, scrap lumber, pallets, shipping materials, etc. shall be eliminated or controlled by the CONTRACTOR.
- 5.38.5. Metal containers with covers must be provided for disposal of oily and paint-soaked rags.
- 5.38.6. Maintain all exits.
- 5.38.7. Emergency exits must be available.
- 5.38.8. Panic hardware, where present, must remain unobstructed.
- 5.38.9. Walkways and sidewalks must be kept free of construction materials, debris, dirt, tools, and extension cords.
- 5.38.10. Where steel plates are used to bridge excavations or other similar type construction activities in roadways, walkways or sidewalks, the leading edges of the steel plates must be recessed or tapered with temporary asphalt or other suitable materials to prevent trip hazards and obtain the acceptance of the ENGINEER.
- 5.38.11. Each CONTRACTOR shall maintain their Work site and laydown areas free of weeds, trash, and debris.

5.39. PORTABLE HEATERS

- 5.39.1. All heaters must be Factory Mutual and/or Underwriters Laboratory approved.
- 5.39.2. The CONTRACTOR must notify the INSPECTOR to review and accept all liquid/gas fueled CONTRACTOR heaters brought onto the site prior to use.
- 5.39.3. The use of liquid/gas fueled heaters inside of buildings requires OC SAN acceptance.
- 5.39.4. Tent Heater use requirements are as follows:
 - 5.39.4.1. Use only in tents made of fire-resistant material.
 - 5.39.4.2. Avoid contact with heating elements or other hot parts.
 - 5.39.4.3. Keep flammable materials and clothing away from hot equipment.
 - 5.39.4.4. Never use heaters in a utility vault or in a tent that covers a utility hole.
 - 5.39.4.5. Ensure adequate ventilation is provided when using a tent.
 - 5.39.4.6. Secure a fire extinguisher within the tent in an accessible location.
- 5.39.5. All portable heaters shall be protected from moisture.

5.40. LADDERS

- 5.40.1. General
 - 5.40.1.1. Type II (225lb. limit) and Type III (200lb. limit) ladders are prohibited.
 - 5.40.1.2. Ladders must be at least Type I (250lb. limit), Type IA (300lb. limit) or Type IAA (375lb. limit) as appropriate to the weight of the user.
 - 5.40.1.3. The CONTRACTOR shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders

and stairways and shall train each employee in the procedures to be followed to minimize these hazards.

- 5.40.1.4. The CONTRACTOR shall conduct portable ladder inspections in accordance with California Code of Regulations section 3276. Ladders shall be inspected by a qualified person for visible defects frequently and after any occurrence that could affect their safe use. Cal/OSHA defines frequently as greater than 12 times per year. Ladder inspections shall be documented by a label on the ladder, an inspection log, or equally effective method. Inspection logs are to be made available to Risk Management upon request.
- 5.40.1.5. Tools, equipment, and other materials shall never be carried when ascending or descending a ladder, but rather hoisted using a rope and bucket system or provided by mechanical means (hoist, forklift, etc.).
- 5.40.1.6. Ladders shall always be faced when ascending or descending.
- 5.40.1.7. All ladders shall be maintained in a safe condition. All ladders shall be inspected prior to use. Any ladders identified with unsafe conditions shall be tagged out of service until repairs can be made.
- 5.40.1.8. Ladders shall be maintained free of oil, grease, or slippery materials.
- 5.40.1.9. Ladders shall not be painted, sanded, or otherwise altered.
- 5.40.1.10. Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this section.
- 5.40.1.11. Employees must maintain a 3-point contact while climbing ladders.
- 5.40.1.12. Job-Made ladders shall be constructed in accordance with OSHA provisions.
- 5.40.1.13. All types of ladders must be inspected at least daily for:
 - 5.40.1.13.1. Cracks, splits, splinters, and decay.
 - 5.40.1.13.2. Protruding nails and loose rivets.
 - 5.40.1.13.3. Loose, bent, or broken braces, tie rods, guide irons, locks, pulleys, and strand hooks.
 - 5.40.1.13.4. Broken, worn or defective spurs and pads.
- 5.40.2. Extension Ladders
 - 5.40.2.1. Portable ladder feet shall be placed on a substantial base.
 - 5.40.2.2. Straight and extension ladders must be tied off or secured to prevent displacement.
 - 5.40.2.3. Metal ladders must not be used near energized equipment.
 - 5.40.2.4. No more than one employee is allowed on a ladder.
 - 5.40.2.5. Ladders are not to be used for skids, braces, workbenches, or any other purpose other than climbing.
 - 5.40.2.6. Ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder.

- 5.40.2.7. Extension ladders shall be selected to meet the requirements of the person, task, and environment. Consideration shall be given to the length or height required, working load, duty rating, worker position to the task and frequency in which the ladder will be used.
 - 5.40.2.8. The ladder shall be positioned so that the distance from the vertical wall is equal to one-fourth the working length of the ladder or a 4:1 slope. The ladder shall be placed on a firm level surface.
 - 5.40.2.9. The ladder shall be placed to prevent slipping, or shall be tied, blocked, held, or secured to prevent slipping. If the ladder cannot be secured, the ladder may be held by a coworker.
 - 5.40.2.10. Ladders shall not be used in the horizontal position as a platform, runway, or scaffold unless designed for such use.
 - 5.40.2.11. The ladder shall extend no less than 36 inches above the landing surface to which the ladder is used to gain access.
 - 5.40.2.12. Ladders shall have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized electrical equipment.
 - 5.40.2.13. Employees shall climb or work from the ladder with the body positioned near the middle of the step or rung. Overextending or reaching where the belt buckle extends beyond the side rails is not permitted, except where the user is protected by a personal fall arrest system.
 - 5.40.2.14. Ladders used in aisle ways or placed in doorways shall be protected from incidental contact. Doorways shall be secured in an open position, locked, attended, or barricaded.
 - 5.40.2.15. Additional height should not be gained by the addition of any type of extension, or an object being placed on the unit. Ladders shall not be tied or fastened together to provide longer sections, except where designed for such purpose.
- 5.40.3. Step Ladders
- 5.40.3.1. Stepladders must be fully open, and the spreader set in the open and locked position.
 - 5.40.3.2. Step ladders shall be selected to meet the requirements of the person, task and environment. Consideration shall be given to the length or height required, working load, duty rating, worker position to the task and frequency in which the ladder will be used.
 - 5.40.3.3. Step ladders shall be restricted to the purpose for which was the ladder was designed. For example, a step ladder should not be used as a straight ladder.
 - 5.40.3.4. The top three steps of the ladder shall not be stood on or worked from. No personnel may stand or climb on the back side (non-working side) of a ladder, except where the ladder was designed for such purpose.
 - 5.40.3.5. Step ladders shall only be used by one person, except where designed for use by more than one person.
 - 5.40.3.6. Ladders shall be placed on a secure and level footing. When

necessary, ladder levelers shall be used to achieve equal rail support on uneven surfaces. Ladders shall never be placed on boxes, barrels, or other unstable surfaces.

- 5.40.3.7. Ladders are not to be moved or shifted while occupied.
- 5.40.3.8. Ladders shall have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized electrical equipment.
- 5.40.3.9. Ladders used in doorways, aisle ways or roadways shall be protected from incidental contact.
- 5.40.3.10. Employees shall climb or work from the ladder with the body positioned near the middle of the step or rung. Overextending or reaching where the belt buckle extends beyond the side rails is not permitted, except where the user is protected by a personal fall arrest system.
- 5.40.3.11. Do not lean a stepladder against a wall in the unopened position.
- 5.40.3.12. Always ascend and descend facing the ladder.
- 5.40.3.13. Do not exceed the designated weight capacity.

5.41. LEAD-BASED PAINT

- 5.41.1. The CONTRACTOR shall identify any Lead-Based Paint (LBP) or products within the Work PRIOR to any construction, remodeling, or demolition activities.
- 5.41.2. The CONTRACTOR shall identify any sheet lead, such as in laboratories or x-ray facilities prior to commencing demolition or construction activities.
- 5.41.3. The CONTRACTOR shall arrange for disposal of the hazardous waste stream (e.g., paint chips), through OC SAN.
- 5.41.4. All employees and supervisors who perform lead abatement Work shall have a current training certificate by a California Department of Public Health approved trainer.
- 5.41.5. The CONTRACTOR stabilizing loose and flaky LBP shall utilize industry standard lead safe work practices and controls.

5.42. CORROSIVE MATERIALS

- 5.42.1. The CONTRACTOR shall not store, handle, apply or use acids or caustics until a proper procedure has been developed.
- 5.42.2. Never add water to acid - if dilution is needed, add acid to water.
- 5.42.3. Emergency eyewash and/or shower facilities must be immediately available to any person working with acids and caustics.
- 5.42.4. Proper personal protection must include a face shield, goggles, apron, chemical resistant gloves, and sleeve lets as well as any other equipment deemed necessary by the SDS or manufacturer's usage instructions. Gloves shall be equipped with rolled cuffs.

5.43. CONTROL OF HAZARDOUS ENERGY (LOTO)

5.43.1. General

- 5.43.1.1. The CONTRACTOR must have a written Control of Hazardous Energy (LOTO) program that meets or exceeds OSHA regulations,

including requirements of this section.

- 5.43.1.2. OC SAN will administer LOTO, including the development of energy control procedures, for OC SAN owned or operated equipment or facilities.
 - 5.43.1.2.1. The CONTRACTOR is responsible for verification and shall apply personal locks and tags to the OC SAN Group Lockbox.
 - 5.43.1.2.2. OC SAN shall not release energized equipment to the CONTRACTOR, with exception to the following:
 - 5.43.1.2.2.1. Equipment that is cord and plug may be unplugged by the CONTRACTOR if it is the only source of hazardous energy and maintained under exclusive control by the CONTRACTOR.
 - 5.43.1.2.2.2. Equipment that will be tested by the CONTRACTOR as part of the routine servicing of the equipment may be energized provided that the CONTRACTOR's authorized employee is made aware that the equipment is energized. The CONTRACTOR shall implement necessary engineering and administrative controls to render the equipment safe.
 - 5.43.1.2.3. OC SAN will isolate equipment using OC SAN provided lockout devices. The CONTRACTOR is not required to provide lockout devices. The CONTRACTOR will apply their locks and tags to the Group Lockbox.
 - 5.43.1.2.4. The OC SAN PAE (Primary Authorized Employee) must be the first to lock on and the last to lock off the Group Lockbox.
- 5.43.1.3. The CONTRACTOR is responsible for LOTO on the CONTRACTOR rented or owned equipment. The CONTRACTOR shall develop written energy control procedures for the CONTRACTOR rented or owned equipment. The CONTRACTOR is responsible for provision and retention of such procedures. LOTO on such equipment shall be performed in accordance with State and Federal OSHA regulations. Must submit written energy control procedures to the ENGINEER for lockout of the CONTRACTOR rented or owned equipment that may affect OC SAN employees or facilities. The CONTRACTOR shall provide records of the energy control procedures to OC SAN PAE.
- 5.43.1.4. CONTRACTOR personnel performing or directly supervising construction- related activities that contain or store hazardous energy must be trained as a LOTO Authorized Employee. The CONTRACTOR is responsible for this training.
- 5.43.1.5. The CONTRACTOR shall coordinate shutdown requests with the designated INSPECTOR, who in turn will coordinate with the OC SAN PAE. LOTO on OC SAN owned or operated equipment or facilities will be performed under the direction of an OC SAN PAE utilizing Group LOTO.
- 5.43.1.6. The CONTRACTOR shall verify isolation of hazardous energy with the OC SAN PAE and the INSPECTOR. The CONTRACTOR is responsible for communicating the LOTO to its employees, including verification.
- 5.43.1.7. The CONTRACTOR shall supply unique and personally identifiable

keyed locks for lockout to each Authorized Employee. Locks issued to an Authorized Employee can only contain one key, which remains in the possession of the Authorized Employee in which the locks were issued. This personal key cannot be left in the lock for convenience.

- 5.43.1.8. The CONTRACTOR shall apply lockout device(s) only under the direction of an OC SAN PAE when OC SAN is operating energy isolating devices.
- 5.43.1.9. CONTRACTOR personnel shall not manipulate energy isolation devices or lockout devices on machinery, equipment, or facilities.
- 5.43.1.10. It is the responsibility of each CONTRACTOR employee to verify that all hazardous energy has been isolated and released prior to the start of the Work.
- 5.43.1.11. CONTRACTOR employees shall remove all personal locks and tags once they have completed the Work.

5.43.2. Energy Control Procedures

- 5.43.2.1. Equipment to be de-energized and released to a CONTRACTOR for repair, servicing, maintenance, or construction shall have a written energy control procedure that includes the steps to follow to ensure that equipment will be de-energized and to verify that hazardous energy has been released. The procedure shall be developed by OC SAN. A hard copy of the energy control procedure shall be provided in the field.
- 5.43.2.2. Moveable parts shall be mechanically blocked or locked out prior to cleaning, servicing, or adjusting operations. Residual energy may exist in the system. The CONTRACTOR shall always assume that hazardous energy remains in the system when line breaking and working on electrical systems. The CONTRACTOR is responsible for its own verification.
- 5.43.2.3. Equipment that has lockable controls or that is readily adaptable to lockable controls shall be locked out or positively sealed in the off position.
- 5.43.2.4. Isolating and de-energizing of equipment may begin prior to the CONTRACTOR's arrival on site. The CONTRACTOR PAE in the presence of an OC SAN PAE and INSPECTOR shall verify that all hazardous energy has been de-energized and controlled before the CONTRACTOR commences the Work. It will be the responsibility of the CONTRACTOR PAE to inform each CONTRACTOR and Subcontractor employee working on the equipment regarding the LOTO procedures implemented and verification steps used to control all identified hazardous energy before commencing the Work. The CONTRACTOR PAE shall ensure that each employee who could be injured by the inadvertent re-energization of the equipment place their individual employee lock on the group lock out box.

5.43.3. Electrical LOTO

- 5.43.3.1. LOTO points of disconnect shall be established between the CONTRACTOR, INSPECTOR and OC SAN staff. The point of disconnect shall be modified as the Work progresses through the

Project and equipment is turned over to OC SAN through Beneficial Occupancy.

- 5.43.3.2. The opening and closing of all existing OC SAN circuits shall be performed by OC SAN staff.
 - 5.43.3.3. OC SAN staff will open and close all OC SAN and CONTRACTOR medium- voltage circuits, including CONTRACTOR 12kV switchgear breakers and 12kV load interrupter switches. All medium-voltage circuits shall be jointly locked out and tagged out by OC SAN and the CONTRACTOR.
 - 5.43.3.4. The CONTRACTOR shall open and close their 480V switchgear breakers and perform LOTO prior the Beneficial Occupancy of any load on the 480V switchgear. Once a 480V load on the CONTRACTOR's 480V switchgear achieves Beneficial Occupancy, OC SAN will control the opening and closing of all 480V switchgear breakers with lock out and tag out jointly performed by OC SAN and the CONTRACTOR.
 - 5.43.3.5. The CONTRACTOR shall open and close the 480V motor control center main, feeder breakers and motor starters and perform LOTO prior to the
 - 5.43.3.6. Beneficial Occupancy of any load on the motor control center. Once a load on the motor control center achieves Beneficial Occupancy, OC SAN will control the opening and closing of the motor control center main breaker and the feeder breakers and motor starters associated with the loads being beneficially occupied.
 - 5.43.3.7. The CONTRACTOR shall open and close 480V, 120/208Y, and 120/240 panelboard circuits breakers and perform LOTO prior to Beneficial Occupancy of a load. Once a load on the panelboard achieves Beneficial Occupancy, OC SAN will control the opening and closing of the panelboard main breaker and the feeder breakers associated with the loads being beneficially occupied.
- 5.43.4. Duties of CONTRACTOR Personnel
- 5.43.4.1. Do not manipulate isolation devices on process equipment.
 - 5.43.4.2. Apply locks and tags only under the direction of an OC SAN PAE.
 - 5.43.4.3. Apply lock to isolation devices that are lockable.
 - 5.43.4.4. Once the authorized person completes or leaves the work task indefinitely or for the day, they must remove their personal locks and tags. Authorized persons joining the Work task, must place their locks and tags on the isolation devices prior to any potential exposure to hazardous energy.
 - 5.43.4.5. Each Authorized Employee working on the equipment shall review the energy control procedure, verify release of residual and stored energy, verify isolation, and verify that the equipment cannot be inadvertently re-energized.
 - 5.43.4.6. Each employee working on the equipment shall be responsible for attaching their personal locks without exception. No employee shall perform Work under another Authorized Employee's lockout or tagout devices. Employees shall maintain possession of their own

key.

- 5.43.4.7. Authorized employees who arrive later to the work site shall not work on the isolated equipment until they have reviewed the control procedure, conducted a visual and physical verification of all isolation points, and attached their personal lock and tag on the group lockbox.

5.43.5. Shift/Personnel Change

- 5.43.5.1. Transfer of control will occur between authorized personnel only. The PAE shall be responsible for transferring LOTO authority to the next shifts PAE.
- 5.43.5.2. The PAE shall not remove their personal lock(s) from any of the lockout devices or group lockbox until the arriving PAE has applied their personal lock and tags.
- 5.43.5.3. During transfer of LOTO authority between arriving and outgoing PAEs, the following must be performed:
 - 5.43.5.3.1. Ensure that all Authorized Employees who are leaving the work site have removed their personal locks.
 - 5.43.5.3.2. All oncoming shift Authorized Employees shall review the control procedure and verify that all the isolated machinery, equipment, or systems are in the proper positions and secured by group locks and tags.
 - 5.43.5.3.3. Each time an Authorized Employee attaches their personal lock, they must physically and visually verify that the equipment is still isolated, per the energy control procedure.
 - 5.43.5.3.4. Once the verification is completed, all oncoming shift Authorized Employees shall attach their personal lock and tag to the group lock box, and then they may resume the Work.
 - 5.43.5.3.5. All Affected Employees in the job site area shall be notified that the Work is in progress.
 - 5.43.5.3.6. The control procedure shall remain attached to the Group Lockbox to allow the oncoming Authorized Employees an opportunity to review and verify the LOTO conducted.

5.43.6. Lockout and Tagout Device Removal

- 5.43.6.1. Lockout and tagout devices shall only be removed by the CONTRACTOR Authorized Employee that applied the lockout and tagout device. Each employee must apply their own lock and maintain possession of their own key.
- 5.43.6.2. The CONTRACTOR shall not re-energize any equipment unless in the presence of the OC SAN Authorized Employee.
- 5.43.6.3. The CONTRACTOR must follow OSHA requirements for cutting off locks of any OC SAN employee or CONTRACTOR employee whose lock or tag remains on equipment that needs to be demolished or energized.
 - 5.43.6.3.1. If an OC SAN lock and tag remain on equipment, the CONTRACTOR shall notify OC SAN for the lock and/or tag to be removed. The CONTRACTOR shall never remove equipment that contains OC SAN locks or tags. OC SAN will coordinate with the CONTRACTOR to

account for the whereabouts of its employees and remove OC SAN locks and tags.

5.43.6.3.2. The CONTRACTOR shall account for the whereabouts of its own employees.

5.43.6.4. The INSPECTOR is responsible for notifying the OC SAN PAE when CONTRACTOR Work is complete, and all the CONTRACTOR locks and tags have been removed.

5.43.7. Locks

5.43.7.1. The CONTRACTOR shall supply unique and personally identifiable keyed locks to each Authorized Employee.

5.43.7.2. Locks issued to an Authorized Employee may only contain one key, which remains in possession of the Authorized Employee in which the locks were issued. Note: OC SAN will not provide locks for CONTRACTOR use.

5.43.7.3. Locks shall only be used for energy isolation of machinery, equipment, and/or facilities and not to be used for another purpose.

5.43.8. Tags

5.43.8.1. Tags shall be of sufficient material that is capable of enduring adverse conditions (weather, wet locations, corrosive materials, etc.) that will not cause the tag to deteriorate or message on tag to become illegible.

5.43.8.2. Tags must offer clean instructions such as: "Do Not Start", "Do Not Open", "Do Not Close", "Do Not Energize" or "Do Not Operate". Tags must include standard language of "Danger". The tags must be black, red, and white.

5.43.8.3. OC SAN will not provide tags for CONTRACTOR use.

5.43.8.4. Tags shall contain at a minimum the following legible information:

5.43.8.4.1. Name of person placing tag

5.43.8.4.2. Phone number of persons placing tag

5.43.8.4.3. Date of installation

5.43.8.4.4. Reason for application

5.43.8.5. Tags installed as a tagout device shall be installed to prevent inadvertent or accidental removal. The securing means shall be of sufficient strength to prevent removal without destroying the securing means (such as a zip or cable tie) or require the use of a tool to remove it.

5.43.8.6. Tags installed on a lock shall be affixed to the lock through the manufactured eyelet.

5.43.9. OC SAN Oversight

5.43.9.1. OC SAN shall designate staff to ensure that the CONTRACTOR is following OC SAN procedures.

5.43.9.2. OC SAN personnel shall be the first persons to place a lock and tag before the CONTRACTOR starts the Work and the last to remove the lock and tag when the CONTRACTOR completes the Work.

- 5.43.9.3. Group lockboxes shall be implemented by the designated OC SAN PAE when the total staff affected is greater than three.
- 5.43.9.4. Under no circumstance shall a CONTRACTOR lock and tag be on equipment without being accompanied by either an OC SAN lock unless it is a newly constructed piece of equipment still under the CONTRACTOR's control.

5.44. MOTOR VEHICLES

- 5.44.1. All employees driving job site motor vehicles shall have a valid driver's license for the state in which the employee resides and for the class of vehicle driven. Vehicles need to be registered with the Department of Motor Vehicles.
- 5.44.2. Drivers of vehicles over 26,000 pounds gross vehicle weight (GVW) are required by Federal and State Departments of Transportation regulations to possess a Commercial Driver's License (CDL).
- 5.44.3. Drivers on the Project site shall obey all street and highway speed and traffic laws.
- 5.44.4. Posted speed for the plants is 15 mph but shall not drive any faster than is safe.
- 5.44.5. Drivers are to limit their speed to 10 mph in construction zones.
- 5.44.6. Drivers shall check the mechanical condition of their vehicles at least daily.
- 5.44.7. Drivers are required to observe the "right of way" rule. Yield to other drivers whose driving actions demand the right-of-way or have obscured visibility.
- 5.44.8. Drive defensively. Anticipate what the other driver may do. Leave yourself an out.
- 5.44.9. Drivers shall keep a distance of AT LEAST one vehicle length for each 10 miles of speed between their vehicle and the vehicle in front of them.
- 5.44.10. Employees driving and riding in CONTRACTOR vehicles must wear seat belts.
- 5.44.11. Block or chock vehicle wheels when parking on inclines.
- 5.44.12. All passengers in motor vehicles must be seated and within the confines of the vehicle.
- 5.44.13. All vehicles must be shut off when unoccupied.
- 5.44.14. Pedestrians and cyclists have the right of way.
- 5.44.15. Parking shall be in specified areas only. Do not block entrances and do not park in reserved spaces or in fire lanes marked by a red curb.
- 5.44.16. The CONTRACTOR is responsible for the stability of any material being hauled.
- 5.44.17. Employees are not allowed to ride in the open bed of a pickup truck.
- 5.44.18. Unauthorized passengers shall not be transported in any vehicle or on any equipment at any time.

5.45. OVERHEAD UTILITIES

- 5.45.1. The CONTRACTOR shall identify all overhead utilities prior to the start of any Work.

- 5.45.2. The CONTRACTOR shall identify the voltage carried by each power line and identify the minimum required clearances prior to commencing Work near the line.
 - 5.45.2.1. Identifications of all lines and minimum clearances shall be documented on a site plan that is made available to all employees, Subcontractors, and Service Vendors.
 - 5.45.2.2. This site plan shall include identification of all lines that are within 42 feet of the perimeter of the site.
 - 5.45.2.3. Temporary utilities shall be added to the site plan as required by the CONTRACTOR.
- 5.45.3. Proper distances must be maintained from all overhead power lines as described in the following table:

Power line voltage Phase to phase (kV)	Minimum Safe Clearance (ft)
50 or below	10
Above 200 to 350	20
Above 350 to 500	25
Above 500 to 750	35
Above 750 to 1,000	45

- 5.45.4. When working less than 10 feet from a power line, power lines shall be locked out and visually grounded.
- 5.45.5. Guy wires shall be delineated and protected.

5.46. PERMITS

- 5.46.1. Unless otherwise stated in the Contract Documents, each CONTRACTOR shall obtain relevant permits pertinent to the safety of employees and operations.
- 5.46.2. Permits shall be available for review at the job site upon request of the ENGINEER or Risk Management.
- 5.46.3. If a bulk fuel storage tank will be used on the Project, then the CONTRACTOR must obtain a Bulk Fuel permit from the local Fire Department having jurisdiction. The tank permit shall be submitted to the ENGINEER and Risk Management using OC SAN's PCMS.
- 5.46.4. The CONTRACTOR shall obtain, and post Cal/OSHA Activity Permits for the following construction activities:
 - 5.46.4.1. Construction of trenches or excavations which are 5 feet or deeper and into which a person is required to descend.
 - 5.46.4.2. Constructions of any building, structure, scaffolding, or false work more than 3 stories high, or the equivalent height (36 feet).
 - 5.46.4.3. Demolitions of any building structure or dismantling of scaffolding or false work more than 3 stories high, or the equivalent height (36 feet).
 - 5.46.4.4. Erection or dismantling of vertical shoring systems more than 3 stories high, or the equivalent height (36 feet).
 - 5.46.4.5. Use of fixed or mobile tower cranes.

- 5.46.5. OC SAN also requires permits for Work it considers to be high hazard; the Work that requires OC SAN acceptance includes Confined Space Entry, Use of OC SAN equipment, and Hot work, LTV for Energized Systems, Hazardous Materials usage, Concurrent/Dual Employer Work Activities, and Spray Painting.

5.47. PERSONAL PROTECTIVE EQUIPMENT

5.47.1. General

- 5.47.1.1. Contractors shall ensure that employees are trained in the proper use, care, sanitation, and limitations of personal protective equipment (PPE) in accordance with applicable OSHA Standards and manufacturer's instructions and recommendations.
- 5.47.1.2. Contractors shall assess the workplace to determine if hazards that require the use of personal protective equipment are present or are likely to be present.
- 5.47.1.3. Contractors shall provide personal 4-gas meters to all effected staff, including Subcontractors.
- 5.47.1.4. PPE must be properly fitted.
- 5.47.1.5. Employee dress should be neat in appearance and consistent with good dressing attire, no large holes, obscenities, or inappropriate images.
- 5.47.1.6. Shirts and long pants must be worn always on the site. Sleeveless shirts, tank tops, and shorts are not permitted. Clothing should not be torn or frayed.
- 5.47.1.7. Clothing contaminated by oily, flammable, toxic or caustic materials should not be worn until properly cleaned.
- 5.47.1.8. Certain tasks may require the wearing of fire-resistant materials, such as Nomex or leather. In such circumstances, extremely flammable clothing material such as nylon should be discouraged.
- 5.47.1.9. In multi-employer worksites, the CONTRACTOR must comply with the other CONTRACTORs rules, whichever is most stringent.
- 5.47.1.10. Each CONTRACTOR is responsible to supply required personal protective equipment to their employees.
- 5.47.1.11. Gloves shall be worn and based on the hazards present.
- 5.47.1.12. Hearing protection shall be worn in high noise areas and/or where required by job safety analysis.

5.47.2. Head/Face Protection

- 5.47.2.1. Employees must wear hard hats complying with or exceeding the requirements of ANSI Z89.1-2014 while on the job site. "Cowboy" and similar novelty hard hats are not permitted.
- 5.47.2.2. Safety eye protection shall be worn at all times.
- 5.47.2.3. All safety glasses, goggles, and face shields must meet or exceed the requirements of ANSI Z87.1-2015.
- 5.47.2.4. The addition of side shields to prescription safety glasses is not permitted unless the side shields meet the ANSI standards.

- 5.47.2.5. Face shields must be worn in conjunction with safety glasses when grinding, chipping, jack hammering, and power sawing, or conducting other tasks that involve serious face/eye hazards.

5.47.3. Respiratory Protection

- 5.47.3.1. Employees who are required to wear respiratory protection must receive a medical assessment of their physical ability to wear the equipment, be properly fit tested, and trained in the use, care, storage, maintenance, and limitations of the respiratory device.
- 5.47.3.2. The CONTRACTOR must be able to show how respiratory protection was determined to provide adequate protection to employees by either industrial hygiene data or representative data from a previous project.

5.47.4. High-Visibility Safety Apparel

- 5.47.4.1. At a minimum, CONTRACTOR employees shall wear ANSI Class 2 safety vest while working within the following areas:
 - 5.47.4.1.1. Plant 1 and Plant 2 treatment areas
 - 5.47.4.1.2. Pump station electrical rooms, pump rooms, and exterior spaces within OC SAN property fencing.
 - 5.47.4.1.3. Where the potential exists for exposure to vehicular traffic.
 - 5.47.4.1.4. When working in vicinity of operating mobile equipment.
 - 5.47.4.1.5. OC SAN construction sites.
- 5.47.4.2. CONTRACTOR employees shall wear ANSI Class 3 safety vest while working in the following area:
 - 5.47.4.2.1.1. Public right of way where vehicle traffic exceeds 50 miles per hour.
 - 5.47.4.2.1.2. Off plant when working adjacent to public right of way and not protected by OC SAN property fencing.
 - 5.47.4.2.1.3. OC SAN construction sites outside of Plant 1 and Plant 2.
 - 5.47.4.2.1.4. During nighttime work, and/or when working along a federal aid highway during daytime or nighttime hours.

5.47.5. Safety Footwear

- 5.47.5.1. Tennis shoes, sneakers, open-toed shoes, and sandals are prohibited in construction areas.
- 5.47.5.2. Safety footwear meeting the requirements of ASTM F2413, "Standard Specification for Performance Requirements for Foot Protection", is required in construction and process areas. ASTM numbers must be legible on the tongue or insides of shoes.
- 5.47.5.3. Protective footwear shall be selected based on hazards associated with work tasks/activities (i.e., electrical hazards, puncture hazards, crush hazards, heat).
- 5.47.5.4. Soles should be made of slip-resistant materials, and not worn to the point where slip resistance is compromised.
- 5.47.5.5. Footwear shall have protective toecaps (i.e., composite, steel).

5.48. POSTING REQUIREMENTS

- 5.48.1. The CONTRACTOR shall be required to construct a weatherproof job site bulletin board. Federal and State regulations require the CONTRACTOR to conspicuously display all required posters at locations where employees report or normally congregate each day.
- 5.48.2. At minimum, the following items shall be posted:
 - 5.48.2.1. Industrial Welfare Commission's Order Regulating Wages, Hours, and Working Conditions
 - 5.48.2.1.1. Pay Day Notice
 - 5.48.2.1.2. OSHA "Job Safety and Health Protection"
 - 5.48.2.1.3. Employer's "Code of Safe Practices" / Safety Rules
 - 5.48.2.1.4. Discrimination in Employment is Prohibited by Law
 - 5.48.2.1.5. Sexual Harassment Poster
 - 5.48.2.1.6. Americans with Disabilities Act (ADA)
 - 5.48.2.1.7. Notice of Compensation Carrier
 - 5.48.2.1.8. Notice to Employees of Unemployment Insurance and Disability Insurance
 - 5.48.2.1.9. Cal/OSHA Operating Rules for Industrial Trucks
 - 5.48.2.1.10. Emergency Telephone Numbers

5.49. POWDER-ACTUATED TOOLS

- 5.49.1. Powder-actuated tools must meet or exceed the requirements of ANSI A10-3.1977.
- 5.49.2. Only trained workers holding a valid operator's card can use a powder-actuated tool.
- 5.49.3. Containers for powder-actuated tools must be lockable and bear the label POWDER-ACTUATED TOOL on the outside. The container must be kept under lock and key storage. The following must be provided with each tool:
 - 5.49.3.1. Operating and service manuals.
 - 5.49.3.2. Power load chart.
 - 5.49.3.3. Inspection-Service record.
 - 5.49.3.4. Repair and servicing tools.
- 5.49.4. Eye or face protection is required for operators and assistants.
- 5.49.5. Tools must be inspected prior to use. Defective tools must not be used.
- 5.49.6. Powder-actuated tools must not be left unattended.
- 5.49.7. Powder-actuated tools must be unloaded if work is interrupted. Tools must not be loaded until ready for use.
- 5.49.8. On misfire, the tool must be held in place for 30 seconds.
- 5.49.9. Misfires shall be placed in a can of water.
- 5.49.10. Different power loads must be kept in separate compartments.
- 5.49.11. Warning signs must be posted bearing the words: "POWDER-ACTUATED

TOOLS IN USE” within 50 feet of the point of use.

- 5.49.12. The Work must be evaluated to determine if a hot work permit is required when using powder-actuated tools.

5.50. PUBLIC PROTECTION PLAN

- 5.50.1. The CONTRACTOR shall develop a Public Protection Plan prior to the commencement of the Work. The Public Protection Plan shall be reviewed and revised as necessary throughout the Project.

- 5.50.1.1. The plan shall be in writing and available at the job site for review upon request.

- 5.50.1.2. For the purposes of this section, “Public” refers to parties not involved in the execution of the Work related to this Project.

- 5.50.2. The Public Protection Plan shall include following components:

- 5.50.2.1. Policy statement

- 5.50.2.2. Assignment of responsibilities

- 5.50.2.3. Identification of existing and predictable public concerns

- 5.50.2.4. Provisions to monitor and inspect the implementation of the Public Protection Plan

- 5.50.2.5. Provisions for incident investigation

- 5.50.2.6. Hazard abatement procedures

- 5.50.3. The Public Protection Plan shall consider at minimum the following items as they apply to the Project:

- 5.50.3.1. Noise

- 5.50.3.2. Dust, Fumes, Mists, Smoke, Vapors, Gasses, Odors

- 5.50.3.3. Traffic Hazards

- 5.50.3.4. Pedestrian and Bicyclist Hazards

- 5.50.3.5. Radiation (including lasers, x-rays, and welding rays)

- 5.50.3.6. Machinery and Vehicles

- 5.50.3.7. Falling Objects

- 5.50.3.8. Wind-Borne Objects

- 5.50.3.9. Security

- 5.50.3.10. Utilities

- 5.50.3.11. Hazardous Materials and Hazardous Substances (including use and storage)

- 5.50.3.12. Response to Incidents Involving the Public

- 5.50.3.13. Public Demonstrations or Protests

5.51. SANITATION

- 5.51.1. The CONTRACTOR must provide in a clean and sanitary condition:

- 5.51.1.1. All potable water for drinking

- 5.51.1.2. Adequate toilet facilities and wash facilities

- 5.51.1.3. Hand wash facilities as required by the Safety Data Sheet or state standards.
- 5.51.1.4. Appropriate containers for disposal of garbage
- 5.51.2. A minimum of one separate toilet facility shall be provided for each twenty employees or fraction thereof of each sex.
- 5.51.3. Toilet facilities shall be kept clean, maintained in good working order, designed, and maintained in a manner that will assure privacy, and provided with an adequate supply of toilet paper.
- 5.51.4. Employees shall not drink the plant water or other liquids involved with the treatment process.

5.52. SCAFFOLDS

- 5.52.1. Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a Competent Person qualified in scaffold erection, moving, dismantling or alteration.
- 5.52.2. CONTRACTORS shall provide a copy of the competent person evaluation and the Competent Person will sign off on scaffolds that are erected prior to use.
- 5.52.3. The CONTRACTOR shall have a Competent Person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Fall protection is required for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard. During erection and dismantling, 100% fall protection shall be always utilized.
- 5.52.4. The CONTRACTOR shall have each employee who performs Work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall include the following topics, as applicable:
 - 5.52.4.1. The nature of any electrical hazards, fall hazards, and falling object hazards in the work area.
 - 5.52.4.2. The correct procedures for dealing with electrical hazards.
 - 5.52.4.3. The correct procedures for erecting, maintaining, and dismantling the fall protection and falling object protection systems being used.
 - 5.52.4.4. The proper use of the scaffold, including the proper handling of materials on the scaffold.
 - 5.52.4.5. The maximum intended load and the load-carrying capacities of the scaffold
 - 5.52.4.6. Any other pertinent procedures or safety requirements
- 5.52.5. The CONTRACTOR shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a Competent Person to recognize any hazards associated with the Work in question. The training shall include the following topics, as applicable:
 - 5.52.5.1. The nature of scaffold hazards
 - 5.52.5.2. The correct procedures for erecting, disassembling, moving,

operating, repairing, inspecting, and maintaining the type of scaffold in question.

- 5.52.5.3. The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold.
- 5.52.5.4. Any other pertinent procedures or safety requirements
- 5.52.6. When the CONTRACTOR has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the CONTRACTOR shall retrain each such employee so that the requisite proficiency is regained.
- 5.52.7. Handrails, midrails, and toeboards are required on all scaffolds over 6 feet high.
- 5.52.8. If the guardrail system is incomplete or missing, personal fall protection is required.
- 5.52.9. A ladder or other acceptable means for access must be provided.
- 5.52.10. Wheels must be locked on rolling scaffolds before use.
- 5.52.11. There is no riding of manually propelled scaffolds.
- 5.52.12. All connections, including casters, on rolling scaffolds shall be pinned.
- 5.52.13. The CONTRACTOR must keep the platform load within the safe platform workload limit.
- 5.52.14. Scaffolds must be erected level on a firm base. When the scaffold is resting on earth or other such material, the uprights shall rest on and be secured to the equivalent of a 2-inch by 10-inch by 10-inch wood base.
- 5.52.15. Suspended scaffolds must have adequate anchorage points. Occupants shall have a full body harness, lifeline and deceleration device that must be attached to a separate anchorage point than that of the scaffold prior to stepping out onto any suspended scaffold over 10 feet per OSHA.
- 5.52.16. Scaffold planks must be laid tight and secured to prevent movement. Planks must overlap between 6 and 12 inches over the scaffold supports.
- 5.52.17. A stair tower or built-in stair/ladder system shall be provided for access to all scaffolds four frames or more in height.
- 5.52.18. All scaffolds shall be inspected and tagged to identify that they meet the requirements for use by a Competent Person prior to initial use, before each work shift, and after any event that could affect the structural integrity or safety of the scaffold. Scaffolds that are not tagged shall not be used.

5.53. ERECTION

- 5.53.1. No building, structure, or part thereof, or any temporary support shall be loaded more than its designed capacity.
- 5.53.2. Trusses and beams shall be braced laterally and progressively during construction to prevent buckling or overturning.
- 5.53.3. During placing of structural members, the load shall not be released from the hoisting line until the members are secured with not less than two bolts drawn up wrench tight.
- 5.53.4. Where skeleton steel is being erected, a tightly planked and substantial floor shall be maintained within two stories or 30 feet, whichever is less, below,

and directly under that portion of each tier of beams on which any Work is being performed.

- 5.53.5. When connecting beams at the periphery or interior of a building or structure where the fall distance is greater than 6 feet, the connector shall be provided with and use appropriate personal fall protection equipment in accordance with OSHA requirements.
 - 5.53.5.1. Connector means an employee who, working with hoisting equipment, is placing, and connecting beams or other structural members.
 - 5.53.5.2. When performing Work other than connecting, employees shall be provided and use personal fall protection equipment in accordance with OSHA requirements where the fall distance is greater than 6 feet.
- 5.53.6. Open web steel joists shall not be placed on any structural steel framework unless such framework is safely bolted or welded.
- 5.53.7. Containers shall be provided for storing or carrying rivets, bolts, and drift pins, and secured against accidental displacement when aloft.
- 5.53.8. When bolts or drift pins are being knocked out, means shall be provided to keep them from falling.
- 5.53.9. Impact wrenches shall be provided with a locking device for retaining the socket.
- 5.53.10. Connections of equipment used in plumbing-up shall be properly secured.
- 5.53.11. Turnbuckles shall be secured to prevent unwinding while under stress.
- 5.53.12. Plumbing-up guys shall be removed only under the supervision of a Competent Person.
- 5.53.13. Employees working above grade or any surface and exposed to protruding reinforcing steel or other similar projections shall be protected against the hazard of impalement using guardrails, or approved fall protection systems, or protective covers.
- 5.53.14. Exposed edges of all temporary planked or temporary metal decked floors at the periphery of the building, or at interior openings, such as stairways and elevator shafts shall be protected by a single 3/8-inch minimum diameter wire rope located between 42 and 45 inches above design finish floor height. Midrail protection shall be installed at the completion of the installation of decking.
- 5.53.15. Employees shall be trained in accordance with applicable OSHA standards and Project-specific requirements.

5.54. TAR AND MELTING POTS

- 5.54.1. Any melting chamber must be vented and must have a working thermometer.
- 5.54.2. No melting pots or tar kettles may be located on roof surfaces. All melting pots must be on the ground outside, and at least 25 feet from any building.
- 5.54.3. Pipelines shall be adequately braced or supported to prevent collapse.
- 5.54.4. Barricades must be provided when hot liquids are present overhead on a roof or upper floor.
- 5.54.5. Buckets containing hot asphalt or pitch shall not be carried on ladders.

- 5.54.6. A fire extinguisher shall be kept near each kettle in use. Extinguisher capacity shall be at least:
 - 5.54.6.1. Less than 150-gallon kettle – 8: B.C.
 - 5.54.6.2. 150 to 350-gallon kettle – 16: B.C.
 - 5.54.6.3. Larger than 350-gallon kettle – 20: B.C.
- 5.54.7. At a minimum, an 8: BC fire extinguisher shall be kept near each kettle in use.
- 5.54.8. Kettle and tanker pumps shall be provided with a means of stopping the flow of hot asphalt or pitch manually from the rooftop in emergencies.
- 5.54.9. Pumper pipelines shall be securely fastened at the rooftop and shall not be supported by ladders used for access.

5.55. WARNING SIGNS

- 5.55.1. The CONTRACTOR shall post site access and warning signage, including emergency contact information, in accordance with applicable requirements.
- 5.55.2. Project employees shall obey all warning signs.
- 5.55.3. Signage shall be maintained in legible condition and cleaned or replaced as necessary to maintain legibility.
- 5.55.4. All CONTRACTOR-installed warning signs, signals and barricades must be removed when the hazard no longer exists.
- 5.55.5. The CONTRACTOR shall monitor conditions to ensure timely and accurate removal of these devices.
- 5.55.6. Danger tape, caution tape, barricades, rope, and any other warning lines shall have signage to explain the nature of the hazard.

5.56. WORK ZONE TRAFFIC CONTROL

- 5.56.1. The CONTRACTOR shall establish work area protection zones necessary to protect employees and the public when Work is performed in areas where pedestrians or vehicles have access.
- 5.56.2. All employees in work zones shall wear Class II or Class III reflectorized garments in accordance with the requirements of the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD).
- 5.56.3. Traffic control shall be established in compliance with the MUTCD, State and local traffic control regulations, the WATCH Handbook (where referenced by contract), or other contract-referenced documents/standards and approved by the agency having jurisdiction.
- 5.56.4. The CONTRACTOR shall establish Work Area Protection in consideration of the location of the worksite, pedestrian and traffic conditions, and the time of day (daylight or dark).
- 5.56.5. The CONTRACTOR shall ensure adequate protection to passing vehicles on a roadway by providing a Flagger when barricades, signs and signals may be insufficient.
- 5.56.6. When placing or removing Work Area Protection, the employee shall:
 - 5.56.6.1. Be consistently alert to traffic conditions.
 - 5.56.6.2. Face oncoming traffic.

- 5.56.6.3. Wear proper personal protection (e.g., traffic warning vest, hard hat, eye protection).
- 5.56.7. Place the initial warning sign (e.g., Construction Ahead) first and remove last.
- 5.56.8. Work zone sites must be made safe for pedestrians by using:
 - 5.56.8.1. Rope or vinyl warning tape.
 - 5.56.8.2. Fencing or other barricades.
 - 5.56.8.3. Cones and signs.
 - 5.56.8.4. Pedestrian crossings (designated and painted).
 - 5.56.8.5. Other appropriate means, methods, and devices.
- 5.56.9. All night Work requires adequate illumination to light the work area and warn public vehicular traffic.
- 5.56.10. For night Work, the illumination used to light the work area shall be aimed such that it does not create glare for, or blind, the public driving through the work zone.
- 5.56.11. The CONTRACTOR shall ensure adequate protection to passing vehicles on a roadway by providing a Flagger when barricades, signs and signals may be insufficient.

5.57. FLAGGING OPERATIONS

- 5.57.1. Flagging Operations shall be conducted in accordance with the following unless a more specific standard applies.
- 5.57.2. Flaggers shall be trained in the proper fundamentals of flagging (signaling) traffic before being assigned as Flaggers.
- 5.57.3. The Flagger must be protected, and the motorist forewarned by use of warning signs and cones.
- 5.57.4. Use cones before the Flaggers position to mark the traffic lane.
- 5.57.5. The use of high visibility orange or Class III yellow vests shall be required to all Flaggers.
- 5.57.6. During the hours of darkness, the Flaggers shall be outfitted with a reflectorized garment, and the Flagger's position shall be illuminated.
- 5.57.7. To Stop Traffic - The Flagger shall face traffic and hold the stop paddle in a vertical position at arm's length.
- 5.57.8. When It Is Safe for Traffic to Proceed - The Flagger shall stand parallel to the traffic movement, and with the slow paddle held in a vertical position at arm's length.
- 5.57.9. Flags shall be a minimum of 18-inches x 18-inches in size, and orange in color.

5.58. PLATE BRIDGING

- 5.58.1. Trenches, excavations, or other surface openings or significant depressions must be covered with a bridge plate to permit safe and unobstructed flow of traffic.
- 5.58.2. Bridging plates must be secured from movement by a holding device(s) such as cleats, angles, bolts, tack welding, etc., regardless of the elevation below.

- 5.58.3. Bridging plates must be installed to produce a minimum amount of noise and be recessed or have appropriate asphalt tapers at edges, per OC SAN or city requirements.
- 5.58.4. Bridging plates must extend a minimum of one foot beyond the edges, with pavement materials feathering the edges for a reasonably smooth transition and installed in accordance with manufacturer/engineer instructions.
- 5.58.5. Warning signs shall be posted when steel plates are used in a travel path.
- 5.58.6. Refer to the WATCH Manual (where applicable) for specific requirements.

5.59. WORKING AROUND WATER

- 5.59.1. Where the CONTRACTOR's or Subcontractor's employees are not protected from falling into water by railing, netting, or body positioning devices the following safety devices shall be provided for and used by employees at those locations where the danger of drowning exists.
- 5.59.2. Personal Flotation Devices (PFD). Any employee who has the potential for falling into water shall be required to wear U. S. Coast Guard approved personal flotation devices that are marked or labeled Type I PFD, Type II PFD, or Type III PFD, or a U.S. Coast Guard approved Type V PFD that is marked or labeled for use as a work vest for commercial use or for use on vessels.
- 5.59.3. Ring Buoys. U. S. Coast Guard approved 30-inch ring buoys with at least 150 feet of 600-pound capacity line shall be readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.
- 5.59.4. Lifesaving Boats. One or more lifesaving boats, either manually or power-operated, shall be provided and readily accessible always. Lifesaving boats shall be properly maintained, ready for emergency use and equipped with oars and oarlocks attached to the gunwales, boathook, anchor, ring buoy with 50 feet of 600-pound capacity line and two life preservers. Oars are not required on boats that are powered by an inboard motor.
- 5.59.5. Where, because of swift current, lifeboats cannot be used, a line shall be stretched across the stream with tag lines or floating planks trailing in the water at intervals not to exceed 6 feet. If this is impracticable, some other arrangement for providing effective lifelines near the water surface shall be provided.

5.60. USE OF X-RAY

- 5.60.1. If X-Ray is utilized for any part of the Project, OC SAN must be notified at least two weeks prior to the use of X-Ray. The area in question shall be isolated prior to any X-Ray use.
- 5.60.2. OC SAN may require all X-Ray work to occur during afterhours to minimize exposure of OC SAN employees. Proper warning signs and delineation will be required.
- 5.60.3. Contractors performing non-destructive testing (NDT) shall notify the ENGINEER and Risk Management regarding hazards associated with such testing. Contractors performing NDT shall establish administrative controls to protect Contractors and OC SAN before examination. Controls shall be approved by the ENGINEER and Risk Management.

6. DEFINITIONS

The following definitions may not reflect the actual titles and definitions in use by all entities on this Project and do not have any force or effect beyond their use in the Contractor Safety Standards. Due to such differences in nomenclature among owners and contractors, the following are used throughout the Contractor Safety Standards to establish the functional framework for the Safety Program.

Alternate CONTRACTOR Safety Manager (ACSM). Individual meeting the same requirements of the CSM that assumes the role of the CSM on a temporary basis.

Alternate CONTRACTOR Safety Representative (ACSR). Individual meeting the same requirements of the CSR that assumes the role of the CSR on a temporary basis.

Authorized Representative. The Orange County Sanitation District's Authorized Representative to act on behalf of OC SAN on a project.

Competent Person. One who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

CONTRACTOR. The individual, partnership, joint venture, corporation, or other combination thereof, identified as such in the Contract, and referred to throughout the Contract Documents as if singular in number and who directly contracts with OC SAN. The term "CONTRACTOR" means the CONTRACTOR or its authorized representative. For these Standards, the term "CONTRACTOR" also includes Service Vendor, Consultant, and any other entity that directly contracts with OC SAN.

CONTRACTOR Project Manager (CPM). The senior on-site management person for the CONTRACTOR with responsibility for execution of the contract, including compliance with the Contractor Safety Standards. In some cases, the actual on-site representative may be a Superintendent or a Foreman. In such cases, this is the applicable person when the CPM is referenced. The CPM is responsible for the ongoing implementation and enforcement of the CONTRACTOR's Site-Specific Safety Program.

CONTRACTOR Project Superintendent (CPS). The senior on-site Superintendent for the CONTRACTOR with responsibility for execution of the contract, including compliance with the Contractor Safety Standards. In some cases, the actual on-site representative may be an Assistant Superintendent or a Foreman. In such cases, this is the applicable person when the CPS is referenced. The CPS is responsible for and accountable for the ongoing implementation and enforcement of the CONTRACTOR's Site-Specific Safety Program.

CONTRACTOR Safety Manager (CSM). Specific CONTRACTORs who are responsible for managing a project of 40 or more construction workers shall have a full-time CONTRACTOR Safety Manager assigned to the project, to carry out the duties as described in this document. The CONTRACTOR Safety Manager shall have no other duties other than safety (dedicated), regardless of the number of employees on site. In the absence of a contract safety manager, at a minimum the CONTRACTOR will be responsible for having a CONTRACTOR Safety Representative (CSR) assigned to the project. In addition, the Sanitation reserves the right to require the CONTRACTOR to supply a CSM if the CONTRACTOR demonstrates the inability to manage safety in accordance with the Cal/OSHA and OC SAN Contractor Safety Standards.

CONTRACTOR Safety Representative (CSR). CONTRACTOR employee assigned safety responsibilities of implementing the CONTRACTOR's Safety program and Injury and Illness Prevention Program, including ongoing identification and correction of hazards for shift work and distinct work locations as required. The CSR reports to the CSM. Additional SSR personnel shall cover shift work and distinct work locations as required. The CONTRACTOR can delegate the CSR duties to an on-site Field Supervisor. CSR responsibilities cannot be

delegated to an office or staff employee.

Control of Hazardous Energy (LOTO). The process of isolating energy sources (thermal, electrical, pneumatic, gravity, chemical, and hydraulic) to prevent employees from being exposed to unexpected release of energy by using a lock and tag to prevent the energy releases. Also referred to as Lockout Tagout (LOTO).

Contractor Safety Orientation (CSO). A briefing to orient the CONTRACTOR to general hazards at the work location, identify OC SAN expectations for safety performance, review emergency notification capabilities, and discuss CONTRACTOR activities that may pose a hazard to OC SAN employees, visitors, and other CONTRACTORS.

ENGINEER. OC SAN's Director of Engineering or designee.

Foreman. The first line supervision or lead for a CONTRACTOR.

Hazardous Area Classification. A method of evaluating a location or process for any risks (hazards) of explosion or fire that substances located there may be present and determining how best to minimize those risks for all probable circumstances that may be encountered. The location is divided up (that is, classified) into areas by risk level. Each area is assigned specific ventilation and electrical installation requirements. Areas with the highest risk level will have the most specialized requirements.

Injury and Illness Prevention Plan (IIPP). The Injury and Illness Prevention Plan (IIPP) is a basic written workplace safety program. Title 8 of the California Code of Regulations (T8CCR) section 3203 requires every employer to develop and employ an effective IIPP.

INSPECTOR. The individual(s) designated by the ENGINEER as the field Project representative with delegated authority to enforce the requirements of the Contract Documents, subject to the approval of the General Manager.

Job Hazard Analysis (JHA). An activity specific analysis that is completed for tasks such as confined space entry, hot-work, hazardous materials usage, and other activities required by the Contract Documents.

Non-Compliance. Is any violation, failure to comply, non-conformance, or infraction of the standards specified in these Contractor Safety Standards, or of any regulations to include State and Federal OSHA, DOT, NFPA, Building Codes, Fire Codes, and local ordinances.

OSHA. OSHA as used in the context of these Contractor Safety Standards refers to the State or Federal agency with jurisdiction over workplace occupational safety and health at the project site.

Owner. Orange County Sanitation District, the entity for which this project is being performed.

Owner Authorized Representative. The Owner's Employee or agent with overall responsibility for the project.

Qualified Person, Attendant or Operator. A person designated by the employer who by possession of a recognized degree, certificate, or professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work, or the project.

Risk Management. The Owner's Employee or agent with overall responsibility for the implementation of the Owner's Safety Program, including the OC SAN Contractor Safety Standards.

Service Vendor. Any group, company or supplier providing non-construction related goods and services to the OC SAN. All Service Vendors will be required to adhere to these

Standards and the OSHA and Cal/OSHA General Industry Safety Orders.

Site-Specific Safety Program (SSSP). The Employer’s Site-Specific Safety Program prepared in accordance with the requirements of this document and the Contract.

Subcontractor. One who is licensed pursuant to California Business and Professions Code, Section 7000 et. seq., and who contracts directly with the prime CONTRACTOR or with another Subcontractor to perform some part of the Work. A Subcontractor does not have any direct contract with OC SAN related to the Work.

Subcontractor Project Manager (SPM). The senior on-site management person for the Subcontractor with responsibility for execution of the contract, including compliance with the OC SAN Contractor Safety Standards. In some cases, the actual on-site representative may be a Superintendent or a Foreman. In such cases, this is the applicable person when the SPM is referenced. The SPM is responsible for and accountable for the ongoing implementation and enforcement of the Subcontractor’s Site-Specific Safety Program.

Subcontractor Project Superintendent (SPS). The senior on-site management person for the Subcontractor with responsibility for execution of the contract, including compliance with the OC SAN Contractor Safety Standards. In some cases, the actual on-site representative may be an Assistant Superintendent or a Foreman. In such cases, this is the applicable person when the SPS is referenced. The SPS is responsible for and accountable for the ongoing implementation and enforcement of the Subcontractor’s Site-Specific Safety Program.

Subcontractor Safety Manager (SSM). A dedicated full-time Subcontractor Employee assigned safety responsibilities for the project for Subcontractors having 40 or more employees. The SSM has the same responsibilities for safety of the Subcontractors that the CSM has for the CONTRACTOR.

Subcontractor Safety Representative (SSR). CONTRACTOR Employee assigned safety responsibilities of implementing the CONTRACTOR’s Injury and Illness Prevention Program, including ongoing identification and correction of hazards for shift work and distinct work locations as required. The SSR reports to the SPM. Additional SSR personnel shall cover shift work and distinct work locations as required. The Subcontractor can delegate the SSR duties to an on-site Field Supervisor. SSR responsibilities cannot be delegated to an office or staff employee.

Superintendent. A management representative for the CONTRACTOR who oversees a project.

7. ACRONYMS

The following acronyms may not reflect the actual acronyms in use by all entities on this Project and do not have any force or effect beyond their use in the Contractor Safety Standards. Due to such differences in nomenclature among owners and contractors, the following are used throughout the Contractor Safety Standards to establish the functional framework for the Safety Program.

ACM	Asbestos-Containing Material
ACSM	Alternate CONTRACTOR Safety Manager
ACSR	Alternate CONTRACTOR Safety Representative
ANSI	American National Standards Institute
CDL	Commercial Driver License
CSO	Contractor Safety Orientation
CPM	CONTRACTOR Project Manager

CPR	Cardiopulmonary Resuscitation
CPS	CONTRACTOR Project Superintendent
CSM	CONTRACTOR Safety Manager
CSR	CONTRACTOR Safety Representative
EPA	Environmental Protection Agency
GVW	Gross Vehicle Weight
HEPA	High Efficiency Particulate Air
JHA	Job Hazard Analysis
LBP	Lead-Based Paint
LEL	Lower Explosive Limit
LTV	Lock-Tag-Verify
MUTCD	Manual on Uniform Traffic Control Devices
NFPA	National Fire Protection Association
OC SAN	Orange County Sanitation District
OSHA	Cal/OSHA and/or Federal OSHA (refer to context)
PAE	Primary Authorized Employee
PACM	Presumed Asbestos Containing Materials
PPE	Personal Protective Equipment
RPM	Revolutions Per Minute
SCAQMD	South Coast Air Quality Management District
SDS	Safety Data Sheet
SPM	Subcontractor Project Manager
SPM	Subcontractor Project Manager
SPS	Subcontractor Project Superintendent
SSM	Subcontractor Safety Manager
SSR	Subcontractor Safety Representative
SSSP	Site Specific Safety Program
USDOT	United States Department of Transportation
WATCH	Work Area Traffic Control Handbook