

LAGUNA NIGUEL TO SAN JUAN CAPISTRANO PASSING SIDING

IFB 7-2018

Volume 1 DIVISION 1 CONTRACT SPECIFICATIONS



August 10, 2018

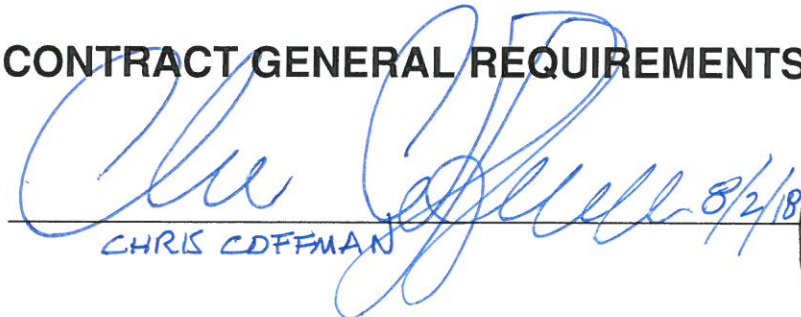
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OCTA
LAGUNA NIGUEL TO SAN JUAN CAPISTRANO
PASSING SIDING PROJECT

DIVISION 1 GENERAL REQUIREMENTS

The specifications provided herein have been prepared by or under the direction of the following Registered Persons:

CONTRACT GENERAL REQUIREMENTS


CHRIS COFFMAN 8/2/18



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**SECTION 01 11 13
WORK COVERED BY THE CONTRACT DOCUMENTS**

PART 1 - GENERAL

1.1 SUMMARY

This section summarizes requirements and provisions for the Contractor's execution of the Work under this Contract.

1.2 DESCRIPTION

- A. The Work to be performed by the Contractor shall consist of the construction of the work shown in the Contract Documents including the following:
1. A new siding track from Control Point (CP) Avery to new CP Trabuco. Construction of the new siding track includes the construction of new embankment and shifting of the existing mainline track.
 2. A new culvert at MP 194.6 replacing the existing timber trestle bridge.
 3. Several culvert extensions.
 4. Construction of several retaining walls.
 5. Construction of a second track through the Rancho Capistrano Private Crossing and associated roadway work in Camino Capistrano to raise and modify street to meet the new crossing profile and configuration.
 6. Installation of new CP Camino and associated special trackwork at MP 194.5.
 7. Installation of a new turnback track connected and controlled by CP Camino.
 8. Crew parking facility near CP Camino.
 9. Installation of new CP Trabuco and associated special trackwork at MP 195.7.
 10. Removal existing intertrack fence at the existing turnback track..
 11. Protection in place existing utilities

12. Demolition and removal as required including fence, landscape, and other buried/abandoned objects
13. Coordination of work with SCRRA signal and communication contractor.
14. Coordination of work with the Authority, SCRRA, Amtrak, City of San Juan Capistrano, City of Laguna Niguel, Saddleback Church, County of Orange, utility companies, and other entities as needed during the performance of the Project.
15. Removal of insulated joints at CP Oso (MP 196.2) and at locations as shown on the Contract Plans; and replacement with new rail and welds.
16. Removal of crossovers and signal cantilever foundations at CP Avery (MP 193.9) and replacement with new rail and welds (complete replacement of switches with new track at CP Avery). This work will be performed following completion of all other track and signal work on the Project
17. Compliance with all project permits
18. All work required to comply with the Project Environmental Document and associated permitting compliance (with the exception of environmental support work specified as to be provided by OCTA in Table 1 below).

Table 1 – Environmental Support Work Provided By OCTA

Permit	Section	Page #	Item Title or General Description
USACE 404 Application	Box 23	7	Work areas in and adjacent to sensitive natural communities: will be marked in the field to minimize impacts. A qualified biologist representing OCTA will identify the areas requiring protection. (note: the Contractor shall be responsible for all work required to install temporary fencing, maintain protection, and remove temporary fencing as described in the permit documents)
USACE 404 Application	Box 23	7	Fee (ILF) program or mitigation bank. If RWQCB does not approve using an ILF or bank outside of the Project's watershed, OCTA will investigate other options within the watershed.
USACE 404 Application	Box 23	9	A worker environmental education program will be conducted prior to Project initiation.
USACE 404 Application	Box 23	9	If construction activities occur within 300 feet of suitable nesting LBVI and SWFL habitat during the nesting season (March 15 through September 15), a permitted biologist will conduct an initial nest survey no more than 7 days prior to the start of construction

			activities to determine if there are any nests within 300 feet of the Project.
USACE 404 Application	Box 23	9	The biologist will then conduct bi-monthly (every other week) surveys while construction activities occur within 300 feet of suitable nesting habitat during the nesting season. The surveys will be conducted in accordance with the daily timing and weather requirements of the LBVI and SWFL nesting survey.
USACE 404 Application	Box 23	9	If construction activities occur within 300 feet of suitable nesting CAGN habitat during the nesting season (February 15 through August 31), a permitted biologist will conduct an initial nest survey no more than 7 days prior to the start of construction activities to determine if there are any nests within 300 feet of the Project.
USACE 404 Application	Box 23	9	The biologist will then conduct bi-monthly (every other week) surveys while construction activities occur within 300 feet of suitable nesting habitat during the nesting season. The surveys will be conducted in accordance with the daily timing and weather requirements of the CAGN nesting survey.
USACE 404 Application	Box 23	10	Any construction impacts with a depth of more than two feet from MP 193.9 to MP 195.7 require full time monitoring by an Orange County Certified Professional Archaeologist and a Native American monitor.
USACE 404	LOP 7/26/2017	3	The time limit for completing the authorized activity ends on June 26, 2020. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
USACE 404	LOP 7/26/2017	3	If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

USACE 404	LOP 7/26/2017	4	Within 45 calendar days of completion of authorized work in waters of the United States, the Permittee shall submit to the Corps Regulatory Division a post-project implementation memorandum.
USACE 404	LOP 7/26/2017	5	In the event of any discoveries during construction of either human remains, archeological deposits, or any other type of historic property, the Permittee shall notify the Corps' Regulatory staff (Tiffany Kwakwa at 213-452-3375) and Archaeology staff (Danielle Storey at 213-452-3855 OR Meg McDonald at 213-452-3849) within 24 hours.
USACE 404 - SAMP	Item 16	9	Post Project Report
USACE 404 - SAMP	Item 24	12	Compliance Certification
Approved CDFW Permit 1600-2016-0165-R5	Item 1.1	3	Documentation at Project Site
Approved CDFW Permit 1600-2016-0165-R5	Item 1.3	3	Notification of Conflicting Provisions
Approved CDFW Permit 1600-2016-0165-R5	Item 1.4	3	Project Site Entry
Approved CDFW Permit 1600-2016-0165-R5	Item 2.1	3	Worker Environmental Awareness Program
Approved CDFW Permit 1600-2016-0165-R5	Item 2.2	4	Construction Area Demarcation A qualified biologist representing OCTA will identify the areas requiring protection. (note: the Contractor shall be responsible for all work required to install temporary fencing, maintain protection, and remove temporary fencing as described in the permit documents)
Approved CDFW Permit 1600-2016-0165-R5	Item 2.3	4	Qualified Biologist

Approved CDFW Permit 1600-2016-0165-R5	Item 2.4	4	Nesting Birds A qualified biologist representing OCTA perform bird surveys (note: the Contractor shall be responsible compliance with permit requirements for associated with avoiding disturbance of bird habitat and nesting birds)
Approved CDFW Permit 1600-2016-0165-R5	Item 2.6	5	Preconstruction Surveys Completed by Qualified Biologist
Approved CDFW Permit 1600-2016-0165-R5	Item 2.7	5	Biological Monitoring
Approved CDFW Permit 1600-2016-0165-R5	Item 2.8	5	Protected Species Plan
Approved CDFW Permit 1600-2016-0165-R5	Item 2.9	5	Dead or Injured Protected Species
Approved CDFW Permit 1600-2016-0165-R5	Item 2.10.1	6	Least Bell's Vireo - Seasonal and Other Restrictions Qualified Biologist representing OCTA will perform surveys. (note: the Contractor shall be responsible compliance with any restrictions required by the permits)
Approved CDFW Permit 1600-2016-0165-R5	Item 2.10.2	6	Least Bell's Vireo - Site Monitoring and Restrictions Qualified Biologist representing OCTA will perform surveys. (note: the Contractor shall be responsible compliance with any restrictions required by the permits)
Approved CDFW Permit 1600-2016-0165-R5	Item 2.11	6	Bat Protection - Culverts Qualified Biologist representing OCTA will perform surveys. (note: the Contractor shall be responsible compliance with any restrictions required if nesting/roosting bats are identified)
Approved CDFW Permit 1600-2016-0165-R5	Item 2.25	8	Storm Drains and Culverts
Approved CDFW Permit 1600-2016-0165-R5	Item 3.1	10	Mitigation for Authorized Permanent Impacts

Approved CDFW Permit 1600-2016-0165-R5	Item 4.1	11	Proof of Purchase of Mitigation Credits
Approved CDFW Permit 1600-2016-0165-R5	Item 4.2	11	Notification Prior to Work
Approved CDFW Permit 1600-2016-0165-R5	Item 4.3	11	Reporting Sensitive Species to CNDDB
USFWS	Section 7	2	CM 2 (BIO MONITOR)
USFWS	Section 7	2	CM 4 (EDUCATION)
USFWS	Section 7	3	CM 7 (NIGHT WORK BIO MONITOR)
USFWS	Section 7	3	CM 10 (MITIGATION CONTRIBUTION)
USFWS	Section 7	3	CM 12 (GNATCATCHER MONITOR AND REPORT)
USFWS	Section 7	4	CM 14 (VIREO MONITOR AND REPORT)
USFWS	Section 7	4	CM 16 (FLYCATCHER MONITOR AND REPORT)
MMRP	BIO-1		BIO Monitor
MMRP	BIO-3		Education
MMRP	CUL-1		Archaeologist & Native American Monitor
MMRP	CUL-3		Call Coroner for Human Remains

- B. The general intent of the Contract, Specifications, plans, and all other Contract Documents and provisions thereof is that the Contractor shall:
1. Furnish all tools, qualified labor, materials, equipment, qualified superintendence and all services, other incidentals, assurances and guarantees, assumptions of risk, and responsibility for the performance of the Work as set forth in the Contract Documents unless otherwise specifically provided.
 2. Begin Work promptly and proceed expeditiously and continuously without cessation or shutdown of Work unless otherwise specifically approved in writing by the Authority, or directed by the Contract.
 3. Perform, complete, and make ready for its intended purpose, within the times specified, including additional times provided for certain conditions, the Work or parts thereof covered by the Contract, all in accordance with plans, Specifications, and any addendum thereto and such direction or instructions as the Authority may give to supplement the plans and Specifications. The Contractor shall retain sole responsibility and expense for Quality Control of their Work products.

4. Contractor shall provide a full time safety professional to be responsible for the Contractor's safety program as described in the Level 3 Health, Safety, and Environmental Specifications.
5. The Work of the Project requires that the Authority and all its Contractors maintain an active working railroad signal and highway warning system in accordance with Federal regulations and CPUC orders at all times. The Contractor, shall integrate, coordinate, and stage the work in order to ensure that the active railroad signal and highway warning systems are maintained.
6. Any construction staging plans or details are not meant to be contradictory to the requirements set forth in the contract documents. It is the responsibility of the Contractor to schedule the construction activities at each site, using the Site-Specific Work Plan (SSWP) process. Tracks may be taken out of service for planned activities through the SSWP process. The Contractor shall incorporate into its SSWP the necessary Authority provided signal maintenance support. No red or other restrictive signals or signal-related train bulletins shall be allowed outside of the approved work windows and as approved in the SSWP (see also Section 01 14 00 "Work Restrictions").
7. The Contractor shall install conduit, pull boxes, and appurtenances at specific locations where identified on the Contract Drawings for use by SCRRA Contractors in installation of the SCRRA Signal System. The Contractor will be required to coordinate with SCRRA Contractors, who will be performing installation of new and relocated SCRRA Signal System facilities in conjunction with work being performed under this Contract. Phasing, coordination, and other work required as necessary to allow SCRRA to perform the signal system improvements, modifications, signal cut-overs, and testing in conjunction with the Project shall be considered incidental to work items being performed by the Contractor.

1.3 INTENT OF PLANS AND SPECIFICATIONS

- A. The intent of the Plans and Specifications is to prescribe the details for the construction and completion of the Work that the Contractor undertakes to perform in accordance with the terms of the Contract. Where the Plans or Specifications describe portions of the Work in general terms, but not complete detail, it is understood that only commonly accepted industry practice is to prevail. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and perform all the Work involved in executing the Contract in a satisfactory and workmanlike manner.
- B. The Authority will determine whether the Work has been completed in accordance with the Contract, Plans, Specifications and reference Specifications. The Authority will decide all questions that may arise as to the quality or acceptability of materials furnished and Work performed, and regarding the interpretation of the Plans, Specifications, and reference Specifications.
- C. Plans, Standard Specifications, and Project Specific Specifications are essential parts of the Contract, and a requirement indicated in one is binding as though

indicated in all. They are intended to be cooperative and to describe and provide for the complete Work. If there is a conflict between documents the most stringent applies.

- D. Words and abbreviations that have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

The word "Furnish" or the word "Install" or the word "Perform" or the word "Provide" or the word "Supply," or any combination or similar directive or usage thereof, shall mean furnishing and incorporating in the Work including all necessary labor, materials, equipment, and everything necessary to perform the Work indicated, unless specifically limited in the context used.

- E. The organization of the Specifications into divisions, sections, parts, and paragraphs, and the arrangement of the Plans, shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Study and compare the Contract Documents and immediately report to the Authority any error, inconsistency, or omission that may be discovered. The Contractor shall be liable to the Authority for any damage resulting from any such unreported errors, inconsistencies, or omissions in the Contract Documents.

The Specifications may vary in form, format and style. Some specification sections are written in varying degrees of streamlined or declarative style and some sections may be relatively narrative by comparison. Omissions of such words and phrases as "the Contractor shall," "in conformity with," "as shown," or "as specified" are intentional in streamlined sections. Omitted words and phrases shall be supplied by inference. Similar types of provisions may appear in various parts of a section or articles within a part depending on the format of the section. The Contractor shall not take advantage of any variation of form, format or style in making claims for extra Work.

The cross referencing of specification sections under the subparagraph heading "Related Requirements" and elsewhere within each specification section is provided as an aid and convenience to the Contractor. The Contractor shall not rely on the cross referencing provided and shall be responsible to coordinate the entire Work under the Contract Documents and provide a complete Project whether or not the cross referencing is provided in each section or whether or not the cross referencing is complete.

- F. The Work herein covered is to be completed in accordance with the Specifications, the accompanying plans, and such instructions or directions as the Authority may give to supplement Plans and Specifications. Wherever the words "directed," "permitted," "approved," "acceptable," "satisfactory to," or similar words or phrases occur in the Contract Documents, they shall be understood to be functions of the Authority.
- G. The Authority shall not be responsible for and shall not have control or charge over the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

H. The word "Vendor" used in the Material Specifications shall mean the Contractor.

1.4 REFERENCE MATERIAL

Reference Specifications or Standards referred to in the plans, or Contract Specifications shall be the most recent version in effect as of the bid due date of this Contract. Where referenced standards refer to the "Specifications," this shall mean Standard Specifications, and the Contract Drawings of this Contract. Where referenced standards refer to the "special provisions or conditions," this shall mean the Contract Drawings or the Specifications of this Contract. The Contractor is responsible for obtaining all reference material at its own expense, and for making itself familiar with the requirements therein.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 11 13

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SECTION 01 11 15
DEFINITION OF TERMS AND REFERENCE STANDARDS

PART 1 - GENERAL

1.1 SUMMARY

This Section provides definition of terms, abbreviations and reference standards cited in the Contract Documents. The following definitions supplement definitions provided throughout the Contract Documents including General Conditions Section 2.

1.2 DEFINITION OF TERMS

- A. Wherever in the Specifications and other Contract Documents, the following terms and abbreviations or pronouns in place of them, are used, the intent and meaning shall be interpreted as provided in this section unless the context otherwise requires.
1. Active Track: Any track within the Operating System on which trains and/or on-track equipment operate or may potentially operate. All tracks shall be considered by the Contractor to be Active unless otherwise instructed by the Authority.
 2. Adjusted Rail Laying Temperature: The actual average rail temperature achieved at the time of rail installation.
 3. Automatic Block Signals: A signaling system where the track is broken up into segments called "blocks," and the presence of a train on a given block will activate signals preventing other trains from entering that block, except as prescribed by the General Operating Rules.
 4. Bad Order: A defective rail car or any other rail equipment, track or structure, which is in need of mechanical attention or repair.
 5. Ballast: An open graded crushed rock placed on the compacted roadbed and beneath and around the railroad ties for the purpose of holding the track in line and at surface.
 6. Centralized Traffic Control: A signaling system where a Train Dispatcher monitors the movements of all trains over a large territory on a display panel, and remotely controls the throwing of switches and the clearing of signals.
 7. Clearance Diagram: An outline or cross section drawing representing the minimum clearance that must be maintained from the Authority's track to allow for the operation of trains and rail mounted equipment. Specific limiting dimensions have been established and are shown on standard clearance diagrams known as "plates."

8. Clearance Point: the location on a turnout at which the carrier's specified minimum clearance is provided between the tracks. Away from turnouts, the clearance point is designated as 13 feet center-to-center of the two tracks.
9. Coach: A passenger carrying rail car, usually with a center aisle and two rows of twin seats.
10. Common Carrier: One who holds itself out to the general public to transport property and passengers, intrastate, interstate or in foreign commerce for compensation. Common carriers must operate from one point to another over routes or in territory prescribed by the Surface Transportation Board (interstate) and by a Public Service or Public Utilities Commission.
11. Conductor (Train Operations): The individual in charge of the train crew.
12. Coupler: A device located at both ends of all cars and locomotives in a standard location and configuration to provide a means for connecting one rail vehicle to another.
13. Creosote: A tar distillate produced by high-temperature carbonization of bituminous coal and used in wood treatment.
14. Crossing Protection: Signs, signals, aspects, and other objects governing movement of trains, track equipment, and highway vehicles over railroad crossings or grade crossings.
15. Cross Level: The difference in elevation between the tops of both rails measured along a line perpendicular to the track centerline.
16. Crossover: Two turnouts in which the track between the frogs is arranged to form a continuous passage between two adjacent and generally parallel tracks.
17. Crosstie: Wood, concrete or metal beams that support the rails as part of the track structure.
18. Current of Traffic: The movement of trains on a main track, in one direction, specified by the General Operating Rules.
19. Departure Track: One of the tracks in a rail yard on which outgoing cars are placed.
20. Derail: A safety device attached to one rail of a siding or storage track, that will cause derailment of a car, engine or on track machinery, in order to prevent unintended and undesired movement to other tracks.
21. Derailment: Anytime the wheels of a rail car engine or on track machinery come off the head of the rail.

22. Emergency: Any sudden generally unforeseen occurrence such as a fire, flood, storm, earthquake, epidemic, civil disorder or other natural and/or man-made disaster that has the potential to adversely affect the safety of life, the Work, and/or adjacent property; to interrupt contracts essential to the provision of railroad passenger and/or freight service; and/or to cause catastrophic failure of revenue-producing equipment and/or facilities.
23. Employee-In-Charge (EIC): The roadway worker designated by SCRRRA to provide train protection for one or more work groups as per Roadway Worker On-Track Safety Instructions.
24. Engineman: The driver or operator of a locomotive. Also called a locomotive engineer.
25. Federal Agencies: Whenever, in the Contract Documents, reference is made to any Federal agency or officer, such reference shall be deemed made to any agency or officer succeeding, in accordance with law, to the powers, duties, jurisdiction and authority of the agency or officer mentioned.
26. Foul: A condition of placement of personnel, material, or equipment in proximity to a railroad track to cause physical interference with moving railroad equipment. Generally, objects closer than twenty feet (20) to the track centerline are Foul of the track within the meaning of these Specifications.
27. Interlocking: An arrangement of signals and signal appliances so interconnected that their movements must succeed each other in proper sequence and for which interlocking rules are in effect. It may be operated manually or automatically.
28. Ladder Track: A track connecting successively the body tracks of a yard.
29. Lead Track: An extended track connecting either end of a yard with the main track.
30. Live Track: See Active Track.
31. Locomotive: A self-propelled, non-revenue rail vehicle designed to convert electrical or mechanical energy into tractive effort to haul railway cars.
32. Main Track: A term referring to the primary or most heavily used tracks of a railroad. A track extending through yards and between stations, upon which the operation of trains is controlled and authorized by the Train Dispatcher. Note that sidings on Authority property are operated under the same rules as the Main Track(s).
33. Milepost: Designated location(s) along the main and branch lines normally

sequentially one mile apart and indicated by nearby numbered sign corresponding to the "mile" location.

34. Operating Envelope: An imaginary line, measured 15 feet horizontally from the rail on the track on which trains or "on-track" equipment operate or may potentially operate. The Operating Envelope also includes the width and length of any active station platform. This imaginary pair of lines, which define the outside boundaries of the Operating Envelope, extend vertically up and down infinitely.
35. Operating System: Includes but is not limited to the tracks on which trains and on-track equipment operate or may potentially operate, and in addition any facilities closely related to the operation of the railroad system including signal and communication masts, bridges, poles, cables, and houses, track bridges, tunnels, culverts, grade crossings and station platforms."
36. Preferred Rail Laying Temperature: The temperature that the rail is to be installed at, or adjusted to, in order to balance the thermal expansion and contraction forces for optimum track maintenance practices. The Preferred Rail Laying Temperature (PRLT) is defined in the SCRRA Track Maintenance and Engineering Instructions.
37. Qualified: A designation by the Authority of personnel who have demonstrated an understanding of a specific subject matter through oral interview and/or attainment of a score of at least 85% on a written test. Testing will be conducted by the Authority or its designee. Personnel required to be qualified by these Specifications must achieve this designation within 45 days after Limited NTP.
38. Quality Assurance (QA): The process by which the Authority elects to monitor and assure that it receives proper construction related documentation from the Contractor. QA procedures measure the setting of schedules for the receipt and review of documentation and the quality of the information contained within the documentation.
39. Quality Control (QC): The process by which the Authority receives documentation from the Contractor that proves that the Contractor is providing the contractually mandated services, such as training, testing and inspection. The Contractor must show evidence of internal procedures demonstrating how he will perform these mandated functions and submit documentation that QC verifications have been completed. QC is the responsibility of the Contractor.
40. Rail: As used in track, a rolled steel shape, commonly a T-section, designed to be laid end to end in two parallel lines on crossties or other suitable supports to form a track for railway rolling stock.
41. Rail Anchor: A device attached to the base of a rail bearing against a crosstie to prevent the rail from moving longitudinally under traffic.

42. Rail Joint: A fastening designed to unite the abutting ends of contiguous rails. Often referred to as angle bars or joint bars. When rails of different sections are joined, a compromise rail joint is used.
43. Rail Section: Designates and describes a specific size and shape of steel cast and rolled into railroad rail. The rail mills identify the different shapes and types of rails by code numbers, which typically indicate the nominal weight, measured in pounds per yard (3 lineal feet of rail). As example: 136-pound RE section.
44. Railroad Tie: The transverse member of the track structure to which the rails are spiked or otherwise fastened to provide proper gage and to cushion, distribute, and transmit the stresses of traffic through the ballast to the roadbed. Also referred herein as a crosstie.
45. Relocate: Change the location, position or station of an item through removal from existing location and reinstallation of existing equipment to new location. Relocation may involve installation of new connections or accessories.
46. Restricted Speed: A speed that allows stopping within half the range of vision short of: Trains, Engine, Railroad Car, Maintenance of Way Equipment, stop signal, or derail or switch not properly lined.
47. Reverse Curve: Adjoining or nearby curves on a track that turn in opposite directions.
48. Right-of-Way: The real property, inclusive of all estates and interests therein, that is necessary for ownership and operation of the Project. Right-Of-Way, as the term is used in the Contract, specifically excludes:
 - a. Utility easements outside of OCTA ROW and,
 - b. Any temporary easements or other real property interests which the Contractor deems necessary or advisable in connection with construction of the Project or Relocations.
49. Roadway Maintenance Machine: Any device which is powered by any means of energy other than hand power which is being used on or near railroad track for maintenance, repair, construction or inspection of track, bridges, roadway, signal, communications or electric traction systems. Roadway maintenance machines may have road or rail wheels or may be stationary.
50. Roadway Worker: Any Authority or the Contractor employee whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communications systems, roadway facilities or roadway machinery within the Authority right of way.
51. Salvage: To save any removed item. The salvaged item shall be reused in the contract or delivered and stockpiled for the Authority as specified in

the Contract Documents.

- 52. Shoofly: A temporary detour track to bypass an obstruction or construction site.
- 53. Site Specific Work Plan (SSWP): A program, plan, and schedule prepared and submitted by the Contractor and approved by the Authority that accurately describes and illustrates the manner in which all Work within or outside of the Operating Envelope will be accomplished, the impacts on any elements of the Operating System and the manner in which Work will be accomplished with the Authority allotted Work Windows. See SCRRA reference documents for more information.
- 54. Side Track: A track auxiliary to the main track.
- 55. Siding: A track auxiliary to the main track for meeting or passing trains.
- 56. Spur Track: As distinguished from a Side Track, a Spur Track is of indefinite length, extending out from the main line.
- 57. Standard Gage: The standard distance between rails of most North American railroads, being 4' 8-1/2 " measured between the inside gauge faces of the rail heads, 5/8 inch down from the running surface.
- 58. Stub Track: A form of sidetrack connected to a running track at one end only and usually protected at the end by some form of bumping post or other solid obstruction.
- 59. Superelevation: The intentional difference in elevation between the top of the outer rail and the top of the inner rail measured along a line perpendicular to the track centerline.
- 60. Switch: A track structure with movable rails to divert rolling stock from one track to another.
- 61. Switch Angle: The angle included between the gauge lines of the switch rail at its point and the stock rail.
- 62. Switching: Switching service consists of moving cars from one track to another track or to different positions on the same track. It includes the moving of cars in the make-up and break-up of trains; also moving of cars on industrial switching tracks or interchange tracks, and the general movement of cars within terminals or at junctions.
- 63. Tamper: A power-driven machine for compacting ballast under ties.
- 64. Tangent: Any straight portion of a railway alignment. Tangent track means straight track with no curves.

- 65. The Authority: Orange County Transportation Authority (OCTA) and its authorized representatives.
- 66. Track: An assembly of rails, ties, rail fastenings, hardware and roadbed over which cars, locomotives and trains are moved and the space between the rails and space of not less than four feet outside of each rail.
- 67. Truck: The complete assembly of parts, including wheels, axles, bearings, side frames, bolster, brake, rigging, springs and all associated connecting components, the function of which is to provide support, mobility and guidance to the railroad car.
- 68. Train: An engine or more than one engine coupled, with or without cars displaying markers. For practical purposes, a train is a group of coupled cars hauled by a locomotive.
- 69. Turnout: An arrangement of a switch and a frog with closure rails by means of which rolling stock may be diverted from one track to another. Also referred to as "track switch."
- 70. Walkway: A portion of the railroad embankment or ballast section shaped and finished to conform to CPUC requirements for train employee walking surfaces. When the walkway is within the ballast section or near turnouts, the walking surface shall be "3/4-inch" ballast.
- 71. Watchman: An SCRRA employee who has been annually trained and Qualified to provide warning to Roadway Workers of approaching trains or on-track equipment.
- 72. Wheel: The cast or forged steel cylindrical element that rolls on the rail carries the weight and provides guidance for rail vehicles. Railway wheels are semi-permanently mounted in pairs on steel axles, and are designed with flanges and a tapered tread to provide for operation on track of a specific gage. The wheel also serves as a brake drum on cars with on-tread brakes.
- 73. Wheel Set: The term used to describe a pair of wheels mounted on an axle.
- 74. Work Window: A period of time with specific beginning and ending time and durations for which the track, signals, bridges and other Operating System elements within the Operating Envelope are temporarily removed from service or modified in some other manner and train and other operations suspended or modified to allow construction or maintenance work to occur. Written Authority from SCRRA and an approved SSWP is required before the Contractor is granted a Work Window. The Contractor's Work Window shall have specific geographic limits, which are defined in the approved SSWP. Modifications or suspension of train and on-track equipment movements resulting from a Work Window involves

written changes to the Railroad's Rules of Train and On-Track Equipment Operations. These written changes are known as Track Bulletins and are categorized as follows:

75. Exclusive Track Window: An approved Work Window in which no train movements (except the Contractor or SCRRA work trains or equipment under control of the EIC, per the SSWP) will operate on any track within the window limits. The Contractor may dismantle, remove, reconstruct, or otherwise obstruct tracks within the limits of such a window. This Work may be protected by track out of service, track and time limits, or by Form B Track Bulletin.
 - a. Limited Track Window: An approved Work Window for some, but not all tracks within a general Work area (e.g. one track remains for operation of trains, other tracks are available for the Contractor's Work). Movement of trains over the track(s) of a Limited Track Window is under the control of the EIC who will not authorize train movement unless and until the Contractor personnel and equipment are clear of the operating track. The Contractor may remove, construct, or obstruct only the track designated by the SSWP and must arrange the Work so that trains can operate without delay on the remaining track(s) in the Work area. This Work may be protected by track out of service, track and time, or by Form B Track Bulletin.
 - b. "Form B" Work Window: An approved Work Window in which passenger, freight and all other trains and on-track equipment movements can be prohibited from entering the defined limits of a segment of track. The "Form B" Work Window does not allow the Contractor to remove from service or modify the tracks, signals, bridges, stations or other elements of the Operating System in a manner, which will delay or in any way affect the safe operation of the trains. The "Form B" Work Window allows the Contractor the ability to enter the Operating Envelope and perform construction activities subject to the conditions above. An Employee-in-Charge/Flagman from SCRRA will exercise strict control over the Contractor's construction activities in conjunction with Roadway Worker Protection requirements, to assure that the Contractor's activities do not delay or impact train service.
 - c. Track and Time: An approved Work Window in which the Dispatcher will authorize men and equipment to occupy a track or tracks within limits for a certain time period. The Dispatcher authority shall include authority number, track designation, limits and time. Movements may be made in either direction within the specified limits until the limited are released.
76. Work Train: A train engaged in services for SCRRA for which no revenue is received, such as trains distributing ballast, bridge material or other material and supplies for maintenance or for additions and improvements.

- 77. Yard: A system of tracks within defined limits provided for the making up of trains, storing of cars and other similar purposes.
- 78. Yard Lead: An extended track connecting either end of a yard with the main track.
- 79. Yardmaster: The person designated as being in charge of all operations in a yard.
- 80. Yard Office: A building in terminal yards to provide office accommodations for the yardmaster and office personnel.

1.3 ABBREVIATIONS

A. Association Abbreviations:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAIEE	American Institute of Electrical and Electronics Engineers
AAMA	Architectural Aluminum Manufacturers Association
AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
ADC	Air Diffusion Council
AGA	American Gas Association
AGC	Associated General Contractors
AI	Asphalt Institute
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
AMCA	Air Moving and Conditioning Association, Inc.
ANSI	American National Standards Institute
APA	American Plywood Association
APWA	American Public Works Association
AREMA.	American Railway Engineering and Maintenance of Way Association
ARI	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPB	American Wood Preservers Bureau

AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BNSF	Burlington Northern & Santa Fe Railway
BWC	Bridge Welding Code
BWS	Bridge Worker Safety
Caltrans	California Department of Transportation
CBM	Certified Ballast Manufacturers
CCR	California Code of Regulations (formerly California Administrative Code)
CLFMI	Chain Link Fence Manufacturers Institute
CISPI	Cast-Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
CS	Commercial Standard, US Department of Commerce
CTIOA	Ceramic Tile Institute of America
DHI	Door and Hardware Institute
DOD	Department of Defense (leading symbol)
ETL	Electrical Testing Laboratories
Fed Spec	Federal Specification or Standard
FGMA	Flat Glass Marketing Association
FHWA	Federal Highway Administration
FIA	Factory Insurance Association
FM	Factory Mutual
FRA	Federal Railway Administration
FS	Federal Specifications
FTA	Federal Transit Authority
GA	Gypsum Association
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
ISO	International Standards Organization
MIA	Masonry Institute of America
MIL	Military Specification or Standard (leading symbol)
MLMA	Metal Lath Manufacturers Association
ML/SFA	Metal Lath/Steel Framing Association
MS	Military Specifications
NBS	National Bureau of Standards (now NIST, q.v.)
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFC	National Fire Code
NFPA	National Fire Protection Association

NIST	National Institute of Standards and Technology (formerly NBS, q.v.)
NLMA	National Lumber Manufacturers Association
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PCA	Portland cement Association
PS	Product Standard, US Department of Commerce
RIS	Redwood Inspection Service
SAE	Society of Automotive Engineers
SDI	Steel Deck Institute
SDI	Steel Door Institute
SFM	State Fire Marshal
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPR	Simplified Practice Recommendations, U.S. Dept. of Commerce
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications and Plans for Public Works Construction
TCA	Tile Council of America
UBC	Uniform Building Code
UFAS	Uniform Federal Accessibility Standards
UL	Underwriters' Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WWPA	Western Wood Products Association

B. Railroad, Agency, and Organization Abbreviations:

ACTA	Alameda Corridor Transportation Authority
BNSF	Burlington Northern Santa Fe Railway
LACMTA or Metro	Los Angeles County Metropolitan Transportation Authority
NCTD	North County Transit District
OCTA	Orange County Transportation Authority
RCTC	Riverside County Transportation Commission
SBCTA	San Bernardino County Transportation Authority
SCRRA	Southern California Regional Rail Authority
SDNR	San Diego Northern Railway
UP	Union Pacific Railroad
VCTC	Ventura County Transportation Authority

C. Text Abbreviations:

AL	Allowance
AMP or amp	Ampere
AWG	American Wire Gage
CF	Cubic foot or feet
CFM or cfm	Cubic feet per minute
CY	Cubic Yard
EA	Each
FPM or fpm	Feet per minute
FPS or fps	Feet per second
Ft. or '	Feet
GPM or gpm	Gallons per minute
in. or "	Inches
Kip or kip	thousand pounds
Ksi or ksi	thousand pounds per square inch
Ksf or ksf	thousand pounds per square foot
KV or kV	Kilovolt
KVA or kva	Kilovolt amperes
KW or kW	Kilowatt
KWH or kwh	Kilowatt hour
LBS	Pounds
LF or lf	linear foot or feet
LS	Lump Sum
MPH or mph	Miles per hour
PCF or pcf	Pounds per cubic foot
PSF or psf	Pounds per square foot
PSI or psi	Pounds per square inch
SF or sf	Square foot or feet
SY or sy	Square yard
TF	Track Feet
TON	Ton

1.4 REFERENCE STANDARDS

- A. For products or workmanship specified by association, trade, or Federal Standards, the Contractor shall comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. The Contractor shall conform to reference standards by date of issue current as of date of Agreement between the Authority and the Contractor.

- C. The Contractor shall maintain the latest copy of applicable sections of standards at jobsite during submittals, planning, and progress of specific Work, until substantial completion, and shall make the standards available for Engineer's use upon request.
- D. Should specified Reference Standards (those standards listed in the Schedule of References in addition to those codes and regulations specified elsewhere in the Specifications) conflict with the Contract Documents, the Contractor shall request clarification from the Authority before proceeding. If conflict exists, the Specification as determined by the Authority shall apply.

1.5 SCHEDULE OF REFERENCES

- A. AAR Association of American Railroads
- B. ACI American Concrete Institute
- C. AGC Association of General Contractors
- D. ANSI American National Standards Institute
- E. AREMA American Railway Engineering and Maintenance-of-Way Association (Formerly AREA - American Railway Engineering Association) All AREA standards and Manuals not superseded by AREMA standards will remain in effect.
- F. ASTM American Society for Testing and Materials
- G. AWPAA American Wood-Preservers' Association
- H. CALOSHA California Office of Safety and Health Administration
- I. CALTRANS State of California Department of Transportation Standard Specifications and Standard Plans
- J. CA MUTCD California Manual on Uniform Traffic Control Devices
- K. CPUC California Public Utilities Commission General Orders
- L. CRSI Concrete Reinforcing Steel Institute
- M. FHWA Federal Highway Administration
- N. FRA Federal Railroad Administration
- O. MSHA Mine Safety and Health Administration
- P. NRMCA National Ready Mixed Concrete Association
- Q. OSHA Office of Safety and Health Administration

R.	RTA	Railway Tie Association
S.	SCRRA	Southern California Regional Rail Authority – SCRRA Track Maintenance and Engineering Instructions, SCRRA Engineering Standard Drawings, SCRRA Excavation Support Guidelines, SCRRA Temporary Traffic Control Guidelines, SCRRA Highway-Rail Grade Crossings Recommended Design Practices and Standards Manual, SCRRA Safety Regulations, and SCRRA Right of Way Encroachment Process and associated requirements and agreements.
T.	SSPWC	Standard Specifications for Public Works Construction
U.	USDOT	United States Department of Transportation

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 11 15

**SECTION 01 11 16
WORK BY SCRRA**

PART 1 – GENERAL

1.1 SUMMARY

This section describes the SCRRA labor (and SCRRA contracted labor) provided by the Contractor through the SCRRA right-of-entry permitting process to support the Contractor's construction operations. An allowance is furnished through the Contract for reimbursement of SCRRA fees for permit processing, Contractor safety training, railroad signal mark-out, and railroad flagging services (EICs). The Allowance provides for the services of one (1) EIC for up to 10 hours per day for up to 260 days and one (1) EIC for up to 10 hours per day for up to 130 days (for a total of 390 EIC 10-hour days at \$1,750 per day for a total EIC allowance of \$682,500) at no cost to the Contractor. Payment for SCRRA EIC fees in excess of this allowance shall be considered incidental to performance of work requiring these SCRRA services; and shall be the responsibility of the Contractor at no expense to OCTA. It is the Contractor's responsibility to furnish any and all other labor, materials, and equipment required to complete the work set forth in the Contract Documents, specifically excepting those Authority furnished resources described elsewhere and in the Specifications. Authority furnished materials and equipment is shown in Section 01 64 00, SCRRA Furnished Material & Equipment.

1.2 RELATED REQUIREMENTS

- A. Section 01 14 00, Work Restrictions
- B. Section 01 14 16, Coordination with SCRRA
- C. Section 01 64 00, SCRRA Furnished Material and Equipment

1.3 REFERENCE STANDARDS

- A. FRA: Federal Railroad Administration, 49 CFR Part 213, Track Safety Standards, and 49 CFR Part 214, Railroad Workplace Safety
- B. SCRRA: *SCRRA Roadway Worker On-Track Safety Instructions*

1.4 SCRRA EMPLOYEE IN CHARGE (EIC) ALLOWANCE

- A. The Contractor shall be responsible for completing the SCRRA right-of-entry encroachment permit process prior to entry into the OCTA right-of-way. This includes conforming to the requirements of SCRRA Right of Way Encroachment Process instructions, associated permit documents and agreements (available on the Metrolink website), and completion (and maintaining current certification) of the Metrolink Contractor Safety Training Program for any employee entering the OCTA right-of-way.
- B. SCRRA will provide an Employee in Charge (EIC), and 49 CFR Part 213.7 qualified personnel to monitor the interface between the Contractor's work and train movements and facilitate temporary rearrangements or tracks out of service.

The Contractor shall include requests for an EIC in his SSWP, which shall be prepared and submitted in accordance with Section 01 14 00 which identifies "Work Restrictions," the Contractor's Responsibilities and Key Definitions for "Operating Envelope," "Operating System," and "Work Windows" to determine the conditions for which EICs are utilized. The allocation of the number of SCRRA EICs is subject to the following:

1. Roadway Worker Protection (RWP)
 - a. RWP within the Operating Envelope: SCRRA will furnish an Employee-in-Charge (EIC) for 10 hours per day to provide RWP against the movement of any passenger/commuter, freight, work, and all other types of trains and on-track equipment.
 - b. The maximum shift duration for one EIC is 10 hours. Under "Form B" protection, the 10 hours includes 8 hours of the Contractor work and 2 hours to install and remove Form B flags. The Contractor shall not be allowed to work within the Operating Envelope during the 2-hour flag installation and removal. The minimum shift duration for flagging services is 4 hours. If the Contractor desires to perform activities requiring an EIC that are longer than 10 hours' duration, then the Contractor shall coordinate with SCRRA to schedule multiple EICs for said Work.
 - c. The Contractor shall schedule and establish its work limits within the range of vision of the assigned EIC. If the Contractor's requested work limits are outside the normal range of vision of the EIC due to curves, topography, or distance, the Contractor shall furnish one or more RWP-Qualified Watchmen suitable to the EIC, at the Contractor's sole cost. The suitability of the Contractor's Qualified Watchman shall be at the sole discretion of the EIC. The Contractor shall include in the SSWP both SCRRA furnished EIC and the Contractor's own Watchman.
 - d. RWP outside the Operating Envelope: SCRRA will furnish an EIC or a Watchman to provide RWP for the Contractor's construction operations that are outside of the Operating Envelope, but within the railroad right-of-way.
 - e. The Authority does not expressly or by implication agree, warrant, or guarantee that the Contractor's request for additional EICs will be approved, or that the resources will be available.

1.5 SCRRA EMPLOYEE IN CHARGE (EIC) ALLOWANCE

- A. Track Stabilization Prior to Placing Track Back in Service: Contractor to notify both the OCTA Project Manager and Resident Engineer at least 30 days prior to placing existing track that's been shifted and/or new track back in service.

1. Upon notification of work, OCTA will arrange with SCRRA for a track stabilization machine to be delivered to the project site that will stabilize recently placed or shifted track prior to the track being placed back in service. SCRRA will utilize its own equipment to perform the stated services and will contract with a third party to perform such services.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION

3.1 ARRANGEMENTS FOR EIC

- A. As further described in Section 01 14 00, Work Restrictions, the Contractor shall arrange for an SCRRA furnished EIC based upon the approved SSWP.
- B. Contractor shall provide notice of required EIC's to be provided by SCRRA two weeks in advance of the Work.

3.2 ARRANGEMENTS FOR SCRRA FURNISHED LABOR

- A. Track Stabilization Prior to Placing Track Back in Service: Contractor to notify both the OCTA Project Manager and Resident Engineer at least 30 days prior to placing existing track that's been shifted and/or new track back in service.
 1. Contractor will need to coordinate directly with OCTA's Project Manager and Resident Engineer on determining the necessary work window(s) and duration of work required to perform track stabilization services.

PART 4 – MEASUREMENT AND PAYMENT

1.01 MEASUREMENT

- A. SCRRA Permitting, Training, and EIC will be measured by the unit or fraction thereof completed in accordance with the Contract Documents and as expended as direct costs to SCRRA. Invoice accounting from SCRRA for current status of SCRRA costs expended from the Contractor's deposit to SCRRA for work under this Contract will be used as the basis for this measurement. SCRRA work to be provided includes processing of Contractor's railroad right-of-way encroachment permits, providing SCRRA Contractor Safety Training, providing SCRRA signal mark-outs, and providing SCRRA railroad flagging services (EICs).

1.02 PAYMENT

- A. SCRRA Permitting, Training, and EIC will be reimbursed to the Contractor for costs expended by the Contractor to SCRRA up to the contract price as shown on the Schedule of Quantities and Prices.
- B. Any SCRRA EIC services required by the Contractor in excess of the cost listed in the Schedule of Quantities and Prices shall be considered incidental to Contract

work items requiring flagging services. The Contractor shall be responsible for payment to SCRRA for the additional flagging services at no cost to the Agency.

END OF SECTION 01 11 16

**SECTION 01 14 00
WORK RESTRICTIONS**

PART 1 – GENERAL

1.1 SUMMARY

This Section outlines requirements and provisions for rules and hours of operation for the Contractor execution of the Work under this Contract.

1.2 RELATED REQUIREMENTS

- A. Section 01 11 16, Work by SCRRA
- B. Section 01 14 16, Coordination with SCRRA
- C. Section 01 35 15, Maintenance and Protection of Railroad Traffic
- D. Section 01 35 23, OCTA Worksite Safety Requirements

1.3 REFERENCE STANDARDS

Comply with the provisions of all local, State, and Federal codes, specifications, standards, industry recommended practices and Authority policy including:

- A. OCTA: Level 3 Health, Safety, and Environmental Specifications
- B. SSPWC: Standard Specifications for Public Works Construction
- C. FRA: Federal Railroad Administration Track Safety Standards, 49 CFR Part 214
- D. SCRRA: Track Maintenance and Engineering Instructions and On-Track Safety Manual, Excavation Support Guidelines, Engineering Standard Plans, SCRRA Right-of-Way Encroachment Process.
- E. Caltrans: Trenching and Shoring Manual
- F. CPUC: California Public Utilities Commission General Orders
- G. CALOSHA: California Occupational Safety and Health Administration regulations
- H. OSHA: Federal Occupational Safety and Health Administration regulations

1.4 KEY DEFINITIONS

Some key definitions that pertain to this Section are listed below. Refer to Section 01 11 15 and the Contract General Conditions for more key definitions.

- A. Operating Envelope – A well-defined area determined by the Authority in which Work must be performed with permission.

- B. Operating System – The components of an operating system all exist in order to make the different elements of the system work together.
- C. Work Window – A well-defined period of time in which Work must be performed, with specific start and completion deadlines.
- D. Site-Specific Work Plan (SSWP) – See below

1.5 SUBMITTALS

Provide submittals such as the SSWP in accordance with Section 01 33 00, Submittal Procedures.

1.6 PROJECT COORDINATION

- A. Cooperate with the SCRRA in all matters requiring coordination for execution of the Work including eliminating or minimizing to the greatest extent possible interference and delays to all scheduled passenger and freight trains movements. Information regarding train movements is available to the Contractor, upon request. A sample activity report of train movements for one week may be obtained from SCRRA.
- B. The Contractor shall inform and gain SCRRA approval of any night or weekend Work per the requirements of the SCRRA right-of-entry/encroachment permit requirements and the Contract Specification; but not less than two weeks prior to the Work, unless otherwise approved in writing by SCRRA and OCTA.
- C. The Authority may require the Contractor to finish a section on which Work is in progress before Work is started on any additional section.
- D. Authority and SCRRA will be conducting work on other contracts at the same time as the Contractor's Work. The Contractor shall coordinate with other contractors and use the same Form B used by other contractors.
- E. Adjacent project coordination: Work by Caltrans - Interstate 5 widening between SR-73 and Oso Creek including reconstruction of Avery Parkway interchange. Work is anticipated to begin in mid-2019 and continue for a duration of at least 4 years. Contractor shall anticipate potential freeway access disruptions to the Project location. Contractor shall plan alternative freeway access accordingly at no cost to OCTA.

1.7 CONTRACTOR'S RESPONSIBILITY

- A. The Contractor shall perform Work in accordance with the Contract and all applicable codes, ordinances, rules, regulations, orders, and other legal requirements of governmental bodies and public agencies having jurisdiction, including the Authority and SCRRA.
- B. Any damage caused by the Contractor to rails, ties, structures, embankment, third-party property, signal and communications equipment, or any other facilities shall

be repaired at the Contractor's expense to a condition equal to or better than the condition prior to the Contractor entry, and as accepted by the Authority. At the sole discretion of the Authority, the Authority may direct that repairs be performed by other Contractors. The charges for such repairs shall be deducted from the Contractor's payment due under this Contract.

- C. Items shown on the plans to be protected in place shall be protected in place in accordance with SSPWC, Protection and Restoration of Existing Improvements, at no additional cost to the Authority.
- D. The Contractor shall not perform any work on or adjacent to the Main Track without prior written approval of the Authority. Perform work within the Operating Envelope or which affects the Operating System only after submitting a SSWP and receiving written approval of the SSWP from the Authority.
- E. Furnish all labor, materials, equipment and other incidentals as required to perform and complete the Work within the Work Windows, in accordance with the approved schedule in the SSWP.

1.8 CONTRACTOR USE OF WORKSITE

- A. The Contractor shall coordinate access, use, and preparation of facilities adjacent to the Project areas with owners and various public agencies. Coordination shall include but not be limited to the following:
 - 1. Construction staging plans included in the Contract Drawings represent an Authority approved work plan. The Contractor may submit an alternative staging plan for review by the Authority. The alternative staging plan must be accepted by the Authority prior to the Contractor undertaking any Work in accordance with the alternative staging plans.
 - 2. Contractor shall be responsible for obtaining encroachment permits from the City of San Juan Capistrano, the City of Laguna Niguel, Caltrans, the County of Orange, and other agencies and required to perform the Contract Work.
 - 3. Fences, walls, signs, and gates affected by the Contractor's access to the Right of Way shall be restored to full serviceability prior to demobilization.
- B. Rights-of-Way: All Contract work shall be performed from within OCTA right-of-way and the adjacent Cities roadway right-of-way unless stated otherwise within the Contract Drawings.
- C. Property Rights in Land and Improvements: The Contractor shall make no arrangements with any person or entity to permit occupancy or use of any land, structure, or building within the limits of the Work, for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the Authority and any third-party owner, former owner, or tenant of such land, structure, or buildings.
- D. The Contractor shall confine Worksite operations to areas permitted by law, ordinances, permits, and the Contract.

- E. The Contractor shall consider the safety of the Work, train operations personnel, and property on and adjacent to the Worksite when determining amount, location, movement, and use of materials and equipment on Worksite. The Contractor shall not load Worksite with excessive amounts of material, equipment, or other items that have the potential to interfere with the Work or with train operations. The Contractor shall relocate stored products, equipment, and materials that interfere with train operations, public and private utilities, or visibility at railroad crossings. Materials and equipment shall not be so piled, stored, or parked when not in use.
- F. The Contractor shall adhere to the noise levels and hours of Local Ordinances, except as provided and approved in the SSWP.
- G. The Contractor shall be responsible for coordinating its Work with all property owners affected by the Contractor's operations. The Contractor shall protect the general public and residents within Worksite boundaries from Work-related activities, and shall not unnecessarily inconvenience those persons by Work activities.
- H. The Contractor shall submit the proposed location of staging areas for the Authority's approval.
- I. As necessary, the Contractor will preserve and relocate railroad signs (mileposts, speed limits, "no trespassing" signs, station signs, crossing whistle signs, etc.) during the full period of construction. Signs shall be maintained during construction or restored upon completion of the Work, in accordance with the requirements of Section 01 35 23, OCTA Site Safety Requirements. The Contractor shall protect at-grade crossing warning signs and shall coordinate the schedule for relocation or revision of Crossing warning signs and signals by Others, if necessary.
- J. The Contractor will preserve drainage facilities throughout the duration of the Work so that there is no pending or accumulation of water in any Worksite area, there is no flow of water diverted toward the track or out of normal drainage channels, and all culvert inlets and outlets are kept free of debris.
- K. Except where specifically designated in the design of the Work, the Contractor will preserve the ability of maintenance Contractors to access the Right of Way using highway vehicles. If the original right-of-way roads become blocked with the Contractor's materials, equipment, or excavations or spoils, alternate routes must be arranged.
- L. The Contractor will preserve existing right-of-way fences and walls, and will replace any such fences or walls damaged during the work to the satisfaction of the owner(s) of the fences or walls.

1.9 WORK ZONE LIMITATIONS OF SITE

- A. In addition to site utilization limitations and requirements indicated on Contract Documents, the Contractor shall coordinate available space with the Authority and

other entities needing access and space so as to produce the best overall efficiency in performance of the total Work of the Project.

- B. The Contractor shall schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site, with minimal disruption to the adjoining property owners, use of public facilities, and SCRRA operations. Pick-up and delivery requiring vehicular traffic adjacent to tracks shall be performed only during normal working hours, and as approved by the Authority.

1.10 WORK WINDOWS

- A. The time limits for all types of Work Windows include the time for the SCRRA Contractor to stabilize track, restore and test the signal and communication system, and perform PTC testing and verification before the operation of trains; therefore, the full duration of the Work Window is not available for the use of the Contractor. The SSWP shall designate both the time at which the Contractor and SCRRA's track stabilizing contractor must make the track ready (in full compliance with the FRA Track Safety Standards and with the SCRRA Track Maintenance and Engineering Instructions) for the passage of trains, and the remaining time within the Work Window that will be required for the signal and communications system restoration. The SSWP shall be prepared and submitted in accordance with the Work Window requirements shown in the Project Specifications.
- B. The Contractor's Railroad Construction Project Manager or the Railroad Track Construction Manager shall personally inspect the track within the Work Window prior to the restoration of train service; confirm with SCRRA that the track is in full compliance with the above standards and establish the speed at which trains will operate upon restoration of the service.
- C. The Contractor does not have exclusive rights to the Work Windows. The Contractor may have to share these Work Windows with other Contractors and SCRRA's maintenance forces as described in the General Conditions.
- D. The Contractor shall not perform any fieldwork during three annual designated holidays. Fieldwork shall not include receipt or delivery of materials or equipment or work performed in field offices. The designated holidays are Labor Day, Thanksgiving Day and Christmas Day.

During these periods, SCRRA will not have the resources (labor and equipment) or construction management personnel to issue track bulletins or to support, inspect, or oversee the Contractor's Work.

1.11 SSWP – GENERAL CONTRACTOR REQUIREMENTS

- A. All work with the potential to impede the normal functioning of any part of the Operating System shall include a detailed SSWP showing schedule of events, indicating the expected hourly progress of each activity that has duration of one hour or longer. The schedule shall include a time at which each activity planned under the SSWP and the requested Work Window will be completed, and the total duration of all the construction activities shall be less than the approved Work Window. Failure of the Contractor to complete the scheduled activities by the

planned time or to put in place an approved contingency plan may adversely affect the operations of scheduled trains.

- B. The Contractor's SSWP shall conform to the requirements detailed in the SCRRA Site Specific Work Plan Scope. The Contractor shall submit a completed copy of SCRRA's SSWP Checklist. Both of these documents are included in the link "Site Specific Work Plan (SSWP)" located online at <https://metrolinktrains.com/about/agency/engineering--construction/> in the Right-Of-Way Encroachments section.
- C. The SSWP shall include at minimum the information specified below.
 - 1. The SSWP shall include scope, brief schedule, location, equipment, material and staging, schedule, haul routes, safety plan, contingency plan, worksite representative, emergency response plan, excavation plan, boring and jacking plan, drilling and pile driving plan, falsework plan, temporary traffic control plan, pedestrian ADA access, and bicycle route detour.
 - 2. All activities necessary to perform construction activities within the Operating Envelope, including use of stations, tracks, signals, proposed storage areas and any other railroad facility.
 - 3. A description of any proposed changes in the Operating System between start and finish of the work, including any requested Work Windows.
 - 4. A schedule of the work, showing each activity and where and how it affects normal operation of the Operating System. This schedule shall integrate and allow for the necessary work of the Signal and Communication forces. Each activity in the plan shall include all labor, materials, and equipment required to complete the activity within the SCRRA allotted time period. The Contractor shall identify on the schedule all SCRRA furnished labor, equipment and materials.
 - 5. The Contractor shall have SCRRA approved Contingency plans for putting the Operating System back in operation in case of an emergency, or in case the Contractor fails to perform and complete the work on time. The contingency plans shall address the various stages of activities necessary to restore the System.
 - 6. List all of the approved proposed work plans to be performed under the SSWP, and provide the name(s) and number(s) of the Contractor's supervisor(s) in charge of the SSWP tasks.
- C. The SSWPs must be of sufficient detail, clarity, and organization to permit easy review and approval by the Authority and SCRRA before the proposed work is performed. The SSWP shall be submitted and approved prior to starting work. The Contractor shall anticipate obtaining approvals from the Authority and SCRRA as follows:
 - 1. At least 14 calendar days prior to start of the work within the Operating Envelope for work other than signal or third-party activity.

2. At least 30 calendar days prior to the start of work for work involving signal or third-party installation.
- D. The Authority may request explanations and changes to the SSWP to conform the SSWP to the requirements of the Contract Documents. If the SSWP is not acceptable, the Contractor shall revise the SSWP to make it acceptable. The Contractor is responsible for submitting a revised SSWP with sufficient time for to allow seven days for OCTA and SCRRA to perform a review of the revised SSWP and the Contractor to correctly address the comments and resubmit the revised SSWP at least seven days in advance of any work that affects the Operating System.
- E. The Contractor will be informed if the SSWP is acceptable not less than seven calendar days prior to the scheduled start of work within the Operating Envelope. Once the plan is accepted, the Contractor shall assemble the resources necessary to perform the work represented by the SSWP, so that necessary resources are available one calendar day before the work is to be accomplished, thereby demonstrating to the Authority the readiness of the Contractor to perform the Work. At this time, the Authority will make a final decision as to whether or not the Work is to proceed as planned or be canceled.

1.12 SSWP – SPECIAL CONTRACTOR REQUIREMENTS

- A. The Contractor's construction activities that affect the Operating System including tracks, grade crossings, bridges, stations, public highways, and related facilities in active service shall be subject to the following requirements:
1. The Contractor shall provide sufficient personnel, equipment, materials, and all other resources necessary to return the affected facilities to full service upon the conclusion of the approved "Work Window."
 2. The Contractor shall perform the Work expeditiously and continuously, with no gaps or breaks in the work activities or substantive reductions in the labor force, equipment, and materials necessary to construct, reconstruct, or repair the affected facility to full service upon the conclusion of the approved "Work Window."
 3. The size and scope of the affected facilities within the Operating System, (e.g., tracks, bridges) removed shall not exceed the Contractor's capacity to conservatively return the facility to the required level of service within the approved "Work Window."
 4. The Contractor shall take all appropriate and reasonable measures to perform work activities and tasks located outside of the Operating System to effectively reduce the amount of time and effort required during the approved "Work Window." These appropriate and reasonable measures shall include but not be limited to preconstruction and preassembly of track turnouts, panels, and pre-staging of track materials and equipment at work sites.

5. Backup or Emergency Plan: The Contractor shall include in the SSWP a "backup or contingency" plan and the necessary resources (labor, equipment, materials, etc.) to assure the Authority that all appropriate and reasonable measures are available for the return of the affected facility to full service upon conclusion of the approved "Work Window."
 6. When not in use, materials and equipment shall not be piled, stored, or parked, closer than 20 feet horizontally from the centerline of the nearest operating track, or within 250 feet of an open grade crossing.
 7. The placement of piles, forms, braces, shoring, false work, excavation, or other construction supports shall be in accordance with the current SCRRA shoring requirements. Temporary overhead structures shall be a minimum of 22 feet 6 inches above top of rail in accordance with CPUC requirements. Temporary overhead structures less than 22 feet 6 inches above top of rail must have an exemption, in advance from the CPUC, and approval of SCRRA.
 8. In general, open excavation areas shall be protected per OSHA regulations and by walkways with handrails no closer than 8 feet 6 inches horizontally from the nearest operating track, if tangent, and 9 feet 6 inches if the track is curved. Furthermore, the walkways shall be no less than 3 feet wide unless otherwise shown on the Contract Drawings and approved as a Design Variance by SCRRA), and the handrails shall be no less than 3.5 feet high and capable of withstanding 250 pounds of lateral force.
- C. Specifically, with regard to track construction, reconstruction, and rehabilitation activities involving active tracks, the Contractor shall be subject to the following requirements:
1. Track construction and reconstruction activities involving main track Operating System shall be limited to what the Contractor could reasonably accommodate, given the Contractor's capability and SCRRA furnished resources. The Contractor must fully complete all work within an approved SSWP segment, including all spiking, anchoring, surfacing to final line and grade, dynamic stabilizing, distressing, and welding before initiating Work on another location within the Project limits.
 2. All turnouts installed on active tracks shall be constructed and installed as panels. All turnout panels shall be fully complete and inspected and approved for installation by the Authority and SCRRA two weeks prior to the scheduled installation.
 3. At all times, the Contractor shall maintain an adequate quantity of ballast to finish the next two weeks of track construction activities requiring ballast. This stockpile shall be provided as approved in the Contractor staging plan so that it is in close proximity to the Work site, or in rail cars under load.
 4. The Contractor shall use or make arrangements to have a dynamic track stabilizer run on all new track or tracks that have been significantly disturbed (i.e., rail, ties or ballast removed).

1.13 TRACK BACK IN SERVICE

- A. At the end of each Work Window shown in the approved SSWP, the Contractor shall return all tracks to Class 5 as defined by FRA guidelines. If the track does not meet Class 5 specifications, a slow order (Form A) will be issued. It is the intent of the Contract Documents that Main Line Slow Orders only be allowed on a very limited basis. See Section 01 35 15, Maintenance and Protection of Railroad Traffic, or the Specifications for the number of allowed speed restrictions.
- B. The time of train delays caused by the Contractor's operation will be calculated as in Section 01 35 15, Maintenance and Protection of Railroad Traffic. The Contractor shall include all slow order (Form A) requests in his proposed SSWP. All slow orders shall be subject to the approval of the SCRRA.
- C. SCRRA will require final inspection before train service can resume on tracks previously taken out of service.
- D. Allowing train service on reconstructed or shifted track at the end of each approved Work Window is not considered beneficial occupancy or final acceptance. The Contractor shall remain fully responsible for any loss or damage arising from the Contractor's activities under this Contract.
- E. If further adjustments or repairs are required to provide the appropriate track standards as defined herein, the Contractor shall, immediately perform the necessary work at no additional cost to the Authority. In the event the Contractor is not available to make the appropriate adjustments or repairs, SCRRA Maintenance Forces will complete the Work and the Contractor will be responsible for all associated direct and indirect costs, as well as any time associated with such adjustments or repairs.
- F. Rail Service Interruptions shall be considered an unauthorized delay to the SCRRA's train operations, and Rail Service Interruption Assessments will be made in accordance with the Contract when any of the following occurs:
 - 1. The Contractor's construction operations exceed the approved Work Window time limits specified in an approved SSWP.
 - 2. The Contractor exceeds the total allowable Slow Order Delay Time described in Section 01 35 15, Maintenance and Protection of Railroad Traffic.
 - 3. The Contractor exceeds the maximum number of Slow Orders as prescribed in Section 01 35 15, Maintenance and Protection of Railroad Traffic.
 - 4. The Contractor's construction operations working under an approved Form B Work Window result in the stoppage of a scheduled train. In this case, the delay shall be calculated from the time the train is stopped at the working limits until the train has completely passed through the working limits.

5. The Contractor has not restored the track to Class 5 standards.

1.14 INSPECTION PRIOR TO PLACING TRACK BACK IN SERVICE

- A. The Contractor shall have qualified personnel at each distinct work site to ensure that all tracks are constructed to the required specifications. The Contractor shall perform a track inspection and determine its classification and conformance with the approved SSWP.
- B. The Authority and SCRRA shall furnish staff for the final inspection required in order to place track and bridge facilities in service for the SCRRA's use at the end of the Work Window.
- C. The Contractor shall schedule his operations to allow for the necessary inspection and any remedial work required in order to place the tracks and signal system back in service at the prescribed time.
- D. If the track does not meet Class 5 standards due to track or bridge construction irregularities (e.g. gage, distressing, cross level, surface, profile, alignment, improper CWR temperature, loose fasteners, missing components), the track will be slow ordered to the next lower class with which it complies (according to the FRA guidelines).
- E. The SCRRA reserves the right to have its Maintenance Contractor perform remedial work to return the track to Class 5. In addition to the assessment cost noted in the paragraphs above, the costs to perform the remedial work will be deducted from the Contractor's progress payment.
- F. No additional time will be allowed for completion of the work in the event that the SCRRA is required to perform the remedial work to return the track to Class 5.

1.15 WORKS BY OTHERS

The Contractor may be required to interface with other contractors, utility companies, public agencies, private companies, and railroad forces. This interface shall be provided in accordance with the General Conditions and Section 01 14 16, Coordination with SCRRA. In addition, routine or emergency maintenance of existing SCRRA facilities may occur during the progress of the Work. Such activities shall have priority and the Contractor shall make efforts to minimize interference where possible.

1.16 RULES FOR WORKING WITHIN RIGHT-OF-WAY

- A. The Contractor's and Subcontractor's employees must be qualified under the current SCRRA Roadway Worker Policies and 49 CFR 214, Railroad Workplace Safety, before being permitted to work on the right-of-way.
- B. The SCRRA EIC will conduct job briefings as required under the Roadway Worker Policy Manual at the following intervals:
 - 1. Start of every work shift

2. Every change of conditions affecting Roadway Worker safety during a work shift
- C. The Contractor shall immediately execute all verbal and written directives of the Authority or the SCRRA EIC.
- E. Refer to Section 01 14 16, Coordination with SCRRA, for rules governing Work adjacent to active tracks.
- F. Unless otherwise specified in the Specifications, SCRRA EIC services are required for all Work on railroad right-of-way.
- G. Refer to Section 01 35 23, OCTA Worksite Safety Requirements, and the SCRRA Roadway Worker Protection Regulations, incorporated as Section 214.3 of the SCRRA *On-Track Safety Instructions*, for any clarifications or additional requirements.

1.17 HOURS OF OPERATIONS

- A. The Contractor will be allotted up to four (4) four 7½-hour Exclusive Track Work Windows, (4) 24-hour Exclusive Track Work Windows, one (1) 48-hour Exclusive Track Work Window on specific weekends in conjunction with the North County Transit District (NCTD), and one (1) 51-hour Exclusive Track Work Window. Weekday Form B Windows will be made available to the Contractor where possible, unless the requested work window conflicts with previously scheduled SCRRA construction & maintenance operations, special events, or emergency repairs.
- B. Refer to Section 4.4 of SCRRA Form 37 – Rules and Requirement for Construction on SCRRA Right-of-Way for procedures for Requesting Work Windows
- C. Work windows that apply to this project are as follows:
 1. Monday through Friday:
 - a. Form B available 4:30 AM to 9 PM, Monday through Thursday, and 4:30 AM to 11:00 PM on Friday.
 - b. No track access will be allowed on Monday mornings from 2:30 AM to 4:30 AM. This period will not be available for track access regardless of signal testing work actually in progress at the work site.
 2. Saturday (7½-hour Period Exclusive Track Work Window)
 - a. Four (4) 7½-hour Exclusive Track Work Windows will be available during the contract duration, from 10:30 PM Saturday night to 6:00 AM Sunday morning.
 3. 24-hour Period Exclusive Track Work Window

- a. Four (4) 24-hour Track Work Windows will be available during the contract duration, from Saturday 10:30 PM to Sunday 10:30 PM. These 24-hour windows are available on specific weekends in conjunction with work in San Diego County and starting the first weekend of April to the last weekend of September.
 1. OCTA will provide the Contractor with an updated schedule of the planned dates for the 24-hour windows in conjunction with work in San Diego County.
 2. The Contractor shall notify OCTA three weeks in advance, requesting use of the 24-hour window.
 3. OCTA will coordinate with SCRRA and NCTD to verify that they are establishing the 24-hour window as planned; and will notify the Contractor of availability. If NCTD cancels the planned 24-hour window, OCTA will notify the Contractor as early as practical (but not less than 48 hours before the scheduled 24-hour window) and the Contractor shall reschedule the work and no additional cost to OCTA.
 - b. The following weekends are expected to be established by NCTD for the work in San Diego:
 1. In 2018: October 13th and 14th, October 20th and 21st
 2. In 2019: January 12th and 13th, January 26th and 27th, March 2nd and 3rd, March 9th and 10th, October 19th and 20th, October 26th and 27th
 3. The above windows are subject to change.
4. 48-hour Period Exclusive Track Work Window
 - a. 48-hour Exclusive Track Work Windows are available on specific weekends in conjunction with work in San Diego County. The weekends expected to be established by NCTD in San Diego County are listed above in 3b.
 - b. The Contractor may use one weekend 48-hour Exclusive Track Work Windows, from Saturday 12:30 AM to Monday 12:30 AM on the dates established by NCTD.
 5. 51-hour Period Exclusive Track Work Window
 - a. A 51-hour Exclusive Track Work Window will be available for 1 weekend during the contract duration, from Friday 11:30 PM to Monday 2:30 AM. This 51-hour window is available starting the first weekend of April to the last weekend of September.
 6. Additional Requirements and Notes that pertain to work windows:

- a. SCRRA Commuter service begins at 4:05 AM each weekday.
- b. No construction work shall be performed during the following periods when Construction Management staff, or SCRRA furnished labor or equipment are not available:
 - 1. New Year's holiday
 - 2. Good Friday and Easter weekend
 - 3. Memorial Day weekend
 - 4. July 4th holiday and weekend (three-day weekend)
 - 5. Labor Day holiday and weekend
 - 6. Thanksgiving week and holiday weekend
 - 7. Christmas Eve, Christmas day, Christmas week
- c. 7½-hour, 24-hour, 48-hour and 51-hour Exclusive Track Work Windows and a combination of a 24-hour, 48-hour and 51-hour windows will not be allowed on consecutive weekends.
- d. Track Work Windows will not be allowed on the day of the following special events unless otherwise allowed by the Authority:
 - 1. Los Angeles Rams Football Trains (August through January - refer to LA Rams Home Game Schedule for Dates)
 - 2. Lunar New Year (Feb 9th 2019, Jan 25th 2020)
 - 3. Swallows Day Parade Festival (typically the 4th Saturday and Sunday in March)
 - 4. Angels Home Game Opener
 - 5. Padres Home Game Opener
 - 6. Angels vs. Padres Games
 - 7. Comic-Con (typically in July) in San Diego
 - 8. Del Mar Opening Weekend in Solana Beach/Del Mar
 - 9. Fullerton Railroad Days – typically the first weekend of May
- e. SCRRA contract forces performing signal installations as part of signal cutovers will require Exclusive Track Work Windows. The Contractor shall coordinate with the signal related Exclusive Track Work Windows and allow for at least 3 weeks after the cutover

window before working within another Exclusive Track Work Window unless otherwise approved by SCRRA and the engineer.

- f. The Contractor shall make requests for all work windows in accordance with the latest version of SCRRA Form 37.
- g. The start time for Track Work Windows is an average start time dependent on location and train on-time performance and may vary by 30 minutes either direction.
- h. The Contractor shall allow sufficient time within the Exclusive Track Work Window period to allow for Ballast Stabilizing and signal work activities like point protection and signal wire bonding by SCRRA contract forces. Ballast stabilizing typically needs 1 hour to be reserved within the window. Signal forces typically need 6 hours when special trackwork installation is involved.

D. Rancho Capistrano Private Grade Crossing Closure

- 1. The Contractor shall request work windows requiring partial or full closure of the Rancho Capistrano crossing at least three (3) weeks in advance. Requests shall be made in writing to the Agency's Resident Engineer, who will coordinate approval of the proposed work windows with the property owner (Saddleback Church).
- 2. Contractor shall assume that proposed roadway related work windows will be limited to the following hours:
 - a. Monday through Friday (nights) – 10:30 PM to 6:30 AM
 - b. Saturday through Sunday (nights) – 9PM to 6AM

However, the property owner has stated that they may consider allowing additional work window time depending upon scheduled activity at the Saddleback Church facility.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 14 00

**SECTION 01 14 16
COORDINATION WITH SCRRA**

PART 1 – GENERAL

1.1 SUMMARY

This Section outlines the requirements for coordination with the SCRRA and related railroads for Work performed on the railroad right-of-way.

1.2 RELATED REQUIREMENTS

- A. Section 01 11 16, Work by SCRRA
- B. Section 01 14 00, Work Restrictions
- C. Section 01 35 15, Maintenance and Protection of Railroad Traffic
- D. Section 01 35 23, OCTA Worksite Safety Requirements

1.3 REGULATIONS FOR WORKING WITHIN RAILROAD RIGHT-OF-WAY (ROW)

- A. Upon award of this Contract Work, the most current edition of each of the following publications shall apply to the Contractor's work. The Contractor shall comply with all requirements from the Railroad Operators, CPUC, FRA and all other governing entities. These requirements may include the following:

SCRRA	Safety and General Rules for All Employees
SCRRA	Roadway Worker Protection Regulations, Section 214.3 of the SCRRA On-Track Safety Manual
SCRRA	Bridge Worker Safety
SCRRA	Track Maintenance, Right-of-Way and Structures Engineering Instructions
SCRRA	Engineering Standards
SCRRA	Regulation Governing Contractors and Others Working on SCRRA Property
SCRRA	General Code of Operating Rules for Maintenance of Way
SCRRA	Current Timetable
SCRRA	Current Schedule of Trains
SCRRA	Form 37, Rules and Requirements for Construction on SCRRA Property

SCRRA	Excavation Support Guidelines
AMTRAK	Current Schedule of Trains
CPUC	General Orders 26D and 118
FRA	Track Safety Standards: Title 49 CFR 213
FRA	Roadway Worker Standards: Title 49 CFR 214.

- A. In addition, the Contractor shall comply with the most current edition of the *AREMA Manual for Railway Engineering* for standards of construction not fully explained by the above regulations or these Specifications. Possible conflicts between publications identified in this Section shall be brought to the attention of the SCRRA, who will make a determination as to the direction that the Contractor should follow.
- B. In the event additional Work is being performed by others, on or adjacent to the Worksite for this Contract, the Contractor shall coordinate the Work with other activities in order to avoid conflicts.

1.4 COORDINATION

- A. All Work within or adjacent to the Authority's Right-of-Way shall, at a minimum, meet the above regulations and be coordinated through the Authority. The Contractor shall cooperate and coordinate the Work as necessary in the most efficient manner for the execution and completion of the Work. If there is a conflict between SCRRA and other railroad's Rules and Regulations, the Contractor shall follow the SCRRA's direction as to which set of rules shall prevail. The Contractor shall coordinate its work so it does not interfere or otherwise delay the work performed by SCRRA's forces.
- B. Track will be used both for passenger and freight operations. The SCRRA dispatches all train traffic. The Contractor's Work shall be scheduled to provide minimal interference with all train traffic; in particular, Work will not be permitted to delay any trains. Requirements for slow orders through Work zones are contained elsewhere in these Specifications.
- C. The Contractor activities shall not delay any trains except as approved in advance by SCRRA.
- D. The Contractor should participate in the jobsite visit prior to submittal of bids to assess the level of train activity. Some schedule variations should be anticipated during the Project due to normal growth and train schedule refinement by SCRRA and other operators.
- E. SCRRA EIC will obtain track Authority directly from the SCRRA dispatcher. The Contractor shall not coordinate with the SCRRA dispatcher.
- F. Signal cutover work will be performed by SCRRA.

- G. The Contractor's work shall be coordinated with the Authority and SCRRA in accordance with Section 01 14 00, Work Restrictions, which establishes procedures and lead times required for SCRRA provided labor, including EIC.
- H. The Contractor must make arrangements to remove all on-track equipment from the Main Track in order to pass trains as specified in Section 01 14 00, Work Restrictions. The Contractor may not assume that its equipment can be placed or stored in spur tracks or sidings unless approved in advance by SCRRA.

1.5 GENERAL REQUIREMENTS

- A. The Contractor shall obtain permission in writing from the SCRRA for movement of equipment on track or across tracks at locations other than public crossings. Such permission may not necessarily be granted. If it is granted, the Contractor shall comply with any condition required such as, but not limited to, the bridging of rail and protection of ballast section. Damages to the track structure will be repaired at the Contractor's sole expense.
- B. The mainline tracks, within the limits of Work, are under direct control of the SCRRA Dispatcher. No track shall be fouled without authorization and presence of an SCRRA EIC on the scene.
 - 1. For all Work with the potential to foul the track, the Contractor shall allow sufficient time in his work schedule for the EIC to clear trains. Up to 15 minutes may be required for the EIC to clear each train, during which time the Contractor must not foul the track. Such time required to clear scheduled trains shall not be an acceptable reason for submitting contract change requests or delay claims to OCTA.
 - 2. Scheduled trains may be up to 15 minutes behind schedule, and such tardiness will not be an acceptable reason for submitting contract change requests or delay claims to OCTA.

1.6 WORK AFFECTING THE EXISTING COMMUNICATIONS AND SIGNAL SYSTEMS

- A. Track within the Work limits will be in use for high-speed freight and passenger train operations throughout the construction period. Train movements are governed by signal systems and the Contractor shall take no action which would:
 - 1. Directly or indirectly result in an unsafe condition (e.g., false clearing of a signal, failure to detect train occupancy or an open switch point, unauthorized unlocking of a switch, failure to activate a highway grade crossing warning system, or any degradation of signaling system).
 - 2. Cause delay to any train (e.g., display of a signal aspect less permissive than track conditions allow, obstruction of right-of-way).
 - 3. Cause an improper activation or deactivation of a highway grade crossing warning system.

4. Be contrary to directions given by SCRRA or the SCRRA Dispatcher.
- B. Existing overhead and buried communications and signaling cables and track wires are located at various locations along and across the Right-of-Way. The Contractor shall take all steps necessary to protect active cabling from damage during the Work. Specific utilities associated with the Work of this Contract are detailed in the Plans and Specifications. The minimum precautions to be taken by the Contractor to protect communications and signaling cables are as follows:
1. All personnel working in the vicinity of communications and signaling equipment and cabling shall be instructed by SCRRA in proper procedures for working around such equipment. Any Contractor personnel found not to be taking proper precautions will be barred from the Work site.
 2. At least 14 days before performing any excavation Work, the Contractor shall contact SCRRA to schedule a signal department mark-out. The Contractor shall call the SCRRA's "Call Before You Dig" number prior to commencing work at (909) 592-1346 during normal business hours. In case of emergencies involving SCRRA signal or communication facilities, the Contractor shall call (888) 446-9721. The exact location of communications and signaling cables shall be determined by a careful examination of site and hand potholing. The Contractor may utilize a search coil to determine the general vicinity of buried cabling. All such aforementioned locating activities shall be performed in the presence of SCRRA.
 3. It is the responsibility of the Contractor to make arrangements directly with utility companies involving the protection, encasement, reinforcement, relocation, replacement, removing or abandonment in place of non-railroad facilities affected by the Project. OCTA has no obligation to supply additional OCTA right-of-way for non-railroad facilities affected by this Project, nor does OCTA have any obligation to permit non railroad facilities to be abandoned in place or relocated on OCTA's right-of-way. Any facility or utility that crosses OCTA right-of-way must be covered under an agreement or license obtained through OCTA including, without limitation, any relocation of an existing facility or utility.
 4. SCRRA will rearrange its communications and signal lines, grade crossing warning devices, train signals, tracks and facilities that are in use and maintained by SCRRA forces in connection with its operation. This work by SCRRA will be done by its own forces or by contractors under a continuing contract and is not a part of the work under the Contract for the construction of the Project. The Contractor must allow sufficient time in its schedule to permit SCRRA to issue the necessary task orders to its contractors order material, and perform any necessary work.
 5. All communications and signaling cables proximate to the Work shall be physically located by means of potholing with hand tools. Excavation by hand tools shall be done by skimming soil in small increments, rather than by digging straight down with the point of a shovel. All such locating activities shall be performed in the presence of SCRRA.

- C. Excavation by machinery will be allowed only where the preceding precautions have been taken, as approved by SCRRA, to ensure that existing cabling is not at risk of being damaged.
- D. Where the placement of existing cabling interferes with placement of track work, or where cabling is at risk of damage from track work, the Contractor shall request such cabling be relocated or protected by SCRRA forces.
- E. The relocation of cables may require delays of up to 72 hours after SCRRA has been notified of conflicts. Such delays will not be grounds for the Contractor submitting a claim for extension of the Contract Time. The Contractor shall coordinate its work so it does not interfere or otherwise delay the work performed by SCRRA's forces.
- F. The relocation of active cable will be performed by SCRRA forces.

PART 2 – PRODUCTS (Not used)**PART 3 – EXECUTION** (Not used)**PART 4 – MEASUREMENT AND PAYMENT**

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 14 16

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SECTION 01 14 19
COORDINATION WITH UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

This Section outlines requirements and provisions regarding the Contractor responsibility for coordination with all utility companies to ensure that all utilities are clearly marked, protected for the duration of the construction activities or relocated.

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00, Submittal Procedures

1.3 SUBMITTALS

- A. Where required by the Contract Documents, the Contractor shall prepare Shop Drawings showing existing utility information and the installation of any utility protection facilities or features to be established on the site prior to initiating construction, maintained for the duration of construction and removed upon completion of construction. This submittal information to the local utility and to the Authority shall identify all necessary Work to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction.
- B. The Contractor shall coordinate with all Utilities and authorities having jurisdiction over these facilities and shall remove and relocate existing utilities and equipment whenever an existing installation interferes with new construction. Carefully examine each location and make arrangements in advance with the Authority to ensure that construction has a minimum impact on the daily operations of the Authority.
- C. Where required by a utility owner or an authority having jurisdiction over an underground facility, within 15 calendar days of the effective date of the Notice to Proceed, the Contractor shall submit a "Potholing Plan" consisting of a plan, schedule, and sequencing to identify and investigate by vacuum potholing all underground utilities and facilities. The Authority will review and comment on the plan within 10 calendar days of receipt.
- D. The relocated utilities shall be specifically identified in the record documents. The types of material and methods of relocation and reconnection of utilities shall match the existing unless otherwise noted.
- E. The Contractor shall furnish the Authority copies of all utility required permits or approvals obtained prior to starting Work at or adjacent to the utility facilities.

PART 2 – PRODUCTS (Not used)**PART 3 – EXECUTION****3.1 GENERAL**

Before commencing work, the Contractor shall notify Dig Alert at 811 or 1-800-422-4133, 72 hours in advance of excavation and advise the Authority of Dig Alert Identification number two working days before excavation begins. Before commencing work, the Contractor shall also notify utility companies which have underground facilities within the limits of the Work, but which do not participate in Dig Alert, in accordance with each utility's notification requirements, and have them locate and mark the facilities within the area of excavation. The Contractor shall keep marking current in accordance with the requirements of Dig Alert and the other utility companies.

SCRRA is not a member of Underground Service Alert (DigAlert) and SCRRA signal and communication lines must be located by contacting the SCRRA Signal Department. The Contractor shall contact the SCRRA Signal Department for an initial signal mark-out, signal mark-out restoration at disturbed areas, and updates to the signal mark-out. Refer to Section 01 14 16, Coordination with SCRRA for additional details.

3.2 POTHOLING FOR SUBSURFACE UTILITIES AND FACILITIES

Where required by a utility owner or an authority having jurisdiction over an underground facility, within 30 calendar days of the effective date of the Limited NTP and after Authority's approval of the Contractor's "Potholing Plan", the Contractor shall mobilize not fewer than two (2) separate potholing crews. These two or more potholing crews will work on a continuous basis to identify, locate and verify the location of underground utilities at all project locations. It is the Contractor's responsibility to submit the Potholing Plan and obtain the Authority's approval within this time period.

Potholing and subsurface utilities and facilities verification work shall be completed at least 30 days in advance of any excavation work within the limits of any construction. The intent of performing potholing and field verification of underground utilities well in advance of any relocation, protection or modification of utilities is to preclude any delays or disruption arising from utility relocation and allow for redesign and reissuance of plans and related Contract Documents. Accordingly, any failure on the Contractor's part to perform the potholing and field verification of utilities within the time frames listed above shall be sufficient cause to reject any claims by the Contractor for delays associated with utility relocations.

3.3 CONTRACTOR FIELD WORK REQUIREMENTS

- A. The Contractor shall provide personnel, equipment, temporary facilities, construction materials, tools, and supplies at the Work site at the time they are scheduled to be required for general utility location and protection requirements subject to the following requirements:
 - 1. The Contractor shall pothole and physically locate all utilities under Traffic/Pedestrian gate footing or within 2 feet of Traffic/Pedestrian gate footing.

2. The Contractor shall comply with Project permits and Environmental Documents and the associated Mitigation Monitoring and Reporting Program (MMRP). This includes, but is not limited to, the protection biological habitat, waterways, and cultural resources. For potholes deeper than 2 feet, contractor shall provide full time monitoring with Orange County certified archaeologist and Native American monitor.
 3. The Contractor shall notify the Gas Utility when excavating within 5 feet of any natural gas pipeline and schedule Utility personnel if required. The Contractor to hand-dig within 5 feet of any natural pipeline.
 4. The Contractor shall notify pipeline owner when excavating within 5 feet of any oil pipeline and schedule standby personnel if required. The Contractor to hand-dig within 5 feet of any oil pipeline.
 5. The Contractor shall hand-dig within 3 feet of any telephone, cable television or fiber optic facilities.
 6. The Contractor shall pothole all utilities under or within 2 feet of a Traffic/Pedestrian gate to confirm depth and lateral location.
 7. Contractor is to comply with all requirements by Utility which may be more stringent than described herein.
- B. The Contractor is responsible for all coordination activities with SDG&E. The Contractor shall contact AL Conde, SDG&E Transmission Engineering Design Advisor at 858-654-8354 to obtain the name and contact information for the SDG&E Construction & Maintenance Supervisor who will be assigned to the project.
- C. The Contractor shall notify SDG&E when excavating within 5 feet of any energized electric facilities and schedule utility personnel as required. An SDG&E inspector will be required on site during any excavation (and associated backfill and compaction) performed within 5 feet of SDG&E utility poles or facilities. The Contractor shall provide temporary pole support for any trenching or excavation operations within 5 feet of SDG&E poles in accordance with SDG&E Standard Plan 372 and associated SDG&E standards and criteria. Temporary pole support design must be approved by SDG&E and inspected in the field by an SDG&E inspector prior to the start of excavation or trenching operations. The Contractor to hand-dig within 5 feet of any energized electric facilities.
- D. When the Contractor works near electrical power lines, the Contractor shall work with the lines energized if the Work can be done safely in compliance with the Cal OSHA Regulations or make arrangements with San Diego Gas & Electric to temporarily shut off

the power or bypass the power from the work area, or make other arrangements necessary for a safe work place.

- E. For work at Retaining Wall 1 there are SDG&E overhead electric transmission lines located above the retaining wall location. Work must be coordinated and in compliance with San Diego Gas & Electric requirements and OSHA Regulations.
 - 1. Contact San Diego Gas & Electric for outage coordination availability. Once contact is made, outage coordination will be submitted to San Diego Gas & Electric Grid Operations Department based on the Contractors construction schedule.
 - 2. Allowable outage of the overhead transmission at Retaining Wall 1 may be provided intermittently between October 1 and May 15 to allow for the Contractors operation of equipment for construction of the piles and wall. A minimum of 30 days advance notification is required.
 - 3. SDG&E may allow, but cannot guarantee outages between May 16 and September 30 for Retaining Wall 1 construction
 - 4. Under emergency situations, San Diego Gas & Electric will provide a 2 hour notification to the Contractor that the lines need to be re-energized. The Contractor will clear all work areas in close proximity to de-energized lines.
- F. The Contractor shall protect existing power lines that are both energized and de-energized.
- G. The Contractor shall not start construction operations adjacent to energized utility facility until arrangements that are satisfactory to SDG&E have been made by the Contractor for the protection of the utility facility and continuation of its service. Should the Contractor's equipment come in contact with or damage a utility facility in any way, even though there may be no apparent evidence of breakage or harm, the Contractor shall promptly notify the SDG&E and cooperate with SDG&E in determining damage and restoring interrupted services if needed. Where contact is made with an SDG&E facility, the Contractor shall suspend operations immediately and vacate the area until it has been determined by the SDG&E that it is safe to resume operations.
- H. The Contractor shall employ special equipment, construction methods, and hand labor, if necessary, to accomplish the planned Work adjacent to utilities without damaging them. At no time shall the Contractor interfere with persons engaged in protecting or moving utility property or in operating the utility.
- I. The Contractor shall coordinate with Verizon for lowering of the Verizon fiber optic facilities located adjacent to the bridge replacement being performed by the Contractor at MP 194.6. Contractor shall secure and protect the existing fiber optic lines and conduit during excavation for placement of the culvert and removal of the existing bridge; and shall coordinate with Verizon to lower the existing facilities into the culvert subgrade prior to placement of the culvert. This work and coordination shall be considered incidental to culvert construction.

- J. Verizon has stated that they can temporarily raise the overhead fiber optic lines that are located lowest on the SDG&E utility poles along Camino Capistrano if a small amount of additional clearance is required due to the Contractor's equipment. The Contractor may coordinate directly with Verizon if this is proposed.
- K. Utilities and pipelines, unless otherwise indicated, shall be in operation during the construction work. The safe and proper handling of the utilities and pipelines is the responsibility of the Contractor. The Contractor shall be liable for any injuries, line breakage, damage to the line and damage to property. In addition, Contractor shall be responsible for and shall reimburse Authority or owner of the utility, or pipeline for all damages during construction and for any product (gas, oil or service) lost there from. Precautions must be taken to contain any possible oil spills. Any spillage of gas or oils shall be contained and if the material is not contained and causes damages or gets into natural drainage courses, the Contractor shall be solely responsible. Failure to respond within a reasonable time frame (herein defined as a maximum of four hours or sooner for emergencies as determined by the Authority or the Utility) will constitute cause for Authority to restore such utility damages and to deduct all costs of restoration from the next Progress Payment to the Contractor.
- L. At Limited NTP or the project kick-off meeting, the Authority shall provide contact numbers for all entities to be contacted in case of emergency including signal and grade crossing problems and signal and communications cable locations. This will include the Authority Chief Dispatcher and the Metrolink Sheriff's Dispatcher. The Contractor shall ensure that Work Site personnel have immediate access to these contact numbers.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 14 19

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EXHIBIT**PROJECT UTILITY RESPONSIBILITIES**

UTILITY RELOCATIONS/REARRANGEMENT

REFERENCE SPECIFICATION SECTION: 01 14 19

CONTACTS AND RESPONSIBILITIES

Name of Utility: Verizon**Contact Person: Mr. Daniel Garden****Address: Verizon Business****115 West Palmetto Dr.****Pasadena, CA 91105****Phone: (909) 421-3316****Email: dan.garden@verizon.com**

PERFORMANCE RESPONSIBILITY

Design done by: N/AConstruction by: VerizonInspection by: N/A

PAYMENT RESPONSIBILITY

Verizon☐ Yes ☒ No Third Party Coordination and paid by: OCTA

NOTES: Contractor shall coordinate with Verizon for lowering of the existing fiberoptic facility during excavation and construction of the bridge removal and culvert construction at MP 194.6.

Contractor shall protect in place the existing facility prior to and after it has been lowered.

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EXHIBIT**PROJECT UTILITY RESPONSIBILITIES**

UTILITY RELOCATIONS/REARRANGEMENT

REFERENCE SPECIFICATION SECTION: 01 14 19

CONTACTS AND RESPONSIBILITIES

Name of Utility: SDG&E**Contact Person: Mr. Ariel (Al) Conde****Address: San Diego Gas & Electric****8326 Century Park****San Diego, CA 92123****Phone: 858-654-8354****Email: AConde@semprautilities.com**

PERFORMANCE RESPONSIBILITY

Design done by: ContractorConstruction by: ContractorInspection by: SDG&E

PAYMENT RESPONSIBILITY

ContractorContractorOCTA☐ Yes ☒ No Third Party Coordination and paid by: OCTA

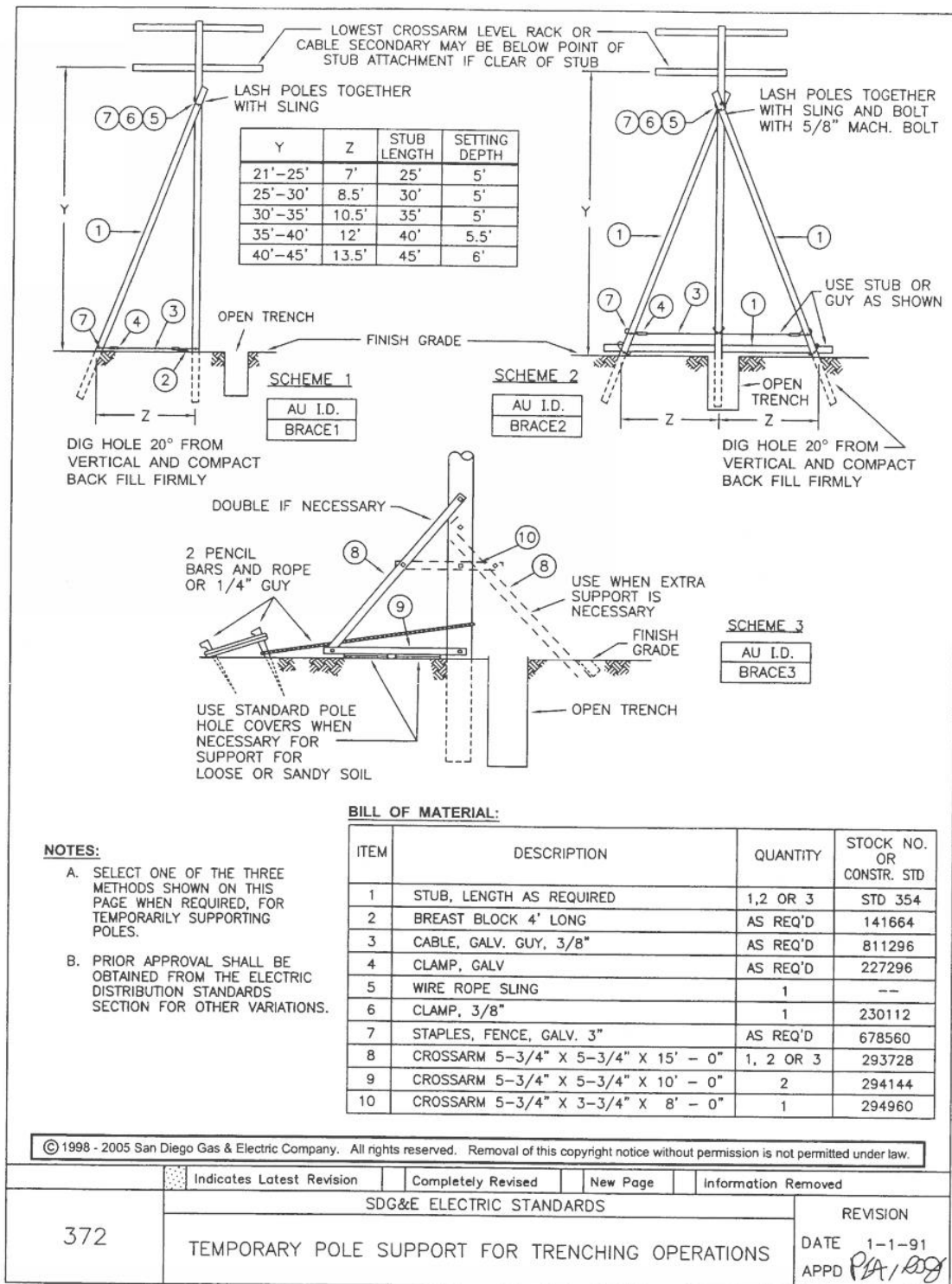
NOTES: Contractor shall coordinate with SDG&E for de-energization, if required, of SDG&E transmission facilities located at Retaining Wall 1.

Contractor shall coordinate with SDG&E for inspection of excavation and trenching impacting SDG&E Facilities. Contractor shall design and construct temporary pole supports required for excavation or trenching adjacent to SDG&E poles.

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Attachment – SDG&E Standard Plan 372

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**SECTION 01 21 00
ALLOWANCES**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements governing allowances. Certain items are specified in the Contract Documents by allowances which are established in lieu of additional requirements and to defer selection of actual materials, products or equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order. Allowances may be stated as unit prices or as lump sum amounts, as noted herein. Approval of final quantities required and the basis for acceptable pricing for items specified by an allowance shall be the sole responsibility of the Authority prior to payment.

Allowances included in this contract shall be used for 390 days (10 hour shifts, including travel time and set up) of SCRRA flagging, SCRRA ROE permit fees, SCRRA SSWP work plan review, SCRRA administration, SCRRA safety training, SCRRA signal and communications facilities location and mark-out, City and Agency encroachment permit fees, City and Agency inspection fees, and testing and abatement of unanticipated environmental wastes.

1.2 RELATED REQUIREMENTS

- A. Section 01 22 00, Unit Prices
- B. Section 01 22 05, Lump-Sum Prices

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Authority of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. When specified or at the Authority's request, obtain proposals and prepare detailed pricing for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by the Authority from the designated supplier

1.4 ACTION SUBMITTALS

Submit proposals for purchase of products, equipment, facilities, systems or for payment of services included in allowances, in the form and detail specified for Change Orders. The Authority will review the Contractor's information relevant to the proposed price including all pricing documentation supporting quotations from vendors, calculations, estimating factors, risk analyses, equipment rates, productivity, as well as any other

items reasonably required by the Authority to satisfy itself as to the reasonableness of the Contractor's assumptions used to determine price.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in the same manner as for other portions of the Work.

1.6 LUMP SUM, UNIT COST, AND QUANTITY ALLOWANCES

- A. Allowances shall include payment of SCRRRA fees related to the performance of this Project for ROE including plan review, administration, flagging, safety training, signal and communication facilities identification and mark-out, inspection as defined in the SCRRRA ROE schedule of values.
- B. Allowances shall include the cost to the Contractor of specific products and materials ordered or selected by the Authority under the allowance, and shall include taxes, freight, and delivery to the Project site.
- C. Unless otherwise indicated, the Contractor's costs for receiving and handling at the Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered or selected by the Authority under the allowance shall be included as part of the Contract Price and not part of the allowance.
- D. Whenever the actual cost of the materials, products, or equipment selected by the Authority is more than or less than the allowance amount, the Contract Price will be adjusted accordingly by Change Order.
- E. Unused Materials: After installation has been completed and accepted, return unused materials purchased under an allowance to the manufacturer or supplier for credit to the Authority or if requested by the Authority, retain and prepare unused material for storage by the Authority. Deliver unused material to the Authority's storage space as directed.
- F. Quantity allowances include all costs of materials, labor, equipment, overhead, profit, all taxes, and all other charges for the work. In the event a lesser or greater quantity of the item or work described is used in the Work, the Contract Price shall be adjusted in accordance with the unit prices described in the Schedule of Quantities and Prices.

1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by the Authority for the Authority's purposes for testing and abatement of unanticipated environmental wastes, and only by Change Orders that indicate amounts to be charged to the allowance.
- B. The Contractor's overhead, profit, and related costs for products and equipment ordered by the Authority under the contingency allowance are included in the allowance and are not part of the Contract Price. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include the Contractor's related costs in accordance with the Changes Section of the General Conditions.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to the Authority by Change Order.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between the purchase amount and the allowance, multiplied by a final measurement of work-in-place (where applicable). If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
- B. Include installation costs in the purchase amount only where indicated as part of the allowance.
- C. If requested, prepare an explanation and documentation to substantiate the distribution of margins claimed.
- D. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit cost allowances. The Authority reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- E. Submit requests for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or the Contractor's handling, labor, installation, overhead, and profit in accordance with the Changes Section of the General Conditions. Do not include the Contractor's or Subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents. No change to the Contractor's indirect expense is permitted for selection of higher or lower priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 EXAMINATION

Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to the manufacturer for replacement.

3.2 PREPARATION

Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related Work. Furnish templates as required to coordinate installation.

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section will be measured and paid as detailed in Section 01 11 16, Section 01 35 44, and Section 01 71 13.

END OF SECTION 01 21 00

**SECTION 01 22 00
UNIT PRICES**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for Unit Prices. Unit Prices are amounts stated on the Schedule of Quantities and Prices that represent full compensation for furnishing all necessary labor, materials, tools, equipment and ancillary services necessary to complete all the Work covered by each item as required in the Contract documents.

1.2 RELATED REQUIREMENTS

- A. Section 01 21 00, Allowances
- B. Section 01 22 05, Lump-Sum Prices

1.3 PROCEDURES

- A. Unit prices include all necessary submittals, shop drawings, materials, labor, delivery or shipping charges, unloading or handling, insurance, installation costs, profit, all applicable taxes, and other direct and indirect expenses. Where Unit Price items require related Work specified in other sections of the Contract Specifications, but which is not specifically mentioned in the Unit Price description, the Contractor shall be responsible for and include all related work that is normally required for Work similar to the Unit Price item. Detailed descriptions and other provisions concerning Unit Price items are contained in other sections of the Plans and Specifications.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.
- C. The Authority reserves the right to reject the Contractor's measurement of work-in-place that involves use of established Unit Prices, and to have this work measured by the Authority or an independent surveyor acceptable to the Contractor. If the Contractor's measurement is determined to be inaccurate, the Contractor shall bear the cost of this Authority quantity survey. If the Contractor's measurement is confirmed as accurate, the Authority shall bear the cost of the quantity survey.
- D. Specification Sections referenced in the Schedule of Quantities and Prices for each Unit Price describe requirements for materials, installation, and quality.

PART 2 - PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 22 00

**SECTION 01 22 05
LUMP-SUM PRICES**

PART 1 -GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for lump sum prices which are amount(s) proposed by the Contractor and stated on the Schedule of Quantities and Prices for contracted amounts for materials, products, and operations to be provided in the envisioned scope of the Work. Lump sum prices include all necessary materials, labor, delivery or shipping charges, unloading or handling, installation costs, profit, all applicable taxes, and other direct and indirect costs.

1.2 RELATED REQUIREMENTS

A. Section 01 22 00, Unit Prices

1.3 PROCEDURES

Contractor performance of Work for which Contract lump sum payments will be made shall be listed in the approved Schedule of Values. Payment for each lump sum item provides full compensation for furnishing the labor, materials, tools, and equipment, and for performing all of the Work involved to complete the Work covered by each item and included in the Contract Documents.

Where lump sum price items require related Work specified in other Sections of the Contract Specifications, but which is not specifically mentioned in the lump sum price description, the Contractor shall be responsible for and include all related Work that is normally required for work of a similar nature to the item.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 22 05

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SECTION 01 24 13
VALUE ENGINEERING CHANGE PROPOSALS (VECP)

PART 1 – GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for Value Engineering Change Proposals (VECPs) by the Contractor. The Authority encourages the Contractor to submit VECPs whenever the Contractor identifies areas or instances in which improvements can be made, in order to achieve Project cost savings.

1.2 VECP REQUESTS

- A. This Section applies to the Contractor-developed and documented VECP that
 - 1. Requires a change to the Contract.
 - 2. Reduces the total Contract Price without impairing essential functions or characteristics of the Work, providing that it is not based solely on a Change in specified quantities.
 - 3. Results in an estimated total saving to the Authority equal or greater than \$1,000.
- B. At a minimum, the following information shall be submitted by the Contractor with each VECP:
 - 1. Description of the existing Contract requirements that are involved in the proposed Change.
 - 2. Description of the proposed Change, and all Specifications or Plans necessary for the complete evaluation of the proposed Change.
 - 3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages of each changed item.
 - 4. Itemization of the Contract requirements that must be changed if the VECP is accepted (e.g., drawing numbers and specifications).
 - 5. Justification for changes in function or characteristics of each affected item, and the effect of the Change on the performance of the end item.
 - 6. Date by which a Change Order adopting the VECP must be issued in order to obtain the maximum cost reduction, noting any effect on Contract completion time or delivery schedule.
 - 7. Cost estimate for existing Contract requirements correlated to the Contractor's Unit Price or lump-sum breakdown and the proposed changes

in those requirements, including costs of development and implementation by the Contractor.

- C. The Contractor shall submit VECPs to the Authority. The Authority will process proposals expeditiously, but shall not be liable for any delay in acting upon any proposal submitted pursuant to this Section. The Contractor may withdraw all or part of any VECP at any time prior to acceptance by the Authority, but will, at the sole discretion of the Authority, be liable for costs incurred by the Authority in reviewing the proposal. The decision of the Authority as to the rejection or acceptance of any VECP shall be at the sole discretion of the Authority.
- D. At its sole discretion, the Authority may accept, in whole or in part and by Change Order, any VECP submitted pursuant to this Section. Designs for accepted VECPs will be accepted by the Authority for incorporation into the drawings and specifications. Until a Change Order is executed authorizing the VECP, the Contractor shall remain obligated to perform in accordance with the Contract.
- E. If a VECP submitted by the Contractor pursuant to this Section is accepted, the Total Contract Price shall be adjusted based upon an equal sharing of the net savings by the Contractor and the Authority (50% Authority, 50% Contractor).
 - 1. Net savings are defined as gross savings less the Contractor's costs and less the Authority's costs.
 - 2. Estimated gross savings to the Contractor means the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed Change. In each instance, the Contractor's profit shall not be considered part of the cost
 - 3. The Contractor's costs means reasonable costs incurred by the Contractor in preparing the VECP and making the Change, such as cancellation or restocking charges.
 - 4. The Authority's costs means reasonable costs incurred by the Authority for evaluating and implementing the VECP, such as testing, redesign, and the effect on other contracts.
 - 5. The Contractor is not entitled to share in concurrent, collateral, or future contract savings. Collateral savings are those measurable net reductions in the Authority's costs of operation that result from the VECP, including maintenance, logistics, and Authority furnished property. Concurrent contract savings cover the reductions in the cost of performance of other contracts the Contractor is participating in, for essentially the same item resulting from a VECP submitted by the Contractor.
 - 6. The Contractor's profit shall not be reduced by application of the VECP.
- F. The Contractor shall include appropriate VECP provisions in all Subcontracts of \$25,000 or greater, and may include those provisions in any subcontract.

- G. Within the limits stated in the Contract, the Contractor may restrict the Authority's right to use any part of a VECP or the supporting data thereof in accordance with the terms of the following:
1. Data supplied pursuant to the Section entitled VALUE ENGINEERING CHANGE PROPOSALS (VECP) in this Contract shall not be disclosed to any outside person or agency, or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a VECP submitted under said Section.
 2. This restriction does not limit the Authority's right to use information contained in this VECP if it is or has been obtained, or is otherwise available, from the Contractor or from another source without limitations.
 3. If a VECP is accepted by the Authority after the use of the data in an evaluation, the Authority may duplicate, use, or disclose any data reasonably necessary to the full utilization of the VECP, as accepted, in any manner and for any purpose whatsoever; the Authority may allow others to do so as well.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 24 13

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**SECTION 01 25 00
SUBSTITUTION PROCEDURES**

PART 1 -GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for substitutions which are the Contractor proposed changes in products, materials, equipment, and methods of construction from those required by the Contract Documents after Contract Award.

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 40 00, Quality requirements
- C. Section 01 60 00, Product Requirements

1.3 SUBSTITUTION FOR SPECIFIED PRODUCTS

The Contract Documents, including Contract Drawings, and Specifications have been prepared to complement and accommodate certain specified equipment, products or systems, and any modifications, adjustments, or redesign required to assimilate any Authority approved substitution of "or equal" equipment, products, or systems shall be at the Contractor's sole expense. The Contractor shall provide a complete and workable application and shall satisfy design criteria and aesthetic values to the sole satisfaction of the Authority. The Contract Time for completion of the Work specified in the Contract Documents shall not be affected by any circumstances whatsoever arising from the provisions of this Specification.

1.4 EQUALS

Except as may be provided in the Special Conditions, or stated otherwise in the various sections of the Specifications, whenever any material, product, thing, or service is specified or indicated in the Contract Documents by brand, trade, patent, or proprietary name or by the name of the manufacturer, the item so specified or indicated shall be deemed to be followed by the words "or equal."

If the Contractor submits an "or equal" item, the Contractor must submit sufficient data to the Authority to substantiate the specific characteristics and qualities that make the "or equal" item the equivalent, as described in the paragraph below. The Contractor shall furnish such substantiating data or arrange for any necessary tests to verify the equivalent qualities of the "or equal" item at the Contractor's sole expense.

The Authority, in its sole discretion, shall determine whether the substantiating data demonstrates that an "or equal" item is equivalent in all respects to the item specified in the Contract Documents. If the Authority determines that the "or equal" item has not

been substantiated to be equivalent in all respects, the item specified in the Contract Documents shall be furnished and installed by the Contractor, without modification of the cost proposal amount or Contract Documents.

1.5 SUBSTITUTION REQUESTS

- A. The Contractor shall submit four copies of each request for consideration identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Contract Drawing numbers and titles. Indicate type of substitution:
1. Substitutions for Cause: Changes proposed by the Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 2. Substitutions Required Because of Federal Government Restrictions: Changes proposed by the Contractor that result from Federal Government restrictions or other causes growing out of the national defense or war programs.
 3. Substitutions for Lack of Availability: Changes proposed by the Contractor because certain materials or equipment specified are entirely unobtainable or not obtainable in sufficient quantities or within a reasonable time.
 4. Substitutions for Convenience: Changes proposed by the Contractor or the Authority that are not required in order to meet other Project requirements, but may offer advantage to the Contractor or the Authority.
- B. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
1. A statement indicating why the specified product or fabrication or installation cannot be provided, if applicable.
 2. Coordination information including a list of changes or revisions needed to other parts of the Work and to construction performed by the Authority and separate Contractors—that will be necessary to accommodate the proposed substitution.
 3. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Include an annotated copy of the applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 4. Product data, including drawings and descriptions of products and fabrication and installation procedures.
 5. Samples, where applicable or requested.

6. Certificates and qualification data, where applicable or requested.
 7. A list of similar installations for completed projects, with project names and addresses and the names and addresses of pertinent Engineers and Authorities.
 8. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 9. Research reports demonstrating compliance with building codes in effect for the Project, from recognized testing laboratories or agencies, technical trade associations, and code authorities.
 10. A detailed comparison of the Contractor's construction schedule using the proposed substitution with products specified for the Work, including the effect on the overall Contract Time. If the specified product or method of construction cannot be provided within the Contract Time, include a letter from the manufacturer, on the manufacturer's letterhead, stating the date of receipt of the purchase order and attesting to the lack of availability or delays in delivery.
 11. Cost information, including a proposal of change (if any) in the Contract Price.
 12. The Contractor's certification that the proposed substitution complies with requirements in the Contract Documents, except as indicated in the substitution request; is compatible with related materials; and is appropriate for the indicated applications.
 13. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of any failure of the proposed substitution to produce indicated results.
- C. Authority's Action: If necessary, the Authority will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. The Authority will notify the Contractor of acceptance or rejection of a proposed substitution within 14 days of receipt of request, or within seven days of receipt of additional information or documentation (whichever is later).
1. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.
 2. Use the product specified if the Authority does not issue a decision on use of a proposed substitution within the time allocated.

Part 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause, Federal Government Restrictions or due to Lack of Availability: Submit requests for substitution immediately on discovery of need for

change, but not later than 15 days prior to the time required for preparation and review of related submittals.

The Authority will consider the Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Authority will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution is consistent with the Contract Documents and will produce the indicated results.
 2. Requested substitution provides sustainable design characteristics that specified product provided.
 3. Substitution request is fully documented and properly submitted.
 4. Requested substitution will not adversely affect the Contractor's construction schedule.
 5. Requested substitution has received necessary approvals of authorities having jurisdiction.
 6. Requested substitution is compatible with other portions of the Work.
 7. Requested substitution has been coordinated with other portions of the Work.
 8. Requested substitution provides the specified warranty.
 9. If the requested substitution involves more than one Contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all Contractors involved.
- B. Substitutions for Convenience: The Authority will consider requests for substitution if received within 45 days after the Notice of Award. Requests received after that time may be considered or rejected at the discretion of the Authority. The Authority will consider the Contractor's request for substitution when the conditions below are satisfied. If the following conditions are not satisfied, Authority will return requests without action, except to record noncompliance with these requirements:
1. Requested substitution offers Authority a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Authority must assume. The Authority's additional responsibilities may include compensation to the Authority for redesign and evaluation services, increased cost of other construction by the Authority, and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.

3. Requested substitution is consistent with the Contract Documents and will produce the indicated results.
4. Requested substitution provides sustainable design characteristics that the specified product provided.
5. Substitution request is fully documented and properly submitted.
6. Requested substitution will not adversely affect the Contractor's construction schedule.
7. Requested substitution has received necessary approvals of authorities having jurisdiction.
8. Requested substitution is compatible with other portions of the Work.
9. Requested substitution has been coordinated with other portions of the Work.
10. Requested substitution provides the specified warranty.
11. If requested substitution involves more than one Contractor, the requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all Contractors involved.

PART 3 - EXECUTION (Not used)**PART 4 – MEASUREMENT AND PAYMENT**

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 25 00

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**SECTION 01 26 14
REQUEST FOR INFORMATION**

PART 1 – GENERAL

1.1 SUMMARY

This Section covers the general requirements for the Contractor's Requests For Information, and pertains to all portions of the Contract Documents.

1.2 RELATED REQUIREMENTS

- A. Section 01 11 13, Work Covered by the Contract Documents
- B. Section 01 33 00, Submittal Procedures

1.3 REQUESTS FOR INFORMATION

- A. The Contractor shall examine all Contract Documents; shall verify all figures in the Contract Documents before laying out the Work; shall promptly notify the Authority of all errors, discrepancies, inconsistencies, or omissions that it discovers; and, in instances where such nonconformities are discovered, shall obtain specific instructions in writing from the Authority by utilizing the RFI process before proceeding with the Work.
- B. When the Contractor is unable to determine from the Contract Documents the exact material, process, or system to be installed, the Contractor shall ask the Authority to clarify the indeterminate item. Wherever possible, such clarification shall be requested at the next appropriate project meeting, with the response entered into the meeting minutes. When clarification at the meeting is not possible, either because of the urgency of the need or the complexity of the item, the Contractor shall prepare and submit a written RFI to the Authority in the form and format established by the Authority.
- C. The Contractor's performance of work affected by such nonconformities prior to the Authority's response shall be at the Contractor's risk; however, the Contractor shall continue to perform any incidental work not affected by the nonconformity
- D. In the event of any doubt or question concerning the true meaning of the Contract Documents, or should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the Contractor shall submit a RFI to the Authority for such further written explanations as may be reasonably necessary, and shall conform to the written explanation given as if it were part of the Contract Documents. The decision of the Authority in such cases shall be final.
- E. RFIs shall be submitted on the latest RFI form provided by the Authority. Forms shall be completely filled in, and, if prepared by hand, shall be fully legible after photocopying. Each page of attachments to RFIs shall bear the RFI number in the lower right-hand corner. Each RFI shall reference a drawing number or a Specification Section. RFIs from Subcontractors or Material suppliers shall be

submitted through, reviewed by, and signed by the Contractor prior to submittal to the Authority.

- F. The Contractor shall submit RFIs in a timely manner to avoid delays to the progress of the Work. RFIs prepared and submitted by the Contractor shall be complete, and shall include all information or references necessary for The Authority to respond.
- H. The Authority will respond to RFIs in a timely manner. The target response time for RFIs will be 10 working days, but will be no longer than 20 working days. In the event that there are numerous RFIs pending, the Contractor shall cooperate with the Authority in establishing a priority for responding to the RFIs.
- I. In the event that an RFI is reviewed by a third-party (including Railroad Operators and authorities having jurisdiction), allow up to an additional 10 working days time for OCTA's response.
- J. Authority's response to RFI may include a request for additional information in which case Authority's time for response will date from time of receipt of additional information.
- K. The Contractor shall not assert any claims for delay or interference against the Authority if the Contractor fails to submit any RFI in a timely manner to the Authority (taking into account the time allowed for a response period allowed for the Authority).
- L. The response to an RFI shall not, by itself, constitute authorization for the Contractor to perform any Change Work that causes an adjustment to either the Period of Performance or the Contract Amount.
- M. RFIs shall not be used for the following purposes:
 - 1. To request approval of submittals
 - 2. To request approval of substitutions
 - 3. To request changes that entail additional cost or credit
 - 4. To request different methods of performing work other than those drawn or specified
- N. In the event the Contractor believes that a clarification by the Authority results in additional cost, the Contractor shall not proceed with the Work indicated by the RFI until a Change Order is prepared and approved. Neither answered nor unanswered RFIs shall be construed as approval to perform extra work or entitlement to adjust Period of Performance or the Contract Amount.
- O. Unanswered RFIs will be returned with a stamp or notation indicating "Not Reviewed."
- P. The Contractor shall prepare and maintain a log of RFIs and, at any time so requested by the Authority, the Contractor shall furnish copies of the log showing all outstanding RFIs. The Contractor shall note all unanswered RFIs in the log.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 26 14

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**SECTION 01 29 73
SCHEDULE OF VALUES**

PART 1 -GENERAL

1.1 SUMMARY

This Section specifies administrative and procedural requirements necessary to prepare and process the Schedule of Values.

1.2 RELATED REQUIREMENTS

- A. Section 01 22 00, Unit Prices
- B. Section 01 22 05, Lump-Sum Prices

1.3 DEFINITIONS

Schedule of Values: A tabulation furnished by the Contractor and approved by the Authority, allocating portions of the Contract Price to various portions of the Work which shall be used as the basis for reviewing the Contractor's applications for payment.

1.4 SCHEDULE OF VALUES DEVELOPMENT

- A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's construction schedule.
- B. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - 1. Application for Payment forms with continuation sheets
 - 2. Submittal schedule
 - 3. Items required to be indicated as separate activities in the Contractor's construction schedule
- C. Where the Work is separated into phases requiring separately phased payments, provide values correlated with each phase of payment. Where the Contractor's construction schedule defines separate elements of the Work, provide values correlated with each element.
- D. Format and Content: Use the Specification sections as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification section.
- E. Identification: Include the following Project identification on the Schedule of Values:
 - 1. Project name and location

2. Authority's project number
 3. The Contractor's name and address
 4. Segment and Phase of project
 5. Date of submittal
- F. Arrange the Schedule of Values in a manner consistent with the format of CSI Master Format 2004.
- G. Arrange the Schedule of Values in tabular form, with separate columns to indicate the following for each item listed:
1. Related Specification Section or Division
 2. Description of the Work
 3. Name of Subcontractor
 4. Name of manufacturer or fabricator
 5. Name of supplier
 6. Change Orders (numbers) that affect value
- H. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of applications for payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of one half of one percent of the Contract Price.
- I. Include separate line items under the Contractor and principal subcontracts for project closeout requirements in an amount totaling one half of one percent of the Contract Price and five percent of the subcontract amount.
- J. Each item of the Schedule of Values shall include its proportionate share of profit, and all other expenses involved.
1. The summation of extensions of quantities and unit prices and related costs shall equal the amount of the lump-sum price of the applicable Contract bid item indicated in the Schedule of Quantities and Prices.
 2. Round amounts to the nearest whole dollar; the total shall equal the Contract Price.
 3. Provide a separate line item in the Schedule of Values for mobilization and demobilization for each time and part and phase of the work where the Contractor is required to mobilize and demobilize its operations.
 4. Provide separate line items in the Schedule of Values for the preparation of submittals, for each stage of completion, and for total installed value of that part of the Work.
 5. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

6. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general profit for each item.
 7. Mobilization and Demobilization and other major cost items that are not direct cost of actual work in place may be shown either as separate line items in the Schedule of Values or distributed within the costs allocated to the values of Time-Related Overhead, at the Contractor's option.
- K. The Contractor shall be responsible for the accuracy of the quantities and values used in the Schedule of Values. No adjustment in compensation will be made due to differences between the quantities shown in the Schedule of Values furnished by the Contractor and the quantities required to complete the Work as shown on the Contract Drawings and as specified in these Contract Documents.
- L. The Authority will not approve the Schedule of Values if the amounts are unreasonable and unbalanced. The Contractor shall provide any supporting documentation necessary for the Authority to determine acceptability.

PART 2 - PRODUCTS (Not used)**PART 3 - EXECUTION****3.1 PREPARATION**

At the Preconstruction Meeting or within 7 days after the effective date of the Notice to Proceed, the Contractor shall submit to the Authority a detailed Schedule of Values that must be approved by the Authority prior to the Contractor's first application for progress payment.

3.2 APPROVAL

Upon approval by the Authority, the Schedule of Values will form a basis for determining the compensation payable to the Contractor based on actual progress of Work, in accordance with the approved progress schedule, with respect to each Contract bid item to be paid by lump sum. No progress payment for Contract bid items to be paid by lump sum shall be made without an approved Schedule of Values.

3.3 REVIEW AND RESUBMITTAL

If review by the Authority indicates that changes to the Schedule of Values are required, the Contractor shall revise and resubmit in the same manner as the original Schedule of Values was approved.

3.4 SCHEDULE UPDATING

Update and resubmit the Schedule of Values before each application for payment when Change Orders or Change Directives result in a change in the Contract Price.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 29 73

**SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION**

PART 1 - GENERAL

1.1 SUMMARY

This Section contains administrative provisions for coordinating construction operations and general project coordination procedures on the Project.

1.2 RELATED REQUIREMENTS

- A. Section 01 11 16, Work by SCRRA
- B. Section 01 14 16, Coordination with SCRRA
- C. Section 01 43 23, Contractor Qualifications and Requirements

1.3 COORDINATION

- A. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation. Schedule construction operations in the sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components (before or after its own installation). Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair. Make adequate provisions to accommodate items scheduled for later installation.
- B. Each Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings. Prepare similar memoranda for the Authority and for separate Contractors if coordination of their Work is required.
- D. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include but are not limited to the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of Contractor's Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Pre-installation conference.
 7. Project closeout activities.
 8. Startup and adjustment of systems (commissioning).
- E Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other sections of these Specifications for disposition of salvage materials that are designated to be owner's property.

1.4 PROJECT MEETINGS

- A. General: Authority will schedule and conduct weekly meetings and conferences at the Project site, unless otherwise indicated.
- B. Preconstruction Conference: The Authority will schedule and conduct a preconstruction conference before starting construction, at a time convenient to the Authority, but no later than 15 days after execution of the Agreement.
1. Conference will review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Authority and their consultants; the Contractor and its superintendent; major Subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule, Critical work sequencing and long-lead items
 - b. Emergency Procedures and Contact Information
 - c. Phasing
 - d. Site access and the Contractor's ON-SITE laydown, storage, and staging area
 - e. Designation of key personnel and their duties

- f. Lines of communications
 - g. Procedures for processing field change directives (CDs) and Change Orders
 - h. Procedures for RFIs
 - i. Procedures for testing and inspecting
 - j. Procedures for processing Applications for Payment
 - k. Distribution of the Contract Documents
 - l. Submittal procedures
 - m. Sustainable design requirements
 - n. Preparation of record documents
 - o. Use of the premises [and existing buildings]
 - p. Work restrictions
 - q. Working hours
 - r. Worksite safety and first aid requirements
 - s. Authority's occupancy requirements
 - t. Responsibility for Mobilization and Demobilization and controls
 - u. Procedures for moisture and mold control
 - v. Procedures for disruptions and shutdowns
 - w. Construction waste management and recycling
 - x. Parking availability
 - y. Office, work, and storage areas
 - z. Equipment deliveries and priorities
 - aa. Security
 - bb. Progress cleaning
- C. Pre-installation Conferences: Conduct a pre-installation conference at the Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Authority of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents
 - b. Options

- c. Related RFIs
 - d. Related Change Orders
 - e. Purchases
 - f. Deliveries
 - g. Submittals
 - h. Review of mockups
 - i. Possible conflicts
 - j. Compatibility requirements
 - k. Time schedules
 - l. Weather limitations
 - m. Manufacturer's written recommendations
 - n. Warranty requirements
 - o. Compatibility of materials
 - p. Acceptability of substrates
 - q. Mobilization and Demobilization and controls
 - r. Space and access limitations
 - s. Regulations of authorities having jurisdiction
 - t. Testing and inspecting requirements
 - u. Installation procedures
 - v. Coordination with other work
 - w. Required performance results
 - x. Protection of adjacent work
 - y. Protection of construction and personnel
 - z. Safety requirements
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present, the Authority, and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work, and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Authority will schedule and conduct a Project closeout conference, at a time convenient to all attendees, but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of the Authority, the Engineer, Authority Commissioning personnel, and their consultants; the Contractor and its project manager; major Subcontractors; Suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance
 - c. Submittal of written warranties
 - d. Requirements for preparing operations and maintenance data
 - e. Requirements for demonstration and training
 - f. Preparation of the Contractor's punch list
 - g. Procedures for processing Applications for Payment at Substantial Completion and for final payment
 - h. Submittal procedures
 - i. Coordination of separate contracts
 - j. Authority's partial occupancy requirements
 - k. Installation of Authority's furniture, fixtures, and equipment
 - l. Responsibility for removing Mobilization and Demobilization and controls
 4. Minutes: Record and distribute meeting minutes to Authority and all attendees.
- E. Progress Meetings: Authority will conduct progress meetings at weekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Authority, each Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

- a. The Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule in relation to the Contractor's construction schedule. Determine how construction that has fallen behind schedule will be remedied; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- b. Review the schedule for the next period.
- c. Review present and future needs of each entity present, including the following:
 - 1. Interface requirements
 - 2. Sequence of operations
 - 3. Status of submittals
 - 4. Deliveries
 - 5. Off-site fabrication
 - 6. Access
 - 7. Site utilization
 - 8. Mobilization and Demobilization and controls
 - 9. Progress cleaning
 - 10. Quality and work standards
 - 11. Status of correction of deficient items
 - 12. Field observations
 - 13. Status of RFIs
 - 14. Status of proposal requests
 - 15. Pending changes
 - 16. Status of Change Orders
 - 17. Pending claims and disputes
 - 18. Documentation of information for payment requests

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 31 00

**SECTION 01 31 99
PERIOD OF PERFORMANCE**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for a standard Notice-to-Proceed process, and defines allowable conditions for Contract Time extensions.

1.2 RELATED REQUIREMENTS

- A. Section 01 29 73, Schedule of Values
- B. Section 01 33 00, Submittal Procedures

1.3 DEFINITIONS

- A. Notice to Proceed: OCTA written authorization to proceed with the Contract Work, as specified.
- C. Contract Time: As stated in the Contract, the original duration of the Contract in calendar days plus Change Order adjustments

1.4 COMMENCEMENT OF WORK

The Authority will issue a Notice to Proceed to the Contractor following execution of the Contract. The Contractor is not authorized to perform any work until the Contractor has received the Notice to Proceed from the Authority. Should the Contractor begin Work in advance of receiving the Notice to Proceed, such Work shall be considered as having been done at the Contractor's own risk. The Notice to Proceed will initiate the Contract Time. The Notice to Proceed will be a notice for the Contractor to proceed with Contract Work and diligently prosecute the same to completion within the Contract Time.

1.5 PERIOD OF PERFORMANCE

The date of the Notice to Proceed is the start date for the Contract Period of Performance.

1.6 DELAYS AND TIME EXTENSIONS

- A. Delays beyond the Contractor's control: The Contractor will be granted an extension of time and will not be assessed with liquidated damages for any delay in substantially completing the Work (or parts thereof) beyond the time set forth in the Contract, provided that such delay was caused by unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include acts of a public enemy, fire, floods, adverse weather, tidal waves, earthquakes, hurricanes, epidemics, quarantine restrictions, strikes, labor disputes and freight embargoes, or negligent acts of the Authority.

- B. Authority caused delays: In the event the Contractor is actually and necessarily delayed by any act or omission on the part of the Authority (as determined by the Authority), and provided that the Contractor notifies the Authority in writing within 5 days from the beginning of any such delay, specifying the act or omission causing such delay, the time for completion of the Work may be extended at the sole discretion of the Authority. In all cases, any extension of time is contingent on all of the following:
1. That the cause is not due to the fault or negligence of the Contractor, and the Contractor has taken reasonable precautions to prevent the delays and minimize the effects thereof.
 2. That the Contractor submits a Request for Change (RFC) specifying the nature of the delay and the measures that have been or will be taken to prevent or minimize the delay. Failure to submit written notice within this time period shall constitute an absolute waiver of any claim for a time extension. The RFC submitted by the Contractor shall also include a Time Impact Analysis as required in the Specification.
 3. No extension of time will be granted under this Section for any Authority caused delay in which (1) the performance of Work would have been concurrently delayed by the Contractor induced causes, including an act or omission of the Contractor or its Subcontractors, or (2) remedies are included or excluded by any other provision of the Contract. Only the actual delay necessarily resulting from the causes specified in this Section shall be grounds for an extension of time. In case the Contractor is delayed at any time or for any period by two or more of the causes specified in this Section, the Contractor shall not be entitled to a separate extension for each one of the causes; only one extension will be granted for the entire delay.
 4. No extension of time will be granted for a delay caused by a shortage of materials unless the Contractor furnishes to the Authority (a) documentary proof that the Contractor has diligently made every effort to obtain such materials from all known sources within reasonable reach of the work site(s), and (b) further proof, in the form of schedule data as required under Section 01 32 17, Construction Project Schedule, that the inability to obtain such materials when originally planned did in fact cause a delay in Substantial Completion of a portion of the Work or the entire Work, one that could not be compensated for by revising the sequence of the Contractor's operations.
 5. The term "shortage of materials," as used in this Section, shall apply only to materials, articles, parts, or equipment that are not custom items; it and shall not apply to equipment, materials, parts, or articles that are processed, made, constructed, fabricated, or manufactured to meet the specific requirements of the Contract Documents. Only conditions not in the control of the Contractor that result in the physical shortage of materials will be considered as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to the

satisfaction of the Engineer that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and the usual practices in obtaining such quantities.

- C. When inclement weather at the Project site affects Critical Path activities, the Contractor may provide the Authority with a written request for a weather impact day that fully describes the inclement weather delay on the Critical Path activities. Excusable, non-compensable Contract time extensions for weather delays will only be considered for such delays that affect activities on the critical path of the Contract, as defined by the schedule current at the time of the delay. Such time extensions, if approved, will be non-compensable and shall be requested by the Contractor in accordance with Contract Change Order procedures subject to the following:

1. A weather delay day is defined as a day on which the Contractor is prevented by inclement weather or conditions resulting immediately therefrom, as determined by the Authority from proceeding with at least 75 percent of the normal labor and equipment force engaged on Critical Path activities for at least 60 percent of the total daily time being currently spent on the Critical Path activities. Weather delays may consist of days lost to inclement weather conditions, days lost to dry out of exposed soil, or days lost to site clean-up due to inclement weather but only after the weather impact area affecting the Critical Path activities has exhausted the allotted cumulative Rain Day Impact Allowance.
2. The table below lists the typical number of inclement weather days per month. Only days lost due to weather in a given month in excess of the number listed for that month will be considered for a time extension. Weather delay days are not cumulative from month to month.

Typical Number of Days of Inclement Weather

<u>Month</u>	<u>No. of Days</u>	<u>Month</u>	<u>No. of Days</u>
January	5	July	0
February	5	August	0
March	5	September	0
April	4	October	0
May	3	November	3
June	0	December	5

3. Weather impact days will not be granted for inclement weather that occurs on non-scheduled workdays. If the effects of inclement weather from a non-scheduled work day carry forward to a scheduled work day and affects the Critical Path as noted above, then the scheduled work day will be considered affected by weather.

4. If the Contractor asks to work a specific weekend or holiday and gives the Authority advance written notification of critical-path work to be performed, and if a substantial amount of precipitation occurs that prevents the work from being performed, that day can be claimed as a weather impact day. Any unused rain day allowance at the end of the project will be shown as available float to the Substantial Completion milestone.
- D. Time Extensions for Critical Path activities only: No extensions of time will be granted for delays that have no measurable impact on the completion of the Work (or parts thereof) under the Contract Documents. When extensions of time are granted, they shall be limited to the period equivalent to the actual number of days lost on the Critical Path or controlling operations of the Project Baseline Schedule or other applicable construction schedule, taking into account the extent to which that delay could be decreased by reasonable mitigation measures by the Contractor. All requests for extensions of time shall be supported with a critical path analysis showing the critical path and impacts on it. The Contractor's failure to submit this analysis will be sufficient cause for denial of any request for a time extension.
- E. An extension of time granted shall not release the Contractor's Surety from its obligations. Work shall continue and be carried on in accordance with all provisions of the Contract. The Contract shall remain in full force and effect during the continuance and until completion and acceptance of the Work covered by the Contract, unless formally suspended or terminated in accordance with the terms of the Contract. Permitting the Contractor to finish the Work, or any part thereof, after the time fixed for completion (or after the date to which the time for completion may have been extended), and/or making payments to the Contractor after any such periods, shall not constitute a waiver on the part of the Authority of any rights under the Contract.
- F. Neither the granting of an extension of time beyond the date fixed for the completion of any part of the Work nor the performance and acceptance of any part of the Work after the time specified for the completion of the Work shall be deemed to be a waiver by the Authority of the Authority's right to terminate the Contract for abandonment or failure to complete within the time specified, or to impose and deduct damages as may be specified.
- G. In all cases in which the Contractor either Claims or intends to Claim a delay, the Contractor shall comply with those provisions contained in the Contract.

PART 2 - PRODUCTS (Not used)**PART 3 - EXECUTION** (Not used)**PART 4 – MEASUREMENT AND PAYMENT**

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 31 99

**SECTION 01 32 17
CONSTRUCTION PROJECT SCHEDULE**

PART 1 – GENERAL

1.1 SUMMARY

Section includes requirements for preparing, submitting, revising, and updating project scheduling information. The purpose of this section is to ensure adequate planning and execution of the Work by the Contractor and to establish a standard against which satisfactory completion of the Project can be measured by the Authority and provide justification for progress payments.

1.2 GENERAL

- A. The scheduling and execution of the Work in accordance with the Contract Documents are the responsibility of the Contractor. Schedules shall represent a practical plan to complete the Work within the Contract Time and shall convey the Contractor's intent in the manner of prosecution and progress of the Work. The submittal of schedules shall be understood to be the Contractor's representation that the schedule meets the requirements of the Contract Documents and that the Work will be executed in the sequence and duration indicated in the schedule.
- B. Schedules shall be consistent with the time and work requirements of the Contract. The Contractor shall execute the Work in the sequence indicated on the current approved schedule.
- C. The Contractor shall involve and coordinate with all Subcontractors, third parties, and material suppliers in the development and updating of schedules.
- D. Review or acceptance of schedules by Authority shall not waive any contract requirements and shall not relieve the Contractor of any obligation or responsibility for submitting complete and accurate information.
- E. If after a schedule has been accepted or approved by the Authority, either the Contractor or the Authority discovers that any aspect of the schedule has an error or omission, the Contractor shall correct it on the next Progress Schedule.
- F. Errors or omissions on schedules shall not relieve the Contractor from finishing all work within the Contract Time.
- G. The Contractor shall adjust, add to, or clarify any portion of a schedule which the Authority determines to be insufficient for monitoring the Work or to be impractical for any reason.

- H. Use of float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints and extended activity durations will be cause for rejection of schedule submittal.

1.3 RELATED SECTIONS

- A. Section 01 29 73, Schedule of Values
- B. Section 01 31 99, Period of Performance

1.4 DEFINITIONS

- A. Activity: A task, event or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration and one or more logic ties.
- B. Actual Dates: The actual start or finish date of an activity which occurs prior to the data date. Dates occurring after the data date are forecasted dates and are not actual dates.
- C. Bar Chart (Gantt Chart): A graphic display of schedule-related information in which activities or other project elements are listed down the left side of the chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars.
- D. Baseline Schedule: The initial schedule representing the Contractor's work plan on the first working day of the project as approved by the Authority.
- E. Contract Completion Date: Contracted original completion date defined by the duration of the project.
- F. Controlling Operation: The activity, within that series of activities defined as the applicable critical path, which if delayed or prolonged will delay the scheduled completion date of the Work.
- G. Critical Path: The longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path will extend the scheduled completion date.
- H. Critical Path Method (CPM): A network based planning technique using activity durations and the relationships between activities to mathematically calculate a schedule for the entire project.
- I. Data Date: The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."
- J. Early Completion Date: A scheduled completion date which is earlier than the contract completion date.

- K. Free Float: The amount of time an activity can be delayed before affecting a subsequent activity.
- L. Hammock Activity: An activity added to the network to span an existing group of activities for summarizing purposes.
- M. Milestone: A marker in a network which is typically used to mark a point in time or denote the beginning or end of a sequence of activities. A milestone has zero duration, but will otherwise function in the network as if it were an activity.
- N. Narrative Report: A document submitted with each schedule that discusses topics related to project progress and scheduling.
- O. Near Critical Path: A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.
- P. Open Ended Activity: An activity without at least one predecessor and one successor.
- Q. Out of Sequence Activities: Any activity which actually starts in a sequence other than shown in the current approved schedule.
- R. Progress Schedule: A current schedule developed from the baseline or subsequent schedule through regular monthly review to incorporate as-built progress and any planned changes.
- S. Revision: A change in the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or durations.
- T. Scheduled Completion Date: The planned date of completion of the Work shown on the current approved schedule.
- U. Time Impact Analysis: A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.
- V. Total Float: The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

1.5 SUBMITTALS

- A. Baseline Schedule: Submit Baseline Schedule to the Authority within 7 calendar days following the date of the Notice to Proceed for review and approval.
 - 1. No Payments for Mobilization will be processed or approved by the Authority until the Baseline Schedule has been submitted to the Authority for review and approval.
 - 2. Payments for Mobilization will limited to less than 20% of Mobilization Price as shown in the Contract Schedule of Values, until the final Baseline Schedule

- complying with the requirements of the Contract and revised to correctly address Authority comments has been submitted by the Contractor.
3. The Contractor shall not construct any Contract Work or access the OCTA right-of-way until the Baseline Schedule has been approved in writing by the Authority.
- B. 90-Day Preliminary Schedule: Submit 90-Day Preliminary Schedule to the Authority within 14 calendar days following date of the Notice to Proceed for review and approval.
- C. Progress Schedule: Progress Schedule is due as part of the submittal of progress payment application for review and approval. The data date shall be set one day after the period in that month's progress payment application period.
- D. Final Progress Schedule shall be submitted within 14 calendar days following Substantial Completion for review and approval.
- E. Subcontractor Documentation:
1. Submit with the Baseline Schedule all Subcontractor schedules utilized in the development of the Baseline Schedule.
 2. Submit with the Baseline Schedule, a statement on Subcontractor's letterhead, certifying that Subcontractor has reviewed and concurs with the Baseline Schedule and that Subcontractor's related schedule has been reasonably incorporated, including activity duration
- F. Scheduler Qualifications: At Pre-Construction meeting, submit for the Authority's acceptance a resume of the individual proposed to perform scheduling. If the accepted individual leaves the Project or is assigned duties which no longer permit the individual to perform scheduling, notify the Authority and submit for acceptance the resume of the proposed replacement. Proposed individual must have a minimum of 5 years of verifiable scheduling experience.
- G. Three Week Look Ahead Schedule: Submit first Three-Week Look Ahead Schedule at Pre-Construction Meeting. Submit three hard copies of the weekly thereafter at Construction Progress Meetings until Substantial Completion.

1.6 SUBMITTAL DETAILS

- A. Each submittal of Baseline, Preliminary and Progress Schedules shall include the elements listed herein.
- B. Electronic Data: Compact discs or flash drive containing schedule, schedule data, and narrative. Submit two (2) sets of compact discs or one (1) flash drive. Schedule data shall be saved in P6 (.xer) format and shall contain all files of the schedule that can be restored by the Authority for its evaluation and analysis.

1. Tabular Reports: Electronic data submitted shall be sufficient to enable the Authority to generate the following tabular reports: Report sorted by activity number, report sorted by early start, and report sorted by total float. Data shall include the following items for each activity: activity number, description of what is to be accomplished and where, codes, duration, milestones, predecessor and successor logic, early start, early finish, late start, late finish, total float and free float.
- C. Gantt Activity Bar Charts: Show activities grouped by work areas and sorted by early start. Submit six (6) hard copies, 11 by 17 inch, and two (2) color E-size plots, 34 inch by 44 inch.
- D. Narrative Reports: Submit three hard copies.

1.7 BASELINE SCHEDULE

- A. Baseline Schedule shall utilize computerized Critical Path Method (CPM) network scheduling.
- B. Software: Utilize the current release of a CPM scheduling software able to conform to the scheduling requirements specified by the Contract Documents and as specified herein.
- C. Baseline Schedule shall show the order in which the Contractor proposes to carry out the work with logical links between work activities, and calculations made using the critical path method to determine the controlling operation or operations. Ensure that activity sequences are logical and that schedule shows a coordinated plan for complete performance of the work.
- D. Baseline Schedule shall include the entire scope of work through the end of Contract Time. Show how the Contractor plans to complete the Work. Show the activities that define the critical path. Show float on other activities. Keep multiple critical paths and near-critical paths to a minimum. A total of not more than 30 percent of the baseline schedule activities shall be critical or near critical, unless otherwise authorized by the Authority.
- E. The data date for the Baseline Schedule shall be the date of Notice to Proceed and shall include actual dates and durations for work completed. Baseline Schedule shall not attribute negative float or negative lag to any activity.
- F. Baseline Schedule shall define non-working days as days restricted from performance of construction work under Section 01 14 00 Work Restrictions, and the following 9 holidays: New Year's Day, Martin Luther King Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day after Thanksgiving Day and Christmas Day.
- G. Float: Float shall not be considered as time for the exclusive use of or benefit of either the Authority or the Contractor, but shall be considered as a jointly owned, expiring resource available to the project and shall not be used to the financial detriment of

either party. Use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations or imposed constraints will be cause for rejection of the Baseline Schedule and subsequent Progress Schedules. The Contractor shall not create artificial activities that eliminate any or all float in the project schedule.

- H. Calendar: Utilize multiple schedule calendars to identify and differentiate between day and night shift work and any weekend activity work.
- I. Autocost rules: Autocost rules shall link the remaining duration and the schedule percent complete. The updated percent complete against the budget shall be used to estimate Actual Cost to Date, and Actual to Date shall be linked to Actual This Period. Other automatic cost/resource calculation rules shall be in a format acceptable to the Authority.
- J. Retained Logic: When schedule calculations are performed, the "Retained Logic" setting shall be used.
- K. Early Completion: The Contractor may submit a Baseline or Progress Schedule showing an early scheduled completion date provided that the requirements of the Contract are met.
 - 1. The difference between the early completion date and the contract completion date is considered float. Float time shall not be for the exclusive benefit of either the Authority or the Contractor. Float shall be a resource available to both parties.
 - 2. Authority is not required to accept or approve a schedule with an early completion date.
 - 3. The Contractor shall not be entitled to extra compensation in the event an agreement is reached on an early completion date and the Contractor completes the Work, regardless of the reason, beyond the early completion date but within the Contract Time.
 - 4. Changes to Contract Time or contract completion date shall be by Contract Change Order.
- L. Baseline Narrative Report: Submit a narrative report with the Baseline Schedule describing the schedule development process, activity coding structure, basis of proposed durations, work sequence, approach or methods the Contractor intends to employ in the Work, and explanation of early scheduled completion date, if proposed.

1.8 BASELINE SCHEDULE ACTIVITIES

- A. Activity Coding: The Contractor shall develop its own activity coding structure. Activities shall be coded to a level sufficient to allow for multiple sorting such as that specified for tabular reports under "Tabular Reports" and "Gantt Activity Bars" in the Section entitled "Submittal Details" herein.

- B. General Activity Requirements: Baseline schedules shall include activities to show the following, as applicable:
1. Project characteristics, salient features, or interfaces, including those with outside entities that could affect time of completion.
 2. Project start date, scheduled completion date and other milestones.
 3. Work performed by the Contractor, Subcontractors, Suppliers and Third Parties.
 4. Submittal development, delivery, review and approval, including those from the Contractor, Subcontractors, third parties, and suppliers which impact the critical path.
 5. All submittals as listed in the Schedule of Submittals.
 6. Procurement, delivery, installation, and testing of materials, plants, and equipment.
 7. Required delivery of Authority furnished materials and periods of use of Authority-furnished equipment.
 8. Acquisition of permits.
 9. Utility notification and relocation noted to be performed by others.
 10. Installation and removal of falsework and shoring.
 11. Major traffic routing switches.
 12. Final cleanup.
 13. Work performed by other Contractors and entities.
 14. Demobilization, punchlist and project closeout activities.
- C. The number of activities shall be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.
- D. Each schedule activity shall include the following:
1. A clear, legible and unique description, including the location of work.
 2. Start and finish dates.

3. Duration not less than one full day, except for milestone activities, and not more than 15 working days, with the exception of submittals, fabrication, procurement, and summary activities, unless otherwise approved by Authority.
4. At least one predecessor and one successor activity, except for project start and finish milestones.
5. Contractually required constraints. Use of any other types of constraints is not allowed without prior approval by the Authority.
6. Activity codes for responsibility, phase, area, stage, work shifts, and contract bid item numbers. Code for responsibility shall denote the entity performing the activity, i.e. Authority, Contractor, Subcontractor, or utility.
7. Cost-Loading: Cost loading shall be made to the activities in accordance with the detail requirements set forth in this Section.

1.9 PRELIMINARY SCHEDULE

- A. Preliminary 90-Day Construction Schedule shall be submitted to the Authority at Pre-Construction meeting. The Schedule shall contain all procurement, construction activities and the Contractor's intended sequencing of work for first 90 calendar days following NTP, whichever occurs first. Accepted Preliminary 90-Day Schedule shall be updated monthly and submitted until the Contractor's Baseline Schedule is developed and accepted by Authority.
- B. Updates to Preliminary 90-Day Schedule are basis for payment to the Contractor during the first three-month period. Timely submittal and acceptance of such updates shall be a condition precedent to payment by Authority.
- C. Preliminary 90-Day Schedule shall also identify activities and milestones that will or may affect or be affected by activities of the Authority, Utilities, Railroads and other third parties.
- D. Partial cost loading for purpose of Progress and Earned Value Measurement as described in Section 1.11 covering the Work for first 90-Days after the NTP shall be submitted with the Preliminary 90-Day Schedule.

1.10 PROGRESS SCHEDULE

- A. Progress Schedule shall consist of an updated schedule based on the Baseline Schedule.
- B. Release of Progress payments will be dependent on receipt and approval of an acceptable Progress Schedule.

- C. Preliminary Progress Schedule: A Preliminary Progress Schedule for purpose of monthly progress review meeting is required 3 working days prior to the monthly status data date.
- D. For the detail procedures for Monthly Progress Review Meeting and the required formats for Preliminary Progress Schedule, refer to Section 1.11-A.
- E. Include the following information in the Progress Schedule: Status of work actually completed to date and the work yet to be performed as planned; actual activity start dates, and finish dates, as applicable; and durations for work that has been completed as the work actually occurred, including Authority submittal review and Contractor resubmittal times. Show approved time adjustments and project completion dates. Show approved Contract Change Order work. Show weather delay days which have already occurred and have been acknowledged by the Authority in writing.
- F. Modifications shown in Progress Schedule: The Contractor may include modifications such as adding or deleting activities or changing activity constraints, durations or logic that do not (1) alter the critical path(s) or near critical path(s) or (2) extend the scheduled completion date compared to that shown on the current accepted schedule. The Contractor shall state in writing the reasons for any changes to planned work. If any proposed changes in planned work will result in (1) or (2) above, then the Contractor shall submit a time impact analysis as described herein.
- G. Change logic relationships of out-of-sequence activities to reflect actual work sequence.
- H. Progress Narrative Report: Submit Narrative Report containing detailed comprehensive descriptions of the following information with every Progress Schedule submittal:
 - 1. Description of work completed during the reporting period, including progress made on activities on the current critical path.
 - 2. Explanation of any lack of work on activities on the critical path during the reporting period.
 - 3. Description of the current critical path.
 - 4. Explanation of changes to the critical path, including changes to logic or activity durations, and scheduled completion date since the last schedule submittal. Include explanation of work activities performed out of sequence from the approved schedule.
 - 5. Status of major activities on the current critical path, including percent complete, and amount of time ahead or behind schedule. Provide description and explanation of any delays encountered during the reporting period, including impacts on other activities, milestones, and completion dates.
 - 6. Description of proposed corrective actions and schedule adjustments to mitigate delays and bring the project back on schedule.

7. Status of permits, change orders, submittals, potential claims, time adjustments, material and equipment procurement, non-conformance reports, and any other pending items on the current critical path.
 8. Description of activities on the critical path to be performed in the next update period.
 9. Any other information pertinent to the status of the project as determined by the Contractor or requested by the Authority.
- I. Final Progress Schedule: Prepare and submit an updated, as-built Progress Schedule with actual start and finish dates for all activities and documented changes from the Preliminary Progress Schedule. Include a narrative report. The Contractor shall provide a written certificate with this submittal signed by the Contractor's project representative and an officer of the company stating, "To my knowledge and belief, the enclosed final update schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the Authority to sign the certificate to a responsible manager.

1.11 PROGRESS AND EARNED VALUE MEASUREMENT

- A. As a part of the monthly update cycle, a progress review meeting utilizing the Preliminary Update Schedule, will be held at least 3 working days prior to the data date between the Contractor and the Authority.
1. The schedule shall be based on the approved Progress Schedule from the previous month.
 2. The format shall include added blank columns in which the Contractor will pencil in the updated information including start dates, finish dates, percent completes, and remaining durations. The Contractor shall indicate activities for which Physical Percent Complete is used. The anticipated actual progress between the meeting date and the data date shall also be projected and included in the Preliminary Update Schedule. The format for the draft update schedule is shown below.

<div style="display: flex; justify-content: space-between; align-items: center;"> ← Previous Period → This Period → </div>											
Activity ID	Activity Description	OD	RD	%	Early Start	Early Finish	%	RD	Start	Finish	Comments
02720.2 STORM DRAINS - YARD											
02720.2.04 18" PVC SD PIPE, 11" INV											
0470	Exc/Lay/BF 18" SD Line A 25+48 to 27+95	3	0	100	23APR08A	24APR08A					
0580	Exc/Lay/BF 18" SD Line C 29+62 to 30+00	1	0	100	13MAY08A	13MAY08A					
0540	Exc/Lay/BF 18" SD Line B 21+29 to 27+50	4	2	50	27MAY08A	04AUG08	100	0		10AUG08	
0545	Exc/Lay/BF 18" SD Line B 27+50 to 27+90	1	0	100	29JUL08A	31JUL08A					
0630	Exc/Lay/BF 18" SD @ Laurel	4	4	0	07AUG08	12AUG08	50	3	09AUG08		Physical %
Subtotal		79	8	54	23APR08A	12AUG08					

3. Any logic revisions that need to be incorporated into the Progress Schedule shall be brought to the Authority's attention in the monthly progress review meeting for Authority's initial review, including, but not limited to, fixing the logic of out-of-sequence activities, adding any approved time impact fragnets, reflecting the Contractor's work plan changes, and any other minor logic revisions.
- B. Except as otherwise specified, only construction and general requirement activities shall be cost loaded. The sum of the budgeted costs of all activities in the project schedule shall equal the contract price. Activity costs shall not be input as resources.
1. Each construction activity shall have a nonzero budgeted cost that represents the direct cost of the work. Front-end loading of costs is not permitted and shall result in rejection of the schedule.
 2. In the scheduling software, cost account numbers shall be defined to exactly mirror the contract bid item numbers. All activities shall be assigned with a cost account number which corresponds to the contract bid item number whether or not the activity has a dollar value assigned. The sum of the budgeted cost of all activities coded with a particular cost account (i.e., sub-level activities under a particular bid item) shall equal to the amount of the matching bid item.
 3. Each activity's cost loading should be made based on the predefined cost account numbers so that a Schedule of Value report can be generated from the scheduling software after the entire cost loading is done. The format of the Schedule of Value shall be the same as the Schedule of Quantities of Price in the contract document.
 4. Activity's percent complete shall be determined by estimating percent of Work in place. Autocost rule shall link Remaining Duration and Percent Complete. If the Contractor elects to bypass the said autocost rule for any cost loaded activities by using Physical Percent Complete or any other variations, a prior approval from the Authority shall be obtained.
- C. The amount of monthly progress payment shall match the sum of the Earned Values generated from the cost loaded activities as a result of updating the Progress Schedule.
1. The organization of Earned Value Report shall be the same as the breakdown of Schedule of Value submitted during the initial schedule development which was developed according to predefined cost account numbers corresponding to the contract bid item numbers.
 2. The Schedule of Value shall be the base from which an Earned Value Report will be generated each month. The Earned Value Report shall be attached to each monthly payment application submittal package.

- D. After the monthly progress review meeting, the Contractor shall formally update the monthly Progress Schedule based on the agreed-upon schedule update data. Then the monthly Earned Value Report shall be generated and included in the monthly Progress Schedule submittals, which shall be submitted no later than 5 working days after the data date. The Earned Value Report shall be a direct output from the scheduling software which shows subtotal for each Schedule of Value grouping category and grand total for the entire project. The Earned Value Report format is shown below.

Activity ID	Activity Description	Budgeted Cost	%	Previous Actual \$	This Period \$	Actual \$ to Date	Cost to Complete	Cost at Completion
02720.2 STORM DRAINS - YARD								
02720.2.04 18" PVC SD PIPE, 11' INV								
0470	Exc/Lay/BF 18" SD Line A 25+48 to 27+95	20,000.00	100	20,000	0	20,000.00	0.00	20,000.00
0580	Exc/Lay/BF 18" SD Line C 29+62 to 30+00	17,812.00	100	10,000	7,812	17,812.00	0.00	17,812.00
0540	Exc/Lay/BF 18" SD Line B 21+29 to 27+50	20,000.00	50	5,000	5,000	10,000.00	10,000.00	20,000.00
0545	Exc/Lay/BF 18" SD Line B 27+50 to 27+90	10,000.00	100	3,000	7,000	10,000.00	0.00	10,000.00
0630	Exc/Lay/BF 18" SD @ Laurel	4,400.00	0	0	0	0.00	4,400.00	4,400.00
Subtotal		72,212.00	80	38,000	19,812	57,812.00	14,400.00	72,212.00

1.12 THREE-WEEK LOOK AHEAD SCHEDULE

- A. Three-Week Look Ahead Schedule shall contain one week of historical information and three weeks of planned activities in support of and consistent with the Baseline Schedule or current Progress Schedule.
- B. Format: An electronic spreadsheet or other format acceptable to the Authority. Label each activity to match the Activity ID number on the current Progress Schedule. Highlight the critical path. Data date shall be within current week.
- C. Level of Detail: Greater than in the Baseline Schedule or Progress Schedule.
- D. Clearly show each activity requiring track access during specified work windows; schedule activities performed during single or multiple track outage work windows utilizing an hourly time scale.
- E. Show weather delay days which have already occurred and have been acknowledged by the Authority in writing.
- F. Show demobilization and punchlist activities through to Final Completion.

1.13 REVIEW AND RESUBMITTALS

- A. The Authority will review and return the Contractor's schedule submittals and deliverables with a written response according to the following schedule from the date of receipt from the Contractor.
- Baseline Schedule: within 15 working days.
 - Progress Schedule: within 10 working days

- B. The Authority will review and return resubmittals to the Contractor with a written response according to the following schedule from the date of receipt from the Contractor.
 - 1. Baseline Schedule: within 7 working days
 - 2. Progress Schedule: within 5 working days
- C. If the Contractor does not agree with the Authority's comments, provide written notice of disagreement within 5 working days from the receipt of the Authority's comments. Resolve any Authority's comments with which the Contractor disagrees in a meeting held for that purpose.
- D. The first of each type of submittal and deliverable submitted by the Contractor will be reviewed for format, as well as content. The Authority may require format changes. Once the format has been approved, submit subsequent submittals and deliverables in the approved format.
- E. Baseline Schedule Review Meeting: Within 10 working days after the submittal of the Baseline Schedule, the Authority will conduct a Baseline Schedule Review Meeting with the Contractor.
 - 1. The Contractor shall have its Project Manager, construction management personnel, individual performing scheduling and major Subcontractor representatives, in attendance.
 - 2. Meeting topics will include the following:
 - a. The Contractor's presentation of Baseline Schedule submittal including explanation of critical path, critical path activities, resources and production rates of work activities, and other items related to scheduling of work.
 - b. General review and discussion of schedule format, activities and information potentially missing from the schedule.
- F. Recovery Schedule: If Contractor's actual progress of the Work falls ten (10) working days behind the approved Baseline Schedule for the Contract completion date, the Contractor shall prepare and submit a Recovery Schedule within five (5) working days to explain and display how the Contractor intends to regain compliance with the Contract completion date. The Recovery Schedule shall detail the Contractor's plan for bringing the work back on schedule. The Contractor's plan for recovery shall conform to all other Contract requirements. Incorporate revisions accepted by the Authority in the next Progress Schedule. Do not incorporate proposed revisions in the Progress Schedule prior to their acceptance.

1.14 TIME IMPACT ANALYSIS

- A. If the Contractor requests an extension of time for the completion of an interim milestone date or Contract completion date, justification in the form of a Time Impact Analysis (TIA) for such extension shall be furnished. The Authority will determine whether or not the Contractor is entitled to an extension of time under the provisions

of the Contract. Submission of a TIA based on revised activity logic, duration, and a cost is required for approval of any time extension. The cost of preparing time impact analyses or subsequent schedule revisions shall be borne solely by the Contractor.

- B. Illustrate the impacts of each change or delay on the current Contract completion date or interim milestone, as appropriate. Use the approved Progress Schedule which has a data date closest to and prior to the event for which an extension is being requested.
- C. Include a schedule showing all schedule logic revisions, duration changes, cost changes, and additions or deletions of activities for the work in question and its relationship to other activities on the Progress Schedule. Provide additional supporting evidence if requested by the Authority.
- D. The Authority's determination as to the total number of days of time extension will be based upon the current schedule for the time period in question, and all other relevant information. Actual delays in activities which, according to the Progress Schedule, do not affect the critical path or the Contract completion date will not be the basis for a time extension.
- E. The Authority will review the facts and advise the Contractor in writing of the Authority's decision. If the Authority determines that the Contractor is entitled to an extension of time to an interim milestone, the Contract completion date will remain the same, unless the Authority specifies another date. Any change to Contract milestones or to the Contract completion date will be made by Change Order.
- F. If the Authority has not yet made a full determination as to the amount of time extension to be granted and the parties are unable to agree as to the amount of extension to be reflected in the Progress Schedule, reflect that amount of time extension in the Progress Schedule as determined to be appropriate by the Authority for such interim purpose. It is understood and agreed that such interim determination by the Authority for the purposes of this Section will not be binding upon either party for any other purpose, and that, after the Authority has made a final determination as to any time extension, revise the Progress Schedule in accordance with the final decision.

1.15 INCLEMENT WEATHER CONDITION

The Contractor shall allow for inclement weather in the Baseline Schedule by incorporating an activity titled "Rain Day Impact Allowance" as the last activity prior to the Substantial Completion milestone. No other activities may be concurrent with it. The duration of the Rain Day Impact Allowance activity will be based on Section 01 31 99, Period of Performance.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 32 17

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SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for the following:

- A. Preconstruction photographs
- B. Periodic construction photographs
- C. Final completion construction photographs
- D. Preconstruction video recordings
- E. Periodic construction video recordings
- F. Web-based construction photographic documentation

1.2 RELATED REQUIREMENT

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 77 00, Substantial Completion

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit a key plan of the Project site and any buildings, with notation of vantage points marked for location and direction of each photograph and video recording. Indicate the elevation of construction. Include same the information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within 7 days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of 10 megapixels.
 - 2. Format: Minimum of 1,600 by 1,200 pixels and 400 dpi, in unaltered JPG format original files having the same aspect ratio as the sensor, uncropped, date- and time-stamped, in a folder named by the date of the photographs, and accompanied by a key plan file.
 - 3. Identification: Provide the following information with each image description using file metadata tags:
 - a. Name of Project
 - b. Name of the Contractor
 - c. Date photograph was taken (or date stamped by digital camera)
 - d. Description of the vantage point, indicating location, direction (by compass point), and elevation or story of construction

- e. Unique sequential identifier keyed to the accompanying key plan
- C. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs.
 - 1. Format: 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard three-ring binder
 - 2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
 - a. Name of the Project
 - b. Name and contact information for the photographer
 - c. Name of the Contractor
 - d. Date photograph was taken (if not date-stamped by the camera)
 - e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction
 - f. Unique sequential identifier keyed to accompanying key plan
- D. Video Recordings: Submit video recordings within seven days of recording.
 - 1. Submit video recordings in a digital video disc format acceptable to the Authority.
 - 2. Identification: With each submittal, provide the following information:
 - a. Name of the Project
 - b. Name of the Contractor
 - c. Date video recording was recorded
 - d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction
 - 3. Transcript: Prepared on 8½-by-11-inch paper, punched and bound in heavy-duty, three-ring, vinyl-covered binders. Mark appropriate identification on the front and spine of each binder. Include a cover sheet with the same label information as on the corresponding video recording. Include the name of the Project and the date of the video recording on each page.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, produced by a digital camera with a minimum sensor size of 10 megapixels, and at an image resolution of not less than 1,600 by 1,200 pixels and 400 dpi.

- B. Digital Video Recordings: Provide a high-resolution HD 1080p, digital video disc or flash drive in a format acceptable to the Authority.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, producing images that are in focus so as to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
- B. Maintain a key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or any modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name for each image.
 - 2. Field Office Images: Maintain one set of images accessible in the field office at the Project site, available at all times for reference. Identify images in the same manner as used for those submitted to the Engineer.
- D. Preconstruction Photographs: Before commencement of construction, take photographs of the Project site and surrounding properties including existing items that are to remain during construction. These photographs shall be taken from different vantage points, as directed by the Authority.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take photographs to show existing conditions adjacent to the property before starting the Work.
 - 3. Take photographs of existing buildings either on or adjoining the property to accurately record physical conditions at start of construction.
 - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- E. Periodic Construction Photographs: Take photographs weekly, with the timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show the status of construction and progress since the last photographs were taken.
 - 1. Commencement of the Work, through completion of clearing of site, demolition, and dismantling and removals
 - 2. When excavation is complete
 - 3. When utility pipes, conduits, and ducts are installed but not covered
 - 4. When footings and foundations are complete
 - 5. When the subgrade is complete

6. When geomat and ballast are placed
 7. When rail and special track is installed
 8. Earth box and switch excavation and installation
 9. TPSS and C/S prefab building installation
 10. All above-grade structural framing
 11. Exterior building enclosure
 12. Interior Work, through the date of Substantial Completion
 13. When finish grade is complete
 14. Site improvements through date of Substantial Completion.
- F. Final Completion Construction Photographs: Take color photographs after the date of Substantial Completion for submission as Project record documents.

3.2 CONSTRUCTION VIDEO RECORDINGS

- A. Recording: Mount the camera on a tripod before starting recording, unless otherwise necessary to show the construction area. Display continuous running time and date.
- B. Narration: Describe scenes on the video recording by audio narration, using a microphone while the video is recorded. Include a description of items being viewed, recent events, and planned activities. At each change in location, describe the vantage point, location, direction (by compass point), and elevation or story of construction.
1. Confirm date and time at beginning and end of recording.
 2. Begin each video recording with the name of the Project, the Contractor's name, the videographer's name, and the Project location.
- C. Preconstruction Video Recording: Before starting construction, make a video recording of the Project site and surrounding properties from different vantage points.
1. Flag construction limits before recording construction video recordings.
 2. Show existing conditions adjacent to the Project site before starting the Work.
 3. Show existing buildings, structures, and peripheral improvements either on or adjoining the Project site to accurately record physical conditions at the start of construction.
 4. Show protection efforts undertaken by the Contractor.
- D. Periodic Construction Video Recordings: Make video recordings monthly, coinciding with the cutoff date associated with each Application for Payment.

Select vantage points to show the status of construction and progress since the last video recordings were made.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 32 33

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**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes requirements for the submittal schedule and procedural requirements for submitting Shop Drawings, Product Data, Samples, administrative and miscellaneous (non-administrative) work-related submittals.

1.2 RELATED REQUIREMENTS

- A. Section 01 25 00, Substitution Procedures
- B. Section 01 60 00, Product Requirements
- C. Section 01 78 39, Project Record Documents

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require the Authority's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require a response from the Authority. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals so described in individual Specification Sections.
- C. Plans and Procedures: Include narrative descriptions, diagrams, equipment, procedures for excavation, demolition, site clearing, maintenance of traffic, etc
- D. Certificates: Include certified Material test reports, certification of proper disposal of demolition Materials, or tickets demonstrating compliance with Materials, tests or Specifications indicated.
- E. Equipment: Include equipment Specifications, manufacturer information and demonstration of suitability of equipment for intended use.
- F. Product Data: Include standard printed information on Materials, products and systems to be furnished by the Contractor for this Contract.
- G. Shop Drawings: Include detailed manufacturing and layout information, demonstrating the Contractor's approach to meeting the intent of the Plans and Specifications.

- H. Samples: Include physical examples of Materials either for limited visual inspection or (where indicated) for confirmation, testing, and analysis by the Authority.
- I. Miscellaneous Submittals: Such submittals shall be related directly to the Work, but not necessarily administrative related. Include Work schedule, phasing plans, warranties, guarantees, maintenance agreements, workmanship bonds, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance Materials, overrun stock (and similar information) and, devices and Materials applicable to the Work but not processed as Shop Drawings, Product Data or samples.

1.4 PATENTS

In the event that any patented article, material, or process is to be installed or used in the performance of the Work as shown on the drawings or particular specifications thereof, the Contractor shall pay the royalty chargeable and shall save, keep, and bear the Authority harmless from (a) all damage, costs, and expenses by reason of any infringement of the patent or any failure to pay the royalty chargeable for use thereof, or (b) any loss to the Authority in the event that the Authority is enjoined from using such patented article or material, or (c) the incidental damage caused by the loss of use and damage to Authority property in removing same, and (d) the cost of replacing the article or material the use of which is enjoined. It is further provided that the Bond for faithful performance shall be deemed to expressly apply to this provision of the specifications.

1.5 CONTRACTOR PREPARED DRAWINGS, PRODUCT DATA, AND SAMPLES

The Contract Documents shall be supplemented by shop drawings, working drawings, equipment layout drawings, coordination drawings, lift drawings, product data, samples, and similar submittals prepared by the Contractor or its Subcontractors or Suppliers, of any tier. These materials and similar submittals shall be furnished as required for coordination of the Contractor's work, as required for the coordination of the work with forces of the Authority or other Contractors working for the Authority, as required by the various sections of the specifications, or as requested by the Authority. The purpose of the submittal is to demonstrate for those portions of Work for which submittals are required the manner in which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

When shop drawings, working drawings, equipment layout drawings, coordination drawings, lift drawings, product data, samples or similar submittals are required by any section of the specifications or have been requested by the Authority or the Engineer, the Contractor shall coordinate all Work under the various sections of the Specifications to ensure that no interferences occur in the areas, structures, or rooms for which such drawings have been required, and that necessary clearances are provided.

1.6 SUBMITTAL SCHEDULE

Submit a schedule of submittals, arranged in chronological order by dates required by the construction schedule. When establishing dates, include the time required for review,

ordering, manufacturing, fabrication, and delivery. Include additional time required for making submittal corrections or modifications noted by the Authority, and additional time for handling and reviewing submittals required by those corrections.

- A. Coordinate the submittal schedule with the list of subcontracts, the Schedule of Values, and the Contractor's construction schedule.
- B. Submit Initial Submittal Schedule 15 days after issuance of Notice to Proceed. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work, and those required early because of long lead time for manufacture or fabrication. Indicate if a submittal is on the critical path for project completion.
- C. Final Submittal: Submit concurrently with the first complete submittal of the Contractor's construction schedule. Submit a revised submittal schedule to reflect changes in the current status and timing for submittals.
- D. Format: Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal
 - 2. Specification Section number and title
 - 3. Submittal category (action or informational)
 - 4. Name of Subcontractor
 - 5. Description of the Work covered
 - 6. Scheduled date for the Authority's final release or approval
 - 7. Scheduled dates for purchasing
 - 8. Scheduled dates for delivery and installation
 - 9. Activity or event number
 - 10. Float

1.7 PROCESSING REQUIREMENTS FOR SUBMITTALS

- A. General: Electronic digital copies of CAD drawings of the Contract Drawings (Plans) will be provided by the Authority for the Contractor's use in preparing submittals, subject to completion and return of the Authority's release form.
- B. Coordination: Coordinate preparation and processing of submittals with the performance of construction activities. Transmit each submittal sufficiently in advance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on an approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate the transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of the need to review submittals concurrently for coordination.
 5. The Contractor shall show his executed internal review and approval marking. Submittals, which are received from sources other than through the Contractor's office or which have not undergone Contractor review, will be returned marked "without action."
 6. The Authority reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on the first full working day after the Authority receives the submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. In the event that Submittal is reviewed by a third party (including Railroads Operators and authorities having jurisdiction), allow up to an additional 14 working day's time for Authority's response. The Authority will advise the Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in the same manner as an initial submittal.
 3. Resubmittal Review: Allow seven days for review of each resubmittal.
 4. Concurrent Consultant Review: Where concurrent review of submittals is required, allow 21 days for initial review of each submittal.
 5. Submittals received after 2 PM will not be processed until the following working day which will be recorded as the receipt of submittal date.
- D. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. The Authority will return, without review, any submittals received from sources other than the Contractor.
1. Transmittal Form: Provide locations on the form for the following information:

- a. Project name
 - b. Date
 - c. Destination (To:)
 - d. Source (From:)
 - e. Names of Subcontractor, manufacturer, and supplier
 - f. Category and type of submittal
 - g. Submittal purpose and description
 - h. Specification Section number and title
 - i. Indication of full or partial submittal
 - j. Drawing number and detail references, as appropriate
 - k. Transmittal number, numbered consecutively
 - l. Submittal and transmittal distribution record
 - m. Remarks
 - n. Signature of transmitter
 2. On an attached separate sheet, prepared on the Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by the Authority on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include the same identification information as on the related submittal.
 3. Include the following information as keywords in the electronic file metadata:
 - a. Project name
 - b. Project Identification Number
 - c. Number and title of the appropriate Specification Section
 - d. Manufacturer name
 - e. Product name
- E. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification. Indicate the name of the firm or entity that prepared each submittal on the label or the title block. Provide a space approximately 3 by 4 inches on the label or beside the title block to record the Contractor's review and approval markings and action taken by the Authority. Include the following information for processing and recording action taken:
1. Project name
 2. Date
 3. Name of Design Consultant

4. Name of Contractor
 5. Name of Subcontractor
 6. Name of supplier
 7. Name of manufacturer
 8. Submittal number or other unique identifier, including revision identifier. The Submittal number shall use the Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 9. The number and title of the appropriate Specification Section
 10. Drawing number and detail references, as appropriate
 11. Location(s) where product is to be installed, as appropriate
 12. Other necessary identification
- F. For electronic submittal Identification and Information, incorporate in each file as follows:
1. Assemble the complete submittal package into a single indexed file, with links enabling navigation to each item.
 2. Name the file with its submittal number or another unique identifier, including revision identifier. The file name shall use a project identifier and the Specification Section number, followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 3. Provide a means for insertion to permanently record the Contractor's review and approval markings and action taken by the Authority.
- G. Identify Applicable standards, ASTM, ACI, OSHA, etc. and identify options requiring selection by the Authority.
- H. Deviations: Identify deviations from the Contract Documents on submittals.
- I. Resubmittals: Make resubmittals in the same form and with the same number of copies as the initial submittal.
1. Note the date and content of the previous submittal.
 2. Note the date and content of the revision in the label or title block, and clearly indicate the extent of revision.
 3. Resubmit submittals until they are stamped with action by reviewer.
- J. Distribution: Furnish copies of final submittals to manufacturers, Subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as

necessary for performance of construction activities. Show distribution on the transmittal forms.

- K. Use for Construction: Retain full copies of approved submittals on the Project Site. Use only final submittals that are marked with approval notation from the Engineer's action stamp.

1.8 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

A. Normal Submittals:

1. Submit copy of normal submittals for equipment to be commissioned to the Authority.
2. Authority will review and approve normal submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the Authority's review.

B. Data for Commissioning: Authority will request specific information needed about each piece of commissioned equipment or system. Information requested includes, but is not limited to, the following:

1. Detailed manufacturer's installation and start-up procedures
2. Operating, troubleshooting, and maintenance procedures
3. Full details of Authority-contracted tests, if any
4. Fan and pump curves
5. Full factory testing reports, if any
6. Full warranty information, with responsibilities of the Authority to keep warranty in force clearly defined
7. Installation and checkout materials actually shipped inside equipment and actual field checkout sheet forms to be used by factory or field technicians

C. Authority may request additional documentation necessary for the commissioning process. Requests by Authority may precede, be concurrent with, or follow normal submittals.

D. The Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Authority's review.

1.9 CONFORMANCE OF SUBMITTALS

- A. The Contractor is responsible for conformance of all submittals prepared by the Contractor or its Subcontractors or suppliers, of any tier, with all requirements of the Contract Documents. Where required by California law, or as specified in the Contract Documents, submittals shall be signed and sealed by a Professional

Engineer licensed in the State of California, or Land Surveyor licensed in the State of California as applicable.

- B. The Contractor shall show his executed internal review and approval marking. Submittals, which are received from sources other than through the Contractor's office or which have not undergone Contractor review, will be returned marked "without action."
- C. Acceptance of shop drawings, working drawings, equipment layout drawings, coordination drawings, lift drawings, product data, samples, and similar submittals shall not relieve the Contractor from responsibility for deviations from the Contract Documents, nor from responsibility for errors or omissions of any sort with such drawings and data. Neither shall the acceptance of such drawings and data by the Authority relieve the Contractor from responsibility for the correct installation, or for the proper operation in service, of items requiring submittal of such drawings and data.

PART 2 - PRODUCTS

2.1 SUBMITTAL PERFORMANCE REQUIREMENTS

- A. Any Work performed without an approved submittal will be done at the Contractor's own risk
- B. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Authority's review of Shop Drawings, Product Data, Samples, or similar submittals unless the Contractor has specifically informed the Authority in writing of such deviation at the time of the submittal and given written acceptance to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Authority's review thereof.
- C. Direct specific attention in writing or on resubmitted shop Drawings, Product Data, Samples, or similar submittals to revisions other than those requested by the Authority on previous submittals.

2.2 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. The required types of submittals are indicated in individual Specification Sections.
 - 1. Submit electronic submittals via e-mail as PDF electronic files. The Authority will return the annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Action Submittals: Submit five paper copies of each submittal, unless otherwise indicated. The Authority will return three copies.

3. Make copies of the returned copy as required for distribution and for operations and maintenance manuals. Mark up and retain one returned copy as a Project Record Document.
 4. Informational Submittals: Submit six paper copies of each submittal, unless otherwise indicated. The Authority will not return copies.
 5. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 19, Project Closeout.
 6. Certificates and Certifications Submittals: Provide a statement that includes the signature of the entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity who is an Engineer or Architect recognized to practice engineering or architecture in the State of California.
 7. Provide a notarized statement on original paper copy certificates and certifications where indicated.
 8. Test and Inspection Reports Submittals: Comply with requirements specified in Section 01 40 00, Quality Requirements.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment. A Material Safety Data Sheet shall be submitted for each product.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts
 - b. Manufacturer's product specifications
 - c. Standard color charts
 - d. Statement of compliance with specified referenced standards
 - e. Testing by recognized testing agency
 - f. Application of testing agency labels and seals
 - g. Notation of coordination requirements
 - h. Availability and delivery time information
 - i. Manufacturer's written recommendations
 - j. Manufacturer's installation instructions
 - k. Mill reports

- l. Standard product operation and maintenance manuals
 - m. Approval number of organizations or agencies as required by agencies having jurisdiction
 - n. Notation of dimensions verified by field measurements
 - o. Notation of coordination requirements
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring
 - b. Printed performance curves
 - c. Operational range diagrams
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings
 - 5. Submit Product Data before or concurrent with Samples
 - 6. Submit Product Data in the following format:
 - a. PDF electronic file: Make copies of the returned copy as required for distribution and for operations and maintenance manuals. Mark up and retain one returned copy as a Project Record Document.
 - b. Product data: Submit six paper copies unless otherwise indicated. The Authority will return three copies. Make copies of the returned copy as required for distribution and for operations and maintenance manuals. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings, Working Drawings, Equipment Layout Drawings, and Coordination Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on the Engineer's digital data drawing files is otherwise permitted. Unless otherwise approved by the Authority or indicated in specific sections of the Specifications, Shop Drawings shall be scaled sufficiently large to accurately show all pertinent aspects of the item and its relationship to the Work. The Contractor shall additionally submit the shop drawing on electronic media in MicroStation Intergraph Format.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products
 - b. Product Schedules
 - c. Compliance with specified standards
 - d. Notation of coordination requirements
 - e. Notation of dimensions established by field measurement

- f. Relationship and attachment to adjoining construction clearly indicated
 - g. Seal and signature of California registered professional engineer if specified
 - h. Dimensions and clearances
 - i. Fabrication and installation drawings
 - j. Roughing-in and setting diagrams
 - k. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring
 - l. Templates and patterns
 - m. Design calculations
 - n. Approval number of organizations or agencies with jurisdiction for the Work.
- 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8½ by 11 inches but no larger than 24 by 36 inches.
- 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file: Make copies of the returned copy as required for distribution and for operations and maintenance manuals. Mark up and retain one returned copy as a Project Record Document.
 - b. Opaque copies: Submit four of each submittal. Mark up and retain one returned copy as a Project Record Document.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements, and for a comparison of these characteristics between the submittal and the actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components (such as accessories) together in one submittal package.
 - 2. Identification: Attach a label on the unexposed side of Samples that includes the following:
 - a. Generic description of Sample
 - b. Product name and name of manufacturer
 - c. Sample source
 - d. Number and title of applicable Specification Section
 - 3. Disposition: Maintain sets of approved Samples at the Project site, available for quality-control comparisons throughout the course of

construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

- a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Authority's property, are the property of the Contractor.
4. Samples Detailed Work drawings shall be submitted by the Contractor for temporary structures and for such other temporary Work as may be required for construction, but which does not become an integral part of the completed Project. Submittals shall include back-up calculations or any information needed to explain the structure or system or its intended use.
5. Where a submittal involves engineering computations or original design Work is depicted, the submittal shall show the name, the State of California registration number, seal, and signature of the Professional Engineer certifying that such computations or design Work are correct and in conformance with standards, codes, and acceptable engineering practice.
6. Number of Initial Selection Samples: Submit four full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from a manufacturer's product line. The Authority will return the submittal with options selected.
7. Samples for Verification: Submit full-size units or Samples of the size indicated, prepared from the same material to be used for the Work, cured and finished in the manner specified, physically identical with the material or product proposed for use, and showing the full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
8. Number of Verification Samples: Submit four sets of Samples. Mark up and retain one returned Sample set as a Project record sample.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - b. If variations in color, pattern, texture, or other characteristics are inherent in the material or product represented by a Sample, submit at least four sets of paired units that show the approximate limits of the variations.
9. The Contractor shall submit 1 reproducible set and 5 copies of each shop drawing submittal. Distribution of submitted shop and working drawings by the Contractor for the Authority's use will be performed by the Authority.

The Contractor shall make and distribute all copies required for his purposes.

- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating the types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include a unique identifier for each product.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
 5. Submit the product schedule in the following format:
 - a. PDF electronic file: Mark up and retain one returned copy as a Project Record Document.
 - b. Paper copies: Submit four paper copies of the product schedule or list, unless otherwise indicated. The Authority will return two copies. Mark up and retain one returned copy as a Project Record Document.
- F. Certificates of Compliance: Certificates of Compliance shall be submitted by the Contractor to the Authority for those Materials and products for which no samples and test results are specified. The certificates shall:
1. State that the product complies with the respective Contract Specification and Contract Drawing requirements.
 2. Be accompanied by a certified copy of test results pertaining to the product. All test equipment used shall be verified to be in calibration at the time of each test and test reports shall so indicate. No test shall be made without such verification. When required by the Contract Documents or by law, certified test results shall be sealed by a Professional Engineer licensed to practice in the State of California.
 3. Show product represented and its location in the Contract, producer's name, product trade name and catalog number as applicable, place of product origin, test date, testing organization's name and address, quantity of the product to be furnished, and the related Contract Drawing and Specification section numbers.
- G. Where required by the Specification or if requested by the Authority, submit the following written statements on the manufacturer's letterhead:
1. Certification that the manufacturer, its products or materials complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

2. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results verifying the material's compliance with requirements in the Contract Documents.
3. Product Test Reports: Submit written reports indicating the current product produced by the manufacturer complies with requirements in the Contract Documents. Base reports on an evaluation of tests performed by the manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
4. Research Reports: Submit written evidence, from a model code organization acceptable to jurisdictional authorities that the product complies with the building code in effect for the Project. Include the following information:
 - a. Name of evaluation organization
 - b. Date of evaluation
 - c. Time period when report is in effect
 - d. Product and manufacturers' names
 - e. Description of product
 - f. Test procedures and results
 - g. Limitations of use
5. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of the product to determine compliance with performance requirements in the Contract Documents.
6. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
7. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of the product or after the product is installed in its final location to verify compliance with requirements in the Contract Documents.
8. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, a list of applicable codes and regulations, and calculations. Include a list of assumptions and other performance and design criteria, and a summary of

loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

9. Manufacturer's Instructions: Prepare written or published information that documents the manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include the name of the product and the name, address, and telephone number of the manufacturer. Include the following, as applicable:
 - a. Preparation of substrates
 - b. Required substrate tolerances
 - c. Sequence of installation
 - d. Required installation tolerances
 - e. Required adjustments
 - f. Recommendations for cleaning and protection
10. Manufacturer's Field Reports: Prepare written information documenting the factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - a. Name, address, and telephone number of the factory-authorized service representative making the report
 - b. Statement on condition of substrates and their acceptability for installation of product
 - c. Statement that products at Project site comply with requirements
 - d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken
 - e. Results of operational and other tests and a statement of whether observed performance complies with requirements
 - f. Statement whether conditions, products, and installation will affect warranty
 - g. Other required items indicated in individual Specification Sections

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with an approval stamp before submitting to the Authority.

- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Section 01 77 19, Project Closeout.
- C. Approval Stamp: Stamp each submittal with a uniform approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that the submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 AUTHORITY'S ACTION

- A. The Authority will not review submittals that do not bear the Contractor's approval stamp, and will return such submittals without action.
 - 1. The review is not conducted for the purpose of determining the accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor.
 - 2. Compliance with specified characteristics is the Contractor's responsibility; it is not considered part of the Authority's review and indication of action taken.
 - 3. Acceptance of submittals with deviations shall not relieve the Contractor from responsibility for additional costs of changes required to accommodate such deviations. Deviations included in submittals without prior acceptance are excepted from review of submittals, whether noted or not on returned copy.
 - 4. Review of a separate item shall not indicate acceptance of the assembly of which the item is a part.
 - 5. Make only those revisions required or accepted by the Authority.
 - 6. Notations by the Authority which increase Contract Cost or Contract Time shall be brought to the Authority's attention, in writing as a Request for Change, before proceeding with Work.
 - 7. When professional certification of performance criteria of materials, systems, or equipment is required by the Contract Documents, the Authority shall be entitled to rely on the accuracy and completeness of such calculations and certifications.
- B. Action Submittals: The Authority will review each submittal, make marks to indicate corrections or modifications required, and return it. The Authority will stamp each submittal with an action stamp and mark the stamp appropriately to indicate the action required.
- C. Informational Submittals: The Authority will review each submittal and will generally not return it (it will be returned if it does not comply with requirements). The Authority will forward each submittal to the appropriate party.

- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from the Authority.
- E. Incomplete submittals are not acceptable; they will be considered nonresponsive, and will be returned without review.
- F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

3.3 SUBMITTAL STATUS

- A. Submittals reviewed by the Authority and returned to the Contractor will be marked with one of the following designations:
 - 1. NO Exceptions Taken.
 - 2. Approved as Noted.
 - 3. Revise and Resubmit.
 - 4. Rejected.
 - 5. No Action Taken.
- B. The Contractor shall not proceed with procurement, manufacture or fabrication of items submitted for review, until such submittals have been designated by the Authority as "No Exceptions Taken" or "Approved as Noted." Until submittal items receive such designation by the Authority, any costs associated with procurement for these items shall be at the Contractor's risk.

3.4 SUBMITTALS DESIGNATED AS "CONFORMS" OR "CONFORMS WITH CORRECTIONS AS NOTED"

- A. Each copy of the submittal so designated by the Authority will be identified accordingly by being so stamped and dated. One reproducible copy will be returned to the Contractor.
- B. The Contractor shall take responsibility for and bear all cost of damages, which may result from the ordering of any material or from proceeding with any part of the Work prior to being marked "No Exceptions Taken" or "Approved as Noted" by the Authority.
- D. Where drawings are stamped "Approved as Noted", the Authority shall indicate the corrected detail or information as required.
- E. Submittals stamped "NO Exceptions Taken" do not relieve the Contractor from the responsibility of performance of Work as intended in the Plans and Specifications.

3.5 SUBMITTALS DESIGNATED AS “REVISE AND RESUBMIT,” OR “REJECTED. RESUBMIT”

- A. Each copy of the submittal so designated by the Authority will be identified accordingly by being so stamped and dated. One reproducible copy will be returned to the Contractor.
- B. If corrections to the submittals are required, copies returned to the Contractor will be marked "Rejected, Resubmit", or "Revise and Resubmit" and the required corrections shall be made on the re-submittal copies.
- C. Re-submittals will be processed in the same manner as first submittals. On every re-submittals, the Contractor shall note in writing any revisions other than the corrections requested by the Authority on previous submittals. Re-submittals shall use the same number as original submittal but will be modified by R and number of re-submittal in the suffix.
- D. The Contractor shall notify the Authority prior to execution of any correction, which constitutes a change of the Contract requirements indicated on the submittals.

3.6 SUBMITTALS DESIGNATED AS “NO ACTION TAKEN”

- A. Each copy of the submittal so designated by the Authority will be identified accordingly by being so stamped and dated. One reproducible copy will be returned to the Contractor.
- B. Submittals made by the Contractor that are not required by the Contract Documents or were not otherwise requested shall be designated “No Action Taken.”

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 33 00

**SECTION 01 35 15
MAINTENANCE AND PROTECTION OF RAILROAD TRAFFIC**

PART 1 - GENERAL

1.1 SUMMARY

This section sets forth the procedures for Contractor work on or near track structures.

1.2 RELATED REQUIREMENTS

- A. Section 01 14 00, Work Restrictions
- B. Section 01 14 16, Coordination with SCRRA
- C. Section 01 35 23, OCTA Site Safety Requirements

1.3 WORK ON TRACK AND TRACK STRUCTURES

- A. The Contractor's work on the track structure prior to returning the track to full service, shall be protected by speed restrictions for train traffic consistent with the direction of the SCRRA, who will interpret the current issue of the SCRRA "Track Maintenance and Engineering Instructions," and the Track Safety Standards of the FRA. The Contractor shall comply with the SCRRA interpretation of all requirements relating to work on track and track structures.
 - 1. In order to minimize impacts to the SCRRA quality of passenger service, the Work will be arranged so that there are not more than two locations with speed restrictions due to the Contractor's work at any time on any passenger route, and the cumulative amount of such delay is not to exceed 4 minutes per train at any time for each passenger route. Such speed restrictions are to be computed compared to the speeds contained in the latest effective SCRRA Timetable.
 - 2. If the number of locations with speed restrictions or the amount of delay exceeds these limits, SCRRA will prohibit the Contractor from beginning any additional Work. The Contractor will not be entitled to any payment for failure to obtain access to the track for Work on occasions when SCRRA denies new Work locations due to excessive speed restrictions at existing Work locations.

1.4 WORK ADJACENT TO LIVE TRACK

- A. Safety and Delay of Trains
 - 1. The Work shall be coordinated so that there will be no delay to trains, or interference in any manner with the operation of trains. If it is impossible to perform the Work in such a manner, the Authority and SCRRA must approve an alternate method before starting the Work.

2. Only as permitted by the SCRRA's Operating Dept. will SCRRA allow the Contractor to take more than one adjacent mainline or controlled siding track out of service.
- B. The Contractor shall abide by the instructions of SCRRA, its authorized inspectors, EICs, watchmen, and other designated Authority work forces. Returning the track to service after the Contractor's work near an operating railroad track, during construction on an interim basis only, shall be the sole responsibility of SCRRA at the end of the work window.
- C. If damage is sustained by any of the existing or new communications or signal equipment, underground or aboveground, as a result of the Contractor's operations, whether the damage sustained was intentional or not, the Contractor shall be liable for the following incurred costs:
 1. Replacement of the damaged equipment
 2. Any necessary inspection and testing of the system, before and after replacement of the damaged equipment
 3. Any other costs incurred as a direct, or indirect, result of disruption to normal train operations
- D. If the location of underground signal equipment interferes with the work, refer to Section 01 14 16, Coordination with SCRRA, for coordination requirements.

1.5 WORK WINDOWS

- A. Refer to Section 01 14 00, Work Restrictions, for designated work windows for each project location.

PART 2 - PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 35 15

**SECTION 01 35 23
SITE SAFETY REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

Work specified in this Section consists of initiating, maintaining, and supervising all safety precautions and programs and assuring a safe Work Site and safe operations around active tracks. The Contractor shall be solely responsible for ensuring that all Work performed under the Contract is performed in strict compliance with all applicable Federal, State, local occupational safety regulations and SCRRRA rules and requirements adopted to protect all operations. This includes the proper manner of protecting the tracks, signals, fiber optic cables, pipe lines, other Property, and tenants or licensees upon, adjacent to, across (under or over), and along OCTA (and SCRRRA Member Agency) Property during the construction or maintenance activities on or adjacent to Railway Property. This Work includes furnishing, operating, maintaining, and utilizing safety equipment and providing protective equipment, safeguards, and safety devices on construction equipment.

1.2 RELATED REQUIREMENTS

- A. Section 01 14 00, Work Restrictions
- B. Section 01 14 16, Coordination with SCRRRA
- C. Section 01 43 23, Contractor Qualifications and Requirements
- D. Section 01 35 44, Environmental Safety and Health Program

1.3 REFERENCE STANDARDS & REQUIREMENTS

Comply with the provisions of all local, State, and Federal regulations; with all applicable Specifications, standards, and recommended practices; and with Authority and SCRRRA policies, procedures and requirements. Where the State and Federal regulations have differing requirements, the Contractor shall comply with that which is more stringent. These requirements include but are not limited to:

- A. CalOSHA: California State Occupational Safety and Health Administration
- B. CPUC: California Public Utilities Commission General Orders
- C. FRA: 49 CFR Part 214
- D. SCRRRA: General Code of Operating Rules, Maintenance-of-Way Safety Instructions, Roadway Worker On-Track Safety Manual, Rules and Requirements for Construction on Railway Property (SCRRRA Form No. 37), SCRRRA System

Safety Program Plan (dated 2009) and Bridge Worker Safety Policy. See SCRRA website for more information.

- E. California Code of Regulations (CCR) Title 8, and CFR Title 29.

1.4 SUBMITTALS

The Contractor shall submit to the Authority for review and approval the submittals listed below. The Contractor shall obtain Authority approval of the following submittals prior to mobilization:

- A. Site Specific Injury and Illness Prevention Program (IIPP) including a Site Specific Emergency Action Plan, to be revised and resubmitted as conditions warrant. This Program shall include details of procedures, equipment and training in accordance with Cal OSHA requirements including work in confined spaces, lock out/tag out and fall protection procedures to ensure that the Contractor's and sub-Contractor's workers are properly protected. An Environmental Health and Safety Plan per Section 01 35 44 and as further detailed in the Level 3 Health, Safety, and Environmental Specification shall be submitted by the Contractor and Approved in writing by the Authority prior to the Contractor beginning Work.
- B. Qualifications and certifications of designated lead and other safety representatives, and other first aid providers. This includes the qualifications and certifications of individuals who will serve as qualified or competent persons as defined in CCR Title 8. These supervisory individuals are designated by the Contractor to supervise special high risk/high hazard safety programs such as fall protection, excavation, hazardous substances operations and confined space entry.
- C. Work Plans for all excavation for which a protective system is required by CCR Title 8 Article 6. This includes plans and drawings for any ground support system to be used during the excavation and the slopes and configurations of sloping or benching systems. Any engineered shoring within the railroad load influence zone shall be designed by a Professional Engineer, Structural or Civil, licensed in the State of California.
- D. Material Safety Data Sheets and other records as required by jurisdictional agencies.
- E. Immediate notification to the SCRRA's Dispatch and Operations Center (DOC) is required for injury to any individual; the Contractor shall submit an injury report to the Authority within 24 hours of said injury.
- F. All cranes and on-track equipment operated on the Project Site by the Contractor and or sub-Contractors of any tier require annual and four-year certifications. Any crane subjected to upset, overloading, side pulling, shock loading or support failure, shall be re-certified to allow further use.

1.5 SAFETY AND HEALTH PERSONNEL

- A. Provide a Safety Representative in accordance with the Level 3 Health Safety, and Environmental Specification and as described in Section 01 43 23, Contractor Qualifications and Requirements, who shall coordinate and supervise on-site safety and health, including training and testing the Contractor's personnel so that they may become qualified in SCRRA Roadway Worker Protection (RWP) requirements. The Contractor shall ensure that only those Safety representative(s) accepted by the SCRRA for employment on the Site is/are present at the Site whenever work is in progress at the Site. The absence of the required Safety Representative shall result in the immediate stoppage of all work at the Site. In order to avoid Work stoppages in the event of an expected or unexpected absence due to vacation, illness, personal emergency, resignation or termination of the assigned Safety Representative(s), the Contractor shall ensure adequate safety personnel, whose qualifications have been submitted to and approved by the Authority and SCRRA are available. The Safety Representative(s) shall have the Authority to direct immediate correction of any unsafe or unhealthful condition and, as necessary, to stop Work until appropriate corrective measures have been completed, attend required meetings, be fully cognizant of all Project-specific safety practices, processes, rules and procedures, and maintain regular contact with Authority-designated safety personnel.
- B. The Contractor's Safety Representative shall have no other duties unless those duties are specified elsewhere or approved by the Authority. The Safety Representative shall not be utilized in any other Authority Contract or any other project without prior written consent from the Authority.
- C. The Contractor's Safety Representative shall be responsible for overseeing safety procedures for Work performed around active tracks and shall be qualified under the Employee-in-Charge (EIC) part of the SCRRA Roadway Worker Protection training before any Work begins.
- D. At NTP, or the project kick-off meeting, the Authority shall provide contact numbers for all entities to be contacted in case of emergency. This will include the Metrolink Chief Dispatcher, the Metrolink Sheriff's Dispatcher, Metrolink signal emergencies and grade crossing problems, Metrolink signal and communications cable locations, and required Authority notifications.

1.6 ROADWAY WORKERS AND WATCHMEN

- A. Before starting Work on Authority property, all Contractor or Subcontractor personnel working within Authority right of way must be qualified, trained, and currently certified under SCRRA's Roadway Worker Protection (RWP).
 - 1. Required training and testing of personnel to be qualified under RWP shall be conducted by SCRRA. All training for Contractor personnel shall be renewed annually.
 - 2. The Contractor shall reproduce, and distribute to each employee during the training session, the SCRRA *Roadway Worker Policy Manual*.

- B. Watchmen, equipped with suitable SCRRRA approved safety equipment, shall be furnished by the Contractor for protection of workers as requested by the EIC or required in the approved SSWP.
 - 1. All Contractor watchmen must be qualified on SCRRRA On-Track Safety procedures specific to their positions, qualified on GCOR, SCRRRA Maintenance-of-Way Safety Instructions, and territory qualified.
 - 2. Watchmen must be qualified annually.

1.7 CONSTRUCTION AND SAFETY EQUIPMENT

- A. The Contractor shall conform to requirements of the Authority, SCRRRA, CalOSHA, CPUC, and to applicable codes and regulations of Federal, State, and local authorities having jurisdiction over job-site safety including compliance with the safety standards of the FRA for roadway worker protection per 49 CFR, Part 214, Railroad Workplace Safety. The Contractor shall provide and maintain such lights, protective devices, barricades, Type K railing, changeable message signs (CMS), and warning signs as are necessary for the safety of personnel and the public, or as otherwise required by OCTA. The Contractor shall be solely responsible for the timely erection, maintenance, repair, replacement, and removal of such safeguards, without necessity of receiving specific instructions from OCTA, or any other authority having jurisdiction.
- B. As identified in the IIPP, the Contractor shall provide job specific fall protection from hazards such as: skylights (at any angle), floor and wall openings, leading edges, and steel erection. Methods of protection may include: fixed systems (guardrails, covers, nets, etc.) and personal fall arrest systems.
- C. All equipment, tools and or other items used to complete the Work shall be inspected by the Contractor to ensure compliance with applicable regulatory standards. Equipment shall be used in accordance with the respective manufacturer's design, directions, and intended use.

1.8 TESTING EQUIPMENT

Testing equipment, as applicable to Work Site safety, shall conform to the requirements of the California Code of Regulations, Title 8, Division of Industrial Safety, unless indicated otherwise.

1.9 IDENTIFICATION OF CONTRACTOR/SUBCONTRACTOR PERSONNEL

- A. All construction personnel Contractor personnel shall be identified with the employee's company name or logo affixed to the employee's hardhat, identification badge, or other identification acceptable to SCRRRA. All Contractor personnel shall wear hard hats affixed with the SCRRRA Roadway Worker Protection trained sticker, denoting current certification. Failure to comply will result in revocation of employee's permission to access Work Site.

- B. Contractor personnel shall wear hard hats, orange safety vests or orange T-shirts with reflective strips, safety glasses, and safety shoes at all times while on the Project.

1.10 CLEARANCE REQUIREMENTS

During operations adjacent to live track, all Work within 25 feet of the live track, within 50 feet of any main track switch or as directed by the EIC must be stopped when trains are approaching and equipment and employees moved to a safe distance from the tracks unless otherwise approved. All Contractor equipment within the Authority Right of Way will stop Work when trains are approaching.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION

3.1 CONSTRUCTION SUPERVISION AND METHODS

The Contractor is solely responsible for all construction means, methods, techniques, and procedures and for coordinating all portions of the Work under the Contract. This shall include the following:

- A. The Contractor shall establish, implement and maintain an effective IIPP in accordance with CCR Title 8 Section 3203. Contractor shall at all times conduct its operations in accordance with the IIPP and in such a manner as to avoid risk of bodily harm to persons or damage to property and shall promptly take all reasonable precautions to safeguard against such risks and shall make regular safety inspections of its operations. Contractor shall be solely responsible for the discovery, determination and correction of any unsafe conditions related to Contractor's performance of the Work.
- B. The Contractor shall secure all Work areas by barricade in accordance with local and State requirements as applicable at the end of each day. All excavations shall be covered to prevent tripping hazard.
- C. In the event the Authority discovers that the Contractor has created an unsafe condition or has failed to restore the track to service at the specified time, SCRRA with its own forces may perform the remedial Work to secure the required safety and train performance. Such remedial Work will be at the sole discretion of the Authority; however, Contractor may perform such Work if agreed to by SCRRA. If this action is required, the Authority may unilaterally terminate Work under the Contract, and will pay only for the quantities of Work actually performed, less the cost of SCRRA's remedial Work. In the event Work is halted under this circumstance, the Mobilization line item will not be paid. In the event that Work is not halted, the Contractor must take immediate steps to correct the situation. There will be no extra payment for Work required to correct unsafe conditions or to promptly restore track to service. For purposes of this Section, an unsafe condition is defined as creating a track condition which does not meet the FRA Track Safety Standards for Class of Track, willful damage to facilities or material, or any other unsafe condition for trains, employees, passengers or the public, at the sole determination of the Authority and/or SCRRA.

- D. Prior to operating cranes on the Site, all crane operators shall have successfully completed testing that verifies the crane operator's ability to read and understand the load chart for the equipment to be operated. This testing may be performed by an independent certifying agency or a qualified member of the Contractor's supervisory staff who is acceptable to the Authority, has a minimum of five years heavy civil construction experience, and can satisfactorily demonstrate the ability to read and understand load charts and rigging tables to the Authority when requested, without prior notice. Written records of this testing shall be maintained on the Site and made available to the Authority for review without prior notice. Re-certification is required for any crane involved in an incident involving upset, overloading, side pulling, shock loading, or support failure. Re-certification and written acceptance by the manufacturer is also required for any modification to a crane. All crane operators shall be licensed by the Authority having jurisdiction for the equipment type to be operated and copies of said licenses shall be submitted to the Authority. All crane operations where the load is beyond the direct view of the operator shall be observed by a signal person who can directly observe the load and be observed by the operator. The Contractor shall stop load movement in the event the signal Person is unable to observe the load or fails to continuously observe the load and signal the operator.
- E. All excavation operations shall be under the immediate supervision of a competent person, as defined in CCR Title 8, who is fully familiar with the requirements for safe excavation procedures and capable of enforcing strict compliance with the ground support system plan.
- F. If required by regulation, the Contractor shall provide air monitoring including operating and maintaining a gas monitoring system with equipment capable of providing printed logs of gas tests. Begin testing for toxic and explosive gases as soon as the excavation or drilled hole has progressed to a level of five feet below surface level. Test air quality in the most stagnant portions of excavation to ensure there is no accumulation of explosive or other dangerous gases. The Contractor shall provide training to construction personnel, subject to exposure during the course of excavation, prior to entering any excavation sites and provide necessary yearly refresher training.

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 35 23

**SECTION 01 35 44
ENVIRONMENTAL SAFETY AND HEALTH PROGRAM**

PART 1 - GENERAL

1.1 SUMMARY

Contaminated and Hazardous Soils may be encountered during the Work. The Contractor shall be solely responsible for ensuring that all Work performed when these Soils are present complies with all applicable Federal, State, local occupational safety regulations and SCRRRA rules and requirements. In order to properly handle these types of soil, the Contractor shall prepare and implement an Environmental Safety and Health Program and require that all its Subcontractors perform excavation and handling of soils in full compliance with the requirements of the Environmental Safety and Health Program.

1.2 RELATED REQUIREMENTS

- A. Section 01 14 00, Work Restrictions
- B. Section 01 35 23, OCTA Site Safety Requirements
- C. California Code of Regulations (CCR) Titles 4 & 8, and the Code of Federal Regulations (CFR) Title 29
- D. CalOSHA: California State Occupational Safety and Health Administration
- E. OSHA: Federal Occupational Safety and Health Administration

1.3 PROCEDURE

If the Contractor encounters substances during performance of the Work that are reasonably believed to be hazardous as defined by the California Health and Safety Code, the Contractor shall notify the Authority immediately, submitting written documentation of the incident and notification within 24 hours. Excavation in the immediate area of the suspected hazardous substances shall be suspended until authorization to resume is received. Equitable adjustments, if any, for time lost or costs incurred as a result of such encounters will be made in accordance with Contract Change Order Procedures. The Authority reserves the right to use other labor forces for exploratory work to determine the nature and extent of the hazardous substances and to remove the substances from the area.

For contaminated soils the Contractor shall be responsible for coordination with regulatory agencies, sampling, loading, unloading, transporting all soils to a designated site for testing and to a stockpile with proper protection, and legal disposal of the contaminated soil. All import and backfill with suitable material shall be done by the Contractor to restore the site as directed by the Authority under the Contract Allowance Item and associated Change Order approved by the Authority.

For lead-containing materials, the Contractor shall submit a Work plan to the Authority for review and approval prior to any demolition work. All Work shall be done in full compliance with requirements of the California Code of Regulations, Title 8 specifically Section 5192, Hazardous Waste Operations and Emergency Response.

For asbestos containing materials, the Contractor shall submit a Work plan to the Authority for review and approval prior to any disturbance or removal work. All Work shall be done in full compliance with Federal and State environmental health and safety requirements and requirements of the Southern California Air Quality Management District (SCAQMD), Rule 1403.

1.4 SUBMITTALS

- A. An effectively written and coherent Site Specific Safety and Health Plan, as defined in CCR Title 8, prior to the start of construction.
- B. Certificates of training (minimum initial 24-hour hazardous waste training and eight-hour annual refresher), respiratory protection and fit-testing, and medical clearance, before start-up of excavation and drilling activities if required.
- C. Certificate of training (Hazardous Waste Training and eight-hour supervisory training), experience, and credentials of the Site Safety and Health Officer.
- D. Monthly status report of contaminated soil management, including excavated quantities of contaminated soil and work performed using Personal Protective Equipment (PPE). This report must include updated quantities of excavated contaminated soils, and the date, time, number of affected workers, and total number of hours the Contractor performed work in Level C Protection.
- E. The Work plan for removal of lead-contained material shall include the following:
 - 1. A state lead-licensed Contractor and persons shall perform demolition, handling, removal, and monitoring of lead-contained materials.
 - 2. Air monitoring shall be performed before and during each lead-related activity. The Contractor performing demolition work shall not conduct monitoring work, during or after the completion of all lead-related activities.

PART 2 - PRODUCTS

2.1 MATERIALS

PPE and monitoring equipment is to conform to requirements set forth by CAL/OSHA, Federal-OSHA, SCAQMD, DTSC, other agencies having jurisdiction, and the Contractor's Environmental Safety and Health Program.

2.2 HEPA FILTERS

Provide high-efficiency particulate air (HEPA) filters for persons working on lead-contained materials.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Implement an Environmental Safety and Health Plan for removal of lead-containing material, and excavation and handling of Contaminated and California Hazardous Soils certified by a Certified Industrial Hygienist (CIH) licensed by the American Board of Industrial Hygiene.
- B. Select a team of individuals to be included in the Environmental Safety and Health Program. These individuals must be hazardous-waste trained, medically qualified, and fit-tested with an appropriate respirator to drill, excavate, and handle Contaminated and California Hazardous Soils. Prior to drilling, excavation, or handling of Contaminated and California Hazardous Soils, submit a list of individuals that are part of this team, including their current certificates (training, medical clearance, and respiratory fit-testing). Include their names and titles/positions. Any additional individuals that may handle Contaminated and California Hazardous Soils shall be included in the Environmental Safety and Health Program, including replacement individuals and any new position that require Contaminated and California Hazardous Soil handling. Any handling of Contaminated and California Hazardous Soils must be performed by qualified individuals enrolled in the Environmental Safety and Health Program.
- C. Designate a full-time Site Safety and Health Officer to recognize hazards, and implement and manage the Environmental Safety and Health Program. The Safety and Health Officer can be a Safety Engineer, provided the individual is qualified to conduct air monitoring and identify environmental hazards, and meets all training requirements set forth in 8 CCR 5192 (e), in addition to the qualifications set forth in the Construction Safety and Security Manual. As a minimum, the Safety and Health Officer shall (a) monitor air quality and hazards to personnel and the Work area during removal of lead-containing material and excavation and handling of Contaminated and California Hazardous Soils and Groundwater, and (b) assign PPE and other equipment necessary for the implementation of the Safety and Health Program.
- D. Supply a direct reading Organic Volatile Analyzer equipped with a Photo-ionization Detector (PID) and an initial supply of PPE readily available for use by the team. Replenish the PPE to ensure a supply of PPE is always available to prevent any delays.
- E. Supply high efficiency particulate air (HEPA) filters for persons working on removal of lead-contained materials.
- F. The Contractor is responsible for any delays associated with lack of preparation, PPE, trained and qualified personnel.

3.2 PERFORMANCE

- A. Provide, without delay to Work, hazardous waste-trained, medically qualified, and respirator-fitted workers, and PPE and other equipment, as necessary for implementation and maintenance of the Environmental Safety and Health Program.
- B. The Authority at its cost will have sole right and responsibility to perform soil monitoring and sampling for disposal purposes. If the sampled soil is found to be clean, the Contractor shall dispose of it in the same manner and location as used for other clean soil removed from the site. The Contractor shall be responsible for loading, unloading, and transporting all soils to the designated area. The contaminated and clean soils shall be stored in separated piles. The designated area shall be protected with Visquene sheets covering the ground, and fenced off to prevent trespassing. The soils shall be covered with Visquene sheets prior to legally disposing of them from the site. The Authority will be responsible for analyzing soil, as well as for trucking and disposing of the contaminated soil accordingly. The Contractor shall be responsible for loading contaminated soil into trucks furnished by the Authority.
- C. In the event the Contractor encounters or suspects contamination, promptly implement measures described in the Contractor Site-Specific Safety and Health Plan, and immediately notify the Authority or its designee. The Contractor must use the team; that is, those individuals enrolled in the Environmental Safety and Health Program. Ventilation shall be modified, if necessary or if directed by the Authority, to increase airflow and effectively reduce air contaminants prior to and during removal of lead-containing materials, excavation, and handling of Contaminated and California Hazardous Soils. If Excluded Hazardous Waste Operations are required, the Contractor shall adequately protect the safety and health of its employees, and Subcontractors' employees while working in areas not affected.
- D. The Contractor shall be responsible for legal removal of lead-containing materials. The Contractor shall employ a state lead-licensed Contractor for performing such work including demolition, handling, removal, and monitoring of lead-contained materials. All work shall be done in full compliance with requirements of the California Code of Regulations, Title 8, Sections 1532.1 and 5198.
- E. The wet method for removal of lead-contained materials shall be used to prevent dust. Lead dust shall be properly disposed of. Air monitoring shall be performed before, during, and after each lead-related activity. A third party without conflict of interest with the Contractor shall conduct the air and clearance monitoring. Surface clearance monitoring shall be conducted after completion of the removal of lead materials. The purpose of the air monitoring is to ascertain that the building air quality is maintained during and after the completion of the Project. All air monitoring results shall be submitted to the Authority's Corporate Safety representative for review within 24 hours of receipt from the laboratory.
- F. The Contractor is responsible for the safety and health of its employees and its Subcontractors. The Contractor shall conduct air monitoring to ensure compliance

with monitoring requirements under the Environmental Safety and Health Program, the Site-Specific Safety and Health Plan, CAL/OSHA, and any other local, state, or federal requirements.

- G. Dust control and suppression mitigation measures shall be employed by the Contractor. The Authority reserves the right to conduct air sampling and monitoring to determine the required minimum level of protection.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. Contaminated Materials Removal will be measured by the unit or fraction thereof completed in accordance with the Contract Documents, as agreed in the executed Change Directive or Change Order and as measured by the Engineer.
- B. All other Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor therefor.

4.02 PAYMENT

- A. Contaminated Materials Removal completed in accordance with the Contract the Contract Documents, will be paid as agreed in the executed Change Directive or Change Order. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications.

END OF SECTION 01 35 44

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SECTION 01 40 00 QUALITY REQUIREMENTS

Part 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with specified or indicated Work requirements. These services do not relieve the Contractor of responsibility for compliance with Contract Documents requirements.
- C. Specific tests and inspection requirements are not specified in this Section but rather indicated or included elsewhere in the Contract Drawings (Plans) and Specifications.

1.2 RELATED REQUIREMENTS

- A. Specific quality assurance and quality control requirements for individual construction activities are specified in the Specifications Sections that specify those activities and may also cover production of standard products.
- B. Requirements for the Contractor to provide quality assurance and quality control services required by the Authority, or authorities having jurisdiction, are not limited by provisions of this Section.
- C. Specified tests, inspections and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Documents requirements.

1.3 DEFINITIONS

- A. **Quality Assurance:** Activities, actions, and procedures performed prior to and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with the Contract Documents' requirements.
- B. **Quality Control Services:** Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and that completed construction comply with the Contract Documents' requirements. Services do not include contract enforcement activities performed by the Authority.
- C. **Mockups:** Full-size, physical assemblies constructed on-site to verify selections made under submittals, to demonstrate aesthetic effects and, the expected qualities of products and materials, and to review details of construction,

coordination, testing, or operation; mockups are not Samples. Approved mockups establish the standard by which the Work will be judged.

- D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project, before products and materials are incorporated into the Work in order to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by a Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or other testing agency qualified to conduct product testing and acceptable to the Authority and all other authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality Control Testing: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
- G. Field Quality Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. "Testing laboratory" shall mean the same as testing agency.
- I. Installer/Applicator/Erector: The Contractor or another entity engaged by the Contractor as an employee, or Subcontractor, to perform a particular construction operation, including installation, erection, application, or similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by an accredited or unionized individual, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity of individual, 'experienced' means having successfully completed a minimum of five previous projects similar in nature, size, and extent of the Work; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. The Contractor shall refer conflicting requirements to the Authority for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed by the Contractor. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. The Contractor shall refer uncertainties to the Authority for a decision before proceeding.
- C. Items indicated on the Contract Drawings (Plans) but not included in the

Specifications, or included in the Specifications but not indicated on the Plans, shall have the same effect as if indicated or included in both the Plans and Specifications.

1. In case of conflict or inconsistency between the Plans and Specifications, Contractor shall request additional information or interpretation; any adjustment by Contractor without such official determination shall be at Contractor's own risk and expense.

1.5 REGULATORY REQUIREMENTS

- A. Comply with all applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and Municipal authorities having jurisdiction, and obtain necessary approvals from all such authorities.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor Quality Control Plan
 1. Contractor plan shall include the elements below:
 - a. Management Responsibility
 - b. Documented Quality Management System
 - c. Design Control
 - d. Document Control
 - e. Purchasing
 - Product Identification and Traceability
 - f. Process Control
 - g. Inspection and Testing
 - h. Inspection, Measuring, and Test Equipment
 - i. Inspection and Test Status
 - j. Nonconformance
 - k. Corrective Action
 - l. Quality Records
 - m. Quality Audits
 - n. Training

1.7 QUALITY ASSURANCE

- A. Contractor's responsibilities include all of the following:
 1. Provide test samples that are representative of proposed products and construction.
 2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

3. Provide sizes and configurations of site-assembled test assemblies and mockups, as well as laboratory mockups to adequately demonstrate the capability of products to comply with specified performance requirements.
4. Build site-assembled test assemblies and mockups using installers who will perform the same tasks for the completed Work.
5. Build laboratory mockups at testing facility using personnel, mockups and methods of construction indicated for the completed Work.
6. When testing is complete, remove test specimens, assemblies, and mockups. Do not reuse such products on the Project.

1.8 QUALITY CONTROL

- A. Contractor Responsibilities: Quality Control tests and inspections shall be the sole responsibility of the Contractor. The Contractor shall perform additional quality control activities necessary to verify that the Work complies with specified requirements.
 1. Unless otherwise indicated elsewhere in the Contract Documents, Contractor shall provide quality control services required to verify that the Work complies with the Contract Document requirements, whether Specified or not, in addition to testing and inspections required by Authorities having jurisdiction (e.g. fire marshal, building official, Caltrans, OCTA, SCRRA, BNSF, etc.).
 2. Where quality control services are indicated as the Contractor's responsibility, the Contractor shall engage a qualified testing agency to perform the required quality control services.
 - a. Contractor shall not employ same entity engaged by Owner for testing and inspection unless agreed to, in writing, by Owner.
 - b. Contractor shall notify testing agencies at least 48 hours in advance of time when the Work that requires testing or inspecting will be performed.
 - c. Contractor shall submit a certified report, in duplicate, of each quality-control service performed.
 - d. Contractor shall submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 3. Any testing or inspecting requested by Contractor but not required by the Contract Documents shall be Contractor's responsibility and sole expense.

- B. Manufacturer Field Services: Where indicated, engage a factory-authorized service representative to observe and inspect field-assembled components and equipment installation, including connections to utilities/services. Report all results in writing.
- C. Manufacturer Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Such services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials used, observation of installer's activities, inspection of completed portions of the Work, and submission of written reports.
- D. Re-Testing and Re-Inspection: Regardless of whether original tests or inspections were Contractor's responsibility, Contractor shall provide quality control services, including re-testing and re-inspection, for any construction that replaced portions of the Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Testing Agency shall cooperate with all parties in performance of Testing Agency's duties. Testing Agency shall provide qualified personnel to perform required tests and inspections.
 - 1. Notify the Construction Manager and Contractor promptly of irregularities or deficiencies observed in the Work during the performance of Testing Agency's services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections, and state in each report whether the tested and inspected work complies with or deviates from the specified requirements.
 - 4. Submit a certified test report, in duplicate, of each test, inspection, and similar quality-control service through the Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Documents requirements, or approve or accept any portion of the Work.
 - 6. Do not, in any way, perform any duties of the Contractor.
- F. Associated Services: Cooperate with testing agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested.
 - 1. See also Quality Coordination procedures for further description of associated quality-control services.

1.11 QUALITY COORDINATION

- A. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00, Submittal Procedures.
- B. Notify the Authority at least 48 hours in advance of time when Work that requires testing or inspecting will be performed. Also provide the following in support of testing and inspection services:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist testing agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Preliminary design mix proposed for use for material mixes that may require production control by testing agency.
 - 6. Security and protection for samples and for testing and inspecting equipment at Project site.
- C. Coordination: The Authority may engage a qualified testing agency to perform certain testing and inspection services for purposes of verifying quality and accepting completed portions of the Work. Contractor shall coordinate the sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid the necessity of removing and replacing construction to accommodate testing and inspecting. Cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested.
- D. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents, which shall be submitted for information purposes. Submit the schedule within 30 days of the Authority's Notice to Proceed.

1.7 SOURCE OF SUPPLY AND QUALITY OF MATERIALS

- A. The Authority shall approve the source of supply of each type of the materials supplied by the Contractor before the Contractor or subcontractor purchases or delivers these materials to the Project. Promptly after receiving the Contract award, the Contractor shall notify the Authority of all proposed material sources. If it is found after trial that sources of supply previously approved do not produce uniform and satisfactory products, or if the product from any source proves

unacceptable at any time, the Contractor shall furnish materials from other sources as approved by the Authority.

- B. Only materials conforming to Specifications and approved in advance by the Authority shall be used in the Work. All material being used shall be subject to inspection or test at any time during their preparation or use. NO materials or products determined to be unsatisfactory can be used in the Work.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 INSPECTION AND TESTING PROCEDURES

- A. The Contractor shall provide the Authority with full access to the Work and reasonable time for inspection for ascertaining whether or not the Work is performed in accordance with the requirements and intent of the Contract. No Work shall be covered or materials used without making the Work products or materials available for inspection by the Authority and any Work that is required to be uncovered, removed or replaced shall be at the Contractor's expense. Inspection will not relieve the Contractor from the responsibility of the quality of this Work and obligation to perform the Work in accordance with the requirements of these Contract Documents.
- B. All materials and every process of manufacture and construction shall be subject to inspection at all times. The Authority and his designated representatives shall have free access to all such operations. The Contractor shall furnish necessary materials and the Authority shall have the right to select suitable samples of materials for testing or examination which the Contractor shall supply without charge. In case such samples must be shipped to some other point for inspection or testing, the Contractor shall box or crate samples as necessary and shall deliver them to points designated for shipment without charge. Omission of inspection shall not relieve the Contractor of its obligations to perform the Work required by the Plans and Specifications. Non-conforming or defective materials not in compliance with Contract requirements shall be removed promptly from the vicinity of the Worksite, and the Contractor, at its sole expense, shall promptly remove, reconstruct, replace, and make good any defective Work. Oversight or error in the judgment of inspectors, or previous acceptance of the Work shall not relieve the Contractor from the obligation to correct any defects whenever discovered at the Contractor's sole expense. Authority and the other authorized agencies may inspect at any time the Contractor's production of Goods at off-site facilities, including any manufacturer's plant.
- C. Adequate facilities shall be made available for the necessary inspections and free access to all parts of the Work shall be available at all reasonable times. The Contractor shall have appropriate provisions inserted into each Subcontract it enters into providing for document, facility or in-plant Inspection by the Authority.
- D. In the event the Contractor does not correct nonconforming Work or remove rejected materials within a reasonable time fixed by written notice, the Authority

may direct removals and corrections be performed by other Contractors. The charges for such removals and corrections shall be deducted from the Contractor's payment due under this Contract or may be paid for by the Contractor's bonds held for this Contract.

- E. All inspection by the Engineer is for the protection of the Authority and its interest and shall not relieve the Contractor of responsibility for performing work in accordance with the Contract Documents. After completing the Work, a final inspection will be made and any previous inspection or acceptance will not preclude rejection at the time of final inspection for any item that is not satisfactory to the Authority or not in accordance with the Contract Documents.
- F. In the event, within such period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Document, whichever is longer, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Authority. This obligation shall survive acceptance of the Work or termination of the Contract. In the event the Authority prefers to accept or not require correction of defective or nonconforming Work, the Authority may do so instead of requiring its removal and correction, in which case the Authority shall determine an appropriate sum to be deducted from the Contract price or otherwise charged against the Contractor, which determination shall be final and binding upon the Parties. Such monetary adjustment shall be effected whether or not final payment has been made.
- G. All defective Work, which has been rejected, shall be remedied or removed and replaced by the Contractor at its own expense in a manner acceptable to the Authority.
- H. The Authority may charge the Contractor for any additional costs it incurs for tests and Inspections, wherever and whenever Work is not ready at the time indicated by the Contractor's notice or when an additional reinspection is necessitated by prior rejection.
- I. The Authority will have access, at all reasonable times, to the Contractor's documents, calculations, supporting materials, data, and information concerning the Work, including computer programs and printouts, which supportive information Authority may determine is required to review the Work properly and expeditiously.

3.2 TEST AND INSPECTION LOG

- A. Contractor shall prepare a record of tests and inspections, and shall include the following:
 - 1. Date test or inspection was conducted
 - 2. Description of the Work tested or inspected
 - 3. An Inspection Checklist appropriate to the portion of Work

4. Date test or inspection results were transmitted to Authority
 5. Identification of testing agency or special inspector conducting the particular test or inspection service
- B. Maintain log at Project site. The Contractor shall post changes and modifications as they occur. The Contractor shall provide access to the test and inspection log for the Authority's reference during normal working hours. No notice will be required for Authority's access to Contractor's test and inspection the logs and associated documents.

3.3 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, the Contractor shall repair damaged construction and restore substrates and finishes.
- B. The Contractor shall provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as nearly invisible as possible.
- C. The Contractor shall protect construction exposed by or for quality-control service activities.
- D. Repair and protection are the sole responsibility of the Contractor, regardless of the assignment of responsibility for quality-control services.

3.4 AUTHORITY'S REMEDIES FOR DEFICIENT WORK

If any Work provided by the Contractor is determined to be deficient, the Authority shall provide written notice to the Contractor of enumerating such deficiencies, and may thereafter do one or more of the following:

- A. Require the Contractor to promptly segregate and remove rejected Work from the Project at Contractor's own expense and without any extension of Contract Time;
- B. Require the Contractor re-perform repair or replace Work, products, materials or other items or items at Contractor's own expense;
- C. Withhold payments otherwise due to Contractor hereunder;
- D. Have remedial Work performed and products or materials provided by others at the sole expense of the Contractor.
- E. Terminate the Contract and obtain the remedies provided for therein.
- F. Corrected or remedial Work and replaced or repaired products or materials shall be subject to all of the Contract Documents requirements, including without limitation all standards of performance set forth in this Contract.

- G. Costs for re-testing and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Price will be adjusted by Change Order.

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section (including testing) is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 40 00

**SECTION 01 43 23
CONTRACTOR QUALIFICATIONS AND REQUIREMENTS**

PART 1 GENERAL

1.1 SUMMARY

This Section outlines requirements and provisions to which the Contractor shall provide professional construction staff and equipment capable of safely executing the Work required by these Contract Documents part of which are on an operating railroad system, with little or no disruption to the passenger/commuter and freight operations, as well as other public facilities.

1.2 RELATED REQUIREMENTS

- A. Section 01 14 16, Coordination with SCRRA
- B. Section 01 31 00, Project Management and Coordination
- C. Section 01 35 23, OCTA Site Safety Requirements

1.3 GOVERNING REGULATIONS

- A. SCRRA: General Code of Operating Rules for Maintenance of Way
- B. SCRRA: Track Maintenance, Right-of-Way and Structures Engineering Instructions
- C. FRA: Title 49 CFR Part 213 and Part 214
- D. OSHA: Occupational Safety and Health Administration Regulations
- E. CPUC: California Public Utility Commission General Orders

1.4 SUBMITTALS

- A. The Contractor shall submit the resumes for all personnel listed herein to the Authority within 15 days after the Notice to Proceed. Each resume shall provide sufficient detail to demonstrate compliance with the appropriate specifications. Submit the number of each classification of employee to be assigned to the Work and the duration of their assignments.
- B. The Authority will review the submitted personnel resumes to determine the acceptability of qualifications and experience. The Contractor shall not resubmit personnel that are deemed unacceptable by the Authority.

- C. The Contractor shall submit a list of the equipment proposed to be used to the Authority for approval. This list shall have sufficient detail to demonstrate compliance with the appropriate Specification Sections.

1.5 RAILROAD CONSTRUCTION PROJECT MANAGER

- A. The Contractor shall have a Railroad Construction Project Manager who will manage and coordinate the overall aspects of the track, station, grade crossing, site civil, systems, and bridge construction. The Railroad Construction Project Manager's qualifications and experience must include the following:
 - 1. At least five years of progressively more responsible engineering, construction, and maintenance experience on a wide variety of Railroad projects for a Class 1 or Commuter Railroad. A major portion of the individual's experience should include construction and maintenance work on a freight or commuter railroad with moderate to heavy traffic and limited work windows.
 - 2. Knowledge of FRA standards and qualified under FRA Track Safety Standards, Part 213.7, applicable CPUC General Orders, the General Code of Operating Rules, SCRRRA Track Maintenance, Right-of-Way, and Structures Engineering Instructions, SCRRRA Standard Plans, and Railroad Roadway Worker Protection rules and regulations.
 - 3. A demonstrated ability to work safely and supervise individuals in safe work.
 - 4. Previous positions and experience supervising and planning work activities of construction superintendents, project engineers, and support personnel foreman and crews.
 - 5. The ability to read and understand track, bridge, station, construction plans and specifications, and SSWPs, and to develop and work from construction schedules.
- B. The Railroad Construction Project Manager must be located at the Contractor's construction field office; be on the job during the work week a minimum of 40 hours for the full duration of the Project; and be able to respond immediately to emergency or problem calls, seven days a week, 24 hours a day.
- C. The Railroad Construction Project Manager shall be dedicated only to this Project. He or she shall not work on other projects on behalf of the Contractor. This Railroad Construction Project Manager shall have the necessary Authority to receive and promptly execute instructions and orders from the Authority or his authorized representatives. The Project Manager shall not be replaced without advance approval by the Authority. Any replacement Project Manager shall be subject to the approval of the Authority.

1.6 RAILROAD TRACK CONSTRUCTION MANAGERS

- A. The Contractor shall have at least one Railroad Track Construction Manager who will direct the day-to-day operations of the Track Foreman, and assist in managing and coordinating the overall aspects of the track, station, grade crossing, and bridge construction. The Railroad Track Construction Manager's qualifications and experience must include the following:
 - 1. Thorough knowledge of railroad methods of track construction and maintenance under traffic.
 - 2. Knowledge of FRA standards, and qualified under FRA Track Safety Standards, Part 213.7, applicable CPUC General Orders, the General Code of Operating Rules, SCRRA Track Maintenance, Right-of-Way and Structures Engineering Instructions, SCRRA Standard Plans, and Railroad Roadway Worker Protection rules and regulations.
 - 3. The ability to work safely and supervise individuals in safe work.
 - 4. Previous positions/experience that include supervising and planning work activities of foreman and crews.
 - 5. The ability to read and understand track, site civil, systems, and construction plans.
 - 6. Five years' railroad track construction experience, with a minimum three years of railroad management experience. Must have at least three years' experience as a Roadmaster or equivalent position for a Class I Freight or Commuter Railroad in the last 15 years.
 - 7. The ability to identify FRA or other defects in track for the given class, and to prescribe appropriate remedial measures.
- B. The Railroad Track Construction Manager(s) must be located at the Contractor's construction field office, and must be on the job full time during the workweek for the full duration of any track or associated construction work. The Railroad Track Construction Manager shall be able to respond immediately to emergency or problem calls on a seven-day-a-week, 24-hour basis. The Railroad Track Construction Manager will manage and directly oversee the safety, condition, and quality of track that has been modified by the Contractor, and shall direct corrective and maintenance measures to keep the track operating safely at the designated class.
- C. The Railroad Track Construction Managers shall be solely dedicated to this Project and not permitted to work on other projects.

1.7 MAINTENANCE CONTRACT MANAGER (MCM)

- A. The Contractor shall have a MCM to plan, direct, and coordinate the activities of the Contractor (including all Subcontractors) in performance of the Work to assure compliance with Contract terms and conditions, applicable regulations, SCRRA

standards, coordination with other Authority and SCRRA Contractors and public agencies, and provision of quality railroad service by the SCRRA. Serves as the point of contact for Authority staff for all matters relating to the Agreement and performs regular consultation and planning meetings with the SCRRA's Manager of Maintenance. The MCM shall review, revise, and develop contract submittal documents including annual budgets and work plans, training schedule and curriculums, CTOs, inspections, and invoices. The MCM shall assist training managers in developing training schedule and curriculum and shall supervise, promote, manage, transfer, and discipline Contractor staff and arrange with Authority for replacement personnel in the event of vacancies. The MCM is required to respond immediately to extraordinary conditions and to initiate inspections or repairs to track or facilities as required to maintain SCRRA facilities and operations.

B. MCM qualifications and experience shall include the following:

1. Twenty years of progressively responsible experience in railroad track maintenance or construction in an operating railroad environment including at least 10 years experience in supervising or directing the work of others engaged in railroad track maintenance and five years experience in managing construction or maintenance contracts.
2. A minimum of ten years of supervisory skills in a similar position supervising and managing employees engaged in railroad track maintenance in an operating railroad environment.
3. Desirable to have an associate degree from a College in Business, Construction or a related field.
4. Knowledge of the safe and proper procedures for operating railroad maintenance hand and power tools and railroad maintenance equipment.
5. Must be able to demonstrate ability to communicate in written and verbal English language with prior record keeping experience.
6. Must possess strong leadership interpersonal skills.
7. Detailed knowledge of FTSS and FRWS and the ability to be Qualified on SCRRA's examinations for 49 CFR Part 213.7 of FTSS and the GCOR related to these regulations at NTP.
8. Previously qualified with a railroad to provide workplace protection under FRWS and to inspect track and supervise restoration of track under FTSS.
9. Knowledge of the physical layout and operation of a commuter rail system similar to SCRRA's.
10. Knowledge of the time for completion and the cost of repair for track and Right-of-Way facilities, and the ability to make value judgments regarding economic repair and/or replacement of these facilities.

11. Knowledge of the adjustment of thermal stress in continuously welded rail per 49 CFR Part 213.119 of the FTSS.
12. Ability to read and interpret drawings, plans, and specifications for railroad track and civil construction and to inspect track and supervise the work of others for compliance with these documents.
13. Ability to complete work under time pressures and to maintain composure under the stress of emergency situations.
14. Ability to perform scheduled and unscheduled repair or construction work at any time on any day of the week.
15. Must have, or obtain within six weeks of Limited NTP, a valid California driver's license with no more than three moving violations and no Driving Under the Influence (DUI) in any state within the last three years.
16. Must pass a pre-employment physical examination including a drug and alcohol test.
17. Ability to work outdoors in all weather conditions, to lift objects weighing a minimum of 50 lbs. and must have the ability to distinguish colors and to hear warning signals and radio and telephone devices.
18. Shall be on-call 24 hours each day, 365 days a year, with allowances for vacations, sick leave, and related time off with duties assigned to the Assistant Contract Manager when off duty.

1.8 RAILROAD BRIDGE CONSTRUCTION MANAGER

- A. The Contractor shall have at least one Railroad Bridge Construction Manager who will direct the construction of all railroad bridges and culverts, and assist in managing and coordinating the track and other work in the immediate vicinity of the bridge and culvert work. The Rail Bridge Construction Manager's qualifications and experience must include the following:
 1. Knowledge of railroad methods of railroad bridge construction and maintenance under traffic.
 2. Knowledge of FRA standards, and qualified under FRA Track Safety Standards, Part 213.7, applicable CPUC General Orders, the General Code of Operating Rules, SCRRA Track Maintenance, Right-of-Way and Structures Engineering Instructions, SCRRA Standard Plans, and Railroad Roadway Worker Protection rules and regulations.
 3. The ability to work safely and supervise individuals in safe work.
 4. Previous positions/experience supervising and planning railroad bridge work activities of foreman and crews.

5. The ability to read and understand bridge construction plans.
 6. Five years' railroad bridge experience, with a minimum of three years of Class I Freight or Commuter Railroad management experience within the last 15 years.
- B. The Railroad Bridge Construction Manager must be located at the Contractor's construction field office and must be on the work full time during the workweek for the full duration of any bridge or associated construction work. The Railroad Bridge Construction Manager will manage and directly oversee the safety, condition, and quality of any bridges modified by the Contractor, and shall direct corrective and maintenance measures to keep the track operating safely at the designated class. The Railroad Bridge Construction must be able to immediately respond to emergency or problem calls, seven days a week, 24 hours a day.

1.09 RAILROAD MACHINE OPERATORS

The Contractor shall provide qualified Railroad Machine Operators and the Contractor will not be allowed to operate any equipment within the Authority Right-of-Way until the following requirements are met:

- A. Railroad Machine Operators qualifications and experience must include the following:
1. Knowledge of railroad methods of track construction and maintenance under traffic,
 2. A Production/Switch Tamper Operator with at least two years of experience operating the make and model of the production/switch tamper assigned to this Contract Work. The tamper operators must fully understand the principles and practices of lining horizontal, spiral, curves, and tangents and vertical curves, and know how to read and utilize "cut sheets" and "alignment sheets" provided by a survey crew.
 3. At least one full-time production/switch tamper operator shall be assigned to each tamper, with three years' experience in railroad track construction and/or maintenance, two years' experience as a machine operator, and one year of experience operating machinery in use on this Contract Work, specifically including the following:
 - a. Ballast Regulator
 - b. Backhoe Tractor
 - c. Ballast Stabilizer
 - d. Pettibone Speed Swing
- B. Railroad Machine Operators shall be qualified under SCRRRA's General Code of Operation Rules (GCOR) and Roadway Worker Protection rules.

- C. Must have a valid California Class "CA" driver's license with no more than three moving violations and no DUI's in any state within the last three years.
- D. Must pass a pre-employment physical examination including a drug and alcohol test.
- E. Ability to work outdoors in all weather conditions, to lift objects weighing a minimum of 50 lbs. and must have ability to distinguish colors and to hear warning signals and radio and telephone devices.

1.10 TRACK FOREMAN

The Contractor shall have a Track Foreman with the following qualifications and experience:

- A. Knowledge of railroad methods of track construction and maintenance under traffic.
- B. Knowledge of FRA standards, and qualified under FRA Track Safety Standards, Part 213.7, and SCRRRA Track Maintenance, Right-of-Way and Structures Engineering Instructions.
- C. Previous qualification with a railroad to obtain track and time and working time; to place and remove restrictions for train movement; and the ability to qualify under all SCRRRA requirements.
- D. The ability to work safely and supervise individuals in safe work.
- E. The ability to read and understand track and construction plans.
- F. Five years' railroad track experience, with a minimum two years' track foreman experience.
- G. Track foremen shall be dedicated full time to the Project.
- H. Must have a valid California Class "CA" driver's license with no more than three moving violations and no DUI's in any state within the last three years.
- I. Must pass a pre-employment physical examination including a drug and alcohol test.
- J. Ability to work outdoors in all weather conditions, to lift objects weighing a minimum of 50 lbs. and must have ability to distinguish colors and to hear warning signals and radio and telephone devices.

1.11 RAILROAD TRACK EQUIPMENT REPAIRER

- A. The Contractor shall have a Railroad Track Equipment Repairer to perform inspection, analysis, repair and maintenance of several types of heavy equipment including rail-mounted tamping and surfacing machines, ballast regulators, compactors, and brooms, rail mounted all-terrain cranes, rail mounted heavy duty

trucks equipped with hydraulic cranes and log loaders, and all-terrain construction equipment including end loaders, backhoe tractors, bulldozers, and road graders. The Railroad Track Equipment Repairer shall lubricate working parts, change engine and hydraulic oil and filters, clean and change air filters, tighten bolts, inspect and adjust fluid levels, belt tension, and dimensioned measurements (e.g. cross level of track), and perform safety inspections of equipment per FRWS using wrenches, screwdrivers, and other small hand and power tools. The Railroad Track Equipment Repairer shall performs heavy repair, analysis, and component exchanges in accordance with manufacturer's recommendations using power and hand tools, hydraulic booms and jacks, and electronic measuring and testing devices and shall establish and implement a schedule of preventive maintenance for equipment, order repair components and parts, and maintain an inventory of consumable parts and supplies that minimizes the time equipment is out of service for repairs and maintenance.

- B. Railroad Track Equipment Repairer qualifications and experience must include the following:
1. Five years experience in maintenance of heavy equipment and three years experience in the maintenance of railroad track construction and/or maintenance equipment including diesel engine, hydraulic system, electronic control, surfacing tamping machine, and rail guide wheel equipment.
 2. Knowledge of safe and proper procedures for operating this equipment in accordance with both the FRWS and the manufacturer's recommendations.
 3. Knowledge of FRWS and the ability to be Qualified on SCRRRA's examinations for the GCOR related to these regulations within two weeks of Limited NTP.
 4. Ability to complete work under time pressures and to maintain composure under the stress of emergency situations.
 5. Must have a valid California Class "A" driver's license with no more than 3 moving violations and no DUI's in any state within the last 3 years.
 6. Must pass a pre-employment physical examination including a drug and alcohol test.
 7. Ability to work outdoors in all weather conditions, to lift objects weighing a minimum of 50 lbs and must have the ability to distinguish colors and to hear warning signals and radio and telephone devices.
 8. Ability to communicate in the written and verbal English language.

1.12 RAILROAD TRACK EQUIPMENT REPAIRER HELPER

- A. The Contractor shall have a Railroad Track Equipment Repairer Helper (Helper) to work under the supervision of the Railroad Track Equipment Repairer. The Helper may work independently or as a member of a crew as directed only for the purpose of servicing and maintaining equipment.
- B. Railroad Track Equipment Repairer Helper qualifications and experience must include the following:
 - 1. One to three years experience in the maintenance and repair of construction equipment or small work equipment.
 - 2. Knowledge of safe and proper procedures for operating this equipment in accordance with both FRWS and the manufacturer's recommendations.
 - 3. Knowledge of safe and efficient manipulation of equipment and tools to assist in track, structures or right-of-way related maintenance tasks.
 - 4. Knowledge of FTSS and FRWS and the ability to be Qualified on SCRRA's examinations for the GCOR related to these regulations within two weeks of Start Date.
 - 5. Ability to complete work under time pressures and to maintain composure under the stress of emergency situations.
 - 6. Must have, or obtain within two weeks of Start Date, a valid California Class "A" driver's license with no more than 3 moving violations and no DUIs within the last 3 years.
 - 7. Must pass a pre-employment physical examination including a drug and alcohol test.
 - 8. Ability to work outdoors in all weather conditions, to lift objects weighing a minimum of 50 lbs and must have the ability to distinguish colors and to hear warning signals and radio and telephone devices.
 - 9. Ability to communicate in the written and verbal English language.

1.13 RAILROAD TRACK WELDERS

- A. The Contractor shall provide Railroad Track Welder with the following qualifications and experience:
 - 1. Knowledge of railroad methods of track construction and maintenance under traffic.
 - 2. The ability to work safely and supervise individuals in safe work.

- B. The Contractor shall provide Railroad Track Welder trained and qualified to perform the following procedures:
 - 1. Qualified in writing by the manufacturer of the thermite process rail welding kits to install field welds
 - 2. Weld cast manganese steel frogs
 - 3. Grind, dress and trim frogs, points and stock rails
 - 4. Weld and grind rail ends to correct mismatch
 - 5. Perform light fabrication arc welding
 - 6. Knowledge of FRA standards, and qualified under FRA Track Safety Standards, Part 213.7
 - 7. Five years' railroad track experience with a minimum two years of track welding experience
- C. Railroad track welders shall be dedicated full time to the Project for the duration of track-welding activities.

1.14 TRACK AND STRUCTURES LABORER/WELDER HELPER

The Contractor shall provide Mandatory Track and Structures Laborer/Welder Helper with the following qualifications and experience:

- A. Knowledge of railroad methods of track construction and maintenance under traffic.
- B. The ability to work safely at heights.
- C. The ability to work safely on operating railroad right of way.
- D. All Welder Helpers and 50 percent of the Track and Structures Laborers must have a minimum of one year of general track construction or maintenance experience.

1.15 SAFETY REPRESENTATIVE

- A. The Contractor shall provide a Safety Representative with minimum qualifications as set forth in the Contract and the Level 3 Health, Safety, and Environmental Specification, as well as knowledge of FRA standards and qualified under FRA Track Safety Standards, Part 213, Railroad Workplace Safety, Part 214, applicable CPUC General Orders, the General Code of Operating Rules, SCRRA and railroad physical characteristics, SCRRA Track Maintenance, Right-of-Way, and Structures Engineering Instructions, and Roadway Worker Protection rules and regulations.
- B. The Safety Representative must be located at the Contractor's construction field office and must be on the Work Site full time.

- C. The Safety Representative will be required to train and test the Contractor's employees after receiving the initial training from SCRRA as further described in Section 01 35 23, OCTA Site Safety Requirements.
- D. Must have a valid California Class "CA" driver's license with no more than three moving violations and no DUI's in any state within the last three years.
- E. Must pass a pre-employment physical examination including a drug and alcohol test.
- F. Ability to work outdoors in all weather conditions, to lift objects weighing a minimum of 50 lbs. and must have ability to distinguish colors and to hear warning signals and radio and telephone devices.
- G. Ability to communicate in the written and verbal and Spanish language.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 PERSONNEL QUALIFICATIONS

- A. Once personnel are deemed acceptable by the Authority, the Authority will make arrangements to provide the training and testing required for personnel to be qualified under subject areas described in Part 1 of this Specification Section.
 - 1. The SCRRA will provide an approximately 40 hour training course held over five days. The training course will cover the SCRRA's General Code of Operating Rules for Maintenance-of-Way Employees and Roadway Worker Protection. The Contractor's managers and key personnel listed above in Subparts 1.5 through 1.8, 1.10, 1.11, 1.14, and 1.16 shall attend and successfully complete this course within 45 days after the Limited NTP. Successful completion shall be defined as becoming Qualified under these subject areas.
 - 2. The Contractor will be notified of test results in writing. The SCRRA will make arrangements for retesting if personnel fail the initial test. Retesting of the course material will be allowed one time within 55 days after the Limited NTP.
- B. Substitutions. If the Contractor needs to replace any of the personnel described in Part 1, the above procedure shall be used. This process, including proficiency testing, shall be completed prior to the vacancy. The allowance of substitutions does not relieve the Contractor of his responsibility to provide the personnel in accordance with Part 1.
- C. The Contractor shall provide the required personnel in accordance with Part 1. If the Contractor fails to provide the appropriate personnel due to a substitution or if the personnel described in Part 1 are not available within 30 days as specified in these Contract Documents, and the Contractor has not acted in good faith to secure replacement personnel, the Authority is entitled to implement one of the following options, at his sole discretion:

1. Option 1: Suspend the portion of the Contractor's operation, which was under the direct supervision of the subject personnel, until the appropriate personnel are provided. All costs relating to this suspension of the Work will be the responsibility of the Contractor.
 2. Option 2: Allow the Contractor's operation to proceed and deduct \$500 per day for each operation that was under the direct supervision of the subject personnel. If this option is used, this deduction shall be taken until the construction operation is completed or until the appropriate personnel are provided.
- D. Immediately remove from the Work, when so ordered by the Authority, and not re-employ on any of the Work, without written permission from the Authority, any Contractor or Subcontractor employee doing unsafe, improper, and defective Work; who, in the Authority's judgment, refuses or neglects the direction of the Authority given to the Contractor; who is deemed incompetent or disorderly; or who commits any trespassing on any public or private property in the vicinity of the Work.

3.2 RAILROAD CONSTRUCTION EQUIPMENT QUALIFICATIONS

- A. The Contractor shall make the railroad construction equipment available for inspection a minimum of 30 days prior to its first use on the project, or as otherwise agreed upon with the Authority.
- B. The Contractor shall make arrangements for initial inspection of the equipment by the Authority. The railroad construction equipment shall not be operated on the SCRRA's Operating System until the initial inspection and approval is completed.
- C. The Contractor shall inspect all railroad construction equipment daily to ensure compliance with manufacturer instructions, FRA regulations, CPUC regulations, and the SCRRA's Operating and Safety Rules. The equipment not in compliance shall not be used on the SCRRA's Operating System.
- D. The Contractor shall provide the required equipment described in Part 1 to perform the work specified in these Contract Documents. Permission given by the Authority to use any particular methods, equipment, or appliances shall not be so construed to relieve the Contractor from furnishing other equipment or other appliances or adopting other methods when those in use prove unsatisfactory or as to bind the Authority to accept Work which does not comply with the Contract. Compliance with determinations by the Authority shall not relieve the Contractor from other obligations imposed by law or regulation nor serve as the basis of a Request for Change Order to the Work. Once mobilization is paid, if the Contractor fails to provide the appropriate equipment in accordance with Part 1, and if the Contractor has not acted in good faith in providing and maintaining the equipment, the Authority shall be entitled, at his own discretion, to implement one of the following options:
 1. Option 1: Suspend the Contractor's operation until the appropriate equipment is provided. All costs relating to this suspension of the Work will be the responsibility of the Contractor.

2. Option 2: Allow the Contractor's operation to proceed and deduct \$500 per day for each piece of equipment not on the job site. If this option is used, this deduction shall be taken until the construction operation is completed or until the appropriate equipment is provided.

3.3 RAILROAD CONSTRUCTION EQUIPMENT

- A. The Contractor shall have roadway work equipment used to move other railcars or equipment that is fully compliant with the FRA power brake, safety appliance, and wheel requirements, and shall be fully stenciled to indicate such compliance. The inspection and testing of the equipment, and the approval of the Contractor's operators, will be done by the Authority's Manager, Rules, and Training as scheduled by the Authority. The Contractor shall demonstrate to the Authority that the operator can make an initial brake test before moving any equipment or railcars, and obtain approval by inspection from the SCRRA, that equipment meets all safety appliance, maintenance, and clearance requirements.
- B. Unless amended by the Specifications, the Contractor shall have on hand and use the minimum equipment or approved equal listed below in performing the Work of the Contract Documents.
 1. A minimum of one Production/Switch Tamper—using models from the list below that are no older than 10 years from manufacture date—with all applicable attachments for construction surfacing:
 - a. Pandrol Jackson 6700 with Laser Liner
 - b. Tamper Mark IV with Laser Liner
 - c. Plasser American Roadmaster 2000 or equivalent with Laser Liner
 2. Metrolink will perform ballast stabilization work and will provide the Ballast Stabilizer as required for use by their own forces. Contractor shall schedule ballast stabilization with SCRRA at least three weeks in advance of performance of work requiring ballast stabilization.
 3. A minimum of one Ballast Regulator or equivalent from the list below, using a model no older than 10 years from manufacture date:
 - a. Kershaw Model 26, or
 - b. Tamper Model BEB-15
 4. A minimum of one dust control tanker capable of spraying water with dust control additive in advance and during surfacing and brooming and regulating activities. The water tank shall have a capacity of at least 3,000 gallons.
 5. One Teleweld Series diesel or propane Fueled Heater Car.
 6. Three High-Speed Rail Drills – Geismar PR-8.
 7. Three Abrasive Rail Saws – Geismar MTX-50-S.

8. Four Portable Hydraulic Toe Tampers – Geismar Model TT-1.
 9. Six Units Hydraulic Track Jacks – Simplex Model JJ1093.
 10. Hydraulic Rail Puller 100 tons+.
- C. The Contractor shall furnish all other on-track and off-track equipment necessary to complete the work.
- D. The Contractor shall maintain the equipment such that is operational and in proper working order. Measures that may be necessary, include, but are not limited to, the following:
1. Efficient scheduling and performance of required inspections, preventative maintenance, and service
 2. Promptly making any necessary repairs
 3. Containing hydraulic and other spills
 4. Keeping equipment owner's manual on board at all times
- E. Use of backup equipment not meeting the requirements listed above will be permitted subject to the following conditions:
1. The Authority approves the use of the proposed backup equipment, in advance.
 2. The backup equipment is not used to perform contract work except as needed to return the tracks to service following an unforeseen breakdown of the required equipment. Use of backup equipment is considered a temporary measure until such reasonable time that the main equipment is repaired. This shall not exceed two consecutive workweeks.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 43 23

**SECTION 01 55 26
MAINTENANCE AND PROTECTION OF TRAFFIC**

PART 1 – GENERAL

1.1 SUMMARY

This Section specifies provisions for the Contractor furnishing, erecting and maintaining temporary barricades, changeable message signs, signs, flaggers, lights, road surfaces, pavement markings for detours, object markers and other safeguards necessary to protect the safety of the public during performance of the Project Work.

1.2 RELATED REQUIREMENTS

- A. Section 01 35 23, OCTA Site Safety Requirements
- B. Section 01 56 37, Worksite Security Requirements
- C. Section 01 71 13. Mobilization and Demobilization and Controls

1.3 REFERENCE STANDARDS

- A. The Contractor shall comply with provisions of the most recent edition, including all addenda, of the following codes, specifications, standards, and recommenced practices, except as otherwise indicated:
 - 1. CPUC - California Public Utilities Commission General Orders
 - 2. CALTRANS - State of California Department of Transportation Standard Specifications and Standard Plans, current edition
 - 3. CA MUTCD - California Manual on Uniform Traffic Control Devices
 - 4. SSPWC - Standard Specifications for Public Works Construction of the Joint Cooperative Committee
 - 5. WATCH - Work Area Traffic Control Handbook, current edition

1.4 SUBMITTALS

The Contractor shall comply with Local Agency Requirements including the preparation of all traffic control plans for the Grade Crossing Work, any advance message signs required by the local agencies. The Contractor shall coordinate approval for the traffic control plans and obtain traffic control and encroachment permits from the City of San Juan Capistrano and the City of Laguna Niguel. The temporary warning devices shall be designed to minimize the inconvenience to the general public and shall comply with the regulations of the California Public Utilities Commission (CPUC) and governmental agencies having jurisdiction.

1.5 PROCEDURAL REQUIREMENTS

- A. The Contractor shall furnish construction signs, barricades, delineators, warning lights, CMS messages in advance of and during construction and all other devices used to implement the plan shall comply with California Manual on Uniform Traffic Control Devices or WATCH Manual latest edition, and local agency permit

requirements. Providing all temporary warning devices in the incorporated areas of the project, as necessary, to convey traffic through the Project and as required by the permits.

- B. Flashing yellow beacons shall be used on all W20-1 signs and all Type II barricades guarding the work area overnight.
- C. The Contractor shall have all signs, delineators, barricades, and other devices properly installed prior to commencing construction. All signs shall be reflectorized and standard size. All delineators shall be 28" minimum portable, reflectorized and maintained erect in indicated position at all times, and shall be repaired, or cleaned as necessary to preserve their appearance and continuity.
- D. Additional traffic controls, signs, delineators or barricades may be required in the field. The Contractor shall be responsible for the placement of any additional devices necessary to assure safety to the public at all times during construction.
- E. Post "Temporary No Parking Tow Away" signs defining the time and date of any such restriction 72 hours prior to work.
- F. The Contractor shall be responsible for location and protection of traffic signal loop-sensors and signal and interconnect conduits. Where damage is caused by the Contractor's operation, the Contractor shall replace damaged City facility at no cost to the Authority or local jurisdiction.

1.6 DETOUR COORDINATION AND APPROVAL

- A. The Contractor shall be responsible for all required permitting associated with work performed within the City right-of-way. This includes, but is not limited to, permitting and approval of maintenance and protection of traffic during lane closures on Camino Capistrano.
- B. Contractor shall maintain at least one vehicle lane in each direction on Camino Capistrano at all times unless otherwise approved by the City of San Juan Capistrano.
- C. If the Contractor cannot maintain protected lanes for bicycle traffic in each direction along Camino Capistrano during the phasing of roadway construction, then the Contractor shall provide and maintain a detour for bicycle traffic around the Project Site, using the nearest available safe roadway overcrossings over the I-5 Freeway. The bicycle detour must be permitted and approved by both the City of San Juan Capistrano and the City of Laguna Niguel.
- D. Detour: In no case shall traffic be diverted from the existing traveled way without prior approval of the Authority and appropriate municipalities and local agencies. The following representatives of appropriate local agencies shall be notified 48 hours in advance of any detour or construction activities:

City/Field Engineer
Traffic Engineer
Police Department (give location and duration)
Fire Department

Transit Buses

- E. Detour striping will not be permitted on any finish course of asphalt concrete pavement.

PART 2 – PRODUCTS

All striping and marking shall conform to Section 310-5.6 of the Standard Specification for Public Works Construction. Temporary removable striping tape (detour grade) may be used in lieu of painted striping.

PART 3 - EXECUTION

- A. All traffic control devices shall be installed in accordance with the current editions of the Caltrans Standard Specifications, WATCH, Caltrans Standard Plans, and CA MUTCD. In addition to work included above, the Contractor shall furnish and install guide markers and delineators at the locations indicated on the Contract Documents and where directed by the Authority.
- B. The Contractor shall provide for access to all adjacent properties during working hours. Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners/operators. The Contractor shall provide access to pedestrian all times. Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to pedestrian. Pedestrian shall be protected as required by CA MUTCD, Part 6D-1 or WATCH Manual Latest Edition, Section 11.
- C. The Contractor shall maintain on a 24-hour basis all signs, delineators, barricades, etc., to ensure proper flow and safety of traffic.

PART 4 - MEASUREMENT AND PAYMENT

- A. Traffic control work completed in accordance with the contract documents will be paid for at the contract unit price, as listed in the Schedule of Quantities and Prices. This price shall be full compensation for furnishing all labor, materials, tools and equipment including furnishing, erecting, maintaining and removing barricades, traffic flaggers, construction area signs, temporary railing (Type K), portable changeable message signs, channelizers, supplies, supervision including preparing traffic control plans and obtaining traffic control and encroachment permits (excluding costs for agency fees), and incidental materials and work necessary for controlling traffic during construction as described by the Contract Documents or required by the local jurisdiction.
- B. Full Compensation for furnishing and installing construction area traffic control devices as ordered by the Engineer, for the sole convenience and direction of public traffic shall be considered as included in the prices and no additional compensation will be allowed.

END OF SECTION 01 55 26

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SECTION 01 56 37
WORKSITE SECURITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

This Section addresses providing, operating, and maintaining security at the Work site during construction. "Security" refers to the protection of both Authority property and the property of the Contractor from theft, vandalism, pilfering or other destructive activities. It is the Contractor's sole responsibility to provide protection for any property (including equipment and supplies) under the Contractor's care, custody, and control.

1.2 RELATED REQUIREMENTS

- A. Section 01 35 23, OCTA Site Safety Requirements
- B. Section 01 71 13. Mobilization and Demobilization and Controls

1.3 REQUIREMENTS

- A. The Contractor shall establish, implement, and maintain an effective, site-specific Security and Loss Prevention Program (SLPP). The Contractor is solely responsible for record keeping and for ensuring that Subcontractors are informed of and comply with the SLPP.
- B. The Contractor shall comply with CCR Title 8, as well as all other federal, state, and local regulations, statutes, and codes applicable to security operations.
- C. Compliance with all parts of this Section shall be considered entirely the responsibility of the Contractor. No delays to the Contractor period of performance relating to any Worksite Security requirements will be allowed by the Authority.
- D. The SLPP shall comply with CFR 1926.800 (b) (3), which states: "The employer shall control access to all openings to prevent unauthorized entry underground. Unused chutes, manways, or other openings shall be tightly covered, bulkheaded, or fenced off and shall be posted with warning signs indicating 'Keep Out' or similar language." The SLPP shall include methods of protecting physical structures above, below, or at grade from trespassers and malicious mischief.
- E. The Contractor or subcontracted Security Firm(s), if utilized, shall coordinate with local law enforcement and with the SCRRA and Authority's Security Department for patrol enhancement through the Authority's representative.
- F. The Contractor shall comply with the Authority requirements regarding the protection of the public, group tours, site visitors, and office safety.

1.4 SUBMITTALS

- A. The Contractor shall submit, for acceptance by the Authority, a written site-specific SLPP that addresses both active and passive security measures to be implemented by the Contractor for project-related Work sites. This SLPP will be revised and resubmitted as conditions warrant and shall include at least the following:
 - 1. Lighting/illumination – The Contractor shall provide and maintain adequate lighting throughout each Work site. This includes staging, laydown areas, and employee parking lots.
 - 2. Office Security – All Contractor office facilities shall be secured to prevent entry, and shall be provided with alarm systems.
 - 3. Physicals barriers – The Contractor shall provide and install perimeter fencing. Access areas shall be closed and locked at the end of shift or when work is completed in the area. Temporary construction protection fencing shall be required specific to job site activities.
 - 4. Project warning signage – The Contractor shall provide signs such as "Keep Out – No Trespassing." Or safety signs for pedestrians and/or other contractors and employees as required.
- B. Should conditions change, the Contractor will be required to resubmit an updated, site-specific Security and Loss Prevention Program that reflects the changes in conditions. Any required resubmittal shall be considered within the original scope of this Contract, and shall be submitted in accordance with the Authority accepted submittal schedule so as to not delay the performance of Work by the Contractor.
- C. The Contractor shall not perform Work on the Work site for this Contract or any work order thereunder, until the Authority has returned the submittals marked "No Exceptions Taken." Authority refusal to issue permission to perform Work on the Work site, due to the Contractor's failure to submit listed safety submittals, or due to Authority rejection of unacceptable submittals, shall not constitute a basis for any claim of delay, interference, disruption, or other similar types of claims.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 SECURITY SERVICES AND EQUIPMENT, IF USED

- A. Authority shall be contacted at the start of the project with the Contractor's SLPP and any proposed security services and equipment.
- B. The Contractor shall provide the security guards with all necessary personnel protective equipment (PPE), Metrolink Safety Training, and SCRRA railroad flagging protection (EIC) at all times that materials are stored within the OCTA right-of-way or when their duties could require access to the OCTA right-of-way.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 56 37

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**SECTION 01 56 38
BIRD PROTECTION****PART 1 – GENERAL****1.1 SUMMARY**

This work includes protecting migratory and nongame birds, their occupied nests, and their eggs. Nesting or attempted nesting by migratory and nongame birds is anticipated to occur but is not limited to Coastal California Gnatcatcher breeding season: February 15th to August 31st Least Bell's Vireo breeding season: March 15th to August 31st, and Flycatcher breeding season: May 1st to August 31st.

1.2 RELATED SECTIONS

- A. Section 01 71 13, Mobilization and Demobilization and Controls
- B. Section 01 56 39, Temporary Tree and Plant Protection

1.3 REGULATORY REQUIREMENTS

- A. The Federal Migratory Bird Treaty Act (16 USC §703-711.), 50 CFR 10, and Fish & Game Code §3503, §3513, and §3800, protect migratory and nongame birds, their occupied nests, and their eggs.
- B. The Federal Endangered Species Act of 1973 (16 USC §1531, §1543) and California Endangered Species Act (Fish & Game Code §2050-§2115.5) prohibit the take of listed species and protect occupied and unoccupied nests of threatened and endangered bird species.

PART 2 – PRODUCTS (Not Used)**PART 3 – EXECUTION****3.1 PROCEDURE**

- B. When migratory or nongame bird nests are discovered which may be adversely affected by construction activity, or when a bird is found injured or killed as a result of construction activity, immediately stop work within 100 feet (500 feet for raptors) of the nest or bird and notify the Authority. Work must not resume until the Authority provides written notification that work may resume at that location.
- C. When ordered by the Authority, use exclusion devices, nesting prevention measures or remove and dispose of partially constructed and unoccupied nests of migratory or nongame birds on a regular basis to prevent their occupation.
- D. Construction and vegetation clearing shall occur from September 1 to February 14 to the maximum extent practicable. Construction and vegetation clearing outside of this time frame shall be under the supervision of the Authority's Project Biologist and shall require prior approval by the Authority.

PART 4 – MEASUREMENT AND PAYMENT

- A. Exclusion devices, nesting prevention measures and nest removal that are ordered by the Authority will be paid for by Change Order.
- B. A delay to the controlling operation due to migratory or nongame birds or their nests will be considered a temporary suspension of work. Adjustments will be made for delays that the Authority determines are not due to the Contractor's failure to perform the provision of the Contract in the same manner as for suspensions due to unsuitable weather.
- C. Compliance with requirements as specified in the Project Environmental Documents such as preventative measures, planned non-work periods, mitigation, and other work items addressed in the Contract Documents shall not be considered Change Order work. This work shall be measured and paid (or considered incidental) as detailed in the applicable Contract Specification Section..

END OF SECTION 01 56 38

SECTION 01 56 39
TEMPORARY TREE AND PLANT PROTECTION

PART 1 -GENERAL

1.1 SUMMARY

This Section concerns general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

1.2 RELATED SECTIONS

- A. Section 01 71 13, Mobilization and Demobilization and Controls
- B. Section 31 11 00, Site Clearing

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by the average of the smallest and largest diameters at 6 inches above the ground for trees up to and including, 4-inch size; and 12 inches above the ground for trees larger than 4-inch size.
- B. Plant Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and so indicated on Drawings.
- C. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification for each type of the following:
 - 1. Organic Mulch: A 1-quart volume of organic mulch, in sealed plastic bags labeled with the composition of materials by percentage of weight and source of mulch.
 - 2. Protection-Zone Fencing: Assembled samples of manufacturer's standard size made from full-size components.
 - 3. Protection-Zone Signage: Full-size samples of each size and text, ready for installation.

- C. Tree Pruning Schedule: A written schedule detailing the scope and extent of pruning of trees to remain that interfere with or are affected by construction.
 - 1. Species and size of tree
 - 2. Location on site plan; include a unique identifier for each
 - 3. Reason for pruning
 - 4. Description of pruning to be performed
 - 5. Description of maintenance following pruning
- D. Qualification Data: For qualified tree service firm.

1.5 QUALITY ASSURANCE

- A. The Authority will provide the following quality assurance and permit compliance activities in support of the Contractor:
 - 1. Identification (marking) of limits of areas of environmentally sensitive species to be included in the Protection-Zone to be fenced and protected by the Contractor.
 - 2. Maintenance Recommendations: Recommendations from the arborist, indicating care and protection of trees affected by construction during and after completing the Work
 - 3. Documentation of existing trees and plantings prior to the start of construction.
 - 4. Certification from the OCTA provided arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards, and that trees were promptly and properly treated and repaired when damaged.
 - 5. Other activities as specified as the responsibility of the Authority in Section 01 11 13.
- B. Tree Service Firm Qualifications: Use an experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project, and that will assign an experienced, qualified arborist to the Project site during execution of the Work.
- C. Preinstallation Conference: Conduct the conference at the Project site. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - 1. Construction schedule. Verify availability of materials, personnel, and equipment needed to make progress and avoid delays.
 - 2. Means of enforcing requirements for protection zones.
 - 3. The Arborist's responsibilities.
 - 4. Field quality control measures.

1.6 PROJECT CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material
 - 2. Parking vehicles or equipment
 - 3. Foot traffic
 - 4. Installation of sheds or structures
 - 5. Impoundment of water
 - 6. Excavation or other digging unless otherwise indicated
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil: Use natural or a cultivated top layer of the soil profile or manufactured topsoil, containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil. Material should be reasonably free of subsoil, clay lumps, gravel, and other objects more than ½-inch in diameter; and free of weeds, roots, and toxic and other nonsoil materials.
- B. Topsoil Source: Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes.
- C. Organic Mulch: Should be free from deleterious materials and suitable as a top dressing for trees and shrubs, and consisting of one of the following:
 - 1. Type: Ground or shredded bark
 - 2. Size Range: 3 inches maximum, ½-inch minimum
 - 3. Color: Natural
- D. Protection-Zone Fencing: Fencing fixed in position and the requirements specified below. Previously used materials may be used when approved by the Authority.
 - 1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch

maximum openings in the pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 F to plus 200 F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 8 feet apart.

- a. Height: 4 feet
- b. Color: High-visibility orange, nonfading

PART 3 -EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion and sedimentation control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

- A. OCTA representatives will locate and clearly identify trees, shrubs, and other vegetation to be protected and associated limits of the limits of environmentally sensitive areas (ESAs) to be protected by the Contractor. If any trees require protection, each tree trunk will be flagged at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 TREE AND PLANT PROTECTION ZONES

- A. Protection Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin. Fencing should prevent people from easily entering the protected area.. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in proximity to street intersections, drives, or other vehicular circulation.
 - 1. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to the Authority.
- B. Protection Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by the Authority. Install one sign spaced approximately every 20 feet on protection-zone fencing, but no fewer than four signs with each facing a different direction.
- C. Maintain protection zones free of weeds and trash.

- D. Maintain protection zone fencing and signage in good condition as acceptable to the Authority, and remove them when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to pre-approval in writing by the arborist if a root buffer effective against soil compaction is constructed as directed by the arborist. Maintain the root buffer so long as access is permitted.

3.4 EXCAVATION

- A. Trenching near Trees: Where utility trenches are required near trees, hand-excavate under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to the location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

- A. Prune roots that are affected by temporary and permanent construction. Prune roots as shown on Drawings and as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Coat cut ends of roots more than 1½ inches in diameter with an emulsified asphalt or other coating formulated for use on damaged plant tissues and that is acceptable to the arborist.
 - 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 4. Cover exposed roots with burlap and water regularly.
- B. Root Pruning at Edge of Protection Zone: Prune roots 12 inches outside of the protection zone, by cleanly cutting all roots to the depth of the required excavation.

- C. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as shown on Drawings and as follows:
 - 1. Prune trees that are to remain to compensate for root loss caused by damaging or cutting the root system. Provide subsequent maintenance during the Contract period as recommended by the arborist.
 - 2. Pruning Standards: Prune trees according to ANSI A300 (Part 1) and the following:
 - a. Do not remove major branches that provide balance and shape to tree. If required, tie up branches that are required to remain, but extend beyond the tree protection zone.
 - b. Cut branches with sharp pruning instruments; do not break or chop.
 - c. Do not apply pruning paint to wounds.
- B. Chip removed branches and dispose of off-site.

3.7 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below the existing grade around trees, slope the grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below the existing grade around trees, slope the grade away from trees as recommended by the arborist, unless otherwise indicated.
- C. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- D. Raising Grade: Where the new finish grade is indicated above the existing grade around trees, slope the grade beyond the protection zone. Maintain existing grades within the protection zone.

3.8 FIELD QUALITY CONTROL

Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off Authority's property.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. Protection-Zone Fence will be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents, as listed on the Schedule of Quantities and Prices as listed on the Schedule of Quantities and Prices, and as measured by the Engineer. The quantities installed in the field and measured by the Authority be used as the basis for this measurement.
- B. All other Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor therefor.

4.02 PAYMENT

- B. Protection-Zone Fence furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Schedule of Quantities and Prices. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, maintenance of installed fence, removal and legal disposal of fence upon completion of construction activities, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications.

END OF SECTION 01 56 39

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**SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS**

PART 1 - GENERAL

1.1 SUMMARY

The Work specified in this Section consists of eliminating or minimizing air, water, and noise pollution generated by construction activities, and of complying with all legal requirements applicable to any construction generated hazardous wastes, including preparation and implementation of waste and wastewater management plans.

1.2 RELATED REQUIREMENTS

- A. Section 01 35 44, Environmental Safety and Health Program
- B. Section 01 71 13, Mobilization, Demobilization and Controls

1.3 REGULATIONS

The Contractor shall comply with all pertinent regulations including the following:

- A. State of California requirements relating to Air Resources Board (CARB), Code of Regulations (CCR), Health and Safety Code (CHSC), Regional Water Quality Control Board, and the Water Resources Control Board (SWRCB).
- B. Federal Code of Federal Regulations (CFR),
- C. U.S. Environmental Protection Agency (EPA), National Pollutant Discharge Elimination system (NPDES).
- D. The Federal Occupational Safety and Health Act (OSHA) and the California Occupational Safety and Health Act (CAL/OSHA).
- E. South Coast Air Quality Management District (SCAQMD).
- F. Project Permitting: US Army Corps of Engineers - Section 404
- G. Project Permitting: Regional Water Quality Control Board - Section 402 General Construction Permit
- H. Project Permitting: Regional Water Quality Control Board - Section 401 Certification
- I. Project Permitting: CA Dept. of Fish and Wildlife - Section - 1602 Streambed Alteration Agreement
- J. Environmental Documents: CEQA Mitigated Negative Declaration

1.4 SUBMITTALS

The Contractor shall prepare and submit the following:

- A. Certificates that materials provided comply with Standard Specifications for Public Works Construction.
- B. The Contractor Generated Waste Management Plan - Required within 30 calendar days after the effective date of the Notice to Proceed (NTP) with required documents to properly govern the Contractor Generated Hazardous Wastes in accordance with Title 22, Division 4.5, CCR, and all other applicable laws and regulations. The Authority or its designee will have the right to review, modify, and approve this Waste Management Plan, and to provide quality assurance/quality control monitoring on the Contractor's implementation of this Plan.
- C. Stormwater Pollution Prevention Plan as required under the Clean Water Act and related federal and state laws and regulations: Required within 30 calendar days of effective date of NTP. Authority or its designee will have the right to review, modify, and approve this Waste Management Plan, and to provide quality assurance/quality control monitoring on the Contractor's implementation of this Plan. NOTE: Contractor shall be required to have a Qualified SWPPP (QSD) prepare this plan. Contractor shall also implement this plan and provide a Qualified SWPPP Practitioner (QSP) for the duration of this project. Authority will designate a Legally Responsible Person (LRP) and will also provide a Data Submitter for uploading information into the SMARTS system.
- D. Wastewater Management Plan - within 30 calendar days of the effective date of NTP, the Contractor shall prepare and submit a Wastewater Management Plan for the project to the Authority for review and approval prior to beginning any work on the project site. The Plan shall be prepared consistent with the provisions of the National Pollution Discharge Elimination System (NPDES) General Permit No. CAS000003 for Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity adopted by the State Water Resources Control Board on September 2, 2012, as Order No. 2010-0014-DWQ (CGP). Submit monthly reports of daily monitoring wastewater discharges as specified in Paragraph 3.5.B. The Contractor shall identify in the Plan the specific Best Management Practices (BMP's) it proposes to use in connection with the execution of construction activity at the subject site. The Contractor shall use the applicable BMP's included in the Construction BMP Handbook, a web-based Portal prepared by the California Stormwater Quality Association (CASQA).
- E. The Contractor shall prepare permit applications and obtain permits not provided by Authority as necessary for performance of the Work under this Contract including, but not limited to
 - 1. Maintenance and protection of vehicle traffic.
 - 2. Excavation, dewatering and discharge of water and runoff into existing drainage systems or surface waters.

3. Disposal of debris and soils.
4. Disposal of track and related material.
5. All other activities with potential to adversely affect the environment.
6. Written permission from the property owner for right-of-entry work that requires entering private property.
7. Submit copies of permit applications and permits to the Authority.

PART 2 - PRODUCTS (Not used)**PART 3 - EXECUTION****3.1 AIR POLLUTION CONTROLS**

- A. The Contractor shall comply with all requirements for controlling fugitive dust including specific impact mitigation measures contained in the latest version of the South Coast Air Quality Management District (SCAQMD) Rules and Regulations that include minimum procedures and techniques:
 1. Cover loads of materials, debris, and soil transported from construction sites. Trim or remove loose material from loads before leaving the Project. Do not cause or allow emissions of fugitive dust to remain visible in atmosphere beyond the property line of the emission source.
 2. Daily or more frequently, if necessary, water down and sweep adjacent streets and sidewalks that have heavy volumes of construction vehicles carrying debris and excavated materials.
 3. Establish regular cycles and locations for cleaning trucks that haul soil from site.
 4. Comply with dust control requirements identified in Section 01 71 13, Mobilization and Demobilization and Controls and water down construction sites as required for suppressing dust, during handling of excavation soil or debris, or during demolition.
 5. If conveyors are used, cover all transfer points along the conveyor system that is moving soil. Minimize the drop height to the stockpile. Provide a sprinkler system that will apply water to soil before it drops to stockpile.
 6. Any adapted measures developed by SCAQMD on Best Available Control Measures (BACM) for Fugitive Dust and Rule 403 will be incorporated into the site operations for Fugitive Dust Control.
- B. Burning of wastes is prohibited. Remove scrap and waste material and dispose of it in accordance with laws, codes, regulations, ordinances and permits.
- C. Use construction equipment designed and equipped to prevent or control air pollution in conformance with the most restrictive regulations of the EPA, state,

and local authorities. Maintain evidence of such design and equipment and make it available for inspection by the Authority or its designee.

- D. Establish and maintain records of the routine maintenance program for internal combustion engine powered vehicles and equipment used on the Project. Keep records available for inspection by the Authority or its designee.
- E. During excavation, gases may be released from soil and from underground reservoirs. Gases may contain methane, other more complex hydrocarbons, or hydrogen sulfide, and may present hazards due to flammability or toxicity. Safety during construction is required by regulations of OSHA and CAL/OSHA. Although the composition, quantity, and concentration of gases that might be released are unknown, release of gases into the atmosphere may be subject to control by SCAQMD and the California Air Resources Board (CARB). The Authority will coordinate this issue with SCAQMD and CARB and will inform the Contractor of further required actions.
- F. In accordance with all regulations, perform a survey for asbestos containing materials and notify regulatory agencies including SCAQMD prior to renovation or demolition of any facility. Notify regulatory agencies prior to commencing Work on bridges or structures. Provide a copy of all notices to the Authority.
- G. Prevent or immediately remove "track-out" of material or dust onto public paved roadways. Daily or more frequently, if necessary, water down and sweep streets which have construction vehicles carrying debris and excavated materials and adjacent sidewalks to remove deposited materials.

3.2 WATER POLLUTION CONTROLS

- B. The Authority retains the sole right to determine whether discharged wastewaters from within the OCTA right-of-way will be discharged to the sanitary or the storm drain system. The City retains the sole right to determine whether discharged wastewaters from within the City right-of-way will be discharged to the sanitary or the storm drain system. The Contractor shall treat wastewater, including storm runoff that is pumped from excavations and other water encountered during operations; remove suspended particles, pollutants, and hydrocarbons through settling basins or hydrocarbon separators in order to comply with Authority direction and regulatory criteria for pollutants in water set by state and local water agencies.
- C. The Contractor shall monitor wastewater discharge to ensure it meets standards set by appropriate laws, codes, regulations, ordinances and permits. Retain records of measurements for inspection by the Authority or its designee. Perform daily monitoring of wastewater discharges and record daily discharged quantities according to NPDES permit guidelines. Submit certified monthly reports not later than seven days after the end of the month.
- D. The Contractor is responsible for preventing or mitigating potential chemical releases, erosions and sedimentation impacts associated with storm water runoff.

- E. The Contractor shall provide copies of the approved Wastewater Management Plan to its Subcontractors and shall keep a copy available onsite at the project office. The Contractor shall provide amendments to the Wastewater Management Plan whenever there is a change in construction, operations, or where storm water runoff conditions which may affect the discharge of significant quantities of pollutants to surface waters, groundwater, or separate municipal storm sewer systems.
- F. An Authority approved Wastewater Management Plan does not relieve the Contractor or its Subcontractors of their responsibilities to comply with other state, county, and local governmental requirements, including those for storm water management or non-point source runoff controls.

3.3 SOLID AND HAZARDOUS WASTE CONTROLS

This Section applies to the Contractor Generated Hazardous Waste.

- A. The Contractor is responsible for, and shall indemnify, defend, and hold the Authority harmless against any costs (including attorney's fees and costs), demands, claims, damages, losses, delay costs ("Claims") arising from or associated with the management, abatement, removal, remediation, clean-up, transport, reuse, recycling, storage, and disposal of any Contractor Generated Hazardous Waste, or associated with any noncompliance with the Contractor Generated Waste Management Plan.
- B. In the event that the Contractor or the Authority reasonably suspects that the Contractor has generated, released, or discharged the Contractor Generated Hazardous Waste, the Contractor is to bear all costs of sampling and monitoring tests and other investigations to determine whether said waste is Solid Waste or Hazardous Waste in accordance with all federal, state and local requirements, including, without limitation, RCRA and Title 22, CCR Chapter 30, Article II (as amended, modified, or replaced from time to time). The Authority reserves the right (but not the obligation) to perform its own physical and chemical analyses and tests on suspected Contractor Generated Hazardous Waste. The Contractor shall furnish samples, at the Contractor's cost, as directed by the Authority.
- C. The Contractor shall be responsible for the management, abatement, removal, remediation, clean-up, transport, reuse, recycling, storage, and disposal of the Contractor-Generated Hazardous Waste in accordance with laws, rules, regulations, and orders, including, without limitation, Title 22, Chapter 30 et seq., California Code of Regulations, California Health and Safety Code Section 25100 et seq., Titles 23 and 26, California Code of Regulations, and regulations of the waste disposal facility to be used. Haul routes for transporting solid or hazardous wastes are subject to the approval of local jurisdictions, or other regulatory agencies.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. SWPPP Compliance will be measured by the unit or fraction thereof furnished and

completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Schedule of Quantities and Prices and the SWPPP Compliance earned value and submitted by the Contractor and as verified and approved by the Authority will be used as the basis for this measurement

- B. All other Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor therefor.

4.01 PAYMENT

- A. SWPPP Compliance furnished and completed in accordance with the Contract Documents will be paid for at the Contract Unit Price, as listed on the Schedule of Quantities and Prices. This price shall include full compensation for furnishing all labor, Materials, tools, equipment, supplies, supervision, and incidentals, and doing all work, as shown on the Plans, and as specified in these Specifications.

END OF SECTION 01 57 19

**SECTION 01 60 00
PRODUCT REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements relating to selection of products, materials and equipment for the Work and their delivery, storage, and handling.

1.2 RELATED REQUIREMENTS

- A. Section 01 14 16, Coordination with SCRRA
- B. Section 01 25 00, Substitution Procedures
- C. Section 01 64 00, SCRRA Furnished Material and Equipment
- D. Section 01 78 36, Warranties and Guarantees
- E. Divisions 02 through 34 Sections for specific requirements relating to products and installations.

1.3 MATERIAL SAFETY DATA SHEETS (MSDS)

- A. The Material Safety Data Sheet is prepared by manufacturers and suppliers of products that contain hazardous materials. Hazardous material is defined as any substance which is a physical, or health hazard, or is included in the Cal-OSHA Director's List of Hazardous Substances, or is listed in Title 22 of the California Code of Regulations, Section 12000, Chemicals Known to the State to Cause Cancer or Reproductive Toxicity (Proposition 65 Substances).
- B. No hazardous materials shall be delivered, stored, or used at any work site or facility unless they are properly labeled, tagged or marked, and a copy of the MSDS has been provided to the Authority. A copy of any updated MSDSs shall be provided to the Authority immediately.
- C. The Contractor shall also maintain a file of relevant MSDSs at the work site. MSDS files shall be kept current; new or updated MSDSs shall be added immediately and a copy provided to the Authority.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete functional installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. The Authority reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," the Authority will make the selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
6. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Section 01 33 00, Submittal Procedures to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements. Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
2. Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements. Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
3. Basis of Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Section 01 25 00, Substitution Procedures for consideration of an unnamed product by the other named manufacturers.
4. Visual Matching Specification: Where Specifications require matching an established sample, select a product that complies with requirements and matches the Authority's sample. The Authority's decision will be final on whether a proposed product matches.

5. If no product available within the specified category matches and complies with other specified requirements, comply with provisions in Section 01 25 00, Substitution Procedures for proposal of a product.

2.2 LISTING OF ELECTRICAL EQUIPMENT

- A It is the Contractor's responsibility to ensure that electrical equipment, machinery control panels and electrical components, and field installed devices and components will meet the all applicable codes and regulations of the both local Authority and the State of California, for "listing" of electrical equipment by an accredited laboratory. Applicable provisions of all Underwriter's Laboratory standards, as incorporated under the laws within the State of California, shall apply to the work of this project, except as modified herein, and are hereby made a part of these Specifications to the extent required.
- B. The UL listing is acceptable; however, other certifications must be checked for acceptance under the applicable laws and regulations of the State of California and approved by the Authority prior to equipment purchase. Custom built control panels and systems, wherein listing has not been established prior to manufacture, will be accepted only if they are built under the UL self certification labeling procedures. Compliance with, the costs of, and any scheduling impacts associated with the laws, codes and regulations of the state and local jurisdictions are the responsibility of the Contractor and its suppliers.

PART 3 - EXECUTION

3.1 PRODUCT DELIVERY, UNLOADING, STORAGE, AND HANDLING

- A. The Contractor shall, at its own expense, deliver, unload, store, handle, and be responsible for all materials, whether furnished by the Authority or by the Contractor. All Authority furnished material, whether unloaded by the Authority or by the Contractor, shall be moved by the Contractor, at its expense, from the point where it is delivered by the Authority to the site of the Work.
- B. Deliver, unload, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions. The unloading, storing and hauling of all the Authority's or the Contractor's material shall be considered as incidental to Contract pricing.
- C. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at the Project site, and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation times to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to the Project site in an undamaged condition in the manufacturer's original, sealed container or other packaging system,

complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Track materials shall be handled and stored in accordance with the SCRRA Track Maintenance and Engineering Instructions.

D. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units. Store products with seals and labels intact and legible.
2. Store materials in a manner that will not endanger Project structures and material shall not be placed nor stored within 25 feet of the centerline of any active railroad track.
3. Store products that are subject to damage by the elements under cover in a weather-tight enclosure above ground, or with impervious sheeting allowing for ventilation adequate to prevent condensation. Comply with the product manufacturer's written instructions regarding temperature, humidity, ventilation, and weather-protection requirements for storage.
4. Store loose granular materials on solid flat surfaces in a well drained area. Prevent mixing with foreign matter.
5. Store cementitious products and materials on elevated platforms.
6. Store foam plastic away from exposure to sunlight, except to the extent necessary for a period of installation and concealment.
7. Protect stored products from damage and liquids from freezing.
8. Building materials will be stored in a protected environment safe from sun, rain, and excessive dust. Damaged or excessively dirty Materials will not be permitted to be installed.
9. All electrical and mechanical equipment shall be stored so as to be protected from rain, sun, wind, sand, dust, moisture, etc. The equipment shall be stored on supports off the ground or on a concrete slab with all factory-provided dust and moisture protection left in place until the equipment is installed. Electrical and mechanical equipment shall be maintained in accordance with the manufacturer's operation and maintenance instructions until the Contractor is relieved of the responsibility by the Authority.
10. When permission to do so is given in writing by the Authority, the Contractor may store materials and erect temporary buildings on Authority property,

provided such property is not required for the Authority's use or is not under lease to other parties.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 60 00

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SECTION 01 64 00
SCRRA FURNISHED MATERIAL & EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

No materials will be furnished by SCRRA or the Authority for the Project.

END OF SECTION 01 64 00

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**SECTION 01 71 13
MOBILIZATION, DEMOBILIZATION AND CONTROLS**

Part 1 - GENERAL

1.1 SUMMARY

This Section includes Worksite mobilization of personnel, equipment, supplies, and appurtenances, all in ready and satisfactory working and operational order, which the Contractor intends to use for the Work; for the establishment of all temporary offices and Contractor-owned structures and other temporary facilities necessary to perform the Work; proper safety training of project personnel; and for incidental Work and operations which must be performed prior to beginning Work on the various Contract items. Also included is the demobilization or removal of all personnel, equipment, supplies, appurtenances, Contractor-owned structures, temporary facilities, materials, and debris from the Worksite and restoration of site and surrounding properties, affected by the Contractor's activities, to specified conditions.

This Section also includes Agency encroachment permits and City of San Juan Capistrano and City of Laguna Niguel inspection fees.

1.2 RELATED REQUIREMENTS

- A. Section 01 35 23, OCTA Site Safety Requirements
- B. Section 01 35 44, Environmental Safety and Health Program
- C. Section 01 56 37, Worksite Security Requirements
- D. Section 01 56 39, Temporary Tree and Plant Protection
- E. Section 01 57 19, Temporary Environmental Controls

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Fire Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate the Contractor personnel responsible for management of fire prevention program.
- C. Moisture Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 - 2. Indicate procedures for discarding water damaged materials, and protocols for mitigating water intrusion into completed Work and replacing water damaged Work.

3. Indicate sequencing of Work that requires water, such as sprayed fire-resistant materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- D. Dust Control Plan: Submit coordination drawing and narrative compliant with SCAQMD Rule 403 that indicates the dust control measures proposed for use, proposed locations, and proposed time frame for their implementation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 1. Locations of dust control at each phase of work
 2. Watering duration and rewatering cycle, if watering is proposed as a dust-control measure
 3. Waste handling procedures
 4. Other dust-control measures
- E. Copy of Executed Caltrans Encroachment Permit
- F. Copies of Executed San Juan Capistrano Encroachment and Traffic Control Permits.
- G. Copy of SCRRA right of entry permit
- H. Approved safety personnel
- I. Approved site specific health and safety plan

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70 and the requirements of jurisdictional authorities.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

The Contractor shall provide storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations and shall store combustible materials apart from buildings and structures. Provide portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

2.2 FIELD OFFICE FOR THE AUTHORITY

- A. The Contractor shall furnish, maintain, and subsequently remove as its property, a field trailer or office area for the Authority adjacent to the Contractor's office building. Area provided for Authority use shall be for the exclusive use of Authority representatives and be located on or near the project site. These facilities shall be made available prior to beginning of Work at the site and shall not be removed until substantial completion of Work at the site.
- B. The space provided for the Authority use shall be lockable and secure against access from the outside. The trailer or office space provided for use by Authority personnel shall be not less than 720 square feet. The proportions and ceiling heights of the spaces provided shall be suitable for the purpose intended. Structures shall be weather tight and in It shall be in "like new condition". No broken windows and holes in exterior or interior walls will be allowed. Wiring shall meet local code requirements. Interior and exterior shall be free of dirt or writing, and habitable. Provide heating/cooling such that an ambient temperature of 72 degrees can be maintained regardless of the outside weather. field office shall be equipped with the following minimum equipment:
 - 1. 8 foot by 8 foot enclosed office within work area.
 - 2. Entry doors equipped with keyed dead bolt locks. Furnish a minimum of six keys.
 - 3. Windows shall be equipped with shades or blinds suitable to obscure sunlight.
 - 4. Openable windows shall be equipped with insect screens.
 - 5. Internal restroom facility
 - 6. Fire extinguisher, Type ABC, 10 lb. size
 - 7. First aid kit sized in accordance with Cal-OSHA requirements
 - 8. Four telephones with speakerphone functions
 - 9. 4. One Desk and two chairs. Six (6) office desks with file drawers
 - 10. Six (6) office chairs with casters
 - 11. Conference table and eight chairs
 - 12. Three (3) legal size file cabinets, 4 drawer
- C. Utilities and services shall be in accordance with the following:
 - 1. Provide telephone service, high speed internet service (minimum of 100 Mbps), office security system, electrical convenience outlets, lighting, heating, ventilating, air conditioning, and toilets. Include 5 phone and 5 data lines, outlets and equipment.
 - 2. Provide purified drinking water.

3. 4. Provide, install, and maintain one color photocopier machine capable of sorting multiple copies, enlargement and reductions, scanning color copies, printing in color on both 8 1/2" x 11" and 11" x 17" paper size.
 5. Provide daily litter removal from interior spaces, and weekly janitorial service.
 6. Provide, install and maintain reliable internet service.
 7. Provide and replenish office supplies including scissors, staples, pens, paper, copier ink.
- D. The field office shall be readily accessible to street vehicles and have parking spaces for at least four vehicles. Parking space and pedestrian access to the trailer shall be surfaced with crushed aggregate base.
- E. Construction Manager's field office shall remain the property of the Contractor and shall be removed from the site 30 days after written request by the Engineer.

2.3 PROJECT SIGN

- A. The Project sign shall be one 4' x 8' (32 square foot) aluminum panel sign mounted on two square posts (minimum 2 1/4" x 2 1/4") embedded in the ground. Bottom of the sign shall be 7' above ground.
1. The Contractor (or sign manufacturer) shall engineer the fabrication and installation of sign structure to satisfy all local codes and wind load factors. The Contractor shall verify site conditions prior to design and fabrication.
 2. Design shall be stamped by a Professional Engineer registered in the State of California.
 3. Graphic for the Project sign; and required text and logos will be provided by the Authority. Sample shown below (in black and white) from another Project is shown for general reference of anticipated level of detail for graphics. Actual sign shall be full color.



PART 3 - EXECUTION

3.1 PROTECTION OF EXISTING UTILITIES AND STRUCTURES

- A. The Contractor shall maintain all utility facilities placed by the Contractor in temporary locations and all utilities that are shored or supported by the Contractor during construction. The cost of providing and maintaining all necessary or required temporary structures, and of making any necessary repairs, replacements, or similar operations, shall be paid by the Contractor; no separate payment shall be made.
- B. The Contract Price includes all costs that may be incurred by the need to remove or relocate existing public utilities or other structures, including public utilities or other structures identified at the time of the Bid due date. It is the Contractor's responsibility to schedule its Work and labor and equipment to minimize the impact of such delays and costs. Accordingly, except as provided in the California Government Code in the case of existing main or trunkline utility facilities, the Contractor agrees that its sole remedy resulting from any unreasonable delay or removal or relocation of such utilities will be an adjustment in accordance with the Change Order provisions of the Contract.

3.2 PRESERVATION OF PROPERTY OR PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the protection of public, private, and Authority property adjacent to and within the Work site, and shall be responsible for bearing the cost and performing the repair work necessary to restore or repair damaged areas. The Contractor shall supply all firefighting equipment, supplies,

and personnel, and perform all Work required by the laws and regulations pertaining to fire prevention.

- B. Due care shall be exercised to avoid injury to existing improvements or facilities on adjacent property. The Contractor shall provide and install suitable safeguards to preserve and protect properties adjacent to the Work site from injury or damage. If such properties are injured or damaged by reason of the Contractor's operations, they shall be restored at the Contractor's sole expense. Damaged properties shall be repaired and restored to a condition as good as when the Contractor entered upon the Work site. The Authority may make or cause to be made such temporary repairs as are necessary to restore to service any damaged property. The cost of such repairs shall be borne solely by the Contractor, and the costs shall be deducted from any payments due or to become due to the Contractor under the Contract.
- C. Place steel plates to cover trenches and excavation outside of fenced construction areas at all times that Work is not ongoing. The steel trench plate shall be a minimum of 1 inch thick, with anti-slip coating or treatment and having sufficient bearing surface to support heavily loaded trucks and emergency equipment. The steel traffic plate shall be anchored and have approach ramping against movement.

3.3 TEMPORARY UTILITY INSTALLATION

- A. Electric Power Service: Provide electric power service and a distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- B. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions. Install and operate temporary lighting that fulfills security and protection requirements without operating the entire system and install lighting for the Project identification sign.

3.4 STAGING AND LAYDOWN AREAS

- A. Staging and laydown areas for use in this Contract are as detailed in the Plans and Specifications. Staging and laydown areas not covered in the Contract Documents shall be requested in writing and approved by the Authority. This approval may or may not be granted by the Authority. No equipment may be operated or materials stored or placed for any period of time in unfenced areas closer than 25 feet from live tracks unless an Authority EIC is present. The Contractor shall provide a fence to enclose each laydown or staging area within the right of way. The Contractor shall furnish the Authority with photographs of all staging and laydown areas to document their condition prior to the start of Work.
- B. The Contractor shall confine Work site operations to areas permitted by law, ordinances, permits, and the Contract.
- C. Contractor shall clearly mark the project boundary with flagging, fencing, or signs. Refer to Section 01 56 39 for fencing and signage associated with delineation and

protection of ESA's. Refer to SWPPP Compliance requirements specified in the Section for silt fence and other project BMP requirements.

- D. The Contractor shall relocate stored products, equipment, and materials that interfere with train operations, public and private utilities, or the visibility at railroad crossings. Materials and equipment shall not be piled, stored, or parked when not in use.
- E. As needed for the proper execution of the Work, the Contractor shall coordinate operations and secure additional storage/work areas from the property owners, at no cost to the Authority. The Contractor shall adhere to the noise levels and hours of local ordinances, except as provided and approved in the SSWP in accordance with Section 01 14 00, Work Restrictions.
- F. The Contractor shall submit the proposed location of staging areas for the Authority's approval.
- G. In addition to site utilization limitations and requirements indicated on Contract Documents, the Contractor shall divide available space equitably among Subcontractors and other entities needing access and space so as to produce the best overall efficiency in performance of the total Work of the Project. The Contractor shall provide temporary parking areas for construction personnel.
- H. The Contractor shall schedule deliveries to minimize space and time requirements for storage of Materials and equipment on site, with minimal disruption to the adjoining site owners and operations. Pick-up and delivery requiring vehicular traffic adjacent to tracks shall be performed only during normal working hours, and as approved by the Authority.

3.5 ENCROACHMENT PERMITS AND INSPECTION FEES

- A. The Contractor shall be responsible for performing all work necessary to obtain City of San Juan Capistrano encroachment permits and traffic control permits (including bicycle detour if required) for work to be constructed within the Camino Capistrano roadway right-of-way.
- B. The Contractor shall be responsible for performing all work necessary to obtain any additional encroachment permits and traffic control permits with the City of Laguna Niguel as required for any impacts to Camino Capistrano traffic, as required to access CP Avery from the Laguna Niguel Station site, as required by the Orange County Flood Control District for access, and as required for approval of a temporary bicycle detour route (if required)
- C. The Contractor shall be responsible for performing all work necessary to obtain any additional encroachment permits and traffic control permits with the City of Laguna Niguel as required for approval of a temporary bicycle detour route (if required)
- D. The Contractor shall be responsible for performing all work necessary to obtain an executed Caltrans encroachment permit for grading and fence replacement to be performed within the Caltrans SR-73/I-5 right-of-way adjacent to Camino Capistrano. The Authority has submitted and gained pre-approval of the Caltrans encroachment

permit (Caltrans Permit No. 12-17-NMC-0632). The Contractor shall provide permit fees, performance bond, liability insurance, and Contractor's information to obtain the executed permit from Caltrans.

- E. The Contractor shall also be responsible for scheduling and payment for Agency site inspection as required by the permits.

3.6 ACCESS AND CONSTRUCTION ROADS

- A. Access to the Work from existing public roads, or along the right-of-way of the Authority shall be arranged for and provided by the Contractor. No payment will be made to the Contractor by the Authority for any work done in constructing, improving, repairing or maintaining any road or structure thereon for use in the performance of the Work. The Authority assumes no responsibility for the condition or maintenance of any road or structure thereon that may be used by the Contractor in performing the Work or in traveling to and from the site of the Work.
- B. No off-road vehicle use is allowed beyond project site and designated access routes.
- C. Do not drive or park vehicles in areas where catalytic converters could ignite dry vegetation.
- D. Existing roads and trails shall be used whenever possible for access to the Work. Construction of new access roads or use of existing roads shall be subject to approval by the appropriate governmental agency, property owner, landowner, and Authority. Temporary access roads shall be rehabilitated upon termination of the use of the road. The roads shall be graded to conform to original topography to the degree possible. Cut slopes shall be reduced to a grade consistent with adjacent topography, protected from erosion, and re-vegetated.
- E. The Contractor's haul or service road shall be located so that, upon the completion of the Work, a continuous road, where possible, will remain on the right-of-way throughout the entire length of the project. The Authority will designate the location of the road.
- F. Where it is necessary to place a portion of the haul or service road or occupy an area off of the Authority's right-of-way, the Contractor shall obtain written release from owner and tenant for the land involved. At the completion of the project, the area used by the Contractor shall be returned to a condition satisfactory to the landowner and duly constituted environmental agencies.
- G. At locations where the right-of-way crosses existing roads, highways, or at other locations where the Contractor's equipment will cross-existing roads or highways, the Contractor shall obtain the necessary approval and permits from the proper agencies for such crossings and detours as may be required. The Contractor shall maintain such crossings and detours in safe condition for passage of traffic; shall provide flag persons and watchmen as required; and shall furnish and maintain temporary drainage structures, guard fences, lights, warning signs, and other

facilities necessary to protect traffic. Public access to the Contractor's road shall be controlled by cable barrier or gate that is locked with a series of padlocks including Authority and the Contractor locks. Such gates or barriers are to be maintained in a closed configuration except when in use. This Work shall be considered, as incidental to other items of the Contract, and no direct payment will be made for any costs involved.

- H. The Contractor may, upon approval of both SCRRA and the Authority, construct temporary private railroad crossings for the purpose of performing the Work required. A physical barrier shall be provided to protect the crossing when not in use for construction. An SCRRA EIC shall be provided at by the Contractor all such crossings at all times during construction when the physical barrier is not closed and locked. The cost for providing an SCRRA EIC at the temporary crossing shall be considered incidental to performing other Contract work; the Contractor will not be reimbursed for this EIC from the allowance of flagging days provided by OCTA. Access across the crossing may be limited by the presence of trains on the live track, as described in Section 01 14 00, Work Restrictions. Temporary crossings shall be removed upon completion of the Work. The Contractor shall submit plans for the SCRRA's approval. Any requirement for at-grade railroad crossings (other than public at-grade railroad crossings) or use of the Right of Way for the Contractor's equipment, vehicles, or materials shall be as approved by the Authority.
- I. All costs associated with the construction, maintenance, and removal of the haul or service road, and restoration of any area off the Authority's right-of-way will be considered, as incidental to other items of the Contract and no additional payment for any of this Work will be made.
- J. The Contractor shall provide dust-control treatment that is non-polluting and non-tracking. Reapply treatment as required to minimize dust.
- K. Upon completion of the Project, restore access and staging areas to a condition that is equal to or better than that prior to the Contractor entry, and as accepted by the Authority. All residual Materials shall be removed and all areas used shall be bladed smooth upon completion of use. Drainage in all areas affected by the Project shall be restored to a condition that ensures that no water ponds on the Right of Way, and no water is diverted to drain to the track structure. The Contractor shall photograph the project site(s) and submit the photographs to the Authority to demonstrate that staging and access areas have been restored to the pre-construction condition.
- L. Fences, walls, signs, and gates affected by the Contractor's access to the Right of Way shall be restored to full serviceability prior to demobilization.
- K. Maintain traffic controls, access for fire-fighting equipment and access to fire hydrants. Protect existing site improvements that are to remain, including curbs, pavement, and utilities.

3.7 LIMITATION ON THE USE OF HEAVY EQUIPMENT

- A. If the Contractor anticipates using any vehicles or equipment over 20,000 pounds (loaded) during the performance of the Work, dimensions and weights of such equipment shall be submitted to the Authority for approval prior to use.
- B. Unless expressly permitted elsewhere in the Contract Documents, the Contractor shall not operate construction equipment or vehicles of any kind which, laden or unladen, exceed the maximum weight limits set forth in Division 15 of the California Vehicle Code over completed or existing base, surfacing, pavement, or structures.

3.8 HAZARDOUS CHEMICALS, WASTES AND MATERIALS

- A. Hazardous chemicals, wastes, and materials are defined as any product, substance, chemical, or material whose nature, quantity or intensity of existence, use, manufacture, disposal, transportation, spill, release, or effect, either by itself or in combination with other chemicals or materials in, on, or about the Work site: (a) is or becomes potentially injurious to the public health, safety or welfare, environment, or the Project site; (b) is or becomes regulated or monitored by any governmental Authority; or (c) may, according to statutory or common law theory, such as nuisance (public or private), waste, trespass, negligence, strict liability, or tort, be a basis for liability in tort, or be a basis for liability to third parties.
- B. The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) prohibits employers from knowingly discharging or releasing a chemical or other material known to the State of California to cause concern, birth defects, or other reproductive harm into water or onto land where such chemical passes or probably will pass into any source of drinking water. Notwithstanding any provisions in this Act exempting the Contractor, the Contractor hereby agrees to comply with all provisions of the Act relating to the discharge of hazardous chemicals and materials on the Work site.
- C. The Contractor's employees and Subcontractors of any tier shall not discharge such chemicals or materials on the Work site that will result in the discharge of such chemicals, and shall, upon completion of performance of all other duties under this Contract, remove all supplies, materials, and waste remaining on the job site which if exposed, could result in the discharge of such chemicals, materials, and wastes.
- D. The Contractor, the Contractor's employees, and Subcontractors of any tier shall also comply with the State of California anti-smoking laws that, in part, prohibit smoking in the workplace and in enclosed areas.
- E. Should the Contractor, the Contractor's employees, Subcontractors of any tier, or their employees fail to comply within 24 hours from receipt of written notice of noncompliance from the Authority, or other Authority of competent jurisdiction, or within the time of an abatement period specified by such Authority of competent jurisdiction, whichever period is shorter, the Authority may give notice of default to the Contractor. Failure of the Authority, or other Authority of competent jurisdiction to issue notice to the Contractor shall not relieve the Contractor of its responsibilities under this Section.

3.9 PESTICIDES, FUEL OIL, AND GREASE

- A. The Contractor shall comply with all local, state, and federal rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations, the Department of Toxic Substance Control, and all other agencies that govern the use of pesticides, fuel oil, and grease required in the performance of the Work. Fuel, oil, and grease include any crude oil or any products, byproducts, or fractions thereof.
- B. Pesticides include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants, and repellents.
- C. Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weeds, insects, diseases, rodents, or nematodes, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant, shall be considered as a pesticide.

3.10 DISPOSAL OF MATERIALS OUTSIDE THE WORK SITE

- A. Unless otherwise stated elsewhere in the Contract Documents, the Contractor shall make its own arrangements for disposing of materials outside the Work site. The Contractor shall obtain written permission or permit from the property owner on whose property the disposal is to be made. Prior to the disposal of any material at the intended location, the Contractor shall submit said written permission or permit to the Authority for approval, together with a written release from the property owner absolving the Authority from any and all responsibility related to the disposal of material on said property.
- B. Disposal of all Hazardous Materials shall be done in accordance with all laws and regulations. Copies of a required regulatory documentation, including copies of final manifests, shall be submitted to the Authority.

3.11 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Site Enclosure Fence: Before construction operations begin, furnish and install a site enclosure fence in a manner that will prevent people and animals from easily entering the site except by entrance gates.
 - 1. Extent of Fence: As required to enclose the entire Project site or that portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting the number of keys and restricting distribution to authorized personnel. Furnish one set of keys to the Authority.
- B. Security Enclosure and Lockup: Install temporary enclosures around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at the end of each work day.

- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- E. Covered Walkway: Erect protective, covered walkways where identified on the Plans or directed by the Authority for passage of individuals through or immediately adjacent to the Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction and requirements indicated on Drawings.
 - 1. Construct covered walkways using scaffold or shoring framing.
 - 2. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - 3. Paint and maintain appearance of walkway for duration of the Work.
- F. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage the fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to Contract requirements.
 - 3. Develop and supervise an overall fire prevention and fire protection program for personnel at the Project site. Review needs with the local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip them with suitable nozzles.
 - 5. Equip construction trucks with water and shovels or fire extinguishers.
 - 6. Use shields, protective mats, or other fire prevention equipment during grinding and welding.

3.12 PUBLIC SAFETY AND CONVENIENCE

- A. The Contractor shall conduct its operations so as to offer the least possible obstruction and inconvenience to the public and shall have under construction no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public. The Contractor shall control temporary noise from

construction equipment by using work hour controls and maintenance of muffler systems on machinery.

- B. Construction shall be conducted so as to cause as little inconvenience as possible to abutting property owners. Convenient access to driveways, houses and buildings along the line of Work shall be maintained and temporary approaches to crossing or intersecting highways shall be provided and kept in good condition. When the abutting owner's access is to be eliminated and replaced by other access, the existing access shall not be closed until the replacement access facility is available.
- C. The Contractor, at its expense, shall provide adequate safeguards, safety devices and protective equipment and take any other needed action both of its own volition and responsibility or that which the Authority may determine is reasonably necessary to protect property, life, health and public safety in connection with the performance of the Work covered by the Contract.
- D. The Contractor shall make all reasonable efforts to maintain good will among landowners, tenants, lessees, and members of the general public and shall not knowingly violate any right of such persons in the performance of the Work covered by the Contract. To this end, the Contractor specifically agrees to not:
 - 1. Leave gates, gaps, or fences open, unattended or insecurely fastened.
 - 2. Use private driveways or roadways without Authority.
 - 3. Use land beyond limits of the right-of-way without Authority
 - 4. Leave trash or debris on the land.
 - 5. Permit the personal misconduct of its employees or any of its Subcontractor's employees.
- E. In the event the Contractor's operations cause injury to any persons or damage to public or private property, including above and below ground structures, the Contractor shall immediately contact emergency services for the local Authority and within twenty-four (24) hours, give notification in writing to the Authority of such damage or injury. The Contractor shall be responsible and liable for all damages and injuries.
- F. Unless otherwise noted, all construction operations shall preserve existing drainage paths and vehicular and pedestrian access. The Contractor shall also regularly attend to dust, mud, trash, noise, debris, etc., caused by construction operations to prevent a public nuisance.
- G. All paved areas, including asphalt concrete berms cut or damaged as a result of construction, shall be replaced with similar materials of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent

pavements shall conform to the requirements of the affected pavement owner. All pavement that is subject to partial removal shall be neatly saw-cut in straight lines.

- H. In order to obtain a satisfactory junction with adjacent surfaces, the Contractor shall saw-cut back and trim the edge of the surface so as to provide a clean, sound, vertical joint before temporary or permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw-cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- I. Where sidewalks have been removed for purposes of construction, or damaged, the Contractor shall place properly protected, suitable temporary sidewalks, promptly after backfilling, and shall maintain them in satisfactory condition until the final restoration thereof has been made.

3.13 DISRUPTION MITIGATION

- A. The Authority, the SCRRA's Contractors and other railroads will occupy the Work site during the entire construction period for the conduct of the SCRRA's and the railroad's normal operations. The Contractor shall cooperate with the Authority and the railroads, through the Authority, in scheduling operations to minimize conflicts so as to not interfere or impair the normal operation of SCRRA or other railroads.
- B. The Contractor shall develop and submit for the Authority's approval a Disruption Mitigation Plan that identifies and establishes criteria for the performance of the Work that requires coordination and sequencing based on the operational requirements of SCRRA and the other railroads, and to allow the free flow of public traffic within the public rights-of-way. The Contractor shall incorporate operational data and information and requirements given by SCRRA, other railroads, and local municipal transportation agencies in developing the Disruption Mitigation Plan, and in planning and scheduling its work to prevent interruption or impairment of the normal operations of SCRRA, the other railroads, and public traffic. The Contractor shall avoid disruptions to the normal operations of SCRRA, other railroads, and public traffic, and shall plan, schedule, coordinate and construct the Work in such a way as to accommodate the normal operations of SCRRA, other railroads, and public traffic.
- C. Upon the completion of each day's Work, the Contractor shall make the railroad tracks and facilities suitable for the passage of trains. The operation of trains over portions of the Work not completed will be in accordance with the FRA requirements. The operation of trains over such Work will not constitute Beneficial Occupancy.

3.14 OPERATION, TERMINATION, AND REMOVAL

- A. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

- B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with a temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are the property of the Contractor. The Authority reserves the right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where an area is intended for landscape development, remove soil and aggregate fill that do not comply with the requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt, other petrochemical compounds, and other substances that might impair the growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. The measurement and payment for mobilization, maintenance, utilization, and demobilization of required facilities, personnel, materials and equipment under this Section shall be measured by the unit or fraction thereof furnished and completed in accordance with the Contract Documents and as measured by the Engineer. The quantities as contained on the Schedule of Quantities and Prices, or approved schedule of values, as applicable, as derived from the Plans will be used as the basis for this measurement.
- B. Encroachment Permits will be measured by the Allowance (Allow.) unit for reimbursement of actual fees paid to Caltrans and the City Agencies as required to permit construction of facilities within Agency right-of way and to pay Agency site inspection fees. No separate measurement or payment will be made for Contractor work performed as necessary to develop, submit, and gain approval of the permits; this shall be considered incidental to work requiring the permits.
- C. Encroachment permits shall not include any fees or permitting performed by the contractor for use, encroachment, or temporary construction easements on private property.
- D. Encroachment permits shall not include any fees or permitting performed by the Contractor for use of areas outside of the Project Footprint. Use of areas outside the Project Footprint includes, but is not limited to offsite staging/storage areas, Contractors offices and facilities, field office for the Authority, site access through use of existing non-public roads, and temporary Contractor access through Agency properties (such as access through the Northwest Open Space Park).

4.01 PAYMENT

- A. The Contract price paid for Mobilization and Demobilization shall be full compensation for furnishing all labor, materials, tools, equipment, supplies, supervision, Field Office for the Authority, and incidentals necessary for work as necessary to mobilize, maintain, utilize, and demobilize the facilities, personnel, materials and equipment as described in this Section.
- B. The Contract Prices for Mobilization and Demobilization will be paid as follows:
1. When 10 percent of the Awarded Contract Price(s) is earned, excluding mobilization, 40 percent of the amount bid for mobilization will be paid.
 2. When 75 percent of the Awarded Contract Price(s) is earned, excluding mobilization, 60 percent of the amount bid for mobilization will be paid.
 3. 100 percent of the amount bid for mobilization and demobilization will be paid after the Authority has determined that the project work is complete in accordance with the Contract and technical specifications, and the Contractor has left the work site in a clean and acceptable condition.
- C. The Contract price paid for Encroachment Permits shall be compensation for the actual fee amounts paid by the Contractor to Caltrans, City Agencies, and the Orange County Flood Control District.

END OF SECTION 01 71 13

**SECTION 01 71 23
FIELD ENGINEERING**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes general administrative and procedural requirements for field engineering and surveying for the Work including, establishing and maintaining baselines, design lines, grades and field control points as required for construction layout survey. The Work of this Section also includes field survey of existing track and bridge alignments and grade to verify final layout, point of switch stations, alignment, and grade for new turnouts and bridges and other structures.

1.2 RELATED REQUIREMENTS

- A. Section 01 77 19, Project Closeout
- B. Section 01 78 39, Project Record Documents

1.3 SUBMITTALS

- A. Submit for the Authority's approval the name and professional history of the land surveying firm designated by the Contractor as its Project Surveyor. The Project Surveyor or professional engineer selected must be a current California State licensed land surveyor and have a minimum of five years of verifiable experience performing field surveys of railroad, track, and bridge alignments and related office engineering.
- B. On request, the Contractor shall submit to the Authority all documentation that verifies the accuracy of the survey work.
- C. Certificates and Site Drawings: Prior to Completion and when requested by the Authority, submit a certificate and site drawing signed by, a Land Surveyor, or Professional Engineer, certifying that the location and elevation of improvements are in conformance with Contract Documents.
- D. The Contractor shall submit a complete copy of the baseline survey field notes and final survey layout. The layout will include data and offset calculations.

1.4 QUALITY CONTROL

- A. The Contractor shall maintain a complete and accurate log of control and survey work as it progresses.
- B. The Authority reserves the right to check the Contractor's survey measurements and calculations. Whether the Authority exercises this right or not, the requirement for accuracy will not be waived.

- C. On completion of construction and major site improvements, the Contractor shall prepare a final certified survey illustrating dimensions, locations, angles, and elevations of the construction and the Work site.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 EXAMINATION

The Contractor shall verify locations of survey control points prior to starting any Work on the Project site. The Contractor shall immediately notify the Authority of any discrepancies discovered.

3.2 SURVEY REFERENCE POINTS

- A. The Contractor shall locate and protect survey controls, survey monuments and reference points and preserve permanent reference points during construction.
- B. The Contractor shall report to the Authority the loss or destruction of any reference points or relocation required because of changes in grades or other reasons.
- C. The Contractor shall replace dislocated survey control points based on the original survey control, and shall make no changes without prior written notice to and approval by the Authority.

3.3 FIELD ENGINEERING

- A. Identification: The Authority will identify existing benchmarks, control points, and property corners. Control datum for the survey is indicated on the Drawings.
- B. The Contractor shall locate existing permanent benchmarks, control points, and similar reference points before beginning the Work and preserve and protect permanent benchmarks and control points during construction operations. The Contractor shall not change or relocate existing benchmarks or control points without prior written approval of the Authority. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to the Authority before proceeding and upon approval shall replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on the Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for the type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.4 CONSTRUCTION LAYOUT

- A. Before proceeding to lay out the Work, the Contractor shall verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, the Contractor shall notify the Authority promptly.
- B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices in accordance with the following:
 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of the Project. Establish limits on use of the Project site.
 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 3. Inform installers of lines and levels to which they must comply.
 4. Check the location, line and grade of every major element as the Work progresses. Notify the Authority when deviations from required lines or grades exceed allowable tolerances. Such notification shall include a thorough explanation of the problem, and a proposed plan and schedule for remedying the deviation. Remedial work shall not proceed without the Authority's concurrence of the remediation plan.
 5. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record any deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by the Authority.
- F. The contractor shall stake out location of the railroad warning devices and provide horizontal and vertical control survey sheet prepared by a registered surveyor and tied to the project survey control for grade crossings. This service is necessary to coordinate street geometry and curb return layouts with railroad signal contractor.

3.5 SURVEYS AND RECORDS

- A. Working from lines and grades established by baseline surveys as shown in relation to the Work, the Contractor shall establish and maintain bench marks and other dependable markers to set lines and levels for Work on site as needed to locate each element of the Project.
- B. The Contractor shall calculate and measure required dimensions as shown on the Contract Drawings (within recognized tolerances if not otherwise indicated) and immediately notify the Authority of any discrepancies. The Contractor shall use written rather than scaled dimensions. Where both dimensions relative to track and absolute dimensions (e.g. coordinates, elevations) are given, the dimensions relative to the track shall govern unless otherwise directed by the Authority.
- C. The Contractor shall inform tradesmen performing the Work of marked lines and grades provided for their use in layout work.
- D. The Contractor shall provide a complete copy of baseline survey field notes and final layout to the Authority prior to starting construction.
- E. In areas scheduled for excavation or embankment, the Contractor shall be responsible for a baseline cross-section survey suitable to document or verify actual topography prior to the start of Work. No adjustments will be made to earthwork quantities by means other than a sealed before-and-after survey, suitable to calculate volume based on average end areas, measured in either cut or fill areas. Load counts, truck weights, work duration, representative area deviations from bid schedule quantities, or other means of estimating earthwork volume will not be accepted, except for use in determining progress payments.
- F. The basis for dimensioning railroad track is the centerline between the rails and elevation of the top surface of the rail unless noted otherwise in the plans or the Specifications or by the Authority. On curved track with super-elevation, the elevation specified is that of the low rail (inside of curve) unless noted otherwise in the plans or the Specifications or by the Authority.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 71 23

SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for salvaging nonhazardous demolition and construction waste, recycling nonhazardous demolition waste and disposing of nonhazardous demolition and construction waste.

1.2 RELATED REQUIREMENTS

- A. Section 01 57 19, Temporary Environmental Controls
- B. Section 31 11 50, Demolition, Cutting and Patching, for disposition of waste resulting from site clearing and removal of above- and below-grade improvements

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. Facilitate recycling and salvage of materials to achieve maximum rates for salvage/recycling by weight of total non-hazardous solid waste generated. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators.
- B. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials, including paper, cardboard, plastic, polystyrene packaging and wood crates.

1.5 SUBMITTALS

- A. Within 14 days of the Notice to Proceed, submit a Waste Management Plan according to ASTM E 1609, the requirements of the jurisdiction having Authority, and requirements in this Section. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use the same units of measure throughout the waste management plan. List each type of waste and whether it will be salvaged, recycled, or disposed of in a landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
- B. Waste Reduction Progress Reports: Submit a report concurrent with each Application for Payment. The report shall cover the period of the application for payment. Include the following information:
 - 1. Material category
 - 2. Generation point of waste
 - 3. Total quantity of waste, in tons
 - 4. Quantity of waste salvaged, both estimated and actual, in tons
 - 5. Quantity of waste recycled, both estimated and actual, in tons
 - 6. Total quantity of waste recovered (salvaged plus recycled), in tons
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. Provide handling, containers, storage, signage, transportation, and other items as required to implement the waste management plan during the entire duration of the Contract.
- B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities. Designate specific areas on the Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.

- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at the Project site to the maximum extent practical, according to the approved construction waste management plan.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from the Project site. Include a list of acceptable and unacceptable materials at each container and bin.
 - 2. Inspect containers and bins for contamination and remove contaminated materials (if found).
 - 3. Stockpile processed materials on site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 4. Stockpile materials away from the construction area. Do not store within the drip line of remaining trees.
 - 5. Store components off the ground, and protect them from the weather.
 - 6. Remove recyclable waste from Authority property and transport to a recycling receiver or processor.

3.3 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from the Project site and legally dispose of them in a landfill or in another manner acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from the Authority's property and legally dispose of them.

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 74 19

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**SECTION 01 77 00
SUBSTANTIAL COMPLETION**

PART 1 - GENERAL

1.1 SUMMARY

This Section addresses administrative and procedural requirements for Substantial Completion and beneficial occupancy.

1.2 RELATED REQUIREMENTS

- A. Section 01 32 33, Photographic Documentation
- B. Section 01 77 19, Project Closeout
- C. Section 01 78 23, Operation and Maintenance Data
- D. Section 01 78 36, Warranties and Guarantees
- E. Section 01 78 39, Project Record Documents

1.3 SUBSTANTIAL COMPLETION SUBMITTALS

- A. The Contractor shall prepare and submit the following a minimum of 14 days prior to requesting inspection for determining the date of Substantial Completion.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction granting the Authority unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Specifications Sections, including Project record documents, all QC Material testing and special inspection results, Final As-Built Schedule, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information, warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 3. Prepare and submit a schedule of maintenance material submittal items, including the name and quantity of each item and the name and number of the related Specification Section that identifies tools, spare parts, extra materials, and similar items, to be delivered to the location designated by the Authority.
 - 4. Submit test/adjust/balance records.
 - 5. Submit changeover information related to the Authority's occupancy, use, operation, and maintenance.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. The Contractor shall complete the following prior to requesting Substantial Completion;
1. Provide a Final As-Built Schedule that is approved by the Authority.
 2. Advise the Authority of pending insurance changeover requirements.
 3. Make the final changeover of permanent locks and deliver keys to the Authority. Advise the Authority of the changeover in security provisions.
 4. Complete the start-up and testing of systems and equipment.
 5. Perform preventive maintenance on equipment used prior to Substantial Completion.
 6. Instruct the Authority's personnel in the operation, adjustment, and maintenance of products, equipment, and systems.
 7. Advise the Authority of the changeover in utilities.
 8. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including areas adjacent to the project site such as streets, curbs, gutters, swales and other drainage facilities. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 10. Deliver tools, spare parts, extra materials, and similar items to the location designated by the Authority. Label with manufacturer's name and model number where applicable.
- B. The Contractor shall submit a written request for inspection to determine Substantial Completion a minimum of 14 days prior to the date the work will be completed and ready for final inspection and tests. On receipt of such request, the Authority will either proceed with the inspection or notify the Contractor of unfulfilled requirements. The Authority will prepare the Certificate of Substantial Completion and a Final Punchlist for Final Completion after inspection, or will notify the Contractor of outstanding items that must be completed or corrected before the certificate will be issued.
- C. The date of Substantial completion of the Work as allowed by the Contract Documents, is the date certified by the Authority when work is sufficiently complete, in accordance with Part A above and the Contract Documents, so the Authority may occupy or use the Work, or a designated part or portion thereof, for the use for which it is intended.

1.5 BENEFICIAL OCCUPANCY

- A. Section 01 14 00, Work Restrictions identifies requirements relating to Worksite access by the Contractor, Authority, and other third parties. In addition to those requirements, the Authority shall have the right to take Beneficial Occupancy of any portion of the Work. The Authority may at any time notify the Contractor in writing that it intends to take Beneficial Occupancy of any portion of the Work that is not otherwise complete. At the time of taking Beneficial Occupancy, the Contractor and the Authority shall make an inspection of that portion of the Work to determine its status of completion and shall prepare a list of the Work items remaining to be completed. During Beneficial Occupancy, the Authority shall allow the Contractor reasonable access to complete or correct items on the list and to complete the Work, but they shall have no tenancy. However, a failure of the Authority to list any item of Work shall not relieve the Contractor of responsibility for complying with the terms of the Contract. The Authority's possession or use shall not be deemed an acceptance of any Work under the Contract.
- B. Beneficial Occupancy shall not be deemed an acceptance of the Work. While the Authority is in such possession, the Contractor shall be relieved of the responsibility for maintenance, loss, or damage to that portion of the Work for which the Authority has taken Beneficial Occupancy other than that resulting from the Contractor's act or omission, negligence willful misconduct, or breach of warranty. If such possession or use by the Authority unreasonably delays progress of the Work or causes additional expense to the Contractor, an adjustment may be made in the compensation or time to perform the Work, in accordance with Contract Change Order Procedures.

PART 2 – PRODUCTS

2.1 SPARE PARTS AND MAINTENANCE MATERIALS

Provide products, spare parts, maintenance and extra materials in quantities specified in Section 01 78 23, Operation and Maintenance Data and individual Specification Sections.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning Procedures: Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project, or for a designated portion of the Project:
 - 1. Clean the Project site, yard, and grounds in areas disturbed by construction activities—including landscape development areas—of rubbish, waste material, litter, and other foreign substances.

2. Sweep paved areas broom-clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
4. Remove tools, construction equipment, machinery, and surplus material from the Project site.
5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
6. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
7. Sweep concrete floors broom-clean in unoccupied spaces.
8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to the manufacturer's recommendations if visible soil or stains remain.
9. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
10. Remove labels that are not permanent.
11. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
12. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
13. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
14. Clean ducts, blowers, and coils if units were operated without filters during construction, or if they display contamination with particulate matter on inspection.
15. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to their specified condition.
- C. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
- D. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
- E. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
- F. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
- G. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 77 00

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**SECTION 01 77 19
PROJECT CLOSEOUT**

PART 1 - GENERAL

1.1 SUMMARY

This Section specifies procedures and requirements for Contract close out, including but not limited to final submittals, final acceptance, all required financial and legal documentation, and release of final payment to the Contractor at completion of the Contract Work.

1.2 RELATED REQUIREMENTS

- A. Section 01 77 00, Substantial Completion
- B. Section 01 78 36, Warranties and Guarantees
- C. Section 01 78 39, Project Record Documents

1.3 FINAL COMPLETION SUBMITTALS

Submittals Prior to Final Completion: Before requesting final completion, the Contractor shall submit the following:

- A. Summary:
 - 1. Request Substantial Completion per Section 01 77 00.
 - 2. Provide final contract status report.
 - 3. Submit final contract cost and schedule summary.
- B. Closeout:
 - 1. Submit Certificate of Final Acceptance for Authority approval.
 - 2. Submit Notice of Final Completion.
 - 3. Submit Authority confirmation indicating that all inspections are complete.
 - 4. Submit Request for Final Acceptance.
 - 5. Submit Final Release.
 - 6. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with Contract insurance requirements.
- C. Compliance:
 - 1. Consent of the surety to final payment.
 - 2. Provide all required Contract Compliance documents.
 - 3. Provide all required Labor Compliance documents in accordance with General Conditions.

D. Financial:

1. Submit Request for Release of Retention / the Contractor Final Release.
2. Submit Release of Retention Invoice.
3. Final liquidated damages settlement statement, if applicable.
4. Application for Final Payment shall include the following documentation:
 - a. Lien Releases from all Subcontractors and vendors that have filed preliminary notice of liens.
 - b. Certificate – “All Claims Resolved”
 - c. Certificate – “No Claims for all Subcontractors and vendors that have filed preliminary notice of liens”.
 - d. Certificate – “Warranties/Guarantees in Effect”

E. Construction:

1. Submit final quantities log.
2. Address and provide Authority documentation of completion of Punchlist items.
3. Provide documentation of permit sign-off by third party agencies, as required and provide Certificates of Release from jurisdictional authorities.
4. Final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion (or when the Authority took possession of and assumed responsibility for corresponding elements of Work), if applicable.
5. Provide final report for Material testing and special inspections.
6. As-Built Drawings.
7. As-Built Schedule.
8. Provide Warranties and Guarantees.
9. Maintenance and Operations Manuals
10. Certificate of Insurance: For continuing coverage if specified in Contract Documents.
11. Schedule of Maintenance Material Items for maintenance material submittal items specified in other Sections.

1.4 ACCEPTANCE OF THE WORK AND CLOSEOUT

When the Contractor determines that the Work is fully completed, the Contractor shall submit the Authority a written Request for Acceptance of Work. Within 30 Days after receipt of the Contractor's Request for Acceptance of Work, the Authority shall review all requirements of the Work and either: (1) reject the Contractor's Request for Acceptance of Work, specifying defective or uncompleted Work items, or (2) accept the Work as complete by issuing to the Contractor a Certificate of Final Acceptance and approving the

final payment.

If the Authority rejects the Contractor's Request for Acceptance of Work, the Contractor shall promptly remedy the defective or uncompleted Work items. Thereafter, the Contractor shall again give Authority a written Request for Acceptance of Work. The foregoing procedure shall apply successively thereafter until Authority has issued the Contractor a Certificate of Final Acceptance.

Authority reserves the right to direct any and all Punch List work prior to completion of Work or Final Acceptance. Notwithstanding any other provision of this Contract that could be interpreted to the contrary (including in Contract Documents of higher precedence), it shall be the Contractor's continuing responsibility to complete and deliver every portion, and the integrated whole, of the Work in accordance with all of the requirements of the Contract. The issuance of a Certificate of Substantial Completion by Authority shall not be construed to relieve the Contractor of this responsibility, or any part thereof. If, after the issuance of a Certificate of Substantial Completion, the Authority discovers any deficiency, or item not completed or otherwise requiring correction or remedial action, whether or not the item appears on any Punchlist or other list of clean up items, Authority may direct the work to be performed and the Contractor shall correct the deficiency, complete the item or otherwise remedy the condition to bring it into full compliance with the Contract prior to Final Completion and Authority's acceptance of the Work.

PARTS 2 - PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

PART 4 – MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 77 19

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**SECTION 01 78 23
OPERATION AND MAINTENANCE DATA**

PART 1 - GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

- A. Product maintenance manuals

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00, Submittal Procedures

1.3 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content, formatted and organized as required by this Section.
 - 1. The Authority will approve the contents of operations and maintenance submittals.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file: Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to the Authority.
 - 2. Name each indexed document file in the composite electronic index with the applicable item name. Include a complete, electronically linked operation and maintenance directory. Enable inserted reviewer comments on draft submittals.
 - 3. Submit six paper copies and include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. The Authority will return three copies.
- C. Initial Manual Submittal: Submit a draft copy for Authority approval of each manual at least 30 days before commencing demonstration and training. The Authority will comment on whether the general scope and content of the manual are acceptable.

- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion, and at least 21 days before commencing demonstrations and training. The Authority will return copies with their comments.
- E. Correct or revise each manual to comply with the Authority's comments. Submit copies of each corrected manual within 15 days of receipt of the Authority's comments, and prior to commencing demonstration and training.

1.4 QUALITY ASSURANCE

In preparation of operation and maintenance data, use personnel thoroughly trained and experienced in the operation and maintenance of the equipment or systems involved. Where manuals require written instructions, provide technical writing that clearly communicates essential data. Where maintenance manuals require drawings or diagrams, prepare drawings clearly, in an understandable format. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by those representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 PRODUCT MAINTENANCE MANUAL CONTENT

- A. Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. List each product included in the manual, identified by product name and arranged to match the manual's table of contents. For each product, list the name, address, and telephone number of the Installer or supplier and the maintenance service agent, and cross-reference the Specification Section number and title in the Project manual and drawing or schedule designation or identifier (where applicable). Data may be taken directly from manufacturer's standard catalogs. Information shall be edited or marked to show only conditions pertinent to this Contract. This information shall also be scanned in .tif or .pdf format at a suitable resolution so that it is legible when printed.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number
 - 2. Manufacturer's name
 - 3. Color, pattern, and texture
 - 4. Material and chemical composition
 - 5. Reordering information for specially manufactured products
- D. Maintenance Procedures: Include the manufacturer's written recommendations, as well as the following:

1. Inspection procedures
 2. Types of cleaning agents to be used, and methods of cleaning
 3. A list of cleaning agents and methods of cleaning that could be detrimental to the product
 4. The schedule for servicing, lubrication, routine cleaning and maintenance
 5. Repair instructions
- E. Repair Materials and Sources: Manufacturer's recommended special maintenance tools and list of spare parts and recommended stock quantities for one year of routine maintenance. Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect the validity of warranties or bonds. Include the procedures to follow and the notifications required for warranty claims.

PART 3 – EXECUTION (Not Used)**PART 4 – MEASUREMENT AND PAYMENT**

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 78 23

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**SECTION 01 78 36
WARRANTIES AND GUARANTEES**

PART 1 -GENERAL

1.1 SUMMARY

This Section includes administrative and procedural requirements for all warranties and guarantees necessary for Contract closeout.

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 60 00, Product Requirements
- C. Section 01 77 00, Substantial Completion

1.3 SUBMITTAL OF WARRANTIES AND GUARANTEES

- A. Compile five copies of each required warrantee and guarantee properly executed by the Contractor, or by the Contractor and Subcontractor, Supplier, or manufacturer. Collect and assemble all written warranties and guarantees into binders, and deliver the binders to the Authority for final review and acceptance. Prior to submission, verify that documents are in proper form, contain all required information, and are properly signed.
- B. Organize the warranty documents into an orderly sequence based on the table of contents of the Specifications and CSI Master Format 04 and the table of contents of the Project manual.
 - 1. Bind warranties and guarantees in heavy-duty, commercial quality, three-slant ring, vinyl-covered, loose-leaf binders, with clear front and spine to receive inserts, thickness as necessary to accommodate the contents, and sized to receive 8½-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark each tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of the Installer.
 - 3. Include on a separate typed sheet (if the information is not contained in warranty or guarantee form) a description of the product or installation, and the name, address, telephone number, and responsible person for the applicable installer, supplier, and manufacturer.
 - 4. Identify each binder on the front and spine with the typed or printed title "WARRANTIES AND GUARANTEES," the Project name, and the name of the Contractor. If more than one volume of warranties and guarantees is produced, identify the volume number of each binder.

5. Warranty Electronic File: Scan warranties and bonds and assemble the complete warranty and bond submittal package into a single indexed electronic PDF file, with links enabling navigation to each item. Provide a bookmarked table of contents at the beginning of the document.
- C. Provide additional copies of each warranty and include in the operation and maintenance manuals as required in Section 01 78 23, Operations and Maintenance Data.
 - D. Special Project Warranty and Manufacturer's Guarantee Forms: Forms for Special Project warranties and for manufacturer's guarantees are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor or the Contractor and Subcontractor, Supplier, or manufacturer. Submit a draft to the Authority through the Engineer for approval prior to final execution.
 1. Refer to Specifications for specific content requirements and particular requirements for submittal of special Project warranties.
 2. Prepare standard product warranties and product guarantees, excepting manufacturer's standard printed warranties and guarantees, on the Contractor's, Subcontractor's, Material Supplier's, or manufacturer's own letterhead, and addressed to the Authority.
 3. Warranty and guarantee letters shall be signed by all responsible parties, and by the Contractor in every case, with modifications only as approved by the Authority to suit the conditions pertaining to the warranty or guarantee.
 - E. Manufacturer's Guarantee Forms: Manufacturer's guarantee forms may be used in lieu of special Project forms included at the end of the Section. Manufacturer's guarantee forms shall contain appropriate terms and identification, ready for execution by the required parties.
 1. If proposed terms and conditions restrict guarantee coverage or require actions by the Authority beyond those specified, submit a draft of the guarantee to the Authority through the Engineer for review and acceptance before performance of the Work.
 2. In other cases, submit a draft of the guarantee to the Authority for approval prior to final execution of the guarantee.
 - F. Signatures: The warranty and guarantee documents should be signed by persons authorized to sign warranties and guarantees, on behalf of the entity providing the warranty or guarantee. The Contractor shall co-sign all warranties, except the manufacturers' printed guarantees.

1.4 TIME OF WARRANTY AND GUARANTEE SUBMITTALS

- A. Time of Submittal: Submit written warranties on request of the Authority for designated portions of the Work where commencement of warranties on other than

the date of Substantial Completion is indicated, or when delay in submittal of warranties might limit the Authority's rights under warranty.

- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by the Authority during the construction period by separate agreement with the Contractor.
- C. Preliminary Submittal: Unless otherwise specified, obtain preliminary copies of warranties and guarantees within 14 days of completion of an applicable item of Work. Prepare and submit preliminary copies for review as specified herein.
- D. Final Submittal: Submit fully executed copies of warranties and guarantees within seven days of the date of Substantial Completion, but not later than three days prior to the date of application for final payment.
- E. Date of Warranties and Guarantees: Unless otherwise directed, the commencement date for warranty and guarantee periods shall be the date of Substantial Completion and acceptance of such Work. For warranties for Work accepted before or after the date of Substantial Completion such as beneficial occupancy, the commencement date will be the date of acceptance of such Work.

1.5 WARRANTIES AND GUARANTEES

- A. All warranties, manufacturer's guarantees, and other requirements in accordance with Article 38 - Warranty of the Contract Agreement shall name OCTA as the beneficiary. For equipment, products, or components thereof bearing a manufacturer's warranty of guarantee that extends for a period of time beyond the Contractor's warranty and guarantee, so state in the warranty or guarantee.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties shall not relieve the Contractor of warranty on the Work that incorporates the products, nor shall they relieve suppliers, manufacturers, and installers required to countersign special warranties with the Contractor.
- C. Related Damages and Losses: When correcting warranted Work that has been found defective, remove and replace other Work that has been damaged as a result of such defect or that must be removed and replaced to provide access for correction of the warranted Work.
- D. Reinstatement of Warranty: When Work covered by a warranty has been found defective and has been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty, with an equitable adjustment for depreciation.
- E. Replacement Cost: Upon determination that Work covered by a warranty has been found to be defective, replace or reconstruct the Work to a condition acceptable to the Authority, complying with applicable requirements of the Contract Documents. The Contractor shall be responsible for all costs for replacing or reconstructing defective Work, regardless of whether the Authority has benefited from use of the Work through a portion of its anticipated useful service life.

- F. Authority Recourse: Written warranties made to the Authority are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under law; nor shall warranty periods be interpreted as limitations on time in which the Authority can enforce such other duties, obligation, rights, or remedies.
- G. Rejection of Warranties: The Authority reserves the right to reject warranties and disallow the use of products with warranties in conflict with Contract Document requirements.
- H. Warranty as Condition of Acceptance: The Authority reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required until evidence is presented that those required to counter-sign such commitments are willing to do so.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

PART 4 - MEASUREMENT AND PAYMENT

Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section.

END OF SECTION 01 78 36

WARRANTY/GUARANTEE

FOR _____ WORK

We, the undersigned, do hereby warranty and guarantee that the parts of the Work described above which we have furnished and/or installed for the Authority are in accordance with the Contract Documents, and that all said Work as installed will fulfill or exceed all of the Warranty and Guarantee requirements. We agree to repair or replace Work installed by us, together with any adjacent Work that is displaced or damaged by the warranted work that proves to be defective in workmanship, material, or operation within a period of one year from the date of final acceptance by the Authority or from the Date of Certificate of Substantial Completion, whichever is earlier. Ordinary wear and tear and unusual neglect or abuse are excepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time period determined by the Authority, after notification in writing, we, the undersigned, all collectively and separately, hereby authorize the Authority to have said defective Work repaired and/or replaced and made good, and agree to pay to the Authority upon demand all monies that the Authority may expend in making good said defective Work, including all collection costs and reasonable attorney fees.

(Subcontractor, Sub Subcontractor, Manufacturer, or Supplier)

By _____

Title _____

State License No. _____ Date _____

(Contractor)

By _____

State License No. _____ Date _____

Local Representative. For maintenance, repair, or replacement service, contact:

Name: _____

Address: _____

Phone Number: _____

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SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

This Section addresses administrative and procedural requirements for preparing project As-Built drawings, specifications, product data and other miscellaneous documents submitted as required by the Contract.

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 77 00, Substantial Completion
- C. Section 01 77 19, Project Closeout

PART 2 - PRODUCTS

2.1 AS-BUILT DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require the individual or entity who obtained the record data, whether the individual or entity is an Installer, Subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints as follows:
 - a. Provide complete information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes and revisions to details shown on Drawings. The lines shall be located on the drawings dimensionally from a fixed point,

- such as a street-curb line, centerline, permanent structure, or an exposed part of a structure.
- b. Depths of foundations and piles below grade
 - c. Locations and depths of underground utilities including horizontal and vertical location of underground utilities affected by the Work. This includes new utilities installed and utilities found and left in place.
 - d. Revisions to routing of piping and conduits
 - e. Changes made by Change Order or Change Directive
 - f. Changes made following the Authority's written orders
 - g. Details not on the original Contract Drawings
 - h. Field records for variable and concealed conditions
 - i. Record information on the Work that is shown only schematically.
- 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up prints. Record new information and details that are recognized to be of importance to the Authority, but that were not shown on either the Contract Drawings or on shop drawings. Record changes on whichever drawing is most capable of showing the "field" condition fully and accurately; and when shop drawings are used for As-Built drawings.
 - 4. Mark the As-Built set with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from the original Drawings.
 - 6. Note Construction Change Directive numbers, RFI numbers, option numbers, Change Order numbers, and similar identification, where applicable.
 - 7. Each drawing sheet, marked or unmarked, shall be stamped "As-Built" in red ink.
 - 8. As-Built drawings shall require approval by the Resident Engineer.
 - 9. As-Built Drawings: Submit two complete sets of marked-up record prints and a complete PDF electronic file. Include each drawing, whether or not changes and additional information were recorded.

2.2 AS-BUILT SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation whenever the installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Provide detailed information on concealed products and equipment installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of the manufacturer, supplier, and Installer, and include other information necessary to provide a record of the selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit As-Built Specifications as paper copy and scanned PDF electronic files of the marked-up paper copy of the Specifications.

2.3 AS-BUILT CONSTRUCTION SCHEDULE

The most current approved construction schedule shall be marked in red pencil or ink showing all deviations occurring since the schedule was approved. Submit the final "As-Built" Project Schedule as paper copy and a scanned PDF electronic file of the marked-up paper copy of the final Project Schedule.

2.4 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation whenever the installation varies substantially from that indicated in the Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to the Project site, and changes in the manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as paper copy and scanned PDF electronic file(s) of the marked-up paper copy of the Product Data. Include a record Product Data directory organized by Specification Section number and title, electronically linked to each item of the record Product Data.

2.5 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance

of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

- B. Format: Submit miscellaneous record submittals as paper copy and scanned PDF electronic file(s) of marked-up miscellaneous record submittals. Include a miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of the miscellaneous record submittals.

2.6 SUBMITTAL TITLE

Label each document "PROJECT AS-BUILT" in two-inch-high printed letters or a height appropriate to document.

PART 3 – EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. The monthly progress payment application will not be processed by the Authority until the Contractor is found by the Authority to have completely and accurately recorded all as-built information for Work performed through the period of the progress payment application.
- B. Store record documents and Samples in the field office in files and racks apart from the Contract Documents used for construction. Do not use As-Built documents for construction purposes and maintain documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to As-Built documents for the Authority's reference during normal working hours.

PART 4 - MEASUREMENT AND PAYMENT

4.1 BASIS OF PAYMENT

- A. Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the Contractor for Work of this Section. As-Built drawings and photographs will be reviewed each month and the monthly progress payment will only be approved and processed if the Contractor is found by the Authority to be in conformance with the requirements of this Section.
- B. If the Contractor does not provide both the As-Built Summary and Record Documents for Authority review, the Contractor's final pay request or other applicable progress payment request may be withheld until proper as-built and record documents are provided.

END OF SECTION 01 78 39