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February 23, 2018

Gentlemen/Ladies:

**SUBJECT: Invitation for Bids (IFB) 7-1904
"OC Streetcar Construction Project"**

This letter and its Attachments comprise **Addendum No. 6** to the above captioned Invitation for Bids issued by the Orange County Transportation Authority ("Authority").

- 1) Bidders are advised that questions received by 9:00 a.m. on February 20, 2018 and responses to those questions are presented as Attachment A to this Addendum No. 6. Questions received after this date and time will be responded to in upcoming addenda.
- 2) Bidders are advised that the Authority has revised the date for receipt of approved equals, clarification of specifications, or questions from **February 28, 2018** by 5:00 p.m. to **March 16, 2018** by 5:00 p.m. as shown under Section I, Instructions to Bidders, E. Clarifications of Specifications and Approved Equals, 3. Submitting Requests, sub-paragraph a. The bid submittal date remains unchanged at **April 27, 2018** by 11:00 a.m. as shown under Section I, Instructions to Bidders, F. Submission of Bids, 1. Date and Time.
- 3) Bidders are advised that the Agreement Article 11 Insurance has been revised in response to Question Nos. 28, 31, 32 and 34. Bidders are advised that the "Agreement" is being replaced in its entirety and that the revised "Agreement" is being presented as Attachment B to this Addendum No. 6.
- 4) Bidders are advised that "Exhibit A – General Conditions" has been revised as follows:
 - a. General Condition (GC) 37.9 has been revised in response to Question No. 125
 - b. GC 47.2 has been revised in response to Question No. 119.

Bidders are advised to delete pages 37 and 51 of "Exhibit A General Conditions" and replace with the revised pages 37 and 51 of "Exhibit A General Conditions", which are presented as Attachment C to this Addendum No. 6.

- 5) Bidders are advised that "Exhibit A-1 – Special Conditions" has been revised as follows:

- a. Special Condition 6.6.1 has been revised in response to Question No. 87.

Bidders are advised to delete page 37 of "Exhibit A-1 Special Conditions" and replace with the revised page 37 of "Exhibit A-1 Special Conditions", which is presented as Attachment D to this Addendum No. 6.

- 6) Offerors are advised that "Exhibit B-1 Technical Specifications – OC Streetcar (Volume 1)" have been modified as follows:

- a. Table of Contents - 3 Revised for new specification 32 12 33 and new number of pages in 32 12 33
- b. Table of Contents - 4 Revised for new number of pages in 34 11 28
- c. Technical Specification 03 48 13 - 2 Bollards – Added retractable bollards.
- d. Technical Specification 32 12 16 - 1 Include reference to new specification 32 12 33.
- e. Technical Specification 32 12 33 Added new specification for a paving fabric to support AC maintenance ramps adjacent to platforms at Fairview St. and Raitt St.
- f. Technical Specification 32 13 13 - 3, 4, 5, 6 and 7 Added various curb types to match drawings. Added criteria for roof drains to be replaced. Assigning responsibility of Jointing Plan for concrete pavement to Contractor.
- g. Technical Specification 33 01 30 - 3 Added language regarding tie-outs for survey documentation.
- h. Technical Specification 34 11 13 -5 and 6 Revised in response to Question No. 76.
- i. Technical Specification 34 11 28 - 4, 5, 6 and 7 Revised in response to Question No. 78.
- j. Technical Specification 34 11 33 - 1 Revised in response to Question No. 102
- k. Technical Specification 34 11 93 - 10 Revised in response to Question No. 81.
- l. Technical Specification 34 42 13 - 1 Revised
- m. Technical Specification 34 42 28 - 1 Revised.
- n. Technical Specification 34 42 35 - 3 Revised

- o. Technical Specification 34 72 00 – 5, 6 and 20 Revised in response to Question No. 93

Bidders are advised to substitute and or/add the above Technical Specification sections of "Exhibit B-1 Technical Specifications – OC Streetcar (Volume 1)" with the revised Technical Specification sections, which are presented as Attachment E to this Addendum No. 6.

- 7) Bidders are advised to delete in its entirety and replace the following DRAWING Sheets which are presented as Attachment F to this Addendum No. 6:

Sheet	Drawing Number	Title / Description	Dated
211	CA23	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
249	CN03	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
281	CX12	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
481	FN31	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
568	LN12	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
582	LN23	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
602	IN12	CPUC – Bike Lane reconfiguration at Sasscer Park	2/22/2018
694	ND01	Retaining Wall – Architecture Note	2/22/2018

- 8) Bidders are advised that as of the date of this Addendum the following prime contractors, listed in alphabetical order, have been pre-qualified to participate on this IFB:

- AECOM Energy & Construction, Inc.
- Flatiron West Inc.
- Skanska USA Civil West California District Inc.
- Stacy and Witbeck / Herzog, a Joint Venture
- Walsh Construction Company II, LLC

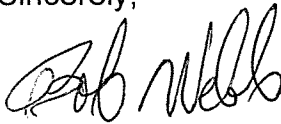
IFB 7-1904, Addendum No. 6
February 23, 2018
Page 4

The Authority has completed its review of all timely applications submitted and no other prime contractors will be added to this list.

Bidders are reminded to acknowledge receipt of this **Addendum No. 6** on their "Bid Form". Bidders are advised that all changes addressed in this **Addendum No. 6** shall be incorporated into the final Agreement.

Questions regarding this Addendum No. 6 should be directed to the undersigned at (714) 560-5743.

Sincerely,



Bob Webb
Senior Contract Administrator
Contracts Administration and Materials Management

Attachments

- Attachment A – Questions Received and Authority Responses
- Attachment B – Agreement
- Attachment C – Exhibit A, General Conditions
- Attachment D – Exhibit A-1, Special Conditions
- Attachment E - "Exhibit B-1 Technical Specifications – OC Streetcar (Volume 1)
- Attachment F – Drawing Sheets

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
1	Book 1A		Cover Page, Page 4, Page 7		<p>Section I, Subsection E-3a states that questions must be received by 5:00 pm on January 3, 2018. The Book 1A cover sheet states that the Questions/Approved Equal Submittal date is January 10, 2018. Subsection E-4 also states that inquiries received after January 10, 2018 will not be responded to.</p> <p>This deadline is too soon for a number of reasons. The four sections of Book 1 contain over 10,000 pages to review. Multiple subcontractors and suppliers for the MSF building, systems and civil trades also need time to review the same documents, it is not just the prime contractors. Many of these subcontractors and suppliers are small business DBEs that are shut down for the holidays and focusing their estimating efforts on projects bidding sooner. Without an extension to this deadline, they may either decide not to bid this project or to place un-needed contingency in their pricing for items that are unclear.</p> <p>For the reasons stated above, we feel that a more reasonable deadline for questions and approved equals would be February 12, 2018, which is three weeks before the bid date.</p> <p>Please confirm the deadline for clarification and approved equal requests.</p>	Addendum No. 4 to the IFB extended the due date for questions to February 28, 2018
2	Book 1C	OCS Drawings			<p>OCS drawing U-OCSN54 shows the OCS through the Yard and Maintenance Facility. The drawing has a callout for a Y/038 and Y/037 but neither of those callouts are listed in the Pole and Foundation Installation Schedule.</p> <p>Please provide some information as to what Y/038 and Y/037 are supposed to be.</p>	Y/038 and Y/037 are inside the maintenance shop. See details on drawing Z-DD36.
3		OCS Drawings			<p>OCS drawings U-OCSN19, U-OCSN20 and U-OSCN-54 all show the new OCS construction for the WYE Turnback Track. Bid Item 19, Construct WYE Track (Optional), indicates that OCTA may choose to eliminate this bid item which includes the OCS for the WYE Track.</p> <p>Please provide a drawing that shows what is to be constructed (e.g. track, foundations, etc.) if OCTA chooses to eliminate Bid Item 19 so that we may bid accurately.</p>	Bid Item 19 includes track TB-1 and TB-2, Special Trackwork Items 19 (20M Turnout), 20 (No 5 Equilateral Turnout), and 21 (20M Turnout) per drawing TG13, OCS Poles and Foundations Y/026 and Y/027 per drawing U-OCSN54, and OCS wire above track TB-1 and TB-2. If Optional Bid Item 19 is eliminated, a CCO would be written to add straight track to replace Special Trackwork Items 19 and 21, and to add paving to replace track TB-1 and TB-2.

IFB 7-1904
ADDENDUM NO. 6, ATTACHMENT A

IFB 7-1904 - OC Streetcar Construction Project
Questions Received

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
4	Special Condition 53.3				Special Condition 53.3, Measurement and Payment describes what is included in each bid item for payment. Please confirm that Bid Item 47, Traction Power Infrastructure pays for all items outside the actual TPSS Buildings and Bid Item 48, Traction Power Substation, pays for all items inside the TPSS buildings including the building enclosures.	Yes, Bid Item 47 is for items outside of the TPSS Buildings. SC53, Item 47 (b) has been deleted in Addendum No. 5.
5		Z-TN01 & Z-TD02			Please confirm that double restraining rails are required within the MSF Yard in curves of less than 100 ft radius.	Yes, confirmed as shown on TD29 and TD30.
6	Book 1C, Book 2	Z-TN01, TA18, TA19, & TA20	Bid Form, Pg 5 Item 18		Please confirm that the two turnouts that lead to the yard, within the WBT (PS 585+72.32 & PS 594+12.28) are to be included in the Yard Track Item, Item 18.	The turnouts referenced shall be paid for in Item 18, Yard Track.
7	Book 1C, Book 2	Z-TN01	Bid Form, Pg 5 Item 19		Please confirm that all three turnouts shown in the WYE Turnback Track are to be included in the WYE Track Item, Item 19.	Confirmed, these shall be paid for in Item 19 Construct WYE Track
8	Book 1C, Book 2	TA18 & TA20	Bid Form, Pg 6 Item 41		Please note that the Special Trackwork Schedule, TG13, identifies the Crossover at EBT PS 195+69.24 as two individual Turnouts, for which there is no Bid Item. Please confirm that the two crossovers to be included in the 190' Radius Single Crossover Item, Item 41, are; the 14 ft track centers crossover at EBT PS 184+74.64, and the 24 ft track centers crossover at EBT PS 195+69.24.	Correct. Sheet TG13 will be revised in an upcoming Addendum.
9	Book 1C	TA74 & TG13			Is the turnout at YL PS 16+76.42 to be encapsulated?	Turnout at YL PS 16+76.42 does not need to be encapsulated. Drawing TG13 will be revised in an future Addendum to remove the encapsulation requirement of this turnout.
10	Book 2		Bid Form, Pg 6 Item 37		Please identify the scope and location of the work to be included in Item 37.	This item was referencing work that has now been incorporated into item 38. Item 37 will be deleted from the Schedule of Quantities and Prices. The Bid Form will be revised in a future Addendum.
11	Book 2		Bid Form, Pg 6 Item 38 & 42		The quantity in Item 38 seems to be overstated. Please confirm that the quantity in Item 38 is to include the DF on the Bridges as well as the DF on the 9'- 13.5" slab from the Begin Track DF to the Westminster Bridge, and not include the TF of the DF Double Crossover that is included in Item 42. If confirmed; please correct the quantity in Item 38. Please explain the reference to 8" slab in the Item 38 description.	Item 38 will be modified to Track, Direct Fixation Track Slab all thicknesses, and includes direct fixation on bridge decks. This does not include limits of special trackwork which should be included in their appropriate pay items. Quantities will be updated appropriately.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
12	Book 1A, Book 2		IFB Pages 75-77, IFB 20-27		<p>The bid forms require bidders to submit a DBE Participation Commitment(s) Form and Bidders List. Bidders are also encouraged to submit Good Faith Efforts.</p> <p>Section 4.2 of the IFB (page 75) states that the Bidders List must be included with the bid submission.</p> <p>Primes will be receiving hundreds of quotes from subcontractors and suppliers for this project. It is unrealistic to expect primes to receive competitive quotes and submit information for every quote received and documentation of good faith efforts at bid time. For this reason, other agencies such as Caltrans extend the deadline for DBE Good Faith Effort documentation and other forms such as the bidders list to 4:00 PM on the 5th working day after the bid opening.</p> <p>Please consider a similar deadline for this project.</p>	Good Faith Efforts, DBE Participation Commitment letters and Bidders Lists must be received by the AUTHORITY no later than 4:00 pm on the 2nd business day after bid opening if they are not submitted with the bid.
13	Book 1C	TD05			<p>TD05 in Vol 1 of Book 1C shows a reinforced concrete curb wall and a reinforced concrete slab beneath the DF plinths. We are assuming this is paid for under bid item 60 - Retaining Walls and not bid item 35 - Track, Embedded Track.</p> <p>Please Confirm.</p>	DF track and upturned curb should be paid as part of Item 38.
14	Book 1C	NS01, NS02			<p>NS01 and NS02 in Vol 3 of Book 1C show 4" Asphalt beneath the ballasted track. We are assuming this work is paid for under bid item 60 - Retaining Walls and not bid item 36 - Track, Ballasted Track.</p> <p>Please Confirm.</p>	The Asphalt cap beneath the ballasted track is paid for under Item 36 Track, Ballast Track
15	IFP 7-1904 Cover & IFP 7-1904 Contract			Sec I Instruction to Bidders (F)Submission of Bid (1) Date and Time	<p>Bid Submittal Date: "Bids must be submitted at or before 11:00 a.m., March 5, 2018" – We respectfully request moving the bid submission date to a Tuesday, Wednesday or Thursday as Monday's can lead to issues with coordination of subcontractors and suppliers based on past experience and the amount of documentation that is required with this bid package and DBE information at time of bid.</p>	Bid due date changed to Friday, April 27th via Addendum No. 3
16	IFP 7-1904 Cover & IFP 7-1904 Contract			Sec I Instruction to Bidders (E) Clarifications of Specifications and Approved Equals (4) Authority Responses	<p>Per the contract documents "Inquiries received after 5:00 p.m. on January 10, 2018, will not be responded to." however the bid submission date is more than 7-weeks past this date. In an effort to avoid post project award issues and due to the timing of this bid request for proposal, we respectfully request that this date be moved to 3-weeks of bid opening to allow for a full evaluation of all contract documents.</p>	Addendum No. 4 to the IFB extends the due date for questions to February 28, 2018

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
17	IFB 7-1904 Contract			Sec I Instruction to Bidders (E) Clarifications of Specifications and Approved Equals (3) Submitting Request (a)	sc	Addendum No. 4 to the IFB extends the due date for questions to February 28, 2018
18	IFB 7-1904 Contract DBE Participation Commitment(s) Form PD BE INFORMATION - GOOD FAITH EFFORT			Sec II Instruction to Bidding Forms (K) Disadvantage Business Enterprise DBE Participation Commitment(s) Form Bidders List DBE Information – Good Faith Efforts	Per the contract documents all DBE Good Faith Effort and DBE Participation Comments are due at time of bid. We are respectfully requesting a 96 hour extension to accurately compile the data and reduce the potential protest that may occur due to minor errors. This documentation typically is not complete in it's entirety and/or in a timely manner during the bid closing period.	Good Faith Efforts, DBE Participation Commitment letters and Bidders Lists must be received by the AUTHORITY no later than 4:00 pm on the 2nd business day after bid opening if they are not submitted with the bid.
19	Prequalification Documents				Will the Authority release all submitted prequalified subcontractors for use by all prime contractors use during the project bidding period?	No, the AUTHORITY will only release the names of prequalified prime contractors.
20	Prequalification Documents				Will the Authority allow the use of alternate prequalified subcontractors which were prequalified with other prime contractors post bid award to construct the project?	No.
21	IFB 7-1904 General Conditions	GC-9 Hazardous Materials			Please clarify if the Authority will be identified as the generator and sign all manifest for all pre-existing hazardous waste encountered on the project? In addition, please clarify if the Authority will maintain a hazardous waste agreement through the project duration in order to expeditiously remove all such waste encountered and minimize potential delays?	The AUTHORITY or cities, will be identified as generator for and sign manifests for pre-existing hazardous waste encountered within the project limits. The Contract Special Conditions will be revised to provide specific information for AUTHORITY or cities Hazardous Waste representatives.

IFB 7-1904
ADDENDUM NO. 6, ATTACHMENT A

IFB 7-1904 - OC Streetcar Construction Project
Questions Received

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
22	IFB 7-1904 Contract and GC-41			Sec I Instruction to Bidders (E) Clarifications of Specifications and Approved Equals (3) Submitting Request (a) AND GC-41 Product Options, Supplier Approval, and Substitutions	Per the contract documents, all requests for approved equals, clarifications of specification, or request must be in writing and must be received by the Authority no later than 5:00 p.m., on January 3, 2018." and "As required by California Public Code such request shall be made within thirty-five (35) calendar days from date of notice to proceed with Construction in order to receive consideration, unless submission of a request is agreed to by the Authority." We respectfully request that these 2 requirements are modified to allow the contractor to provide alternative materials, within a respectable time period prior to the start of said work, throughout the contract duration. In addition, these two sections are contradicting and require clarification on which statement will be considered to set precedence during the bidding period.	The IFB provides for two distinct timeframes and processes for product substitution. During the bidding period, if the bidder wishes to receive AUTHORITY's approval of substitution(s) prior to submission of bid, then the bidder should adhere to the deadline indicated by the AUTHORITY. Postaward requests are covered in GC-41. No change in requirements.
23	IFB 7-1904 Bid Book		Bid Form Page 2, Item Number (12)		Per the contract documents the "Bid will be in effect for 180 calendar days after the bid closing date." Please clarify when the Authority will issue LNTP and NTP. In addition, please clarify the timeline for on-site work activated to commence.	Per Addendum No. 3, the bid opening is scheduled for 4/27/18. OCTA Board Approval to Award is anticipated for 6/25/18. The Limited Notice to Proceed described in Special Condition (SC) 4.2.1 is expected to be issued in August 2018. There are several items described in SC 4.2.2 that must be submitted and approved prior to OCTA issuing the Notice to Proceed with Construction. As stated in SC 4.2.2, it is OCTA's intent to issue it within 60 days.
24	General Conditions Article 11			Article 11 Insurance, (A)	Article 11.A, indicates that any self-insured retention above \$50K must be approved by the Authority. Please modify this section to remove the self-insured maximum limit.	No, the requirement will remain. Approvals for self-insurance will be promptly considered.
25	General Conditions Article 11			Article 11 Insurance, (A) Item Number (1)	Article 11.A.1. General Liability states the following: limits of \$5,000,000 occurrence / \$20,000,000 aggregate. Please clarify that this can be met through a combination of primary and excess insurance as it is not commercially available as a primary policy.	Yes, the limits can be met with a combination of primary and excess insurance.

IFB 7-1904 - OC Streetcar Construction Project
Questions Received

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
26	General Conditions Article 11			Article 11 Insurance, (A) Item Number (1)	Article 11.A.1. General Liability states the following: b. Indicates the policy not exclude coverage for inverse condemnation. We are respectfully requesting that this portion of the requirements are removed from the contract requirements as it is not applicable to coverage of property damage and non-typical for general liability coverage as this is not commercially available.	This is not a standard exclusion under commercial general liability. No change.
27	General Conditions Article 11			Article 11 Insurance, (A) Item Number (1) (a)	Article 11.A.1.(a) states the following: (a) the workers comp and employers liability exclusion should only apply to the policyholder. We respectfully request this section be removed from the requirements, as described below it is not needed. 1. The Work Comp exclusion is written so it only applies to the insured under a workers' compensation, disability benefits or unemployment compensation law or any similar law. That will not be amended, the policy will cover any insured's obligation to cover these benefits. 2. The employers liability exclusion eliminates coverage for an insured with respect to that insured's employees. The exclusion does not apply to liability assumed by the insured under an "insured contract". So when the Contractor assumes the project owner's liability exposure in connection with injury to the Contractor's employees, the Contractor will be obligated to pay any damages awarded to the injured employee as a result of the employee's suit against the owner. 3. The requested changes are due to the prescribed coverage(s) which are not commercially available.	In California, workers compensation and employers liability are the exclusive remedy for workplace injuries. Therefore, a commercial liability policy would not provide coverage and an exclusion is appropriate.
28	General Conditions Article 11			Article 11 Insurance, (A) Item Number (1) (b)	Article 11.A.1.(b) indicates that "no other endorsements" may be included. That is not possible. Exclusions for such items as Pollution, asbestos, silica, employment practices, etc. are added to the policy. We respectfully request that this requirement be removed from the project requirements.	This Article has been amended in Addendum No. 6 so that other endorsements will need to be approved by the AUTHORITY.
29	General Conditions Article 11			Article 11 Insurance, (A) Item Number (4) (a)	Article 11.A.4. (a) indicates that the Builder's Risk insurance is maintained until "final acceptance". We are respectfully requesting that this section is modified to reflect "substantial completion." Final acceptance could be construed to include minor construction activities and/or the warranty period and will bear additional unwarranted cost to the Authority.	No change to the requirement.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
30	General Conditions Article 11			Article 11 Insurance, (A) Item Number (5)	Article 11.A.5. states the following: "The CPL shall not contain any provision or exclusion that would bar or otherwise preclude any insured or additional insured from making a claim that would otherwise be covered by the CPL". Please clarify that the intent of this statement is to allow an additional insured (the Authority) to make a claim against the Contractor and have the policy respond without an insured vs insured exclusion.	Confirmed.
31	General Conditions Article 11			Article 11 Insurance, (A) Item Number (7)	Article 11.A.7. states the following: "Allocated Loss Expense must be in addition to all policy limits for coverage referenced above". The Professional and Cyber policies required will not loss expense as part of the limit and not in addition to the limit. We respectfully request that this statement be removed from the contract requirements as it is not relevant and not commercially available.	This Article has been amended in Addendum No. 6 to allow exceptions for claims made policies.
32	General Conditions Article 11			Article 11 Insurance, (A) Item Number (7)	Article 11.A.7. states the following: "Not more frequently than once every five years". Please clarify the intent of this statement as it is unclear?	This phrase has been deleted in Addendum No. 6.
33	General Conditions Article 11			Article 11 Insurance, (A) Item Number (8)	Article 11.A.8. states the following: the "subcontractors maintain insurance coverage in the same amounts required of CONTRACTOR herein"... We respectfully request that this statement be removed. Subcontractors will not have limits that meet these spec as regard to General Liability and Pollution and most will not carry Professional and Cyber Liability. IF this unusual coverage can be obtained by the subcontractors, it will add additional unnecessary financial burden to all stakeholders and not commercially available.	No change to the requirement.
34	General Conditions Article 11			Article 11 Insurance, (B) Item Number (3)	Article 11.B.3. requires 30 day notice of cancellation. We are requesting that the following statement be modified by adding "10 days if for nonpayment of premiums."	Accepted. This Article has been amended in Addendum No. 6 to add "10 days if for nonpayment of premiums."
35	General Conditions Article 11			Article 11 Insurance	Please clarify if this contract is subject to California Code, Public Contract Code, Section 7105 as it is unclear?	At this time, the AUTHORITY does not have any planned debt issuances associated with the OC Streetcar.
36	General Conditions Exhibit A Section 2.2.1 Other Insured Entities			Special Conditions SC-2 Indemnifications and Insurance 2.2.1	Employers liability can NOT have additional insureds. Please delete this requirement as it is not commercially available.	The AUTHORITY is not requiring additional insured endorsements for Workers Compensation and Employers Liability.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
37					Currently the documents require that the Good Faith Efforts (GFE) and the complete Bidders List (all firms that bid, propose or quote to the primes) are due at the time of bid. We are requesting that for this pursuit the Owner allows these documents to be submitted within 3 or 4 business days after the submission of the bid. Allowing these documents to be submitted after the bid date is industry standard and requiring them to be submitted at time of bid puts an incredible burden on the Contractors that can result in responsible bidders from not being able to provide the Owner with the lowest price possible.	Good Faith Efforts, DBE Participation Commitment letters and Bidders Lists must be received by the AUTHORITY no later than 4:00 pm on the 2nd business day after bid opening if they are not submitted with the bid.
38					Currently the documents require that the DBE commitment letters be signed and submitted at time of bid. We are requesting that for this pursuit the Owner allows these letters to be submitted within 3 or 4 business days after the submission of the bid. Due to the variability of how subcontractor and suppliers provide their numbers to Contractors, scopes may adjust during bid close-out, resulting in different values from subcontractors and suppliers that would need to submit these commitment letters making it impractical to have them due with the bids.	Good Faith Efforts, DBE Participation Commitment letters and Bidders Lists must be received by the AUTHORITY no later than 4:00 pm on the 2nd business day after bid opening if they are not submitted with the bid.
39					Currently the deadline for questions to the Owner is Wednesday, January 10 th 2018 at 5pm PST. Due to the magnitude of documents provided with this RFP it is requested that the questions deadline be extended 3 to 4 weeks to allow sufficient time for Contractors, Subcontractors and Vendors to discover and submit questions that arise during the review of the documents.	Addendum No. 4 to the IFB extends the due date for questions to February 28, 2018
40					In the document "IFB 7-1904 Add 1 Att D IFB Book 1A revised.pdf" that was issued in addenda 1, on page 15 of the pdf (Section I. Instructions to Bidders E-3.a) it states that all requests... must be received by the Authority no later than 5:00pm on January 3, 2018. On the cover sheet of the same document it states that Questions/Approved Equal Submittal is due by January 10, 2018. Please confirm that the deadline for Questions and Approved Equal Submittals is January 10, 2018 at 5:00pm PST.	Addendum No. 4 to the IFB extends the due date for questions to February 28, 2018
41	Book 1A, Book 1C				GC-47 and SC-33 describe that the contractor is required for all project Quality Control, including all testing and inspection. Drawing ZDG02, Structural Observation, specifically items 2 and 3 note that structural observation shall be by a registered engineer employed by the Owner, and independent of the contractor. Please clarify who is responsible for all testing, inspection, and structural observation at the Maintenance and Storage facility.	The Contractor shall provide all Testing & Inspection as required by the contract documents. Owner may provide additional independent Inspection, but this does not relieve the Contractor of its duty to provide these services. Structural Observation shall be provided by the Owner, but this does not relieve the Contractor of its duty to provide specified Structural Inspection & Testing.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
42	Book 1C	ZCN03, ZDD15, TA72, TA74, TD12, ZTN01			Drawing ZCN03 indicates that (concrete) embedded tracks extend from the MSF building to the zone of asphalt paving. Section 3 on drawing ZDD15 indicates that the track becomes ballasted at the end of the building apron, supported by 10' approach slabs. Drawings TA72 and TA74 clearly indicate the transition from embedded to ballasted, approximately corresponding to drawing ZCN03. Drawing TD12 details a transition from embedded to ballasted, using a 20' approach slab. Please confirm where the tracks in the yard convert from ballasted to embedded. Please confirm the proper track section for the embedded portion (2 and 3/ZDD15, or something else)? Please confirm the intended transition detail for the yard (ZDD15, or TD12).	The track transitions from ballasted to embedded at the locations shown on TA72 and TA74. The embedded track section at the transition from ballasted to embedded track shall be per A/TD-12. The track slab section at the building apron shall be per 2/Z-DD15. There are no transition slabs for the transition from ballasted and embedded track within the MSF. TD-12 is applicable to mainline track only. Z-DD15 will be revised for clarification in an upcoming Addendum.
43	Book 1C, Volume 4, 2	Z-CN01			Note 1 on the reference drawing states, "site demotion: existing structures, recycling facility, associated equipment, and pavement surfaces will be removed by others". Note 3 on this same drawing states, "contractor to remove all existing structures, obstructions, foundations, and utility services on this site". Please confirm the scope and method of payment of contractor demolition within the limits of the VMSF site.	Note 1 on Z-CN01 will be deleted in a future Addendum. It is possible that one or both of the property owners will remove existing structures, equipment, and/or pavement. In addition, OCTA is developing a separate demolition contract. If neither of these occur, Optional Bid Items 11-14, which are allowances, will be used for demolition.
44	Book 1A Special Conditions Book 1C, Volume 1	FG03	Special Conditions Page 18, Section 6.3.4		Section 6.3.4 of the special conditions summarizes the sub segments for Segment 2. The sub segments do not match the Traffic Control Plans as depicted on FG03. Please confirm that Segment 2 has two sub segments as shown on FG03.	Section 6.3.4 has been revised to be consistent with FG03 in Addendum No. 5.
45	Book 1A Special Conditions Book 1C, Volume 1	FG05	Special Conditions Page 22, Section 6.3.7		Section 6.3.7 of the special conditions summarizes the sub segments for Segment 5. The sub segments and their sequencing do not match the Traffic Control Plans as depicted on FG05. Please confirm that Segment 2 has three sub segments as shown on FG05.	Section 6.3.7 is correct. Drawing TG05 will be updated to be consistent in a future Addendum.
46	Book 1A Special Conditions		Special Conditions Page 17, Section 6.3.3		Section 6.3.3 of the special conditions states that closures may occur during weekends with appropriate detours in place for the Fairview Street and 5th Street grade crossings. Intersection closure hours can not be found. Please provide closure hours or confirm that closures will be allowed from 10 PM Friday night to 5 AM Monday morning.	Yes, where it says "weekend" it means 10 PM Friday to 5 AM Monday. This has been added to Section 6.3.3 in Addendum No. 5.

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47	Book 1A Special Conditions		Special Conditions Page 19, 20, 21, 22		Sections 6.3.4, 6.3.5, 6.3.6 and 6.3.7 state that closures of major intersections in Segments 2, 3, 4 and 5 will be limited to night work between the hours of 10 PM and 5 AM. Please consider allowing weekend closures from 10pm Friday night to 5am Monday morning for major intersections instead of limiting them to 7 HRS at night. This will minimize disruptions to the public, improve schedule and eliminate unnecessary expenses.	We confirm that closures of major intersections will be limited to night work between the hours of 10PM to 5AM.
48	Book 1A Special Conditions Book 1C, Volume 1		Special Conditions Page 19, 20		FG04 depicts the work required at the intersection at Mortimer St and 5th St in Segment 3, Stage 3. FN41 shows this intersection as a non-active zone with traffic crossing through it. Although this intersection is listed within the limits of Segment 3C on Page 19, we find no mention of this intersection being defined as minor or major as listed on page 20. We are assuming this is an error and that the intersection of Mortimer St and 5th St will be considered at a temporary partial intersection closure (minor). Please confirm.	Special Condition 6.3.5 bullet starting with "Temporay partial intersection closures will be allowed at minor intersections" has been expanded to say "on Mortimer Street at 4th, 5th, and 6th Streets" in Addendum No. 5.
49	Book 1C		ZCD04		Drawing ZCD04 notes a standing seam metal roof on the trash enclosure, but we find no specification for this roofing system. Please provide a specification for standing seam metal roofing.	A specification will be provided for the standing seam roof in an upcoming Addendum. Standing seam metal roof shall also be provided over the metal deck on the train washer canopy.
50	Book 1C		ZCD04		Drawing ZCD04 notes to see structural drawings for the roof-supporting beams of the trash enclosure, but we find no details in the structural drawings. Please indicate the plan sheet containing this information.	A drawing revision will be provided in an upcoming Addendum to clarify the detail.
51	Book 1C		ZCD04		Drawing ZCD04 notes that the trash enclosure roof is supported by metal decking, but we find no information to indicate depth or gauge. Please provide this information	A drawing revision will be provided in an upcoming Addendum to clarify the detail.
52	Book 1C		ZPN42; ZPS32		Drawings ZPN42 and ZPS32 note that the car wash equipment room has insulated roof metal panels over metal decking, but the main wash bay just notes metal decking. Is there a roofing system over the metal decking on the wash bay? If so, please specify.	A specification will be provided for the standing seam roof in an upcoming Addendum. Standing seam metal roof shall also be provided over the metal deck on the train washer canopy.
53	Book 1C		UCOMN13; ZBD03		Drawing UCOMN13 notes that panel CP1A is a 100A panel, fed from a UPS powered by branch panel UP1A, but the panel schedule on ZBD03 for panel UP1A shows only a 20A circuit (46) for "CP-1". Please clarify the source of power for panel CP1A.	The correct source of power to the UPS is Panel "SBP-1A" Circuit #1, 20A,3P located within Tele/data Rm. Refer to Schedule drawing ZBD-04. Circuit #46 in UP-1A pertains to a different load. UCOMN13 will be revised in an upcoming Addendum to reflect source panel SBP-1A.

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54	Book 1A		Special Condtions Pages 62, 143		Section 14.1 of the special conditions states for all soil excavation in the PE ROW, the top 1' of excavation shall be stockpiled and tested prior to disposal. Section 53.4 of the special conditions states that Bid Item 15 includes all investigation, testing and excavation of Contaminated Soils if encountered within the PE ROW. Please confirm that the removal, stockpiling and testing of the top 1' as stipulated in Section 14.1 will be paid as part of the Bid Item 15 allowance.	Section 53.4 of the Special Conditions Bid Item 15 has been revised in Addendum No. 5 to read as "Removal and Disposal of Contaminated Soils". The Bid Form will be revised in a future Addendum. The description for this bid item has also been revised as follows: "a. The Work of this item includes investigation, testing and excavation for Contaminated Soils if encountered within the limits of OCTA-owned property within the PE ROW and public ROW, removal, transporting and disposal of Contaminated Soils at a permitted TSD facility including permitting efforts and permitting fees required for disposal and all other costs associated to the testing, removal, and disposal of the materials, as directed by the AUTHORITY. b. Measurement: Allowance c. Payment: This item will be paid for on Force Account in accordance with GC-60 as authorized by the Engineer."
55	Book 1C, Volume 2	SN09			The plans call for 28.22' of 8" PVC pipe heading north from a manhole at CL station 49+46.37. The line looks to extend north of the WBT by 5'. This would be a total of 46' of 8" PVC pipe. How many feet of 8" PVC pipe is to be installed heading north of the manhole at CL station 49+46.37 and please provide connection detail?	The lateral called out at 49+46.37 is incorrect. A revision to drawing SN09 to be issued in a future Addendum will show the correct lateral and length of pipe. Connection detail shall be per City of Santa Ana Std Plans 1204 and 1204A.
56	Book 1C, Volume 2	SN11			The plans call for 6" VCP SS to be extended to the north and south of the manhole at CL station 17+15.28. The plans also show the existing pipe to be 8" VCP. What size of pipe should be installed at this location?	Existing pipe verified to be 8". SN11 will be changed in a future Addendum to change 6" VCP SS as noted to be 8" to match existing.
57	Book 2	Bid Form, Pg 5 & 6 Item 18 & 36			The quantity in Item 36 seems to be very overstated. Please confirm that the quantity in Item 36 is to include the Ballasted Mainline Track only, without the footage within the special trackwork, and not including the Yard Lead (Yard Lead in Item 18 per Item 18 Measurement & Payment). If confirmed; please correct the quantity in Item 36.	Ballasted trackwork does not include special trackwork limits or limits for yard lead, quantity will be confirmed and updated as required. Bid Item 36 will be revised in a future Addendum.

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58	Book 1C, Volume 2 Book 1B, Exhibit B-1 02 41 12 Book 1D, Exhibit M-4	RN11 to RN17			<p>Drawings RN11 to RN17 depict the limits of existing railroad ties and ballast located under asphalt along W Santa Ana Blvd.</p> <p>1) For bidding purposes, please confirm that bidders are to assume that the existing rail has already been removed and if encounter, removal of rail, spikes and accessories will be paid for under Item 23 - Removal of Buried Man Made Objects.</p> <p>2) The notes in Table 1 of Exhibit M-4 show RR ties encountered with petroleum odor...along this location. If the existing ties, ballast and underlying soils contain creosote preservative, or any other contaminates, please confirm that the investigation and removal will be paid for under Item 23 - Removal of Buried Man Made Objects.</p> <p>3) Specification 02 41 12 -3.13 states that leaving existing ballast in place is acceptable based on approval of the qualified geotechnical professional. For bidding purposes, please confirm that existing ballast can remain in place.</p> <p>4) Is the investigation and removal of existing non-contaminated railroad ties within 2 feet of the bottom of excavation paid for under Item 23, or is it considered incidental to other items of work? If it is incidental to the other items of work, can OCTA provide the number of tracks and tie spacing in this location that bidders should use?</p>	<p>1) If encountered, removal of rail and spikes would be paid for under Bid Item 23, Remove Buried Man Made Objects. 2) If encountered, removal of treated ties would be paid for under Bid Item 15, and removal of underlying contaminated soils would be paid for under Bid item 15. 3) If the geotech directs the removal of the ballast material below the proposed excavation, it would be paid for under Bid Item 23. If it is found to be contaminated, it would be paid for under Bid Item 15 4) If non-contaminated ties are encountered, removal would be paid for under Item Bid Item 23. SC 53, part 15, and bid item description for Bid Item 15 will be revised in a future Addendum so that it is clear that Treated Wood Waste will be paid for under Bid Item 15. The Bid Form will be revised in a future Addendum.</p>
59	Book 1C, Volume 2 Book 1B, Exhibit B-1 02 41 12				<p>Drawings RN03, RN05 and RN06 depict general outline of where timber piling may be buried. Specification 02 41 12-3.12 states to remove any trestle pile at least 2' below the bottom of the proposed excavation.</p> <p>Please confirm that if encountered, the investigation and removal will be paid for under Item 23 Removal of Buried Man Made Objects.</p>	<p>If encountered, the identification, excavation, removal, and disposal of existing buried timber piles would be paid for under Bid Item 23, Remove Buried Man Made Objects. If timber piling is determined to be Treated Wood Waste, then it will be paid for under Bid Item No. 15.</p>
60					<p>Specification Section 27 01 60, 3.02 General Software Requirements, A, 3-8 lists interfaces to OCTA systems, please identify each interface or provide the OCTA API for review?</p>	<p>To be answered in a future Addendum</p>
61					<p><u>Traffic Signals</u></p> <p>Within IFB 7-1904 Book 1C Sheets XN1 – XN 23 (sheet numbers 417 – 439/1520), there is a callout to referenced plans designated XN24, XN25, XN26, XN27- XN33. These plans are not attached with project plans. Can the Authority please provide a copy of those plans which are needed to facilitate the required fiber optic modifications that are stipulated at each traffic signal intersection?</p>	<p>These drawings will be provided in an upcoming Addendum.</p>

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62					Street Lighting IFB 7-1904 BOOK 1B-TECHNICAL SPECS-SECTION 26 56 13 ITEM C.3 dictates for the street lighting that work, products, and materials shall conform to City of Santa Ana Standard Plans. Note Standard Plan No. 1126A thru I which pertain to street lighting are unavailable for downloading from their web site due to they are being revised by the city at this time. Can these plans please be provided?	Revised City of Santa Ana Street Lighting Standard Plans have been included in Addendum No. 5 in Exhibit S, Standard Plans.
63					Addendum No. 3, issued on Thursday, January 4, 2018, has pushed the bid date of the OC Streetcar project to April 27, 2018. If this push of the bid date is due to the Authority anticipating that large changes are going to occur with the specifications and plans that necessitate such an extension, it would be a great benefit to the bidding Contractors if the Authority is able to indicate what major items of work/scopes or locations are more likely to be altered in the future. This will allow Contractors to more efficiently allocate resources and efforts on the areas/scopes or locations that are not as likely to undergo major changes.	The change in bid date was not due to large changes coming to the specifications and plans. There are changes being made to traffic signals, signs, and pavement markings resulting from California Public Utilities Commission comments, changes to the MSF and TPSS resulting from comments coming from the City of Santa Ana Development Review, and changes to the Orange County Sanitation District Sewer.
64					Plan Sheets DN49 & DN50, Section Details A & B call out Ducts for top Strands and says "See Temporary Top Strand Layout". I am unable to find the "Temporary top strand layout" sheet or information. Can you please clarify what this is for and the duct size?	The Temporary Top Strand Layout detail is not needed. The drawings will be revised in a future Addendum to remove reference to the Temporary Top Strand Layout.
65					For the Insert assembly shown on DN51, is there a spec or bolt grade required?	For Insert Assembly shown on DN51, please refer to Technical Specification Section 05 60 00 – "Miscellaneous Metal Fabrication".
66					Plan sheet DN57, detail 2 calls out "Precast Concrete Panel with Non-Skid Surface (Weight Limited to 75lbs per piece)" Can you please provide additional information, dimensions, attachment method, Non-skid surface design or requirements, ect?	"Specification 34 10 40 Precast Concrete Panels provides design requirements for panels. It is intended that width and thickness of panel be selected as part of the design by the contractor. A revision to the specification will be added in an upcoming Addendum to clarify the non-skid surface. The revisions to Item 1 in Section 2.02 of the Section 34 10 40 – "Precast Concrete Panel-Structural" will state: "The non-skid surface shall conform to the requirements in Section 51-1.03E(6), "Nonskid Abrasive Finish" of the 2015 Caltrans Standard Specifications." The panels are intended to be set into place such that the panel(s) can be removed to access the duct bank. A revision to the drawings showing a method of transverse restraint (a shear tab on the underside of the precast panel) will be shown in a future revision."

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67					Can we please get further clarification where the bonding details on sheet U-TSN38 are used? Some details call out specific locations and others don't and the signal layout plans do not show I-bonds on the drawings.	The bonding details on U-TSN38 without specific locations are shown as possible installation options. All required information can be found in single line plans, and the information about impedance bonds is shown in U-TSN038 (details 6 and 7 contain all required information about all impedance bonds for the four signal interlockings).
68	Special Conditions 6.6.1				Special Condition 6.6.1 makes the Contractor responsible for all utility service fees (design, engineering, impact, connection, etc.) from a multitude of utility providers (SCE, SCG, COGG, COSA). The cost of these types fees is highly variable, depending on the existing infrastructure as well as previous coordination and/or memorandums of understanding (MOUs), and are sometimes indeterminate until final engineering and design is complete. The points of connection are missing for all the SCE electrical services, which will greatly impact cost depending on their actual location. Some third party utilities are also unwilling to comment on fees at this time due to the multitude of unknowns. In order to avoid contractors adding contingencies to their bids, please consider creating an allowance item for all such utility-assessed fees.	Coordination with the Utility Companies is ongoing. Since complete and comprehensive service locations and fees are not currently available, a Utility Service Fee Bid Item Allowance will be added to the Schedule of Quantities and Prices and SC-53 will be updated to describe what is covered by this Allowance Bid Item. Related to the points of connection, please reference the paragraphs in SC-6.6.1 which immediately follow each Utility Service and Meter Table for contractor instructions on how to base its bid for this Work. The Bid Form will be revised in a future Addendum.
69	Special Conditions 6.6.1				Special Condition 6.6.1 makes the Contractor responsible for all utility service coordination (timing, performance, etc.). In order to responsibly bid this project, we need to understand what previous coordination has occurred, and the terms of any Memorandums of Understanding (MOUs). Please provide information on previous coordination, MOUs, and any commitments made by the various utility providers in support of this project.	The AUTHORITY is in the process of applying for all utility services and will complete the service applications in accordance with exhibit J-10 New Service Matrix and the Service Request Exhibits. The AUTHORITY has carried out several utility service coordination activities in preparation for the subject construction contract, including but not limited to the following: Regular and ongoing coordination meetings with all-known Utility Owners that are impacted by Project implementation; Utility Potholing by the Designer and Utility Owners, Utility Relocation Designs by the Designer and Utility Owners, and preparation of service applications. The AUTHORITY is prepared to assist CONTRACTOR in the Project's utility service coordination activities during the construction phase of the Project. However, this does not relieve the CONTRACTOR of the responsibilities identified in the Contract Documents.

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70		NN08, NN11	685, 688		At the following wall drawings and locations, the footing elevation callouts do not match the elevations shown on the drawings: Drawing NN08, Wall 144 - elevation callouts at 11+50, 12+72, 13+08 Drawing NN11, Wall 553 - elevation callout at wall station 10+24 Please advise the correct elevation for each location.	1) Retaining Wall 144, top of footing call out on the plans from beginning of wall (Wall LOL STA 10+00) to the end of the first 14' tall wall (Wall LOL STA 12+88.0) is labeled correctly at elevation 86.5'. The top of footing drawn on the developed elevation view was not properly scaled and will be adjusted in a future Addendum. 2) Retaining Wall 153, top of footing elevation call out of 94.0' will be adjusted to elevation 93.5' between Wall LOL STA 10+00 and 10+50. The wall design height is not adjusted by this change (Design Height is still H=12'). The top of footing drawn on the Mirrored Developed Elevation was not properly scaled and will be adjusted in a future Addendum.
71	ITB, GC-41		1,3,4,44		Regarding Approved Equal requests/substitutions, GC-41 states, "as required by the California Public Contracts Code such request shall be made within thirty-five (35) calendar days from the date of the Notice to Proceed." However, a Key IFB date as modified by Addendum 2 requires "all requests for approved equals . . . must be received . . . February 7, 2018." Please confirm that February 7, 2018 is the deadline for substitution/approved equal requests for which the Authority will provide a determination before the bid date, but that substitution requests will still otherwise be accepted up to 35 days after NTP.	The IFB provides for two distinct timeframes and processes for product substitution. During the bidding period, if the bidder wishes to receive AUTHORITY's approval of substitution(s) prior to submission of bid, then the bidder should adhere to the deadline indicated by the AUTHORITY, as modified by Addenda. Postaward requests are covered in GC-41.
72		U-OCSN03, U-OCSD68			OCS layout plan drawing U-OCSN03 shows one down guy foundation that is shared for 1W/200 and 1W/201. Down guy foundation installation schedule on drawing UOCSD68 shows a separate down guy foundation for 1W/200 and 1W/201. Both 1W/200 and 1W/201 show the same stationing and offset in the installation schedule implying it could be the same foundation as shown in the OCS layout plan drawings. Please confirm that only one OCS Down guy Foundation is required between OCS foundation 1W/200 and 1W/201.	Yes, only one down guy foundation is required between OCS foundation 1W/200 and 1W/201.

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73	Schedule of Quantities & Prices				Schedule of Quantity and Prices has Bid Item 48 Traction Power Substation with a quantity of 4ea. There are four full size TP substations through out the alignment with a smaller substation inside the Maintenance Building. Should the smaller traction power substation inside the maintenance facility get paid under Bid Item 48, increasing the quantity to 5 ea? If the smaller traction power substation inside the maintenance facility is not to be paid under Bid Item 48, which bid item should it be paid under?	Traction power equipment contained within the Maintenance and Storage Facility would be paid for under Bid Item 16 as described in SC 53.4 Item 16.
74		DN47, DN49, DN50			For the Santa Ana River Bridge, please provide details for intermediate diaphragms at spans 2 and 3.	Drawings with details for intermediate diaphragms at Spans 2 and 3 will be added by future Addendum.
75	Book 1A, SC 6.6.1	CU07			Page 36 of the Special Conditions 6.6.1 shows a 2" water service and meter at N Fairview St, station 49+37, 47' RT. Sheet CU07 denotes this as a 1" service. Please confirm that this a 2" service as stated in the special conditions.	This is a 1" service. The table on Page 36 of SC 6.6.1 has been corrected in Addendum No. 5.
76	34 11 13 2.02.B	TD18, TD19, & TA Track Plans			We have identified the following conflicts between the TA Track Plans, the Referenced Spec, and the Precurved Rail Details on TD18 & TD19: The curves identified on TD18 & TD19 as curves EB134, EB135, EB145, EB147, EB148, WB139, WB146, & EB155 are identified on the Track Plans as curves EB133, EB134, EB144, EB146, EB147, WB138, WB145, & EB154. The curve EB147 on TD & EB146 on TA is shown as R=265' on TD and R=400' on TA. The curve EB148 on TD & EB147 on TA is shown as R=82' on TD and R=66' on TA. Please update the track plans and precurved rail details with the same Curve IDs and Radii. The curve WB133 on both TD & TA is shown as precurved with a R=355' while the Referenced Spec calls for precurved rail for R of 300' or less. Please confirm that this curve must be pre-curved rail. If the curve EB147 on TD & EB146 on TA is actually R=400', is it still required to be precurved?	--The curve numbers shown on the TA sheets are correct. TD 18 and 19 will be updated accordingly in an upcoming Addendum. --The minimum curve radii for precurved rail shall be 300' for 115RE and 400' for 112TRAM. The spec will be updated accordingly in an upcoming Addendum. --EB146 with R400' shall be precurved as it is within the 112TRAM limits.
77		TD20			Plan TD20 is titled "MSF Precurved Rail", but does not show the limits of the precurved rails. Within the MSF Yard, how far past the PC's and PT's will the Precurved Rails be required to extend?	The precurved rail shall be curved throughout the entire length of the curve per Note 5 on TD20.

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78	34 11 23 2.15.A	TG13			<p>Plan TG13 is the Special Trackwork Schedule. In the schedule 10 ballasted concrete tie turnouts are designated as Shop Encapsulated. All but one of these turnouts are embedded in A.C. Paving. The 190' R turnout is not embedded at all. The encapsulation spec 34 11 23 2.15 is identified in 34 11 23 2.15A as for special trackwork embedded in concrete. It is unusual to encapsulate ballasted special trackwork.</p> <p>Please provide specifications and details for encapsulated ballasted special trackwork including fastening details for encapsulated or booted rail to concrete ties, and how the switch points are to be isolated.</p> <p>Also, is the 190' R turnout actually encapsulated?</p>	<p>Encapsulation for AC paved special trackwork is required to provide stray current corrosion control. Specification 34 11 28 has been updated in Addendum No. 6 to provide encapsulation specs for AC paved special trackwork. Fastening for AC paved special trackwork shall be per TD26. The ballasted 190'R TO will not be encapsulated per revision to TG13 that was issued with Addendum No. 5.</p>
79	Book 1A, SC 6.6.1	CU27 BN11			<p>Sheet CU27 depicts a new electrical service equipment enclosure at the south east intersection of E Santa Ana Blvd and French St (note 8). This electrical service can not be found in the table of SCE New Streetcar Electric Service Meters included in Special Conditions Section 6.6.1. Sheet BN11 shows an existing SCE Service Feed Point with an existing Metered Service Equipment Enclosure at this general location (Note 5). Sheet BN11 also shows this circuit coming from a new 120/240 V dual metered service panel at the North West intersection of French St and E Santa Ana Blvd, which is identified in the table in SC 6.6.1 (E Santa Ana Blvd 98+31, 28' LT).</p> <p>We are assuming that an electrical service, meter and enclosure will not be required at this location since it is not shown on the table and is depicted as existing in the street lighting plans. Please confirm.</p>	<p>There is no callout on either CU27 or BN11 for electrical service on the southeast quadrant of the intersection – it is on the southwest quadrant and on both CU27 and BN11 the callout is an existing service pedestal, not proposed. The existing pedestal at the southwest quadrant is to be removed and a new pedestal will be installed on the northwest quadrant as shown on BN 11 and on CU27 as item 14.</p>
80	34 11 93 3.H	TD01 & CX Typ Sect			<p>Regarding Geotextile Fabric under Ballasted Track: Drawing TD01 states "See Specifications for Location and Placement" and in Note 1 states "See typical sections on CX drawings...". In Referenced Spec it states "...fabric shall be installed as indicated on the Contract Drawings...". On the CX drawings the Fabric is not shown or referenced.</p> <p>Please show or specify locations for Geotextile Fabric in Ballasted Track Areas.</p> <p>Also, when used, is geotextile to extend under the maintenance access road in all areas?</p>	<p>Geotextile fabric shall be installed between the subgrade and subballast for all ballasted mainline and yard tracks for the entire subballast width. At locations where there is a maintenance road, the geotextile shall extend under the road as shown in TD01.</p> <p>TD01 will be updated in a future Addendum to remove the reference to the specifications for location and placement.</p>
81	34 11 93 3.I.5 & 32 12 18				<p>Spec 34 11 93 3.I.5 states "Place paving fabric on top of ballast...". Spec 32 12 18 "Asphalt Paving" does not mention paving fabric.</p> <p>Please provide a spec for the required Paving Fabric; note that this is a different application than that of the specified Separation/Stabilization Geotextile.</p>	<p>Paving fabric shall be per Caltrans Standard Specification Section 96-1.02J, Paving Fabric. Contract Specification 34 11 93 have been updated accordingly in Addendum No. 6.</p>

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82	Book 1A, SC 6.6.1	CU26 BN11			<p>The table of SCE New Streetcar Electrical Services in Special Conditions 6.6.1 calls out for a new SCE service pedestal with one meter for pedestrian lights at E Santa Ana Blvd station 97+00, 23' LT.</p> <p>Sheet CU26 shows a pullbox at this location and does not depict a an electrical service equipment enclosure. Sheet BN11 shows this circuit coming from a new 120/240 V dual metered service panel at the North West intersection of French St and E Santa Ana Blvd, which is identified in the table in SC 6.6.1 (E Santa Ana Blvd 98+31, 28' LT).</p> <p>Please confirm that there will not be a SCE service at this location.</p>	<p>There is a new pull box at 97+00, 23' LT along with new conduits and new street lights on north side of E. Santa Ana as shown on BN 11. There is no new SCE service pedestal as these street lights are tying into an existing circuit on the south side of the street (at southeast curb return).</p>
83	Book 1A, SC 6.6.1				<p>The table of SCE New Streetcar Electrical Services in Special Conditions 6.6.1 calls out for two new SCE service pedestals at the W 5th St station (21+80, 22' RT and 21+89, 22' RT).</p> <p>These service pedestals can not be found on the composite utility plans. It appears they could be duplicated with the services shown on Sheet CU24, which are identified in the table in SC 6.6.1 (74+70 31' RT, 74+61 31' RT).</p> <p>Please confirm that they are not required or update the composite utility plans to show them.</p>	<p>The two locations (21+80 and 22+89, not 21+89) are along W 5th St in front of the MSF, not at 74+70 and 74+61. Two new street lights (and poles) will be located here, and will be shown in an upcoming Addendum. Two new service pedestals will be shown in the upcoming drawing revision.</p>
84		ZPN21, ZPS11, ZPS13, ZPS14, ZPD15			<p>The signage depicted on ZPD15 as west facade signage we believe should be north facade signage. On this detail, the OC Streetcar logo is shown to be laser cut in a 1/4" piece of aluminum, and the surrounding area is denoted as "horiz. pattern 3" insulated metal panels", including the area beyond (west of)gridline 1. However, per the 2nd floor plan on ZPN21, there is no occupied area west of Gridline 1.</p> <p>Do the metal panels extend beyond Gridline 1, and if so, is the only aluminum the 1'-11-1/2" x 11'=11-1/2" panel? Or are all the panels beyond Gridline 1 aluminum, and if so, do the aluminum panels extend to Gridline 2, covering the underlying insulated metal panels?</p>	<p>1. Detail 2/Z-PD15 will be revised to North Façade Signage in an upcoming Addendum.</p> <p>2. Metal panels will extend beyond Gridline 1 at roof level, see sheet Z-PN-31 Roof Plan Segment 1 and Sheet Z-PS11 MF North Elevation.</p> <p>3. Aluminum panel to be 1'-11-1/2"" x 11'-11-1/2"" , see details 2/Z-PD15, 1/Z-pd22.</p>
85		ZPD15			<p>The west facade signage on ZPD15 appears to be specified in 10 14 02, section 2.03C, with the exception that the material is shown to be 1/4" thick. The west facade signage screen on ZPD15 does not appear to be specified in 10 14 02.</p> <p>Please confirm the specification sections for the signage shown on ZPD15.</p>	<p>1. Detail 1 – large OCTA logo says to be “silk screened” --- however the Painting spec 09 91 00 does not contain any language for silk screening. 10 14 02 Signage, 2.02.A.3 does state that Copy Application signs may be by silk screen</p> <p>2. Detail 2 – west façade signage is covered by specification 05 60 02, Misc. Metal Fabrications. Digital artwork to be provided by OCTA for the OCTA and OC Streetcar logos.</p>

Submitted No.	Reference Document(s)				Questions	Response
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86	Exhibit M	ZDG01			<p>For the MSF, there are no earthwork specifications other than 31 11 02, Site Clearing. Plan sheet ZDG01 states that, "report of geotechnical investigation and addenda are part of the contract documents".</p> <p>Exhibit M-3, the geotechnical report for the MSF includes many recommendations not conveyed on the plans, including:</p> <ul style="list-style-type: none">- over-ex and replacement with structural backfill 2' below, and 3' beyond footings- special ASTM E1745 vapor barrier under slabs on grade- no sand above vapor barriers- wet curing requirements for slabs on grade and flatwork- restrictions on trench excavations- etc. <p>Please provide specifications and updated plans that reflect the earthwork requirements at the MSF.</p>	<p>New Technical Specification Section 31 20 00, Earthwork (MSF), will be issued in a future Addendum. Please refer to drawing Z-DD11.</p>
87	Book 1A, SC 6.6.1				<p>Page 37 of the Special Conditions 6.6.1 shows a new 6" Domestic water service and meter for the Maintenance Storage Facility. Sheet Z-CN07 denotes this as a 3" service.</p> <p>Please confirm that this a 3" service and meter.</p>	<p>Sheet Z-CN07 is correct, Domestic Water is a 3" service. SC 6.6.1 had been revised in Addendum No. 6 from 6" to 3", and has deleted the meter for the 8" fire line.</p>
88	34 11 93 2.02 & 34 11 16 3.08.B				<p>Do the rail length requirements of 34 11 16 3.08.B apply to the Insulated Joint Plugs as described in 34 11 93 2.02?</p> <p>As with the 115# Rail, are Tram Rail Insulated Joints required to be plugs?</p>	<p>Insulated Joints for 115RE Section shall be prefabricated bonded insulated joint sections as shown in Contract Drawing TD15 and as detailed in Section 34 11 93 2.02. Length of prefabricated section ("plug") shall conform to the requirements of Specification Section 34 11 16 3.08B. Tram Rail IJ's shall be prefabricated bonded insulated joint "plugs" per Contract Drawing TD28, length as shown.</p>
89	34 11 93 2.01 & 34 72 00 3.15.C				<p>The referenced specs give requirements for superelevation tags on ties.</p> <p>Are superelevation tags required on any type of track other than Ballasted Track?</p>	<p>Superelevation tags are required for ballasted track only.</p>
90	34 72 00 3.10 - 3.14				<p>Please confirm that the referenced specs are requirements for Ballasted and DF Tracks and not for Embedded Track.</p>	<p>Confirmed that 34 72 00 3.10-3.14 applies to Ballasted and DF Track. See 34 11 30 for the requirements for Embedded Track.</p>

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91	Prequalification Documents				Does the prequalification of the CIDH pertain to the bridge foundation pile only? (36 inch, 48 inch and 108 inch CIDH)	Yes, the CIDH prequalification was for bridge foundations only.
92	Prequalification Documents				Please provide a list of all prequalified and potentially prequalified prime contractors and subcontractors.	The AUTHORITY will only release the names of prequalified prime contractors. The most release list was issued as part of Addendum No. 5 and will be updated as necessary
93					Is track-to-earth resistance testing required for the ballasted and direct fixation rail sections? Section 34 72 00 "Trackwork", Paragraph 3.19E provides a criteria for track-to-earth resistance tests on the embedded (1,000 ohms per 1,000' rail) track and special (100 ohms per 1,000' rail) trackwork, but there is no mention nor criteria for testing the direct fixation and ballasted track.	Spec 26 05 11 governs the track-to-earth acceptance ratio for track types. Spec 34 72 00, issued with Addendum No. 6, was revised to reference 26 05 11.
94					Drawing Z-DD11 (Sheet 792 of 1520) "Structure MSF Typical Concrete Details," Detail 1 shows a vapor barrier on the expansion joint detail. The detail states "Typical – Provide fine graded aggregate, Vapor Retarder and Gravel/Crushed rock as required by Geotechnical Engineer" Please provide the details of what the Geotechnical Engineer is going to require so we can have a defined section to bid. (What section depth and type of materials will make up the "Fine graded aggregate, Vapor Retarder and gravel/crushed rock")?	To be answered in a future Addendum
95					Drawing Z-DD11 (Sheet 792 of 1520) "Structure MSF Typical Concrete Details," Detail 1 note 4 states, "Locations of Vapor retarder per architectural drawings." We are not able to locate the vapor retarder locations in the architectural drawings. Please provide the locations for the vapor retarder. Please confirm vapor retarder is defined as the system of aggregate, vapor retarder and gravel/crushed rock.	To be answered in a future Addendum
96		ZGD80-82, ZGN80-81			The referenced Fire Protection Plans do not include the car wash. Please confirm that neither the car wash bay, nor the car wash equipment building require an automatic fire sprinkler system.	To be answered in a future Addendum
97		ZGN80			While both rooms 124 and 125 have separate preaction sprinkler systems (in addition to room 148), the arrow for FM-200 protection appears to only apply to room 124. Please confirm that only room 124 has FM-200 protection.	To be answered in a future Addendum
98	Specification 34 12 00	ZHG02			Drawing Z-HG02 Equipment Schedule, calls for Spantec Systems Inc. as the manufacture/vendor for equipment no. LI-05 Monorail. Specification 34 12 00 for the Monorail lists Craneveryo Corp. and Washington Crane and Hoist Company Inc. as the only approved manufactures for the monorail. Please confirm if Spantec Systems Inc. is an approved manufacture for the monorail.	To be answered in a future Addendum

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99	Specification 41 22 13	ZHG02			Drawing Z-HG02 Equipment Schedule, calls for Spantec Systems Inc. as the manufacture/vendor for equipment no. LI-09 2 Ton Underhung Bridge Crane and LI- 19 7.5 Ton Bridge Crane. Specification 41 22 13 for the 2 Ton Underhung Bridge Crane and 7.5 Ton Bridge Crane lists Craneveyor Corp., Washington Crane and Hoist Company Inc., and Allied Crane Inc. as the only approved manufactures. Please confirm if Spantec Systems Inc. is an approved manufacture for the 2 Ton Underhung Bridge Crane and 7.5 Ton Bridge Crane.	To be answered in a future Addendum
100	Specification 41 33 00	ZHG02			Drawing Z-HG02 Equipment Schedule, calls for Cincinnati Electrical Tool as the manufacture/vendor for equipment no. MA-05 Grinder/Dust Collector. Specification 41 33 00 for the Grinder/Dust Collector lists Hammond Machinery Inc. as the only approved manufacture. Please confirm if Cincinnati Electrical Tool is an approved manufacture for the Grinder/Dust Collector.	To be answered in a future Addendum
101		ND01, Sheet 694			Sheet 694, Retaining Wall Detail Drawing, Note #1 at the top of the page states "For Sound Wall and Retaining Wall Architectural Finish or Texture See Details Elsewhere in Project Plans." We have been unable to find where any Architectural treatments or textures are being called out in the Plans or Specifications, aside from Anti Graffiti coatings. Please confirm if there are any architectural requirements, coatings or anti-graffiti coatings and provide the details if required.	No architectural treatments or textures are required. Note #1 on ND01 has been revised accordingly in Addendum No. 6.
102	34 11 33, & 34 72 00	TD12, TD13, &TD24			The referenced trackwork specifications do not provide the required spacing for Ties. The referenced drawings show spacings for specific conditions. Is the typical spacing for Ties to be 30"? Is this spacing to be reduced in curves? If so, to what and at what Radius?	Concrete tie spacing is provided in Spec 34 11 33, Section 1.01.C.2.a thru d. Note the following revisions to the referenced spec have been made in Addendum No. 6: c. Grade Crossing Track: 20 inches d. Special Trackwork: As shown on Contract Plans
103	34 11 93	TD29			Note 3 on the referenced drawing states "Restraining Rail...with 115 RE Rail...shall extend 10' beyond the limits of the curve...". In some cases, within the MSF yard, extending the Restraining rail will put the restraining rail in the shop and in the car wash. Please confirm that restraining rail should terminate before the shop & car wash.	The restraining rail shall extend into the shop and car wash building to provide the 10' extension beyond the curve limits.

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104		U-TSN08, U TSN16, U DBN32 and U-DBD10			Drawing U-TSN08 and U-TSN16 both show a train signal cabinet just before the alignment goes through Sasscer Park. Drawing U-DBN32 is a ductbank drawing of the same area but the train signal cabinet does not appear in drawing U-DBN32. Drawing U-DBD10 shows a cable schedule which includes every signal cabinet shown in the ductbank drawings. The only signal cabinet not listed in U-DBD10 is the signal cabinet from drawings U-TSN08 and U-TSN16. Should the signal cabinet shown in drawings U-TSN08 and U-TSN16 also be shown in U-DBN32 and be connected to the actual ductbank system? If so, please provide details on how the train signal cabinet on U-TSN16 connects to the ductbank system.	The train cabinet in this location only serves the bikeway crossing signal at the park, and is only connected to the nearby traffic signal cabinet at Parton/Santa Ana. The routing of signal cables does not need to pass through the systemwide ductbank.
105		Z-TN01, Z DD15, & TD02			Are the concrete embedded tracks shown on Z-TN01 within the MSF Yard and outside of the shop and carwash, to be constructed per section 2 of Z-DD15, or per section A of TD02?	See response to Bidder Question #42.
106		U-TSN08, XN07			Train signal drawing U-TSN08 note 1 states that the operation of the warning device (flasher) is provided by the traffic system and that the interface with traffic controller is via dry contact. Traffic signal plan XN07 is for the same area as U-TSN08 but doesn't show a conduit from the traffic controller to the warning device (flasher). Is the warning device (flasher) controlled by the traffic cabinet? If so, please provide details on connection to the ductbank system, details for modifications to the traffic controller and equipment to be housed in the train signal cabinet.	The flasher is operated by the Railroad Signal Controller. The flasher is connected to railroad signal cabinet. The intersection traffic signal cabinet is interconnected with the railroad signal cabinet to allow for coordination and communication. Cable and conduit types and sizes are shown on U-TSN16.
107		Special Trackwork Drawings, Train Signal Drawings			The special trackwork drawings show a manual switch mechanism with note 2 that states the switches will be manual with accommodation for point detection. The train signal drawings do not show any conduit runs from any train signal cabinet to any of the turnouts with manual switch mechanisms. Please provide drawings that show a conduit running from a train signal cabinet to the manual switch mechanisms.	All facing point switches on mainline will have point detection. Revised drawings to be issued in a future Addendum.
108		Volume 4 Z-CN04			Please provide existing elevations at the MSF so bidders can calculate cut and fill quantities for the MSF site.	To be answered in a future Addendum
109		Volume-2 C1002			Please provide the profiles for Laterals "A" and "B" that are missing on drawing no. C1002.	Drawings C1001 to C1008 are under revision and will be issued in a subsequent Addendum.
110		Volume-2 C1004			Please provide the profile for Lateral "D" that is missing on drawing no. C1005.	Drawings C1001 to C1008 are under revision and will be issued in a subsequent Addendum.
111		Volume-2 C1005			Please provide the profile for Lateral "C" that is missing on drawing no. C1004.	Drawings C1001 to C1008 are under revision and will be issued in a subsequent Addendum.
112		Volume-2 C1006			Please provide the profile for Lateral "E" that is missing on drawing no. C1006.	Drawings C1001 to C1008 are under revision and will be issued in a subsequent Addendum.

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113		Volume-2 SN13, SD01			The new manhole to be installed at centerline station 25+53.42, 0' RT, on Drawing SN13, depicts that approximately 6 LF of 24" VCP on the north and south side of the manhole needs to be replaced. However there are no call outs to replace the 24" VCP pipe on SN13 or SD01. Does approximately 6 LF of 24" VCP on either sided at this manhole need to be removed and replaced?	To be answered in a future Addendum
114		Volume-2 WN01- WN12			Water construction notes 150, 159, 160, & 165 are the only notes that call to install a casing around the new waterline. These construction notes refer to details 2 and 7 on WN11 which both call for casings around the new waterlines. Please confirm that casings are only required per Detail 2/WN11 for the locations that have call outs 159, 160 and 165.	Locations with construction notes 150,159,160, or 165 will be the only locations requiring a casing. Casing requirements and locations will be clarified in a future Addendum . Small services (1"/2") will require a 10-mil polyethylene sleeve per Detail 1/WN11.
115		Volume-2 WN09			The waterline detail for the intersection of Santiago Street and E. Santa Ana Blvd shows to begin construction of an 8" domestic water main at station 230+04 Santiago Street. Construction notes 128 and 138 say to install 12" DI Tee and Gate Valve. Also, all of the existing waterline in the vicinity is 12" CI pipe. Please confirm that this waterline is not 8" but is 12" pipe.	The waterline should be a 12" pipeline, not an 8". This will be updated in a future addenda.
116		Volume-2 WN01- WN12, RN01-RN29			There is approximately 1,600 lf of 12" waterline to be installed in areas that will require permanent AC/Concrete restoration. This waterline is outside the current demolition limits provided in the removal plans on drawings RN01-RN29. Is this 1,600 lf of 12" waterline intended to be outside the demolition limits or will the removal drawings be revised to include the 1,600 lf of waterline in the AC/Concrete demolition limits?	To be answered in a future Addendum
117	General Conditions Article 11			Article 11 Insurance, Item Number (7)	Will the agency consider a complete waiver of consequential damages and actual damages, which are unnecessary due to liquidated damages being assessed. Additionally, can the stated liquidated damages be the sole and exclusive remedy for delay and be capped at an aggregate dollar amount or percentage of the contract?	The AUTHORITY will not waive actual or consequential damages. The AUTHORITY will not place a limit on liquidated damages or limit them to an aggregate dollar or percentage amount.
118	General Conditions Article 39			Article 39 Warranty, Section (C)	Will the agency consider a limitation of liability granted as a percentage of the contract value?	No change to the requirement.

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119	General Conditions Exhibit A Section 47.2 Quality Control Manager, QC Personnel and Laboratories			47.2 Quality Control Manager, QC Personnel and Laboratories Paragraph 1) and 2).	Section 47.2 states that the Construction Quality Control Manager (CQCM) shall be employed by the contactor. Will the Contractor be allowed to use a third party consulting firm as the CQCM? The ability to subcontract this work can assist in fulfilling the DBE requirements of the project.	Section 47.2 was revised in Addendum No. 6 to clarify that the contractor may use a subcontractor for the role of CQCM.
120	Section IV Agreement Article 16 Disputes			Article 16 Disputes, Section A.	Article 16 states "if project managers do not reach a resolution, the dispute will be decided by AUTHORITY's Director of Contracts Administration and Materials Management (CMM), who shall reduce the decision to writing, and mail or otherwise furnish a copy thereof to CONTRACTOR. The decision of the Director, CMM, shall be the final and conclusive administrative decision." Will the authority add a neutral Dispute Resolution Board (DRB) as a final step in the dispute cycle?	No change to the requirement.
121	Section IV Agreement Article 31 Ownership of Reports and Documents			Article 31 Ownership of Reports and Documents, Section B	Article 31 states "CONTRACTOR shall not use AUTHORITY's name, photographs of the project, or any other publicity pertaining to the project in any professional publication, magazine, trade paper, newspaper, seminar or other medium without the express written consent of AUTHORITY." Can the Contractor use the authority's name for the purposes of solicitation as it relates to this project potential subcontractors and the construction community without express written consent?	Article 31 is effective with Agreement execution.
122	Section IV Agreement Article 42 Inspection and Acceptance			Article 42 Inspection and Acceptance, Section C	Article 42 states "CONTRACTOR shall furnish promptly, without additional charge, all facilities, labor, equipment and material reasonably needed for performing such safe and convenient inspection and test as may be required by AUTHORITY." Please define reasonably. Also identify the types of tests that will be required by the Authority.	To be answered in a future Addendum
123	Section IV Agreement Article 61 Contractor Purchased Equipment			Article 61 Contractor purchased equipment	Clarify the definition of the word equipment.	To be answered in a future Addendum
124	General Conditions Exhibit A Section 25 Notices and Communications			25.3 Request for Information (RFI)	Section 25.3 states "Responses to Requests for Information shall be issued within seven (7) calendar days of receipt of the request from CONTRACTOR unless AUTHORITY determines that a longer period of time is necessary to provide an adequate response." Please specify a definitive amount of time that the Authority has to provide a response to RFIs.	A typical response time will be 7 calendar days. We cannot provide a definitive response time because it has to be evaluated on a case-by-case basis.

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125	General Conditions Exhibit A Section 37 Safety Provisions			37.9	Section 37.9 states " The CONTRACTOR shall give notice in writing, at least forty-eight (48) hours before breaking ground, to all persons having interests on or near the Site, ..". Please define the term "all persons having interests on or near the Site" as it is not reasonable to notify all persons without a physical address, or utility stakeholder near the site.	A revision to Section 37.9 was issued with Addendum No. 6 changing it to say: "The CONTRACTOR to give notice in writing, at least 14 days before breaking ground in any subsegment, to the ENGINEER."
126	General Conditions Exhibit A Section 37 Safety Provisions			37.15	Section 37.15 states "A rigging plan is required for all lifts". Please clarify the Authority's definition of "rigging plan" and also "all lifts". Will this specification only apply to pre-cast girders for the Santa Ana River bridge?	A rigging plan is a formal planning process that will identify all hazardous conditions (risks) that may be encountered during a lift while using a crane or other hoisting equipment devices. A rigging plan should be developed prior to a load being lifted/hoisted to confirm compliance with all applicable regulatory standards and to ensure the responsible individuals have successfully implemented appropriate engineering and administrative mitigations. For additional information please refer to; <ul style="list-style-type: none"> •California Code of Regulations (CCR) Title 8 Standards, Subchapter 4. Construction Safety Orders, Article 15. Cranes and Derricks in Construction, and Subchapter 7. General Industry Safety Orders, Group 13. Cranes and Other Hoisting Equipment •Federal OSHA, 29 CFR 1926.550 •American Society of Mechanical Engineers (ASME) •ANSI Standards All lifts require pre-lift planning to determine hazard analysis factors, to include, but not limited to load; load weight, equipment configuration, equipment rated capacity, clearance, and site specific conditions. Such special planning requirements should be validated with appropriate calculations and applicable documentation should be maintained at each lift site location. No, this specification will not only apply to pre-cast girders for the Santa Ana River Bridge. Rigging plans shall be required, but not limited to, any applicable scope involving crane equipment, hoisting equipment devices, or other specialized lifting equipment that has the potential to create a hazard or incident.
127	General Conditions Exhibit A Section 65 Change Requests and Change Directives			65.1 Change Requests	Section 65.1 states "If AUTHORITY has not received sufficient substantiating documentation or information within a reasonable time after receipt of the Change Request, such insufficiency may be grounds to deny the Change Request." Please define reasonable time after acceptance as it relates to the grounds to return a rejected request as it is open to interpretation.	Reasonable time will be agreed to between the AUTHORITY and the CONTRACTOR based on the request.

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128	Special Conditions Exhibit A-1 SC-6 Work Description, Segments, Sequence & Constraints			6.3.2 Pre-Construction Tasks	Section 6.3.2 states "Place orders for any long lead items necessary to complete the project within the established project schedule". Define the term long lead item.	Per Special Condition 6.3.2, long lead items are any items nessessary to complete the project within the established project schedule. Per Special Condition 10.1, CONTRACTOR shall develop Construction Submittal and Deliverable Requirement List (CSDRL) with planned submittal dates
129	Special Conditions Exhibit A-1 SC-4 Time for Performance			4.2.2 Notice to Proceed with Construction	4.2.2 bullet number 11 states "Approved material submittals and proof of orders for long- lead materials". Please provide a list of the Authority's long lead materials required for this submittal.	Per Special Condition 23, Scheduling of Work under this Contract shall be performed by the CONTRACTOR, and shall include procurement of each major type of material or equipment. The CONTRACTOR's schedule shall determine long lead materials.
130	Special Conditions Exhibit A-1 SC-6 Work Description, Segments, Sequence & Constraints			6.3.1 General Work Requirements	Section 6.3.1 states that "The CONTRACTOR shall submit requested revisions of the proposed traffic control plans to the Engineer and City to allow for a minimum review duration of 30 days in advance of proposed traffic control implementation.". We respectfully request that the word minimum be removed from this statement. Please provide a maximum review period.	This specification requires the CONTRACTOR to submit proposed traffic control plans at least 30 days before the CONTRACTOR wishes implement the traffic control measure. This requirement will remain. The AUTHORITY is unable to guarantee approval within a pre-determined timeframe. If the CONTRACTOR submits a plan that isn't acceptable to the City, and doesn't make revisions requested by the City, then the approval will not be granted.
131	Special Conditions Exhibit A-1 SC-6 Work Description, Segments, Sequence & Constraints			6.3.2 Pre-Construction Tasks	Section 6.3.2 states "Submit shop drawings for the "Submittal of Shop Drawings, Product Data and Samples" of the General Conditions". We respectfully request that this bullet point be removed in its entirety as shop drawings will be submitted by suppliers and subcontractors throughout the life of the project. If there are shop drawings critical to the authority that must be submitted in the pre- construction period of 60 days please specify those items.	The bullet has been revised in Addendum No. 5 to say: Submit shop drawings for any long lead items per the "Submittal of Shop Drawings, Product Data and Samples" of the General Conditions.
132	Special Conditions Exhibit A-1 SC-6 Work Description, Segments, Sequence & Constraints			6.6.1 Utility Service Connections	Section 6.6.1 states "utility service connections the Contractor shall include but not be limited... payment of all associated fees.". Please clarify if the Contractor is responsible for the electric fees associated with, and permits required, for the work or will the Authority cover all costs for power and permits.	See response to question No. 68.

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133	Special Conditions Exhibit A-1 SC-12 Sound and Vibration Control Requirements			12.1 General Sound and Vibration Control Requirements	Section 12.1 states "The CONTRACTOR shall take all necessary means to eliminate or minimize vibration impacts to adjacent properties, businesses, and residences caused by its construction operations. Measures applied to limit noise levels will often limit vibration levels. The CONTRACTOR shall ensure that vibration generated by construction activities does not exceed a peak particle velocity (PPV) of 0.12 in/sec within 10 feet of any habitable building or structure or other sensitive receptor.". Please clarify the term "other sensitive receptor".	Other sensitive receptors in addition to habitable buildings are locations where people gather where noise and vibration could interfere with their use, such as schools, churches, courthouses, businesses, etc.
134	Special Conditions Exhibit A-1 SC-23 Progress Schedule			23.14 AUTHORITY Holidays	The Authority's listed holidays in section 23.14 AUTHORITY HOLIDAYS do not align with the region's trade agreements. Please consider incorporating the additional days for scheduling purposes Absent from the list are Veterans day, as well as the first Saturday following the first Friday in the months of June and December. Please define the authority in charge of declaring the holiday observance date.	Contractual durations are based on Calendar Days. We have deleted the following from the first line of Special Condition 23.14: "for establishing normal scheduled workdays and for use in the CPM schedule" in Addendum No. 5.
135	Special Conditions Exhibit A-1 SC-33 Quality Control and Quality Assurance			SC-33 Quality Control and Quality Assurance	Section states "Unless noted otherwise, the CONTRACTOR shall notify the Engineer a minimum of seven (7) calendar days prior to the performance of work that requires inspections by third parties such as the City, OCFCD, or utility company, or witnessing of testing by third parties such as City, or utility company". Will the engineer accept a 3 week look ahead as notification or does the engineer expect a specific notification for each item?	Specific notification will be required for each item.
136	Special Conditions Exhibit A-1 SC-53 Price and Payment Procedures			53.4 Item Measurement and Payment Section B Parts: 48. Paragraph D 49. Paragraph D	Are these two paragraphs the complete spare parts list for the project? Please confirm that these two paragraphs are the complete spare parts list for the project and if not please provide a comprehensive spare parts list.	In addition to bid items 48 (TRACTION POWER SUBSTATION) and 49 (FURNISH AND INSTALL OCS), bid items 39 (25M TURNOUT AND 25M TURNOUT-SPECIAL), 41 (190'R SINGLE CROSSOVER), and 52 (TRAIN CONTROL AND SIGNAL SYSTEM) lists the spare parts that should be included in the bid.
137	Special Conditions			Section 6.3	Section 6.3 states "If the CONTRACTOR deviates from the specified order of Work, or sequencing indicated by the Contract Documents, it does so at its own risk and shall assume any and all time impacts and cost associated with such deviations." Has the agency or any of its consultants prepared a schedule that is compliant with all of the contract requirements, if so please provide this to the contractors.	To be answered in a future Addendum

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	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
138	Special Conditions			Section 6.3	Section 6.3 states "If the CONTRACTOR deviates from the specified order of Work, or sequencing indicated by the Contract Documents, it does so at its own risk and shall assume any and all time impacts and cost associated with such deviations." Can the agency confirm that upon the submission and acceptance of a mutually agreed to Revised Schedule, the applicable portion of the General Conditions with respect to Time for Performance of Work and Contract Modification, Disputes and Claims will apply?	Yes, confirmed.
139	Addendum 3				Per Addendum 3 the contract bid date was extended from March 5, 2018 to April 27th, 2018 will the questions and clarifications deadline be extended to April 6th to coincide with the change of the bid date?	Addendum No. 4 to the IFB extends the due date for questions to February 28, 2018
140	Special Conditions Exhibit A-1 GC-61 Progress Payments			61.2 Payment to Subcontractors	Can the agency specify a period for response by the contractor for any allegation of actions described under 61.2 Payment to the Subcontractors.	To be answered in a future Addendum
141	SECTION I. INSTRUCTIONS TO BIDDERS F. SUBMISSION OF BIDS and Addendum 3			3. Bid Booklet and Identification of Bids	Per Addendum 3 the bid submittal date is scheduled for April 27, 2018 at 11:00am. Will the Authority allow a 96 hour grace period from this submittal date for all bid information outside of the Bid Booklet?	To be answered in a future Addendum
142	Special Conditions Exhibit A-1 SC-11 Mobilization			11.2 Payment	Will the agency consider removing the 5% cap on the mobilization fee as the costs associated with mobilization are likely to exceed 5% of the contract value? Will the agency consider paying 50% of the mobilization fee at LNTP and the remaining 50% of the mobilization at NTPC as the costs of mobilization are incurred ahead of performing the work that counts towards the amount earned?	The cap on total mobilization and payment schedule will remain unchanged. Please note SC-38 and the willingness of the AUTHORITY to compensate for materials not yet incorporated into the Work.
143					MSF Volume II, Spec. 14 71 11, Material Lift, Part 2.01 calls for the material lift to be a Series B VRC manufactured by Pflow Industries. Part 2.02 calls for the VRC to have a minimum rating of 1,300 lb and have a minimum 48" by 72" platform. The Pflow Series B VRC has a max. capacity of 500 lbs and a platform size of 36" x 36". Please clarify.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
144					MSF Volume II, Spec. 14 71 11, Material Lift, Part 2.02, C calls for the Mechanical Lift to have a max. lift height of 12'-6" with a total of 3 levels with a distance between floors of 12'-6". Three levels with 12'-6" between levels requires a max lift height of 25'. Please clarify.	To be answered in a future Addendum
145					Please confirm that we are not required to provide any furniture (desks, chairs, file cabinets, white boards, etc.) for the Maintenance Facility.	Correct, the CONTRACTOR is not required to provide furniture (desks, chairs, file cabinets, white boards, etc.) for the Maintenance Facility.
146					Sheet No. 873 (MF North Elevation PS11) calls out Green Screen panel mounted over split face wall. Please provide the specifications for the Green Screen.	To be answered in a future Addendum
147					<p>The below listed specification sections appear in the Technical Specification for the MSF, Volume II, but are not clearly identified where the items of work are to be performed within the MSF. Please clarify.</p> <p>Section 12 21 00 "Window Blinds" indicates blinds will be required on the project. We are not able to locate the blinds on the plans. Please provide the locations where blinds are required.</p> <p>Section 07 13 00 "Sheet Waterproofing" indicates waterproofing is required at the MSF. Please indicate where the sheet waterproofing is required on the MSF drawings.</p> <p>Section 07 14 16 "Cold Fluid-Applied Waterproofing" indicates waterproofing is required at the MSF. Please indicate where the cold fluid-applied waterproofing is required on the MSF drawings.</p> <p>Section 07 16 13 "Polymer Modified Cement Waterproofing" indicates waterproofing is required at the MSF. Please indicate where the polymer modified cement waterproofing is required on the MSF drawings.</p> <p>Section 10 22 13 "Wire Mesh Partitions" indicates Wire Mesh Partitions are required at the MSF. Please indicate where the Wire Mesh Partitions is required on the MSF drawings.</p> <p>Section 10 26 00 "Wall and Door Protection" indicates Wall and Door Protection is required at the MSF. Please indicate where the Wall and Door Protection is required on the MSF drawings.</p> <p>Section 10 51 13 "Metal Lockers" indicates Metal Lockers are required at the MSF. Please indicate where the Metal Lockers are required on the MSF drawings.</p> <p>Section 10 56 13 "Metal Storage Shelving" indicates Metal Storage Shelving is required at the MSF. Please indicate where the Metal Storage Shelving is required on the MSF drawings.</p>	To be answered in a future Addendum
148					Per the conduit and cable schedule, the feeder cable from the DC switchgear to the OCS pole is aluminum. Per specifications section 34 23 20 the feeder cable is called out to be 500 Kcmil copper cable Class H bare. Please clarify which cable is correct.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
149					What size conduit and cable is required from the "OCS grounding switch operator with kirk key interlock" per detail A / U-TPN34 up to the ground switch?	Conduit size is 2 inch FRE inside conduit. Refer to drawing U-OCSD38 Feeder Configuration for Maintenance Facility.
150					Per sheet U-TPN01, on the Trolley Wire diagram between stations PS 314+86.71 and PS 315+35.23 EB, is the 1-500 KCMIL AL for the trolley wire correct?	To be answered in a future Addendum
151					When I budget priced the girders for Santa Ana River Bridge to HNTB in 2016, I assumed 6' deep Caltrans Bulb-Tee Girders, which we have provided for previous railroad bridges. Although the contract drawings now show 6' Wide Flange girders, can we substitute 6' Bulb-Tee girders (with similar structural properties) in our bid ?	The substitutuion of girders would require other changes to the design. Please bid according to the plans. See SC-30 for instructions regarding Value Engineering Change Proposals that are considered after contract award.
152	Exhibit B-4 Section 4.30				Traffic Signal plans TSP Opticom vehicle equipment is required. We do not have a quantity or a way to quantify. Please advise.	To be answered in a future Addendum
153	Exhibit B-4 Section 4.06				The project is replacing loops at most of the locations or installing new Signals with VDS. Please confirm that the new VDS can be used for the temp and then installed for permanent. This is standard practice.	Yes, the VDS can be used for the temporary and installed for permanent. The VDS will have to be accepted by the Cities of Santa Ana and Garden Grove for temporary and permanent use.
154			XN01 to XN023		These plans reference communication plan sheets XN24 to XN33 that are not part of the plan sheets issued for bid. Please advise if they will be issued for use with this bid.	See answer to bidder question No. 61

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
155		Volume 2, ND03			<p>ND03 depicts the lateral limits of lightweight fill for the retaining walls. Please confirm the following in regards to the longitudinal limits of lightweight fill:</p> <p>1) Please confirm that the limits of structure excavation 2' beneath the footings as shown on 1/ND03 applies to retaining walls 101/501 only and does not apply to the return walls and backwalls at Abutment 1 for Westminster Ave Bridge.</p> <p>2) Please confirm that the limits of structure excavation 5' beneath the footings as shown on 2/ND03 applies to retaining walls 108/508, 144/544 and 153/553 only and does not apply to the return walls and backwalls at Abutment 3 for Westminster Ave Bridge and does not apply to the return walls and backwalls at Abutments 1 and 4 for Santa Ana River Bridge.</p> <p>3) Please confirm that the limits of lightweight fill 2' beneath the footings as shown on 1/ND03 applies to retaining walls 101/501 only and does not apply to the return walls and backwalls at Abutment 1 for Westminster Ave Bridge.</p> <p>4) Please confirm that the limits of lightweight fill 5' beneath the footings as shown on 2/ND03 applies to retaining walls 108/508, 144/544 and 153/553 only and does not apply to the return walls and backwalls at Abutment 3 for Westminster Ave Bridge and does not apply to the return walls and backwalls at Abutments 1 and 4 for Santa Ana River Bridge.</p>	To be answered in a future Addendum
156		Volume 2, CX02, CX04, NS01, NS02			<p>NS01 and NS02 depict a 4" AC Cap beneath the track ballast at retained fills but do not provide stationing. The typical sections on CX02 and CX04 show the 4" AC Cap and retaining walls, but the stationing in those sections do not match the limits of the retaining walls.</p> <p>1) For RW 108/508, please confirm that the 4" AC Cap starts as shown on CX02 (EBT 108+28) and ends at the end of retaining wall 508 (WBT 515+75) as shown on NN07 and does not end as shown on CX02 (EBT 115+00).</p> <p>2) For RW 144/544, please confirm that the 4" AC Cap starts and ends as shown on CX04 (EBT 144+00 to 148+96).</p> <p>3) For RW 153/553, please confirm that the 4" AC Cap starts and ends as shown on CX04 (EBT 152+68 to 156+00)</p>	<p>AC Cap limit begins at the end of the bridge approach slab and extends 5-ft beyond the trench drain as shown in the profile of the TA sheets.</p> <p>The trench drain station locations are:</p> <p>EBT STA 114+95.00</p> <p>EBT STA 144+05.00</p> <p>EBT STA 155+95.00</p> <p>The CA drawings were updated and provided in Addendum No. 5 to provide the station locations above.</p>

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
157	Book 2 Exhibit M-6		Bid Form, Pg 6 Exhibit M-6, page 15		Bid Item 25 is for Overexcavation of Unsuitable Soils. Section 4.2.1 of the Geotechnical Design Report states that areas that preclude compaction should be overexcavated and that geogrids and/or easily compactable material can reduce the depth of excavation. Please clarify the following items for this bid item for pricing purposes: 1) We are assuming that bidders are to price the replacement material using Class 2 recycled Aggregate Base per 2015 California Dept of Transportation Specifications. Please confirm. 2) We are assuming that bidders are not to include geogrids or geotextiles for pricing this item. Please confirm.	Class 2 aggregate base is acceptable for pricing. We confirm that geogrid is not required for pricing this item.
158		ZPS42,43; ZPD21			The wall sections on ZPS42 and ZPS43 show a waterstop at the construction joint between the main building slab and the wall curbs beneath CMU and Gypsum walls. However, the referenced detail, 2/ZPD21, does not show this waterstop, nor do the structural drawings. Is a waterstop required at the perimeter curb/main slab interface beneath gypsum and/or cmu walls?	To be answered in a future Addendum
159		ZPN16			Drawing ZPN16 indicates ceiling areas to receive spray-applied fireproofing, but we find no spec section for spray-applied fireproofing. Please provide a spec for the spray-applied fireproofing. Please indicate if any structural steel is to receive the spray-applied fireproofing, or if only the metal decking receives this treatment.	To be answered in a future Addendum
160		ZPD21			1/ZPD21 (waterstop detail) shows "continuous fluid applied waterproofing at sub-grade conditions". However, waterproofing is otherwise only shown on the drawings at the car wash, and elevator sump pit. Is fluid-applied waterproofing required at all sub-grade conditions?	To be answered in a future Addendum
161		FN44A			FN44A depicts the work at the intersection of 4th street and Ross street occurring during a full intersection closure. There is a significant amount of work at this location associated with welding and special trackwork installation that would prevent it from being done overnight or on a two day weekend. How long can this intersection be closed?	Special Trackwork is west of Ross Street. Per Special Condition 6.3.6, Ross Street can only be closed for night work.
162		TD12 & TD02			On drawing TD02, in Detail B, the transverse and longitudinal track-slab rebar spacing is shown as 24" max both ways. In several other depictions of the track- slab such as on drawing TD12, in Section A, the rebar is shown at approx 12" spacings. Please confirm that the embedded track-slab rebar spacing is 24" max both ways and that the top bars are actually #3s?	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
163		Z-DD15			On drawing Z-DD15, in Section 2, the longitudinal spacing of the transverse rebar in the track-slab infill pour, is not shown. It appears that the dowel spacing identifier is pointing at the wrong place. Are the #4 dowels to be 4 each transverse at 12" longitudinal spacing? Are the dowels to be epoxy coated or set in epoxy? Is the center-top transverse bar a #4 or a #5? Is the longitudinal spacing of this bar 12"?	1) Yes--#4 dowels, 4 each transverse at 12" longitudinal spacing. 2) Dowels are set in epoxy. They are not epoxy coated. 3) Center-top transverse bar is #4 4) Longitudinal spacing of center -top transverse bar is 12". Drawing Z-DD15 will be revised in a future Addendum.
164		U-CCD11 & TD02			Drawing U-CCD11 shows track-slab longitudinal rebar, for stray current collection, at 12" spacing. This rebar is shown at 24" spacing on Drawing TD02. Please confirm that the collectors shall be welded to rebar that are at 24" spacing.	To be answered in a future Addendum
165		U-CCD14 & Z-DD15			Both Section 2 on Drawing Z-DD15 and Section 6 on Drawing U-CCD14 are depictions of track-slab within the MSF. They do not match. Please provide a revised Drawing U-CCD14 that depicts the required section and collector bar as shown on Z-DD15.	To be answered in a future Addendum
166		U-CCDXX			The Stray Current Corrosion Control drawings do not include requirements for the embedded MSF yard tracks or the Car Wash track. Please provide the requirements for the embedded MSF yard tracks and the Car Wash track, or state that none is required.	To be answered in a future Addendum
167					Reference Addendum #2 which revised the date for receipt of questions to February 7, 2018. Due to the size and complexity of this project, we would like to request that the date for receipt of questions be extended to February 27, 2018, which is 2 months prior to the bid date of April 27, 2018.	Addendum No. 6 revises the date for receipt of questions to March 16, 2018.
168	Reference IFB – Book 1 – Section III, page 75 – item 4.0 – DBE Bid Submission Requirements				This section indicates that the DBE Participation Commitment Form, the Bidders List, and the DBE Information-Good Faith Efforts package are to be submitted with the bid. We would like to request that these DBE forms be submitted by the three lowest bidders within 4 business days after the bid date. This is standard practice in the industry and is followed by agencies such as RCTD, ACE, SBCTA, and Caltrans to name a few.	Good Faith Efforts, DBE Participation Commitment letters and Bidders Lists must be received by the AUTHORITY no later than 4:00 pm on the 2nd business day after bid opening if they are not submitted with the bid.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
169					SC 26.2, 26.3 and 26.4 all make reference to settlement periods. Westminster Bridge Abutment 1 and Walls 101/501 require a 1 month settlement period. Westminster Bridge Abutment 3 and Walls 108/508 require a 4 month settlement period. Santa Ana River Bridge Abutment 1 and Walls 144/544 require an 8 month settlement period. Santa Ana River Bridge Abutment 4 and Walls 153/533 require a 6 month settlement period. Due to these settlement periods likely being on the critical path, especially those concerning the Santa Ana River Bridge, please clarify exactly how many calendar days of settlement are going to be required at each location. The measurement of a month in these instances is not specific enough.	Settlement periods identified in 26.4 will be revised as follows: 1 month will be changed to 30 calendar days, 4 months will be changed to 122 calendar days, 6 months will be changed to 183 calendar days, and 8 months will be changed to 243 calendar days.
170					The descriptions of Traffic Management Segments 2 through 5 in Exhibit I-2 allows full closures of “major intersections” during nights and weekends for track work. Special Conditions Section 6.3 states that partial intersection closures will be allowed at major intersections – which are “limited to night work between the hours of 10 PM and 5 AM.” Please confirm that: a. full closures of major intersections are allowed and b. major intersections can be closed for an entire weekend. c. Also, please specify start and end times for weekend closures.	The Traffic Management Plan, Exhibit I-2, considered a range of traffic handling and construction phasing scenarios. Per Article 13 of the Construction Agreement, Special Condition Section 6.3 takes precedence, and limits closures at major intersections to night work between the hours of 10PM and 5AM. See responses to questions 46 and 47.
171					Special Conditions Section 6.3.4 states that “Segment 2 shall be constructed so no more than one subsegment is constructed at a time.” Are the subsegments 2A and 2B or are the subsegments 2A(1), 2A(2), 2A(3), and 2B(1)? Please clarify.	Please note that per question 44, subsegments of Segment 2 in SC-6.3.4 have been revised to 2A(1), 2A(2), 2B(1), and 2B(2) in Addendum No. 5. Each of these are considered to be a subsegment.
172					Regarding access to the Santa Ana River (SAR) Bridge via the existing channel. The notes on plan sheet 642 refer to the use of steel plates and fill dirt to protect the existing channel lining. Access to the channel bottom with large equipment is required for but not limited to the following activities: removal of existing concrete lining, CIDH pile drilling, and precast girder erection. Please provide the allowable access locations to enter and exit the channel with heavy equipment.	Access to the Santa Ana River channel bottom is via Fairview Ave, west embankment, through a gate, and down an existing ramp from the top of bank to the river channel bottom.
173					Reference plan sheet 627 for the Westminster Bridge. The girder longitudinal section detail for post tensioning does not match the typical section dimensions shown on plan sheet 626. The bottom slab thickness is shown to vary from 6” to 3’. The full depth of the CIP girders is shown as 4’9” on plan sheet 626, detail 1. Please verify and provide the correct dimensions.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
174					Project special conditions section 6.4.2 prohibits pile driving on this project. However the temporary shoring for pier construction at the SAR Bridge and the retaining wall construction will require the use of vibratory hammers to drive sheets. Please confirm that sheet piling for temporary shoring at the Santa Ana River bridge and for retaining wall construction along the PE ROW will be permitted.	To be answered in a future Addendum
175					Reference plan Sheet DN-18- Section G/ DN-18. This detail shows the approach slab extending beyond the return wall and overlapping the retaining walls. The plan view shows the approach slabs are inside the return walls. Please verify and provide the correct detail.	To be answered in a future Addendum
176					Reference plan Sheet DN-18- Section G/ DN-18. This detail shows the 3 Inch plastic pipe from the retaining wall and along the return wall. However the plan view does not show the pipe along the retaining wall. Please verify and provide the correct detail.	To be answered in a future Addendum
177					Reference plan Sheet DN-18- Detail 2. This detail shows a filter fabric for geo-composite drain. Is it the intent that this fabric wrap around the full depth of geo-composite drain? Or is it only required around the top. Please clarify.	To be answered in a future Addendum
178					Please provide the as built drawings for the existing Santa Ana River bridge.	To our knowledge, as built drawings do not exist for the Historic Santa Ana River Bridge. We know that is is a Pegram Truss, built in 1907 as part of the Pacific Electric Railway that operated until 1950.
179					Please verify the quantity for Bid Item No. 55 – 48” CIDH Piling	To be answered in a future Addendum
180	General Conditions - 41			GC-41 Product Options, Supplier Approvals, and Substitutions	Per Addendum 2, all questions and approved equals are due to the owner by February 7, 2018. The GC-41 states that request shall be made within thirty-five calendar days from the Notice to Proceed with Construction.....unless later submission of request is agreed to by the authority. These dates do not align regarding approved equals. Please clarify which timeline is correct. In addition, we respectfully request that submission of approved equals be carried throughout the life of the project in order to provide the best product per application, reduce cost and increase project efficiency.	The IFB provides for two distinct timeframes and processes for product substitution. During the bidding period, if the bidder wishes to receive AUTHORITY's approval of substitution(s) prior to submission of bid, then the bidder should adhere to the deadline indicated by the AUTHORITY, as modified by Addenda. Postaward requests are covered in GC-41. No change to the requirement.
181	Special Conditions - 7			SP-7 Permits and Fees, (7.2) CONTRACTOR Acquired Permits	Per the Special Conditions 7.2, CONTRACTOR - Acquired Permits, the Authority list permits a through h. Can the Authority provide the fee associated with each permit?	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
182	Special Condition - 28			SC-28 Systems Integration Testing and Start-Up/Pre-Revenue Service	Please clarify who will be responsible for the cost of power during the System Integration and Streetcar Testing period?	Per SC-6.6.1, and response to Bidder Question No. 69, the AUTHORITY is applying for permanent utility services in their name, meaning that bills for permanent services will go to the AUTHORITY from the time new service is established. Per SC-6.6.1, the CONTRACTOR will be responsible for temporary utility services. The AUTHORITY will pay for permanent services during System Integration and Streetcar Testing period.
183	Special Condition - 6			SC-6 Work Description, Segments, Sequence & Constraints, (6.3) Description of Work Segments and Work Restrictions	<p>Per the special conditions section 6.3 Description of Work Segments and Work Restrictions, "The Work shall be performed in conformance with the phasing and staging of construction shown on the Plans and indicated below. Non-conflicting Work in subsequent stages may proceed concurrently with Work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction, subject to approval of the Engineer in advance." Please clarify the following:</p> <ol style="list-style-type: none">1. Will the Contractor be allowed to work in multiple segment at any time as long as work is concurrent within each segment?2. Will the Contractor be allowed to work in Segments 1 and 2 concurrently?3. Will the Contractor be allowed to work in Segments 2 and 3 concurrently?4. Will the Contractor be allowed to work in Segments 2 and 4 concurrently?5. Will the Contractor be allowed to work in Segments 2 and 5 concurrently?6. Will the Contractor be allowed to work in Segments 3 and 4 concurrently?7. Will the Contractor be allowed to work in Segments 3 and 5 concurrently?8. Will the Contractor be allowed to work in Segments 4 and 5 concurrently?	Per the second sentence in SC-6.3, "Non-conflicting Work in subsequent stages may proceed concurrently with Work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction, subject to approval of the Engineer in advance." Approval to work concurrently in the segments listed in questions 1-8 may be given based on whether satisfactory progress is maintained in the preceding states of construction. The Engineer will balance the construction schedule against impacts to the community (traffic, parking, noise, dust, etc.).
184	Special Condition - 6			SC-6 Work Description, Segments, Sequence & Constraints, (6.2) Coordination of Work with Others	Per the special conditions section 6.2 Coordination of Work with Other, "It is anticipated that work by other contractors, municipalities and utility companies may be in progress adjacent to and within the limits of this Project during progress of the Work on this Contract." Please identify all anticipated work by "others", provide an anticipated schedule for the work and locations.	To be answered in a future Addendum

IFB 7-1904 - OC Streetcar Construction Project
Questions Received

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
185	Special Conditions - 10			SC-10 Contract Data Submission Requirements, (10.6) Time For Submittals	Per the special conditions section 10.6 Time For Submittals, states that the CONTRACTOR can assume that AUTHORITY will review and return all submittals within thirty (30) calendar days after receipt of a complete submittal. Due to the number long lead material items and prescribed sequencing of the project this will have a significant effect on the overall construction duration of the project. We respectfully request that this time period be reduced to 14 calendar days and/or a time period that is less than 30 to facilitate a seamless submittal process.	As is emphasized in Article 1 of the Construction Agreement and General Condition 30, time is of the essence. SC10.6's intent is to be sure that submittals are received by the AUTHORITY sufficiently in advance of the required approval date to allow necessary reviews to be completed. The AUTHORITY will not reduce the specified duration, however, the CONTRACTOR may request a shorter review period for long lead items that require early submittal and the AUTHORITY will strive to complete reviews in less than 30 days and prioritize reviews in accordance with the CONTRACTOR's schedule.
186	Technical Spec Book 1B Exhibit B-2			Section 41 22 13.13	Per plan sheet 2-HD02 (931 of 1520), the 7.5 Ton Bridge Crane is supported from post and includes 14x132 steel beams on grid line 8. Please clarify the connection on gridline 9 and confirm that this 7.5 Ton Bridge Crane is to be supported by the W24X55 that run transversely to the 14x132 and supports the roof structure. Please provide additional details from this connection and rail detail. Please verify the W24x55 are adequate to support the loading from the roof structural and the fully loaded 7.5 Ton Bridge Crane.	To be answered in a future Addendum
187	Book 1C – Volume 4			Drawing Z-PN10 – Note 7	Note 7 on drawing Z-PN10 states “To provide corner guards at all exterior corners at first floor work areas.” Please provide details for material and dimensions as they are not noted in the drawings or the project specification 10 26 00 Wall and Door Protection.	To be answered in a future Addendum
188	Book 1B – Exhibit 2			Specification Section 10 26 00-2.02.A.1.a	In specifications section 10 26 00 Wall and Door Protection page 5, notes the locations for the wall protection in the Corridors A103, A104, A116 and A127. The Room numbers listed are not referring to correct locations or rooms. Please advise on the intended locations for the wall protection needed in the maintenance building.	To be answered in a future Addendum
189	Various Plan Sheets				Please provide details for the Landings, Crosswalks and Sidewalks shown near each proposed Rail Platform and noted as "SEE PLAN DETAILS FOR ADJACENT PAVEMENT TREATMENT" on Plan Sheet CD11. These areas do not indicate if there is a footing required under the proposed curb, pavement sections, footing terminations and location and/or type of truncated domes required to properly provide accurate pricing. For example, please see Drawing CP01-1EA, CP02-1EA, CP03-1EA, CP04- 1EA, CP05-2EA, CP06-2EA, CP07-2EA, CP13-1EA, CP15-1EA and CP16-2EA.	Refer to Civil Improvement Plans (Volume 2 A) for type of pavement located adjacent to on-street platform locations. Refer to Construction Details for information on platform footings. Refer to Architectural Street Station Stop Plans (Volume 3) for type of truncated domes (tactile warning surface) on platforms. Please see PD01 for truncated dome details on platform.
190					Communication drawings U-COMN02 – U-COMN04, illustrating the interfacility cable plan within the systemwide ductbank show TWC loops at 560+60, 164+75, 172+00, 182+50, 188+20, 191+70, 599+25 & 302+75 that do not appear in the Train Signal Drawings. Please confirm these TWC loops are required.	TWC loop locations are shown on Train Signal drawings. Comms drawings U-COMN02 and U-COMN14 will be updated to reflect TWC loop locations on Train Signal drawings.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
191					Communication drawings U-COMN02 – U-COMN04 indicated 4-6PR #18 cables connecting the signal cases to the TWC loops. Train signal cable plans show single 2c#14 connecting the TWC loops. Please clarify TWC loop cable type.	TWC loop cable type is 1-2c#14 as shown in Train Signal plans. Comms drawings will be updated to reflect the 1-2C#14 cable type.
192					Train Signal Drawing U-TSN10 does not show a FO cable linking the vital processor to the rest of the system. Please confirm a 24 strand fiber is required to connect the train signal cabinet at Harbor Blvd. to the train signal cabinet at N. Fairview St.	24 strand fiber is not required to connect the train signal cabinet at Harbor Blvd. to the train signal cabinet at N. Fairview St.
193		Volume 2 - CD14, CD08			For the installation of the sidewalk brick pavers per construction detail drawing CD14 detail (SIDEWALK BRICK PAVERS DETAIL) call out 15A, it is unclear if there is a concrete slab underneath these bricks. Does this brick paver section require a concrete slab and if so please provide the detail?	Sidewalk Brick Pavers Detail should include a concrete slab underneath the bricks and mortar bed. Detail CD14 will be revised and included in a future Addendum.
194		U-TPN33, U-TPN60			Drawing U-TPN33 has a callout showing the dimensions of TPSS#2 to be 14'-4"x38'. Drawing U-TPN60 has a table that shows the length of TPSS#2 to be 44'. Is the length of TPSS#2 38' or 44'?	Size of TPSS #2 is correctly shown on U-TPN08 as 44'-0" internal, 44'-8" overall. Drawing U-TPN33 will be revised in a future Addendum.
195	Exhibit M6	DN01 through DN07			Exhibit M6 Foundation / Geotechnical Reports requires excavating 2 feet below bottom of footing level and placing 2 feet of compacted structure fill (See Figure 6 - Grading Foundation Details). The station footing drawings and specifications do not reference or require any additional excavation. Please confirm if the Station Canopy Footings or Station Sign Marker Footings require structure fill to be placed below the footing. If so, please provide specifications and updated plans that reflect the earthwork requirements at the platforms.	To be answered in a future Addendum
196		CP09 & CA26			Please reference CP09 and CA26, there is a discrepancy between the 2 sheets in Tactile limits. CP09 shows the tactile extending west beyond the west ramp of the EB Sycamore Platform. However civil sheet CA26 does not show the tactile in this location west of the platform. Please confirm the tactile limits. This discrepancy occurs at 4 locations: EB Sycamore Platform - West Side CP09 compared to CA26 EB French Platform - East Side CP10 compared to CA29 EB Lacy Platform - East Side CP11 compared to CA31 WB Lacy Platform - West Side CP12 compared to CA31	Tactile surface limits should extend beyond the platform ramps at each of the four (4) locations indicated. Drawings CP09 through CP12 will be revised and included in a future Addendum.

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
197		PS11 CP01 to CP16			Reference Plansheet PS11 Typical Center Platform Exterior Elevations. Note 7 on the typical center platform sheet shows 2 EA Stop Markers (one on each end, in the platform ramps). However the platform detail sheets (CP01 to CP16) show one stop marker per center platform. Please confirm the number of Stop Markers for each center platform.	P-PS11 is a generic typical drawing. Please refer to CP (Civil-Platform) drawings for specific types and number of signs. CP01 (Harbor) – No streetcar vehicles are approaching from the west, therefore only 1 stop marker is needed. CP02 (Fairview) & CP03 (Raitt) –One stop marker is provided for eastbound vehicles. The "5' unistrut post with reflector" will be used as a stop locator for westbound vehicles. CP13 (SARTC) – No streetcar vehicles are approaching from the south, therefore only 1 stop marker is needed.
198		TD02 & Civil Drawings			Drawing TD02 detail A and B states "Geotextile Fabric to be Installed Between Subgrade and Aggregate Base for Entire Width of Pavement Cut, Along Sides, and Wrap at Least 1 Foot on Top." It is unclear if this is in reference to having the Geotextile installed just under the track slab or have it extend it to the limits of the civil cut areas. When referring to the civil details, civil cross sections, or civil plan sheets there is no reference to install this geotextile fabric. Please clarify the where geotextile fabric is required.	To be answered in a future Addendum
199					Impedance bond locations are not shown on the plans; rather they are part of the design build signal scope. Please provide installation and accessibility requirements.	Correct. Train Signal plans will be updated to provide clarification on installation and accessibility requirements.
200		U-TPN28			Can Traction Power and Signal Wires be connected to the rail in a common track box such as the track box shown in U-TPN28? Where there is no traction power connection, do the track circuit and impedance bond connections need to be accessible and be in some sort of track box for future accessibility? If so, please provide detail of the box and connection.	Impedance bonds don't need any other boxes. Installation instructions for them will be added according to question/answer 199. The box referenced on U-TPN28 is for traction power needs.
201		Corridor & MSF			Is electrical grounding required for general Corridor and MSF Site metallic fencing, railings, etc? If so; please provide specifications and details.	To be answered in a future Addendum
202		ZCN03, ZPG02			Drawing ZCN03 (site construction plan) notes to "see drawing PG02 for signage . . ." However, neither drawing PG02 nor any other MSF site drawing depicts any exterior site signage. Please provide drawings and specifications for any required exterior site signage at the Maintenance and Storage facility.	To be answered in a future Addendum
203	43 20 00	ZHN04			Drawing ZHN04 locates the engine oil pumps, and windshield fluid washer pump in room 152. However, we find no process piping, nor distribution/dispensing equipment for these products in the maintenance and storage facility plans. Please confirm that there is no distribution piping or dispensing equipment required for gear oil, hydraulic oil, flange lubrication, or windshield washer fluid.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
204	SC-39 GC-55 26 05 00				Within the MSF specifications, various sections refer to a CxA, or Commissioning Agent, and make reference to SC-39. SC-39, however, provides no information on the roles and responsibilities surrounding commissioning of the MSF. Section 26 05 00 , section 1.25I does make reference to the "Owner's Commissioning Authority and Commissioning Agent". With regard to the building commissioning, please clarify the contractor's responsibilities (i.e. who writes commissioning plan, who manages, who provides the commissioning agent, etc.)	To be answered in a future Addendum
205		U-TPN37 and U-DBN-32			Drawing U-TPN37 has a note for a traction power ductbank coming out of Comms 3'x4' pull box # CPB-654 that states "TO SWBD PB# PB-43A SEE DRAWING U-DBN32". Drawing U-DBN32 does not show a PB-43A. Where do the 2ea 2" conduit runs that leave south from CPB-654 terminate?	Drawing U-TPN37 reference to PB-43A will be changed to PB-41A in a future Addendum.
206					Per sheet U-OCSG02, general note 13, it states "Wherever a specific manufacturer item is listed on the drawings, the contractor shall supply that item." Is it possible to reach out to multiple vendors to provide more competitive pricing?	To be answered in a future Addendum
207					Santa Ana River Bridge (SAR): This Bridge is designed with Pre-stressed girders to avoid false work in the river channel. Piers with Hammer head caps would have completely eliminated false work altogether. However the present design requires support towers at the piers to build the diaphragms. Constructability issues have defeated the purpose of doing away with false work. Please re-visit and modify the design.	To be answered in a future Addendum
208					Santa Ana River Bridge (SAR): Per current drawings and design, temporary false work towers are required at Piers 2 and 3. This means building temporary pads underneath the support towers. Please verify and confirm that the 404 permit allows for this.	To be answered in a future Addendum
209					Reference SC-53.4, B 48 and 49. Subsection "b" under both items 48 and 49 include the identical description of work to be included for payment. Please clarify the scope of work to be covered in bid items 48 and 49.	To be answered in a future Addendum
210					Will OCTA provide list of pre-qualified OCS Subcontractors for this project?	The AUTHORITY will only release the names of prequalified prime contractors. The most release list was issued as part of Addendum No. 5 and will be updated as necessary
211	34 11 28	TW03-TW06, TW09, & TW10			We find no rebar details (cross section, sizing, spacing) for special track work. Please provide Rebar requirements for embedded special trackwork, and Rebar and Doweling requirements for D.F. special trackwork.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
212	27 05 33				Spec section 27 05 33 - 2.01.A states that conduits are to conform to ASTM F512 for pvc materials. ASTM F512 covers five types of pvc conduit material. Those five types are EB-20, EB-35, DB-60. DB-100 and DB-120. Spec section 27 05 33 - 3.02.C.4 states that all conduit within ductbanks shall be Schedule 40 PVC. Are the conduits from the ductbank drawings to be of EB/DB material as per ASTM F512 or are they to be schedule 40? Please provide a designation if they are to be EB/DB.	To be answered in a future Addendum
213	34 42 28				Spec section 34 42 28 gives requirements for Embedded Power Switch Machines. Non-Embedded Machines are required for the Ballasted (non-AC Paved) and D.F. Special Trackwork. Please provide specifications for Non-Embedded Power Switch Machines.	To be answered in a future Addendum
214	TW02, TW03, TW07, Z-TN01				Drawing TW03 mis-identifies 3 Yard turnouts as Concrete Embedded Turnouts. Should these yard turnouts actually be AC Paved Ballasted turnouts as shown on TW02? Also, please confirm that since all 7 of the 25M yard ballasted turnouts are AC paved (Z-TN01); all of the Notes on Drawing TW07 should apply to them.	To be answered in a future Addendum
215	34 11 23				Spec 34 11 23 paragraph 2.15A states "All special trackwork to be embedded in concrete shall be fully insulated..." Please confirm that concrete includes AC Paving.	To be answered in a future Addendum
216	U-CCD01 thru U-CCD16				Which Spec Section is associated with the "Stray Current Corrosion Control" work shown on Drawings U-CCD01 - U-CCD16? If no spec exists for this specific work; please provide.	To be answered in a future Addendum
217	U-CCD11 & U-CCD15				On Drawing U-CCD11 in the "Crossovers/Turnout/DFT Collector Bars" Detail a Test Station Box is shown and noted as (Field Located). Are these boxes to be in addition-to the boxes tabulated on U-CCD15. If so; are we correct to assume 1 box per piece of Special Trackwork?	To be answered in a future Addendum
218		Ductbank and Structure Drawings			Please provide details of how the ductbank conduits transition across the bridge/approach slabs. Will slip couplings, expansion/deflection couplings, plates or other seismic devices be required?	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
219	32 17 26 32 17 27	CP01-CP16			Many landing and crossing Detectable Warning Panels are not clearly labeled in the Platform Detail Drawings (CP01-CP16) they are also not labeled in the Civil drawings. At several locations detectable panels are shown but not specified with any notes or call outs. Please provide Detectable Warning Panels details for the following locations: CP01 - Harbor Platform, Bottom of East Ramp Track Crossing CP04 - EB Bristol Platform, Bottom of East Ramp CP05 - WB Bristol Platform - Bottom of West and East Ramp CP06 - EB Flower Platform - Bottom of West and East Ramp CP07 - WB Flower Platform - Bottom of West and East Ramp CP15 - WB Sycamore Platform, Bottom of East Ramp CP16 - WB French Platform, Bottom of West and East Ramp	To be answered in a future Addendum
220	27 05 20	P-PS22			Please clarify the contractor scope regarding owner provided TVMs and Ticket Validators. (NIC Not in Contract Devices) Will Contractor be required to transport or install devices on site? Will contractor terminate power or communication wires to the devices? Will the contractor be required to provide any testing or troubleshooting support of these devices?	To be answered in a future Addendum
221	10 73 43 - 17 Paragraph E-2				Shelter Stop - Shop Assembly Please confirm the required Mock-up can be provided and inspected off site at the manufacturing location.	To be answered in a future Addendum
222		P-BD03			Conduits Encased in Red Concrete P-BD03 requires red concrete encasement for power conduits. However no specification supports this. Please confirm which conduits on the project require encasement with red concrete and provide the limits/details/specifications as required.	To be answered in a future Addendum
223	34 21 50 - 3.02.A.9				Spec section 34 21 50 - 3.02.A.9, Basic Electrical Materials and Methods - Traction Power, states that where conduits cross structural expansion joints, conduit expansion and deflection fittings, as specified in Paragraph 2.06 of these Specifications, shall be installed at the expansion joint. Please provide a drawings, detail or any information as to where this statement applies. Please confirm this applies to Traction Power conduits only.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
224		CX-16 LN20 LN28			Typical Section SARTC - SANTIAGO ST EBT STA 315+96.91 to 316+59.91 depicts decomposed granite between the track slab and railing at the SARTC East Terminus. Landscape Plans LN20 and LN28 do not show DG, or any planting or hardscape improvements at this location. The area between the tracks is also blank on these sheet. Please specify if any landscaping or hardscaping is required in the portion of the SARTC East Terminus that is enclosed by handrail.	To be answered in a future Addendum
225					The current deadline for questions and approved equals is February 28th. We are striving to thoroughly review the documents and send all our questions in a timely manner before the current deadline. However, general feedback from subcontractors and suppliers within the industry is that they are hesitant to start document review and pricing efforts because the bid date is over two and half months away. Please consider extending the deadline for questions and approved equals to Wednesday, March 28th. This will allow for greater input from Subcontractors and Supplier interest for this pursuit and OCTA will have 1 month to review questions. If the deadline is not extended, subcontractors and suppliers may not bid the project or un-needed contingencies may be included in the pricing.	To be answered in a future Addendum
226					In Specification 34 21 76 Section 1.01.A.1 it states "... a (SCIS) for remote control and Indication of Traction Power..." In general, what level of "Control" decisions does the SCITC panel PLC (the SCIS) have in operation of breakers in the TPSS? Who makes local Traction Power decisions (like transfer trip) – the SCIS or remote RTU?	To be answered in a future Addendum
227					In Specification 34 21 76 Section 2.01.A.2 it states a "plate shall be used for Terminal blocks...between SCIS and remote SCADA RTU". This statement seems to imply there are hardwire connections between the SCITC and the SCADA RTU. Is this correct? In 3.02D there is mention of a communications connection. Is it both? Which OCTA drawing shows this connection method?	To be answered in a future Addendum
228					In Specification 34 21 76 Section 3.02.D it states to "Identify the communication protocol". What is preferred communication media for the connection of SCITC cabinet and SCADA RTU? The Technical specs and drawings appear conflicting and show SCADA communications as both serial and Ethernet, fiber and twisted pair, and MODBUS TCP (which is Ethernet). Please clarify.	To be answered in a future Addendum

Submitted No.	Reference Document(s)				Questions	Response
	Exhibit / Attachment / Spec Section	Drawing/ Attachment	Page Number(s)	Paragraph (s)		
229					In Specification 34 21 76 Section 2.03.A it states “I/O and field connective peripherals; and drawing 1116 of 1520 Typical TPSS SCADA Points”. Drawing 1116 (typical TPSS SCADA Points) implies all SCADA I/O is discrete. But the specifications mention smart devices may provide I/O. Is there a preferred method or is this open to the contractor?	To be answered in a future Addendum
230					In Drawing #1115 “Typical Interface Block Diagram” it shows SCADA I/O from the switchgear and Rectifiers going direct (via communications) to the SCADA RTU. Where is the SCIS (and the SCITC) in this drawing?	To be answered in a future Addendum
231					In Drawing #U-TPN07 it shows FDR 172-3 & 172-4 “FUT SPACE ONLY”. Does the authority want empty DC Switchgear cells with rear access doors built into the building or does the authority want open space for future DC Switchgear cells and no rear access doors integrated into the building?	To be answered in a future Addendum
232					In Specification 34 21 15 Section 1.05.B.5 (Substation Enclosure) calls for submittal of “Certified test results for thermal and electrical”. This needs further definition. Please clarify per what standards or specification detail the test procedures.	To be answered in a future Addendum

AGREEMENT NO. C- 7-1904

BETWEEN

ORANGE COUNTY TRANSPORTATION AUTHORITY

AND

THIS AGREEMENT is effective this _____ day of _____, 201_, by and between the Orange County Transportation Authority, 550 South Main Street, P.O. Box 14184, Orange, CA 92863-1584, a public corporation of the State of California (hereinafter referred to as "AUTHORITY"), and , , , , (hereinafter referred to as "CONTRACTOR").

WITNESSETH:

WHEREAS, AUTHORITY has determined that it requires construction of the OC Streetcar Construction Project; and

WHEREAS, said work cannot be performed by the regular employees of AUTHORITY; and

WHEREAS, CONTRACTOR has represented that it has the requisite personnel, experience, material, and equipment and is otherwise qualified to perform such services; and

WHEREAS, CONTRACTOR wishes to perform these services; and

WHEREAS, AUTHORITY's Board of Directors authorized this Agreement on _____.

NOW, THEREFORE, it is mutually understood and agreed by AUTHORITY and CONTRACTOR as follows:

ARTICLE 1. COMPLETE AGREEMENT

A. This Agreement, including all exhibits and other documents incorporated herein and made applicable by reference, constitutes the complete and exclusive statement of the terms and conditions of the Agreement between AUTHORITY and CONTRACTOR and it supersedes all prior representations, understandings and communications. The invalidity in whole or in part of any term or condition of this Agreement shall not affect the validity of other terms or conditions.

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1 B. AUTHORITY's failure to insist in any one or more instances upon the performance of any
2 terms or conditions of this Agreement shall not be construed as a waiver or relinquishment of
3 AUTHORITY's right to such performance by CONTRACTOR or to future performance of such terms or
4 conditions and CONTRACTOR's obligation in respect thereto shall continue in full force and effect.
5 CONTRACTOR shall be responsible for having taken steps reasonably necessary to ascertain the nature
6 and location of the work, and the general and local conditions, which can affect the work or the cost
7 thereof. Any failure by CONTRACTOR to do so will not relieve it from responsibility for successfully
8 performing the work without additional expense to AUTHORITY.

9 C. AUTHORITY assumes no responsibility for any understanding or representations concerning
10 conditions made by any of its officers, employees or agents prior to the execution of this Agreement,
11 unless such understanding or representations by AUTHORITY are expressly stated in this Agreement.

12 D. Time shall be of the essence hereunder; but CONTRACTOR shall perform work hereunder
13 only to the minimum extent consistent with requirements herein.

14 E. Changes to any portion of this Agreement shall not be binding upon AUTHORITY except
15 when specifically confirmed in writing by an authorized representative of AUTHORITY and issued in
16 accordance with the provisions of this Agreement.

17 **ARTICLE 2. AUTHORITY DESIGNEE**

18 The Chief Executive Officer of AUTHORITY, or designee, shall have the authority to act for and
19 exercise any of the rights of AUTHORITY as set forth in this Agreement.

20 **ARTICLE 3. SCOPE OF WORK**

21 CONTRACTOR shall provide all labor, equipment, materials and facilities necessary for all work
22 related to the OC Streetcar Construction Project in strict compliance with all the contract documents
23 specified herein and in:

24 Attachment A entitled "DBE CONTRACT PROVISIONS FOR FTA-ASSISTED CONTRACTS
25 WITH DISADVANTAGED BUSINESS ENTERPRISE (DBE) GOALS";

26 Attachment A-1 entitled "DBE Commitment Form";

1 Exhibit A, entitled "General Conditions";
2 Addendum No's _____;
3 Exhibit A-1, entitled "Special Conditions";
4 Exhibit B-1, entitled "Technical Specifications OC Streetcar";
5 Exhibit B-2, entitled "Technical Specifications – Maintenance and Storage Facility (MSF)";
6 Exhibit B-3, entitled "Technical Specifications – Orange County Sanitation District (OCSD)";
7 Exhibit C-1, entitled "List of Drawings – Volume 1 – Track";
8 Exhibit C-2, entitled "List of Drawings – Volume 2 – Civil";
9 Exhibit C-3, entitled "List of Drawings – Volume 3 – Structure and Streetcar Stops";
10 Exhibit C-4, entitled "List of Drawings – Volume 4 – MSF";
11 Exhibit C-5, entitled "List of Drawings – Volume 5– Systems";
12 Exhibit C-6, entitled "List of Drawings – Volume 6 – Civil Cross Sections";
13 Exhibit D, entitled "List of Subcontractors";
14 Exhibit E, entitled "Performance Bond";
15 Exhibit F, entitled "Payment Bond";
16 Exhibit G, entitled "Guaranty";
17 Exhibit H, entitled "Level III Safety Specifications";
18 Exhibit I, entitled "Work Segments and Traffic Management Plan";
19 Exhibit I-1, entitled "Work Segments";
20 Exhibit I-2, entitled "Traffic Management Plans";
21 Exhibit J, entitled "Utility Company Drawings, Data, and Information";
22 Exhibit J-1, entitled "Southern California Edison";
23 Exhibit J-2, entitled "Southern California Gas";
24 Exhibit J-3, entitled "AT&T";
25 Exhibit J-4, entitled "Charter Communication";
26 Exhibit J-5, entitled "Sunesys";

1 Exhibit J-6, entitled "Verizon";

2 Exhibit J-7, entitled "Zayo AboveNet";

3 Exhibit J-8, entitled "Century Link";

4 Exhibit J-9, entitled "Level 3 Communications";

5 Exhibit J-10, entitled "New Utility Service and Meter Locations";

6 Exhibit J-11, entitled "OCSD Standard Drawings";

7 Exhibit K, entitled "Permits Acquired by AUTHORITY";

8 Exhibit K-1, entitled "Section 401 Water Quality Standard Certification - Regional Water Quality
9 Control Board";

10 Exhibit K-2, entitled "Section 404 United States Army Corps of Engineers";

11 Exhibit K-3, entitled "Section 408 United States Army Corps of Engineers";

12 Exhibit K-4, entitled "Section 1602 Streambed Alteration Permit - California Department of Fish
13 and Wildlife";

14 Exhibit K-5, entitled "Orange County Flood Control District (OCFCD)";

15 Exhibit K-6, entitled "California Public Utilities Commission (CPUC)";

16 Exhibit K-7, entitled "City of Santa Ana";

17 Exhibit L, entitled "Temporary Construction Easements and Private Property Work
18 Requirements";

19 Exhibit L-A, entitled "ROW Requirements"

20 Exhibit L-1, entitled "OCFCD Temporary Construction Easements";

21 Exhibit L-2, entitled "76 Station Temporary Construction Easement";

22 Exhibit L-3, entitled "Nova Academy Temporary Construction Easement";

23 Exhibit M, entitled "Foundation / Geotechnical Reports";

24 Exhibit M-1, entitled "Foundation Report Westminster Avenue Bridge";

25 Exhibit M-2, entitled "Foundation Report Santa Ana River Bridge";

26 Exhibit M-3, entitled "Geotechnical Report for Maintenance and Storage Facility (MSF)";

1 Exhibit M-4, entitled "Geotechnical Data Report";

2 Exhibit M-5, entitled "Geotechnical Design Report for Earth Retaining Systems";

3 Exhibit M-6, entitled "Geotechnical Design Report";

4 Exhibit N, entitled "Environmental Assessment Reports";

5 Exhibit N-1, entitled "Limited Phase I Environmental Assessment Report for the PE ROW";

6 Exhibit N-2, entitled "Limited Phase I Environmental Assessment Report for the SA Recycling
7 Facility, 2002 W. 5TH Street, Santa Ana, CA";

8 Exhibit N-3, entitled "Limited Phase I Environmental Assessment Report for 2020 W. 5TH Street,
9 Santa Ana, CA";

10 Exhibit N-4, entitled "Limited Phase II Environmental Assessment Report for the PE ROW";

11 Exhibit N-5, entitled "Limited Phase II Environmental Assessment Report for the SA Recycling
12 Facility, 2002 W. 5TH Street, Santa Ana, CA";

13 Exhibit N-6, entitled "Limited Phase II Environmental Assessment Report for 2020 W. 5TH Street,
14 Santa Ana, CA";

15 Exhibit O, entitled "Draft Storm Water Pollution Prevention Plan";

16 Exhibit P, entitled "Mitigation Monitoring and Reporting Program";

17 Exhibit Q, entitled "MSF Traction Power Single Line Diagram";

18 Exhibit R, entitled "Contractor Reporting Forms".

19 all of which documents are attached to and, by this reference, incorporated in and made a part of this
20 Agreement. By this reference, also incorporated in and made a part of this Agreement are all applicable
21 provisions of IFB and all representations made by CONTRACTOR in its original bid to AUTHORITY,
22 including, but not limited to, CONTRACTOR's certifications relative to Workers' Compensation Insurance,
23 and compliance with Section 7028.15 of the State of California Business and Professions Code.

24 **ARTICLE 4. DELIVERY / RECOVERY SCHEDULE**

25 A. CONTRACTOR shall fully complete the herein above described work within eight hundred
26 and fifty (850) days from the effective date of written Notice to Proceed with Construction (NTPC) issued

1 by AUTHORITY. CONTRACTOR shall give AUTHORITY not less than seventy-two (72) hours advance
2 notice of the start of any work.

3 B. If at any time, the critical path schedule reflects -30 or a greater negative number of days of
4 total float, then CONTRACTOR, within ten (10) days after CONTRACTOR first becomes aware of such
5 schedule delay, shall prepare and submit to AUTHORITY for review and approval a Recovery Schedule
6 demonstrating CONTRACTOR's proposed plan to regain lost schedule progress and to achieve the
7 original contractual milestones in accordance with the Contract. AUTHORITY shall notify
8 CONTRACTOR within ten days after receipt of each such Recovery Schedule whether the schedule is
9 deemed accepted or rejected. Within five (5) days after AUTHORITY's rejection of the schedule,
10 CONTRACTOR will resubmit a revised Recovery Schedule incorporating AUTHORITY's comments.
11 When AUTHORITY accepts CONTRACTOR's Recovery Schedule, CONTRACTOR shall, within five (5)
12 days after AUTHORITY's acceptance, incorporate and fully include such schedule into the Project
13 Schedule and deliver it to AUTHORITY.

14 C. All costs incurred by CONTRACTOR in preparing, implementing and achieving the Recovery
15 Schedule shall be borne by CONTRACTOR and shall not result in a change to the contract price.

16 D. In the event that CONTRACTOR fails to provide an acceptable Recovery Schedule within
17 thirty (30) days of CONTRACTOR's receipt of a notice to do so, CONTRACTOR shall have no right to
18 receive progress payments until CONTRACTOR has prepared and AUTHORITY has approved such
19 Recovery Schedule.

20 **ARTICLE 5. START OF WORK**

21 CONTRACTOR shall incur no costs, and shall not perform or furnish any work, services, materials
22 or equipment under this Agreement, unless and until a written Notice to Proceed has been given to
23 CONTRACTOR by AUTHORITY. Conditions precedent to AUTHORITY issuing a Limited Notice to
24 Proceed are CONTRACTOR furnishing the Exhibit E "Performance Bond," Exhibit F "Payment Bond, a"
25 Exhibit G "Guaranty," and certificates of insurance as set forth in Article 11 and in accordance with the
26 Special Conditions. CONTRACTOR shall furnish said documents within fourteen (14) days after

1 notification of contract award from AUTHORITY. Upon receipt of acceptable bonds, guaranty, and
2 insurance certificates, AUTHORITY will within fourteen (14) days thereafter issue the written Limited
3 Notice to Proceed. The AUTHORITY will issue a Notice to Proceed with Construction after the
4 CONTRACTOR completes the tasks listed in the Special Conditions.

5 **ARTICLE 6. PAYMENT**

6 A. For CONTRACTOR's full and complete performance of its obligations under this Agreement,
7 and subject to the maximum cumulative payment obligation provision set forth in Article 8, AUTHORITY
8 shall pay CONTRACTOR the contract price as stated in Article 8 Maximum Payment Obligation.

9 B. Progress payments and the final payment will be made by AUTHORITY to CONTRACTOR
10 in accordance with the terms as set forth in Exhibit A, "General Conditions," under the "Progress
11 Payments" and "Final Payment and Claims" sections therein. The acceptance by CONTRACTOR of
12 AUTHORITY's final payment hereunder shall constitute a waiver of all claims against AUTHORITY under
13 or arising out of this herein Agreement, as such may from time to time be amended.

14 C. Failure by AUTHORITY to pay amount in dispute shall not alleviate, diminish or modify in any
15 respect the CONTRACTOR's obligation to achieve final acceptance of and all work in accordance with
16 the contract documents, and CONTRACTOR shall not cease or slow down its performance under this
17 Agreement on account of any such amount in dispute. CONTRACTOR shall proceed as directed by
18 AUTHORITY pending resolution of dispute. Upon resolution of dispute, each party shall promptly pay
19 any amount owing.

20 D. The CONTRACTOR or his/her designated alternate shall certify on each payment application
21 that a) The payment application is a true, complete and correct statement of work covered by the
22 Application for Payment and progress; b) The backup information included is true, complete and correct
23 in all material respects; c) All payments due and owing to subcontractors and suppliers have been made;
24 d) Timely payments will be made to subcontractors and suppliers from the proceeds of the payments
25 covered by the certification and; e) The invoice does not include any amount which CONTRACTOR
26 intends to withhold or retain from a subcontractor or supplier unless so identified on the invoice.

ARTICLE 7. PROMPT PAYMENT CLAUSE

A. Upon receipt of payment by AUTHORITY, CONTRACTOR agrees to promptly pay each subcontractor for the satisfactory work performed under this Agreement, no later than seven (7) days. CONTRACTOR agrees further to return retainage payments to each subcontractor within thirty (30) days after the subcontractor's work is satisfactorily completed. AUTHORITY reserves the right to request the appropriate documentation from CONTRACTOR showing payment has been made to the subcontractors. Any delay or postponement of payment from the above referenced time frames may occur only for good cause following written approval by AUTHORITY. In accordance with Revised §26.29 "Prompt Payment Provisions" (Federal Register - dated June 16, 2003) AUTHORITY, at its discretion has elected to utilize the following method to comply with the prompt payment of retainage requirement.

1. To hold retainage from CONTRACTOR and provide for prompt and regular incremental acceptances of portions of the AGREEMENT, pay retainage to the CONTRACTOR based on these acceptances, and require the CONTRACTOR to pay all retainage owed to the subcontractors for satisfactory completion of the accepted work within 30 days after payment to the CONTRACTOR.

B. Failure to comply with this provision or delay in payment without prior written approval from AUTHORITY will constitute noncompliance, which may result in appropriate administrative sanctions, including, but not limited to a penalty of two percent (2%) of the invoice amount due per month for every month that payment is not made.

C. These prompt payment provisions must be incorporated in all subcontract agreements issued by CONTRACTOR under this Agreement. Each subcontract shall require the subcontractor to make payments to sub-subcontractors and suppliers in a similar manner.

ARTICLE 8. MAXIMUM OBLIGATION

Notwithstanding any provisions of this Agreement to the contrary, AUTHORITY and CONTRACTOR mutually agree that AUTHORITY's maximum cumulative payment obligation hereunder (including obligation for CONTRACTOR 's profit), shall be IN WORDS Dollars (\$ XXX,XXX,XXX.00),

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1 which shall include all amounts payable to CONTRACTOR for its subcontracts, leases, materials and
2 costs arising from, or due to termination of, this Agreement.

3 **ARTICLE 9. NOTICES**

4 All notices hereunder and communications regarding the interpretation of the terms of this
5 Agreement, or changes thereto, shall be effected by delivery of said notices in person or by depositing
6 said notices in the U.S. mail, registered or certified mail, returned receipt requested, postage prepaid and
7 addressed as follows:

8 To CONTRACTOR:

To AUTHORITY:

9 Orange County Transportation Authority

10 550 South Main Street

11 P.O. Box 14184

12 , Orange, CA 92863-1584

13 ATTENTION:

ATTENTION: Bob Webb

14 Title:

Title: Senior Contract Administrator

15 Tel:

Tel: (714) 560 - 5743

16 E-Mail:

E-Mail: rwebb@octa.net

17 ATTENTION : Mary Shavalier

18 Title : Program Manager

19 Tel : (714) 560-5896

20 E-mail : mshavalier@octa.net

21 **ARTICLE 10. INDEPENDENT CONTRACTOR**

22 CONTRACTOR's relationship to AUTHORITY in the performance of this Agreement is that of an
23 independent contractor. CONTRACTOR's personnel performing work under this Agreement shall at all
24 times be under CONTRACTOR's exclusive direction and control and shall be employees of
25 CONTRACTOR and not employees of AUTHORITY. CONTRACTOR shall pay all wages, salaries and
26 other amounts due its employees in connection with this Agreement and shall be responsible for all

1 reports and obligations respecting them, such as social security, income tax withholding, unemployment
2 compensation, workers' compensation insurance, and similar matters.

3 **ARTICLE 11. INSURANCE**

4 A. CONTRACTOR shall procure and continuously maintain in full force and affect through
5 contract completion, insurance coverages specified herein. Coverages shall not be subject to self-
6 insurance provisions exceeding \$50,000 per occurrence unless approved by the AUTHORITY. Insurance
7 coverage must be procured and acceptable insurance certificates and all other required insurance
8 documents must be submitted by CONTRACTOR and approved by the AUTHORITY prior to the
9 CONTRACTOR or any subcontractor commencing work activities at the project site. CONTRACTOR shall
10 provide the following insurance coverage:

11 1. Commercial General Liability, This insurance must contain broad from contractual
12 liability with a combined single limit of a minimum of \$5,000,000 each occurrence and an aggregate limit
13 of at least \$20,000,000. Coverage must be purchased on a post 1998 ISO occurrence form or equivalent
14 and include coverage for, but not limited to the following: Bodily Injury and Property Damage, Personal
15 Injury and Advertising Injury, Products and completed operations. The policy shall not exclude coverage
16 for inverse condemnation. This policy must also contain the following endorsements, which must be
17 attached to the certificate of insurance:

18 a. It is agreed that the workers' compensation and employers' liability related
19 exclusions in the commercial General Liability insurance policy(s) required herein are intended to apply
20 to employees of the policy holder.

21 b. ~~Any No other~~ endorsements limiting coverage as respects obligations under this
22 Agreement may be included on the policy with regard to the work being performed under this agreement
23 with prior approval by the AUTHORITY.

24 c. Any exclusions related to the explosion, collapse, and underground hazards must
25 be removed.

26 d. A waiver of subrogation in favor of the AUTHORITY, its officers, directors,

1 employees and agents, as well as those Parties identified in the Contract Documents.

2 2. Business Automobile Insurance. This insurance must contain combined single limit
3 of at least \$1,000,000 per occurrence, and include coverage for, but not limited to the following: Bodily
4 injury and property damage, any and all vehicles owned, used or hired.

5 3. Workers' Compensation and Employers Liability insurance including coverage for, but
6 not limited to:

7 a. California's statutory liability under the worker's compensation laws of the
8 state(s) in which the work is to be performed with a waiver of subrogation favorable to the
9 AUTHORITY and the City of Santa Ana, as well as those Parties identified in the Contract
10 Documents (collectively, the "Indemnitees").

11 b. Employers' Liability (Part B) with limits of at least \$1,000,000 each accident,
12 \$1,000,000 by disease policy limit, \$1,000,000 by disease each employee.

13 4. Builder's Risk Insurance. CONTRACTOR shall purchase Builder's Risk insurance for
14 the entire Work by insurance companies rated A-VII or better by A.M.Best and on forms acceptable to
15 OCTA.

16 a. Such Builder's Risk insurance shall be maintained, unless otherwise
17 provided in the Contract Documents or otherwise agreed in writing by all persons and entities
18 who are beneficiaries of such insurance, until final acceptance.

19 b. This insurance shall include the interests of the Owner, the Contractor,
20 Subcontractors, and Subsubcontractors in the Project as well as those Parties identified in the
21 Contract Documents.

22 c. Such insurance shall be written on a completed value basis and cover
23 the full replacement cost of the Work and shall also cover portions of the Work located away
24 from the site but intended for use at the site, and shall also cover portions of the Work in transit.
25 The policy shall cover the cost of removing debris, including demolition as may be made legally
26 necessary by the operation of any law, ordinance, or regulation.

1 d. Coverage shall be written to cover all risks of physical loss except those
2 specifically excluded in the policy, and shall insure at least against the perils of fire, lightning,
3 explosion, windstorm or hail, smoke, aircraft or vehicles, riot or civil commotion, theft, vandalism,
4 malicious mischief, and collapse.

5 e. Any deductible applicable to the Builder's Risk insurance shall be paid by
6 the Contractor.

7 f. AUTHORITY and Contractor waive all rights against each other and each of their
8 subcontractors, sub-subcontractors, officers, directors, agents, and employees as well as other Parties
9 identified in the Contract Document, for recovery for damages caused by fire and other perils to the extent
10 covered by builders risk insurance applicable to the Work.

11 5. CONTRACTOR's Pollution Liability insurance ("CPL") naming the Indemnitees as
12 additional insureds, with coverage of at least \$5 million per occurrence and \$10 million in the aggregate.
13 The CPL shall provide coverage for cleanup costs, third-party bodily injury and property damage resulting
14 from pollution conditions caused by contracting operations. The CPL shall also provide coverage for
15 transportation and off-site disposal of materials, if any. The CPL shall not contain any provision or
16 exclusion that would bar or otherwise preclude any insured or additional insured from making a claim that
17 would otherwise be covered by the CPL.

18 6. CONTRACTOR agrees to purchase and maintain throughout the term of this
19 Agreement technology/professional liability insurance and data protection liability insurance covering
20 liabilities for financial loss resulting or arising from acts, errors, or omissions, in connection with the
21 services provided under this agreement as well as all CONTRACTOR costs, including damages it is
22 obligated to pay AUTHORITY or any third party, which are associated with any Security Breach or loss
23 of Personal Data, regardless of cause (including, without limitation, CONTRACTOR negligence or gross
24 negligence and unlawful third party acts). Such insurance shall provide coverage with minimum limits of
25 \$5,000,000 per occurrence or claim and \$5,000,000 aggregate. Such insurance must address all of the
26 foregoing without limitation if caused by an employee of the CONTRACTOR or an independent contractor

1 working on behalf of the CONTRACTOR in performing services under this contract. Policy must provide
2 coverage for wrongful acts, claims, and lawsuits anywhere in the world. Insurer must have a Best's rating
3 of A- VII or better. Any material change in the policy or cancellation must be reported to the AUTHORITY
4 with not less than thirty (30) days prior written notice. CONTRACTOR shall provide a Certificate of
5 Insurance in compliance with these requirements and AUTHORITY reserves the right to obtain a copy of
6 the professional liability and data protection liability insurance policy.

7 7. CONTRACTOR represents that this Agreement has been thoroughly reviewed by
8 CONTRACTOR's insurance agent(s)/broker(s), who have been instructed by CONTRACTOR to procure
9 the insurance coverage required by this Agreement. Allocated Loss Expense must be in addition to all
10 policy limits for coverage referenced above except in claims made policies. ~~Not more frequently than~~
11 ~~once every five years.~~

12 Failure to provide evidence as required by this section will entitle, but not require, AUTHORITY
13 to terminate this Agreement immediately. Acceptance of a certificate that does not comply with this
14 section will not operate as a waiver of a CONTRACTOR's obligations hereunder.

15 The fact that insurance (including, without limitation, self-insurance) is obtained by
16 CONTRACTOR will not be deemed to release or diminish the liability of CONTRACTOR including,
17 without limitation, liability under indemnity provisions of this Agreement. Damages recoverable by
18 AUTHORITY will not be limited by the amount of the required insurance coverage.

19 8. CONTRACTOR shall include in each subcontract the stipulation that subcontractors
20 maintain insurance coverage in the same amounts required of CONTRACTOR herein and name the
21 Indemnitees as additional insureds, unless CONTRACTOR's insurance covers such subcontractor's acts
22 or omissions or AUTHORITY approves different coverage in its sole and absolute discretion. If requested
23 by AUTHORITY, CONTRACTOR shall promptly provide certificates of insurance evidencing coverage
24 for each subcontractor.

25 B. Prior to commencement of any work at the project site, CONTRACTOR shall furnish to
26 AUTHORITY's Contract Administrator a broker-issued insurance certificate, including an insurance

1 company issued endorsement showing the required insurance coverages and further providing that:

2 1. The City of Santa Ana and AUTHORITY and their respective officers, directors,
3 employees and agents, as well as those Parties identified in the Contract Documents must be named as
4 additional insured on Commercial General Liability and Automobile Liability certificates and on the
5 insurance policy endorsement with respect to performance hereunder; and

6 2. The coverage shall be primary and noncontributory as to any other insurance with
7 respect to performance hereunder; and

8 3. All certificates shall state "SHOULD ANY OF THE ABOVE DESCRIBED POLICIES
9 BE CANCELLED OR MODIFIED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE
10 DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS." An endorsement to the policy
11 shall state Thirty (30) days prior written notice of cancellation or material change be given to
12 AUTHORITY or Ten (10) days if for nonpayment of premiums.

13 4. Failure of AUTHORITY to demand such certificate or other evidence of full
14 compliance with these insurance requirements or failure of AUTHORITY to identify a deficiency from
15 evidence that is provided shall not be construed as a waiver of CONTRACTOR 's obligation to maintain
16 such insurance.

17 5. AUTHORITY shall have the right, but not the obligation, to prohibit CONTRACTOR
18 or any subcontractor from entering the Project site until such certificates or other evidence that
19 insurance has been placed in complete compliance with these requirements is received and approved
20 by AUTHORITY.

21 6. Failure to maintain the insurance required shall constitute an event of default of this
22 Agreement and shall allow AUTHORITY to terminate this Agreement at AUTHORITY's option. If
23 CONTRACTOR fails to maintain the insurance as set forth herein, AUTHORITY shall have the right,
24 but not the obligation, to purchase said insurance at CONTRACTOR 's expense.

25 7. CONTRACTOR shall provide certified copies of all insurance policies required
26 above within 10 days of AUTHORITY's written request for said copies.

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2 C. "Occurrence," as used herein, means any event or related exposure to conditions, which
3 results in bodily injury or property damage.

4 D. The Certificate of Insurance shall reference Agreement Number C-7-1904 and, the contract
5 administrator, Bob Webb, Senior Contract Administrator.

6 E. Upon AUTHORITY's request, certified, true and exact copies of each of the insurance policies
7 shall be provided to AUTHORITY.

8 F. AUTHORITY shall notify CONTRACTOR in writing of any changes in the requirements to
9 insurance required to be provided by CONTRACTOR. Except as set forth in this Article, any additional
10 cost from such change shall be paid by AUTHORITY and any reduction in cost shall reduce the contract
11 price pursuant to a change order.

12 G. By requiring the insurance as set out in this section, AUTHORITY does not represent
13 that coverage and limits will necessarily be adequate to protect CONTRACTOR, and such
14 coverage and limits shall not be deemed as a limitation on CONTRACTOR 's liability under the
15 indemnities provided to AUTHORITY in this Agreement, or any other provision of the Contract
16 Documents.

17 H. The insurance requirements set in this section are independent from all other
18 obligations of CONTRACTOR under this Agreement and apply whether or not required by any
19 other provision of this Agreement.

20 I. All insurance required in this section shall be provided by insurance companies rated A-VII or
21 better by A.M. Best and on forms acceptable to AUTHORITY.

22 **ARTICLE 12. BONDS**

23 A. By submitting Exhibit E, entitled "Performance Bond," and Exhibit F, entitled "Payment Bond,"
24 CONTRACTOR shall satisfy AUTHORITY's requirements that CONTRACTOR deposit with AUTHORITY
25 bonds with values in the sum of 100 percent of this Agreement's price to cover CONTRACTOR's failure
26 to fully perform hereunder and CONTRACTOR's failure to pay its labor, material or failure to comply with

1 Article 39 of this Agreement, in performing hereunder. If the contract price is increased in connection
2 with a Change Order, AUTHORITY may, in its sole discretion, require a corresponding increase in the
3 amount of the Performance and Payment bonds or new bonds covering the Change Order work.

4 B. Notwithstanding any other provision set forth in this Agreement, performance by a Surety or
5 Guarantor of any obligations of CONTRACTOR shall not relieve CONTRACTOR of any of its obligations
6 thereunder.

7 **ARTICLE 13. ORDER OF PRECEDENCE**

8 Conflicting provisions hereof, if any, shall prevail in the following descending order of precedence:

9 (1) the provisions of this Agreement, including its Exhibits; (2) the provisions of IFB including all
10 Addendums; (3) the bid submitted to AUTHORITY by CONTRACTOR in response to said IFB; and (4)
11 any other documents, cited herein or incorporated by reference. In the event of conflicting provisions of
12 "General Conditions" (Exhibit A), "Special Conditions" (Exhibit A-1), "Schedule of Quantities and Prices",
13 "Technical Specifications" (Exhibit B-series), "List of Drawings" (Exhibit C-series), and Exhibits I through
14 R, the following descending order of precedence shall apply: (a) "Special Conditions", (b) "General
15 Conditions", (c) "Technical Specifications", (d) "List of Drawings", and (e) "Schedule of Quantities and
16 Prices", (f) Exhibits I-R. In the event of a discrepancy between any drawings and the dimensions written
17 thereon, the dimensions shall be taken as correct. Detail drawings shall prevail over general drawings.

18 **ARTICLE 14. CHANGES**

19 A. By written notice or order, AUTHORITY may, from time to time, order work suspension and/or
20 make any change in the general scope of this Agreement, including, but not limited to, changes in the
21 drawings, specifications, schedules (either deceleratory or acceleratory) or any other particular of the
22 specifications or provisions of this Agreement. If any such work suspension or change causes an
23 increase or decrease in the price or time required for performance, CONTRACTOR shall promptly notify
24 AUTHORITY thereof and assert its claim for adjustment within ten (10) days after the change or work
25 suspension is ordered, and an equitable adjustment shall be negotiated. However, nothing in this clause
26 shall excuse CONTRACTOR from proceeding immediately with the Agreement as changed. Changes

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2 will be made in accordance with the terms as set forth in Exhibit A, "General Conditions," CONTRACT
3 MODIFICATIONS, DISPUTES, AND CLAIMS, by written Change Order.

4 B. No claims by CONTRACTOR for equitable adjustment hereunder shall be allowed if asserted
5 after final payment under this Agreement.

6 C. Any work done beyond the technical provisions specified in this Agreement, or any extra work
7 done without AUTHORITY's written authority, will be considered unauthorized work and will not be paid
8 for. Upon order of AUTHORITY's Engineer or its designee, unauthorized work shall be remedied,
9 removed or replaced at CONTRACTOR's expense.

10 **ARTICLE 15. MODIFICATION PROPOSALS-PRICE BREAKDOWN**

11 CONTRACTOR, in connection with any proposal it makes for an agreement modification, shall
12 furnish a price breakdown, itemized as required by AUTHORITY. Unless otherwise directed, the
13 breakdown shall be in sufficient detail to permit an analysis of all material, labor, equipment, subcontract
14 and overhead costs, as well as profit, and shall cover all work involved in the modification, whether such
15 work was deleted, added or changed. Any amount claimed for subcontracts shall be supported by a
16 similar price breakdown. In addition, if the proposal includes a time extension, a justification therefore
17 shall also be furnished. The proposal, together with the price breakdown and time extension justification,
18 shall be furnished by the date specified by AUTHORITY.

19 **ARTICLE 16. DISPUTES**

20 A. Except as otherwise provided in this Agreement, when a dispute arises between
21 CONTRACTOR and AUTHORITY, the project managers shall meet to resolve the issue. If project
22 managers do not reach a resolution, the dispute will be decided by AUTHORITY's Director of Contracts
23 Administration and Materials Management (Camm), who shall reduce the decision to writing, and mail or
24 otherwise furnish a copy thereof to CONTRACTOR. The decision of the Director, Camm, shall be the
25 final and conclusive administrative decision.

26 B. Pending final decision of a dispute hereunder, CONTRACTOR shall proceed diligently with

1 the performance of this Agreement and in accordance with the decision of AUTHORITY's Director,
2 CAMM. Nothing in this Agreement, however, shall be construed as making final the decision of any
3 AUTHORITY official or representative on a question of law, which questions shall be settled in
4 accordance with the laws of the State of California.

5 **ARTICLE 17. TERMINATION FOR CONVENIENCE**

6 A. AUTHORITY may terminate this Agreement for its convenience at any time in whole or in
7 part, by giving CONTRACTOR written notice thereof. AUTHORITY shall terminate by delivering to
8 CONTRACTOR a written Notice of Termination for Convenience specifying the extent of termination and
9 its effective date. Upon termination, AUTHORITY shall pay CONTRACTOR its allowable costs incurred
10 to date of that portion terminated. The rights, duties and obligations of the parties shall be construed in
11 accordance with the applicable provisions of CFR Title 48, Chapter 1, Part 49, of the Federal Acquisition
12 Regulation (FAR) and specific subparts and other provisions thereof applicable to termination for
13 convenience. If AUTHORITY sees fit to terminate this Agreement for convenience, said notice shall be
14 given to CONTRACTOR in accordance with the provisions of the FAR referenced above and Article 9,
15 herein. Upon receipt of said notification, CONTRACTOR shall immediately proceed with all obligations,
16 regardless of any delay in determining or adjusting any amounts due under this Article, and agrees to
17 comply with all applicable provisions of the FAR pertaining to termination for convenience.

18 **ARTICLE 18. TERMINATION FOR DEFAULT-DAMAGES FOR DELAY-TIME EXTENSIONS**

19 A. If CONTRACTOR refuses or fails to prosecute the work, or any separable part thereof, with
20 such diligence as will ensure its completion within the time specified in this Agreement, or any extension
21 thereof, or fails to complete said work within such time, AUTHORITY may, by written notice to
22 CONTRACTOR that specifies the nature of the default, terminate CONTRACTOR's right to proceed with
23 the work or such part of the work as to which there has been delay. In such event, AUTHORITY may
24 take over the work and prosecute the same to completion, by Agreement or otherwise, and may take
25 possession of and utilize in completing the work such materials, appliances and plant as may be on the
26 site of the work and necessary therefore. Whether or not CONTRACTOR's right to proceed with the work

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2 is terminated, it and its sureties shall be liable for any damage to AUTHORITY resulting from its refusal
3 or failure to complete the work within the specified time.

4 B. If AUTHORITY so terminates CONTRACTOR's right to proceed, the resulting damage will
5 consist of such liquidated damages as set forth in the Article 38 in this Agreement entitled "Liquidated
6 Damages," until such reasonable time as may be required for final completion of the work together with
7 any increased costs occasioned AUTHORITY in completing the work. If AUTHORITY does not so
8 terminate CONTRACTOR's right to proceed, the resulting damage will consist of such liquidated
9 damages until the work is completed or accepted.

10 C. CONTRACTOR's right to proceed shall not be so terminated nor the CONTRACTOR charged
11 with resulting damage if:

12 1. The delay in completing the work arises from unforeseeable causes beyond the
13 control and without the fault or negligence of CONTRACTOR, including but not restricted to, acts of God,
14 acts of the public enemy, acts or omissions of AUTHORITY, acts of another CONTRACTOR in the
15 performance of an Agreement with AUTHORITY, fires, floods, epidemics, quarantine restrictions, freight
16 embargoes, unusually severe weather, or delays of subcontractors or suppliers arising from
17 unforeseeable causes beyond the control and without the fault or negligence of both CONTRACTOR and
18 such subcontractors or suppliers; and

19 2. CONTRACTOR, within ten (10) days from the beginning of any such delay, notifies
20 AUTHORITY in writing of the causes of delay. AUTHORITY shall ascertain the facts and the extent of
21 the delay and extend the time for completing the work when, in its judgment, the findings of fact justify
22 such an extension, and its findings of fact shall be final and conclusive on the parties, subject only to
23 appeal as provided in the "Disputes" clause of this Agreement. Any such time extensions will not become
24 effective until approved by AUTHORITY's Engineer in writing.

25 3. Change orders covering time extensions approved by the Engineer will be issued to
26 CONTRACTOR at periodic intervals during the Project.

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2 D. If, after notice of termination of CONTRACTOR's right to proceed under the provisions of this
3 clause, it is determined for any reason that CONTRACTOR was not in default under the provisions of this
4 clause, or that the delay was excusable under the provisions of this clause, the rights and obligations of
5 the parties shall be the same as if the notice of termination had been issued pursuant to Article 17, entitled
6 "Termination for Convenience."

7 E. The rights and remedies of AUTHORITY provided in this clause are in addition to any other
8 rights and remedies provided by law or under this Agreement.

9 F. As used in paragraph C.1 of this Article, the term "subcontractors or suppliers," means
10 subcontractors or suppliers at any tier.

11 **ARTICLE 19. INDEMNIFICATION**

12 CONTRACTOR shall indemnify, defend and hold harmless AUTHORITY, the City of Santa Ana,
13 the City of Garden Grove, or any other entity within whose jurisdiction or on whose property the work is
14 being performed, and their agents, contractors and employees (collectively, the "Indemnities") from any
15 claims liability, loss, injury or damage (including attorney's fees and reasonable costs of litigation or
16 settlement) arising out of, or in connection with, the performance of this Agreement by the
17 CONTRACTOR and/or its agents, employees or subcontractors (collectively referred to as
18 "CONTRACTOR Entities") excepting only loss, injury, or damage arising from the sole or active
19 negligence or willful misconduct of the Indemnitees. Such indemnification shall include, but not be limited
20 to: (1) any release or threatened release of hazardous materials brought onto site by, or attributable to,
21 CONTRACTOR Entities' negligence, willful misconduct or breach of applicable State or federal law; and
22 (2) inverse condemnation, trespass, nuisance or similar taking or harm to real property by reason of any
23 CONTRACTOR Entities' acts, omissions, failures to comply with this Agreement or any permit issued by
24 a government agency.

25 The CONTRACTOR shall indemnify, defend, and hold harmless the Indemnities from any claim,
26 liability, loss, injury or damage arising out of, or in connection with, the performance of the Agreement by

1 the CONTRACTOR and/or its agents, employees, or subcontractors, excepting only loss, injury, or
2 damage arising from the sole or active negligence or willful misconduct of such Indemnitees, their agents,
3 servants, or independent contractors who are directly responsible to the indemnitees, or for defects in
4 design furnished by the AUTHORITY, as provided in Civil Code §2782 et seq. It is the intent of the parties
5 to this Agreement to provide the broadest possible coverage for the AUTHORITY and all Indemnitees.
6 The CONTRACTOR shall reimburse the AUTHORITY and all Indemnitees for all costs, attorneys' fees,
7 expenses, and liabilities incurred with respect to any litigation in which the CONTRACTOR is obligated
8 to indemnify, defend and hold harmless the AUTHORITY and other Indemnitees under this Agreement.

9 **ARTICLE 20. ASSIGNMENTS AND SUBCONTRACTS**

10 A. Neither this Agreement nor any interest herein nor claim hereunder may be assigned by
11 CONTRACTOR either voluntarily or by operation of law. CONTRACTOR shall not have the right to make
12 any substitutions of any subcontractor listed in Exhibit D, entitled "List of Subcontractors," except in
13 accordance with the provisions of the Subletting and Subcontractors Fair Practices Act, Public Contract
14 Code section 4100 et. seq. AUTHORITY's consent shall not be deemed to relieve CONTRACTOR of its
15 obligation to fully comply with the requirements of this Agreement.

16 B. CONTRACTOR shall be fully responsible to AUTHORITY for all acts and omissions of its own
17 employees, and of subcontractors and their employees. CONTRACTOR shall coordinate the work
18 performed by subcontractor.

19 C. AUTHORITY shall have the right, but not the obligation, to review the form of subcontract
20 used by CONTRACTOR for the project and to require modifications thereto to conform to the
21 requirements set forth herein.

22 **ARTICLE 21. ACCESS TO RECORDS AND REPORTS**

23 CONTRACTOR shall provide AUTHORITY, the U.S. Department of Transportation (DOT), the
24 Comptroller General of the United States, or other agents of AUTHORITY, such access to
25 CONTRACTOR's accounting books, records, payroll documents and facilities of the CONTRACTOR
26 which are directly pertinent to this Agreement for the purposes of examining, auditing and inspecting all

1 accounting books, records, work data, documents and activities related hereto. CONTRACTOR shall
2 maintain such books, records, data and documents in accordance with generally accepted accounting
3 principles and shall clearly identify and make such items readily accessible to such parties during
4 CONTRACTOR's performance hereunder and for a period of four (4) years from the date of final payment
5 by AUTHORITY, except in the event of litigation or settlement of claims arising from the performance of
6 this Agreement, in which case CONTRACTOR agrees to maintain same until AUTHORITY, or any of
7 their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions
8 related thereto. AUTHORITY's right to audit books and records directly related to this Agreement shall
9 also extend to all first-tier subcontractors. CONTRACTOR shall permit any of the foregoing parties to
10 reproduce documents by any means whatsoever or to copy excerpts and transcriptions as reasonably
11 necessary.

12 **ARTICLE 22. CONFLICT OF INTEREST**

13 CONTRACTOR agrees to avoid organizational conflicts of interest. An organizational conflict of
14 interest means that due to other activities, relationships or contracts, the CONTRACTOR is unable, or
15 potentially unable to render impartial assistance or advice to AUTHORITY; CONTRACTOR's objectivity
16 in performing the work identified in the Scope of Work is or might be otherwise impaired; or
17 CONTRACTOR has an unfair competitive advantage. CONTRACTOR is obligated to fully disclose to
18 AUTHORITY in writing Conflict of Interest issues as soon as they are known to CONTRACTOR. All
19 disclosures must be submitted in writing to AUTHORITY pursuant to the Notice provision herein. This
20 disclosure requirement is for the entire term of this Agreement.

21 **ARTICLE 23. CODE OF CONDUCT**

22 CONTRACTOR agrees to comply with AUTHORITY's Code of Conduct as it relates to Third-
23 Party contracts which is hereby referenced and by this reference is incorporated herein. CONTRACTOR
24 agrees to include these requirements in all of its subcontracts. The Code of Conduct may be found at
25 https://www.octa.net/pdf/code_attach.pdf.

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ARTICLE 24. PROHIBITION ON PROVIDING ADVOCACY SERVICES

CONTRACTOR and all subcontractors performing work under this Agreement, shall be prohibited from concurrently representing or lobbying for any other party competing for a contract with AUTHORITY, either as a prime contractor or subcontractor. Failure to refrain from such representation may result in termination of this Agreement.

ARTICLE 25. FEDERAL, STATE AND LOCAL LAWS

CONTRACTOR warrants that in the performance of this Agreement it shall comply with all applicable federal, state and local laws, statutes and ordinances and all lawful orders, rules and regulations promulgated thereunder.

ARTICLE 26. EQUAL EMPLOYMENT OPPORTUNITY

A. Race, Color, Creed, National, Origin, Sex: In connection with its performance under this Agreement, CONTRACTOR agrees that it shall not discriminate against any employee or applicant for employment because of race, religion, color, creed, sex, age or national origin. CONTRACTOR shall take affirmative action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex, age or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. CONTRACTOR agrees to abide by Title VII of the Civil Rights Act, as amended, 42 U.S.C. Section 2000(e), Federal transit laws at 49 U.S.C. Section 5332, the applicable equal employment opportunity requirements of U.S. Department of Labor regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 CFR Parts 60, et seq. (which implement Executive Order No. 11246, as amended), and with any applicable Federal statutes, executive orders, regulations, and Federal policies.

B. Age: In accordance with Section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. Sections 623 and Federal transit law at 49 U.S.C. Section 5332, CONTRACTOR

1 agrees to refrain from discrimination against present and prospective employees for reason of age.
2 CONTRACTOR agrees to comply with implementing requirements FTA may issue.

3 C. Disabilities: In accordance with section 102 of the Americans with Disabilities Act, as
4 amended, 42 U.S.C. Section 12112, CONTRACTOR agrees to comply with the requirements of U.S.
5 Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment
6 Provisions of the Americans with Disabilities Act," 29 CFR Part 1630, pertaining to employment of
7 persons with disabilities. CONTRACTOR agrees to comply with implementing requirements FTA may
8 issue.

9 D. CONTRACTOR agrees to include these requirements in each subcontract.

10 **ARTICLE 27. FINISHED AND PRELIMINARY DATA**

11 A. All of CONTRACTOR's finished technical data, including but not limited to illustrations,
12 photographs, tapes, software, software design documents, including without limitation source code,
13 binary code, all media, technical documentation and user documentation, photoprints and other graphic
14 information required to be furnished under this Agreement, shall be AUTHORITY's property upon
15 payment and shall be furnished with unlimited rights and, as such, shall be free from proprietary restriction
16 except as elsewhere authorized in this Agreement. CONTRACTOR further agrees that it shall have no
17 interest or claim to such finished, AUTHORITY-owned, technical data; furthermore, said data is subject
18 to the provisions of the Freedom of Information Act, 5 U.S.C. Section 552.

19 B. It is expressly understood that any title to preliminary technical data is not passed to
20 AUTHORITY but is retained by CONTRACTOR. Preliminary data includes roughs, visualizations,
21 software design documents, layouts and comprehensives prepared by CONTRACTOR solely for the
22 purpose of demonstrating an idea or message for AUTHORITY's acceptance before approval is given
23 for preparation of finished artwork. Preliminary data title and right thereto shall be made available to
24 AUTHORITY if CONTRACTOR causes AUTHORITY to exercise Article 17, and a price shall be
25 negotiated for all preliminary data.

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/**ARTICLE 28. CIVIL RIGHTS ASSURANCE**

During the performance of this Agreement, CONTRACTOR, for itself, its assignees and successors in interest agree as follows:

A. Compliance with Regulations: CONTRACTOR shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Agreement.

B. Nondiscrimination: CONTRACTOR, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the Agreement covers a program set forth in Appendix B of the Regulations. In determining the types of property or services to acquire, no person in the United States shall, on the grounds of race, color, creed, national origin, sex, or age be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity receiving Federal financial assistance in violation of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. Sections 2000(d) et seq., DOT regulations, "Nondiscrimination in Federally Assisted Programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964," 49 CFR Part 21, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. Section 6102, and Federal transit law at 49 U.S.C. Section 5332. In addition, FTA Circular 4702.1B, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients," 10-1-12, provides FTA guidance and instructions for implementing DOT's Title VI regulations. CONTRACTOR agrees to comply with applicable Federal implementing regulations and other implementing regulations FTA may issue.

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2 C. The Americans with Disabilities Act of 1990 ("ADA"), as amended, 42 U.S.C. Sections 12101
3 et seq., prohibits discrimination against qualified individuals with disabilities in all programs, activities, and
4 services of public entities, as well as imposes specific requirements on public and private providers of
5 transportation.

6 D. Solicitations for Subcontracts, Including Procurement of Materials and Equipment: In all
7 solicitations either by competitive bidding or negotiation made by CONTRACTOR for work to be
8 performed under a subcontract, including procurements of materials or leases of equipment, each
9 potential subcontractor or supplier shall be notified by CONTRACTOR of CONTRACTOR's obligations
10 under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color,
11 national origin, sex, age, or disability.

12 E. Information and Reports: CONTRACTOR shall provide all information and reports required
13 by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records,
14 accounts, other sources of information and its facilities as may be determined by AUTHORITY to be
15 pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information
16 required of CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this
17 information, CONTRACTOR shall so certify to AUTHORITY as appropriate, and shall set forth what
18 efforts it has made to obtain the information.

19 F. Sanctions for Noncompliance: In the event of CONTRACTOR's noncompliance with
20 nondiscrimination provisions of this Agreement, AUTHORITY shall impose Agreement sanctions as it
21 may determine to be appropriate, including, but not limited to:

22 1. Withholding of payments to CONTRACTOR under the Agreement until
23 CONTRACTOR complies; and/or cancellation, termination, or suspension of the Agreement, in whole or
24 in part.

25 G. Incorporation of Provisions: CONTRACTOR shall include the provisions of paragraphs (A)
26 through (G) in every subcontract, including procurements of materials and leases of equipment, unless

1 exempt by the Regulations, or directives issued pursuant thereto. CONTRACTOR shall take such action
2 with respect to any subcontract or procurement as AUTHORITY may direct as a means of enforcing such
3 provisions including sanctions for noncompliance. Provided, however, that in the event CONTRACTOR
4 becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such
5 direction, CONTRACTOR may request AUTHORITY to enter into such litigation to protect the interests
6 of AUTHORITY, and, in addition, CONTRACTOR may request the United States to enter into such
7 litigation to protect the interests of the United States.

8 **ARTICLE 29. DISADVANTAGED BUSINESS ENTERPRISES**

9 At the time of contract execution, CONTRACTOR committed to utilize Disadvantaged Business
10 Enterprise(s) ("DBE") in the performance of this DOT-assisted contract, and further agrees to ensure that
11 any DBE subcontractor listed on the "DBE Participation Commitment Form Attachment A-1," will perform
12 work and/or supply materials in accordance with original commitments, unless otherwise directed and/or
13 approved by AUTHORITY prior to CONTRACTOR effectuating any changes to its race-conscious DBE
14 participation commitment(s). CONTRACTOR shall comply with all the requirements set forth in
15 Attachment A titled, "DBE CONTRACT PROVISIONS FOR FTA-ASSISTED CONTRACTS WITH
16 DISADVANTAGED BUSINESS ENTERPRISE (DBE) GOALS, " which is attached to and, by this
17 reference, incorporated in and made a part of this Agreement.

18 **ARTICLE 30. PRIVACY ACT**

19 A. CONTRACTOR shall comply with, and assures the compliance of its employees with, the
20 information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. Section
21 552(a). Among other things, CONTRACTOR agrees to obtain the express consent of the Federal
22 Government before CONTRACTOR or its employees operate a system of records on behalf of the
23 Federal Government. CONTRACTOR understands the requirements of the Privacy Act, including the
24 civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to
25 comply with the terms of the Privacy Act may result in termination of the underlying Agreement.

26 B. CONTRACTOR agrees to include this requirement in all of its subcontracts.

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/**ARTICLE 31. OWNERSHIP OF REPORTS AND DOCUMENTS**

A. The originals of all letters, documents, reports and other products and data produced under this Agreement shall be delivered to, and become the property of AUTHORITY. Copies may be made for CONTRACTOR'S records but shall not be furnished to others without written authorization from AUTHORITY. Such deliverables shall be deemed works made for hire and all rights in copyright therein shall be retained by AUTHORITY.

B. All ideas, memoranda, specifications, plans, manufacturing, procedures, drawings, descriptions, and all other written information submitted to CONTRACTOR in connection with the performance of this Agreement shall not, without prior written approval of AUTHORITY, be used for any purposes other than the performance under this Agreement, nor be disclosed to an entity not connected with the performance of the project. CONTRACTOR shall comply with AUTHORITY's policies regarding such material. Nothing furnished to CONTRACTOR, which is otherwise known to CONTRACTOR or is or becomes generally known to the related industry shall be deemed confidential. CONTRACTOR shall not use AUTHORITY's name, photographs of the project, or any other publicity pertaining to the project in any professional publication, magazine, trade paper, newspaper, seminar or other medium without the express written consent of AUTHORITY.

C. No copies, sketches, computer graphics or graphs, including graphic artwork, are to be released by CONTRACTOR to any other person or agency except after prior written approval by AUTHORITY, except as necessary for the performance of services under this Agreement. All press releases, including graphic display information to be published in newspapers, magazines, etc., are to be handled only by AUTHORITY unless otherwise agreed to by CONTRACTOR and AUTHORITY.

ARTICLE 32. INCORPORATION OF FTA TERMS

All contractual provisions required by DOT, whether or not expressly set forth in this document, as set forth in FTA Circular 4220.1F are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with

1 other provisions contained in this Agreement. CONTRACTOR shall not perform any act, fail to perform
2 any act, or refuse to comply with any AUTHORITY requests, which would cause AUTHORITY to be in
3 violation of the FTA terms and conditions.

4 **ARTICLE 33. FEDERAL CHANGES**

5 CONTRACTOR shall at all times comply with all applicable FTA regulations, policies, procedures
6 and directives, including without limitation those listed directly or by reference in the agreement between
7 AUTHORITY and FTA, as they may be amended or promulgated from time to time during this Agreement.
8 CONTRACTOR's failure to comply shall constitute a material breach of contract.

9 **ARTICLE 34. NO GOVERNMENT OBLIGATION TO THIRD PARTIES**

10 AUTHORITY and CONTRACTOR acknowledge and agree that, notwithstanding any
11 concurrence by the Federal Government in or approval of the solicitation or award of the underlying
12 Agreement, absent the express written consent by the Federal Government, the Federal Government is
13 not a party to this Agreement and shall not be subject to any obligations or liabilities to AUTHORITY,
14 CONTRACTOR, or any other party (whether or not a party to this Agreement) pertaining to any matter
15 resulting from the underlying Agreement. CONTRACTOR agrees to include this requirement in all of its
16 subcontracts.

17 **ARTICLE 35. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND**
18 **ACTS**

19 A. CONTRACTOR acknowledges that the provisions of the Program Fraud Civil Remedies Act
20 of 1986, as amended, 31 U.S.C. Sections 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil
21 Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this project. By execution of this
22 Agreement, CONTRACTOR certifies or affirms the truthfulness and accuracy of any statement it has
23 made, it makes, it may make, or causes to be made, pertaining to the underlying Agreement of the FTA
24 assisted project for which this Agreement's work is being performed. In addition to other penalties that
25 may be applicable, CONTRACTOR acknowledges that if it makes, or causes to be made, a false,
26 fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves

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2 the right to impose penalties of the Program Fraud Civil Remedies Act of 1986 on the CONTRACTOR to
3 the extent the Federal Government deems appropriate.

4 B. CONTRACTOR also acknowledges that if CONTRACTOR makes, or causes to be made, a
5 false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government
6 under an agreement connected with a project that is financed in whole or part with Federal assistance
7 awarded by FTA under the authority of 49 C.F.R. Section 5307 *et seq.*, the Government reserves the
8 right, pursuant to 49 C.F.R. Section 5323(l)(1), to impose the penalties of 18 U.S.C. Section 1001 on the
9 CONTRACTOR, to the extent the Federal Government deems appropriate. CONTRACTOR agrees to
10 include this requirement in all of its subcontracts.

11 **ARTICLE 36. CONVICT LABOR**

12 In connection with the performance of work under this Agreement, CONTRACTOR agrees not to
13 employ any person undergoing sentence of imprisonment at hard labor. This does not include convicts
14 who are on parole or probation.

15 **ARTICLE 37. NOTICE OF LABOR DISPUTE**

16 Whenever CONTRACTOR has knowledge that any actual or potential labor dispute may delay
17 its performance under this Agreement, CONTRACTOR shall immediately notify and submit all relevant
18 information to AUTHORITY. CONTRACTOR shall insert the substance of this entire clause in any
19 subcontract hereunder as to which a labor dispute may delay performance under this Agreement.
20 However, any subcontractor need give notice and information only to its next higher-tier subcontractor.

21 **ARTICLE 38. LIQUIDATED DAMAGES**

22 If CONTRACTOR fails to complete the work within the time specified in Article 4 of this
23 Agreement, or any AUTHORITY authorized extension thereof, or within the time of performance
24 requirements specified in Exhibit A-1 Special Conditions, the actual damage to AUTHORITY for the delay
25 will be difficult or impossible to determine. Therefore, in lieu of actual damages, CONTRACTOR shall
26 pay to AUTHORITY as fixed, agreed-to liquidated damages for each day of delay the sum of Sixty

1 Thousand Dollars (\$60,000) as stipulated in the Special Conditions Exhibit A-1. Alternatively,
2 AUTHORITY may terminate this Agreement in whole or in part as provided in Article 18 of this Agreement,
3 and in that event, CONTRACTOR shall be liable, in addition to the excess costs provided in Article 18 of
4 this Agreement, for such liquidated damages accruing until such time as AUTHORITY may reasonably
5 obtain delivery or performance of similar supplies or services from a different source. CONTRACTOR
6 shall not be charged with liquidated damages when the delay is determined to be excusable in
7 accordance with Article 69 hereunder. AUTHORITY shall ascertain the facts and extent of the delay and
8 shall extended the time for performance of the Agreement when in its judgment, the findings of fact justify
9 an extension.

10 **ARTICLE 39. WARRANTY**

11 A. In addition to any other warranties set forth in this Agreement, whether expressed or implied,
12 CONTRACTOR warrants that (1) all work performed and all equipment and material provided under this
13 Agreement by CONTRACTOR or any of its subcontractors or suppliers at any tier, conforms to the
14 requirements herein and is free of any defects; (2) equipment furnished by CONTRACTOR or any of its
15 subcontractors or suppliers at any tier, shall be of modern design, in good working condition and fit for
16 use of its intended purpose; and (3) all work shall meet all of the requirements of this Agreement. Such
17 warranty shall continue for a period of one (1) year from AUTHORITY's acceptance as shown in Article
18 42 hereunder unless specified for a longer period elsewhere. Under this warranty, CONTRACTOR
19 shall remedy at its own expense any such failure to conform or correct any such defect. In addition,
20 CONTRACTOR shall remedy at its own expense any damage to AUTHORITY owned or controlled real
21 or personal property, when that damage is the result of CONTRACTOR's failure to conform to Agreement
22 requirements or any such defect of equipment, material, workmanship or design. CONTRACTOR shall
23 also restore any work damaged in fulfilling the terms of this clause. CONTRACTOR's warranty with
24 respect to work repaired or replaced hereunder will run for one year from the date of such repair or
25 replacement. An amount equal to one-half (1/2) of one (1) percent of the contract price shall be retained
26 by AUTHORITY for a period of one year from AUTHORITY's acceptance as shown in Article 42, or longer

1 if any other warranties set forth in Agreement extend beyond one year for the purpose of assuring the
2 performance of warranty work. At the AUTHORITY's sole discretion the one-half (1/2) percent retainage
3 for warranty work may be held up to one year from the date of any repair or replacement work performed
4 under the warranty provisions.

5 B. AUTHORITY shall notify CONTRACTOR in writing within a reasonable time after the
6 discovery of any failure, defect or damage. CONTRACTOR has seven days from receipt of notice from
7 AUTHORITY to respond to AUTHORITY's notification and indicate how CONTRACTOR will remedy the
8 failure, defect, or damage. If AUTHORITY is not satisfied with the remedy proposed by CONTRACTOR,
9 CONTRACTOR and AUTHORITY shall meet and mutually agree when and how CONTRACTOR shall
10 remedy such violation. In the case of an emergency requiring immediate corrective action,
11 CONTRACTOR shall implement such action, as it deems necessary and shall notify AUTHORITY in
12 writing of the urgency of a decision and action taken. CONTRACTOR and AUTHORITY shall, then
13 promptly meet in order to agree on a remedy. If CONTRACTOR and AUTHORITY fail to agree on the
14 remedy within a five-day period, AUTHORITY, after notice to CONTRACTOR, shall have the right to
15 perform or have performed by third parties the necessary remedy, and the costs thereof shall be borne
16 by CONTRACTOR.

17 C. Should CONTRACTOR fail to remedy any failure, defect or damage described in paragraph
18 A above within a reasonable time after receipt of notice thereof, AUTHORITY shall have the right to
19 replace, repair or otherwise remedy such failure, defect or damage at CONTRACTOR's expense and
20 CONTRACTOR shall be liable for all damages, including, but not limited to, actual or consequential
21 damages and cost of any suit to enforce AUTHORITY's rights hereunder, including reasonable attorney's
22 fees. The amount of the damages described herein is not limited by the retainage amount described in
23 the preceding paragraph A.

24 D. In addition to the other rights and remedies provided by this clause, all subcontractors,
25 manufacturers, and suppliers' warranties, expressed or implied, respecting any work and materials
26 furnished hereunder, shall, at the direction of AUTHORITY, be enforced by CONTRACTOR for the benefit

1 of AUTHORITY. In such case if CONTRACTOR's warranty under paragraph A above has expired, any
2 suit directed by AUTHORITY shall be at the expense of AUTHORITY. CONTRACTOR shall obtain any
3 warranties, which the subcontractors, manufacturers or suppliers would give in normal commercial
4 practice and shall cause all subcontractor or supplier warranties to be extended to AUTHORITY.

5 E. If directed by AUTHORITY, CONTRACTOR shall require any such warranties to be executed
6 in writing to AUTHORITY.

7 F. Notwithstanding any other provision of this clause, unless such a defect is caused by the
8 negligence of CONTRACTOR or its subcontractors or suppliers at any tier, CONTRACTOR shall not be
9 liable for the repair of any defects of material or design furnished by AUTHORITY nor for the repair of any
10 damage which results from any such defect in AUTHORITY furnished material or design.

11 G. The warranty specified herein shall not limit AUTHORITY's rights under the Inspection and
12 Acceptance clause of this Agreement with respect to latent defects, gross mistakes or fraud.

13 H. Defects in design or manufacture of equipment specified by AUTHORITY on a "brand name
14 and model" basis shall not be included in this warranty. CONTRACTOR shall require any subcontractors,
15 manufacturers or suppliers thereof to execute their warranties in writing directly to AUTHORITY.

16 I. Any disagreement between AUTHORITY and CONTRACTOR relating to this section shall be
17 subject to dispute resolution in accordance with Article 16.

18 **ARTICLE 40. GENERAL WAGE RATES AND DAVIS-BACON AND COPELAND ANTI-**
19 **KICKBACK ACTS**

20 A. Minimum Wages:

21 1. All laborers and mechanics employed by CONTRACTOR or subcontractor at any tier
22 working on the construction site (or under the United States Housing Act of 1937 or under the Housing
23 Act of 1949 in the construction or development of the project), will be paid unconditionally and not less
24 often than once a week and without any subsequent deduction or rebate on any account (except such
25 payroll deductions as are permitted or required by federal, state or local law, regulation, ordinance, or
26 regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amounts

1 due at the time of payment computed at wage rates and per diem rate not less than the aggregate of the
2 highest of the two basic hourly rates and rates of payments, contributions or costs for any fringe benefits
3 contained in the current general prevailing wage rate(s) and per diem rate(s), established by the Director
4 of the Department of Industrial Relations of the State of California, (as set forth in the Labor Code of the
5 State of California, commencing at Section 1770, et. seq.), or as established by the Secretary of Labor
6 (as set forth in Davis-Bacon Act, 40 U.S.C. Sections 3141, et. seq. as supplemented by the Department
7 of Labor regulations 29 CFR Part 5, and 18 U.S.C. Section 874), regardless of any contractual
8 relationship which may be alleged to exist between CONTRACTOR or subcontractor and their respective
9 mechanics, laborers, journeypersons, workpersons, craftspersons or apprentices. Copies of the current
10 General Prevailing Wage Determinations and Per Diem Rates are on file at AUTHORITY's offices and
11 will be made available to CONTRACTOR upon request. CONTRACTOR shall post a copy thereof at each
12 job site at which work hereunder is performed.

13 2. Contributions made or costs reasonably anticipated for bona fide fringe benefits under
14 section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to
15 such laborers or mechanics, subject to the provisions of paragraph (A)(5) of this section; also, regular
16 contributions made or costs incurred for more than a weekly period (but not less often than quarterly)
17 under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively
18 made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate
19 wage rate and fringe benefits on the wage determination for the classification of work actually performed,
20 without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing
21 work in more than one classification may be compensated at the rate specified for each classification for
22 the time actually worked therein: provided, that the employer's payroll records accurately set forth the
23 time spent in each classification in which work is performed. The wage determination (including any
24 additional classifications and wage rates conformed under paragraph (A)(2) of this section) and the Davis-
25 Bacon poster (WH-1321) shall be posted at all times by CONTRACTOR and subcontractors at the site
26 of the work in a prominent and accessible place where it can be easily seen by the workers.

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3.

a) AUTHORITY shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. AUTHORITY shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

b) If CONTRACTOR and laborers and mechanics to be employed in the classification (if known), or their representatives, and AUTHORITY agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by AUTHORITY to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise AUTHORITY

1 or will notify AUTHORITY within the 30-day period that additional time is
2 necessary.

3 c) In the event CONTRACTOR, laborers or mechanics to be employed in the
4 classification or their representatives, and AUTHORITY do not agree on
5 the proposed classification and wage rate (including the amount
6 designated for fringe benefits, where appropriate), AUTHORITY shall refer
7 the questions, including the views of all interested parties and the
8 recommendation of the contracting officer, to the Administrator for
9 determination. The Administrator, or an authorized representative, will
10 issue a determination within 30 days of receipt and so advise AUTHORITY
11 or will notify AUTHORITY within the 30- day period that additional time is
12 necessary.

13 d) The wage rate (including fringe benefits where appropriate) determined
14 pursuant to paragraphs (A)(3) (B) or (C) of this section, shall be paid to all
15 workers performing work in the classification under this contract from the
16 first day on which work is performed in the classification.

17 4. Whenever the minimum wage rate prescribed in this Agreement for a class of laborers
18 or mechanics includes a fringe benefit which is not expressed as an hourly rate, CONTRACTOR shall
19 either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or
20 an hourly cash equivalent thereof.

21 5. If CONTRACTOR does not make payments to a trustee or other third person,
22 CONTRACTOR may consider as part of the wages of any laborer or mechanic the amount of any costs
23 reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the
24 Secretary of Labor has found, upon the written request of the CONTRACTOR, that the applicable
25 standards of the Davis-Bacon Act have been met. The Secretary of Labor may require CONTRACTOR
26 to set aside in a separate account assets for the meeting of obligations under the plan or program.

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6.

a) AUTHORITY shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under this Agreement shall be classified in conformance with the wage determination. AUTHORITY shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

b) If CONTRACTOR and the laborers and mechanics to be employed in the classification (if known), or their representatives, and AUTHORITY agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by AUTHORITY to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise AUTHORITY or will notify AUTHORITY within the 30-day period that additional time is necessary.

c) In the event CONTRACTOR, laborers or mechanics to be employed in the classification or their representatives, and AUTHORITY do not agree on

1 the proposed classification and wage rate (including the amount
2 designated for fringe benefits, where appropriate), AUTHORITY shall refer
3 the questions, including the views of all interested parties and the
4 recommendation of the contracting officer, to the Administrator for
5 determination. The Administrator, or an authorized representative, will
6 issue a determination with 30 days of receipt and so advise AUTHORITY
7 or will notify AUTHORITY within the 30-day period that additional time is
8 necessary.

- 9 d) The wage rate (including fringe benefits where appropriate) determined
10 pursuant to paragraphs (A)(6) (B) or (C) of this section, shall be paid to all
11 workers performing work in the classification under this contract from the
12 first day on which work is performed in the classification.

13 B. Withholding: AUTHORITY shall upon its own action or upon written request of an authorized
14 representative of the Department of Labor withhold or cause to be withheld from CONTRACTOR under
15 this Agreement or any other Federal contract with CONTRACTOR, or any other federally-assisted
16 contract subject to Davis-Bacon prevailing wage requirements, which is held by CONTRACTOR, so much
17 of the accrued payments or advances as may be considered necessary to pay laborers and mechanics,
18 including apprentices, trainees, and helpers, employed by CONTRACTOR or any subcontractor the full
19 amount of wages required by this Agreement. In the event of failure to pay any laborer or mechanic,
20 including any apprentice, trainee, or helper, employed or working on the site of the work (or under the
21 United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development
22 of the project), all or part of the wages required by this Agreement, AUTHORITY may, after written notice
23 to CONTRACTOR, sponsor, applicant, or owner, take such action as may be necessary to cause the
24 suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

25 C. Payrolls and basic records:

- 26 1. Payrolls and basic records relating thereto shall be maintained by CONTRACTOR

1 during the course of the work and preserved for a period of three years thereafter for all laborers and
2 mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the
3 Housing Act of 1949, in the construction or development of the project). Such records shall contain the
4 name, address, and social security number of each such worker, his or her correct classification, hourly
5 rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or
6 cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and
7 weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of
8 Labor has found under 29 CFR Section 5.5(a)(1)(iv) that the wages of any laborer or mechanic include
9 the amount of any costs reasonably anticipated in providing benefits under a plan or program described
10 in Section 1(b)(2)(B) of the Davis-Bacon Act, CONTRACTOR shall maintain records which show that the
11 commitment to provide such benefits is enforceable, that the plan or program is financially responsible,
12 and that the plan or program has been communicated in writing to the laborers or mechanics affected,
13 and records which show the costs anticipated or the actual cost incurred in providing such benefits.
14 Contractors employing apprentices or trainees under approved programs shall maintain written evidence
15 of the registration of apprenticeship programs and certification of trainee programs, the registration of the
16 apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

17 2.

- 18 a) CONTRACTOR shall submit weekly for each week in which any contract
19 work is performed a copy of all payrolls to AUTHORITY for transmission
20 to the Federal Transit Administration. The payrolls submitted shall set out
21 accurately and completely all of the information required to be maintained
22 under section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information
23 may be submitted in any form desired. Optional Form WH-347 is available
24 for this purpose and may be purchased from the Superintendent of
25 Documents (Federal Stock Number 029-005-00014-1), U.S. Government
26 Printing Office, Washington, DC 20402. CONTRACTOR is responsible

1 for the submission of copies of payrolls by all subcontractors.

2 b) Each payroll submitted shall be accompanied by a "Statement of
3 Compliance," signed by CONTRACTOR or subcontractor or his or her
4 agent who pays or supervises the payment of the persons employed under
5 this Agreement and shall certify the following: under section 5.5(a)(3)(i) of
6 Regulations, 29 CFR Part 5 and that such information is correct and
7 complete;

8 1. That the payroll for the payroll period contains the information required to
9 be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5
10 and that such information is correct and complete;

11 2. That each laborer or mechanic (including each helper, apprentice, and
12 trainee) employed on Agreement during the payroll period has been paid
13 the full weekly wages earned, without rebate, either directly or indirectly,
14 and that no deductions have been made either directly or indirectly from
15 the full wages earned, other than permissible deductions as set forth in
16 Regulations, 29 CFR Part 3;

17 3. That each laborer or mechanic has been paid not less than the applicable
18 wage rates and fringe benefits or cash equivalents for the classification of
19 work performed, as specified in the applicable wage determination
20 incorporated into the contract.

21 c) The weekly submission of a properly executed certification set forth on the
22 reverse side of Optional Form WH-347 shall satisfy the requirement for
23 submission of the "Statement of Compliance" required by paragraph
24 (C)(2)(b) of this section.

25 d) The falsification of any of the above certifications may subject
26 CONTRACTOR or subcontractor to civil or criminal prosecution under

1 section 1001 of title 18 and Section 231 of title 31 of the United States
2 Code.

3 3. CONTRACTOR or subcontractor shall make the records required under Section
4 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 available for inspection, copying, or transcription by authorized
5 representatives of the Federal Transit Administration or the Department of Labor, and shall permit such
6 representatives to interview employees during working hours on the job. If CONTRACTOR or
7 subcontractor fails to submit the required records or to make them available, the Federal agency may,
8 after written notice to CONTRACTOR, sponsor, applicant, or owner, take such action as may be
9 necessary to cause the suspension of any further payment, advance, or guarantee of funds.
10 Furthermore, failure to submit the required records upon request or to make such records available may
11 be grounds for debarment action pursuant to 29 CFR Part 5.12.

12 D. Apprentices and trainees:

13 1. Apprentices will be permitted to work at less than the predetermined rate for the work
14 they performed when they are employed pursuant to and individually registered in a bona fide
15 apprenticeship program registered with the U.S. Department of Labor, Employment and Training
16 Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized
17 by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an
18 apprentice in such an apprenticeship program, who is not individually registered in the program, but who
19 has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where
20 appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of
21 apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio
22 permitted to the CONTRACTOR as to the entire work force under the registered program. Any worker
23 listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated
24 above, shall be paid not less than the applicable wage rate on the wage determination for the classification
25 of work actually performed. In addition, any apprentice performing work on the job site in excess of the
26 ratio permitted under the registered program shall be paid not less than the applicable wage rate on the

1 wage determination for the work actually performed. Where CONTRACTOR is performing construction
2 on a project in a locality other than that in which its program is registered, the ratios and wage rates
3 (expressed in percentages of the journeyman's hourly rate) specified in the CONTRACTOR's or
4 subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the
5 rate specified in the registered program for the apprentice's level of progress, expressed as a percentage
6 of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid
7 fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship
8 program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed
9 on the wage determination for the applicable classification. If the Administrator of the Wage and Hour
10 Division of the U.S. Department of Labor determines that a different practice prevails for the applicable
11 apprentice classification, fringes shall be paid in accordance with that determination. In the event the
12 Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau,
13 withdraws approval of an apprenticeship program, CONTRACTOR will no longer be permitted to utilize
14 apprentices at less than the applicable predetermined rate for the work performed until an acceptable
15 program is approved.

16 2. Except as provided in 29 CFR Part 5.16, trainees will not be permitted to work at less
17 than the predetermined rate for the work performed unless they are employed pursuant to and individually
18 registered in a program which has received prior approval, evidenced by formal certification by the U.S.
19 Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on
20 the job site shall not be greater than permitted under the plan approved by the Employment and Training
21 Administration. Every trainee must be paid at not less than the rate specified in the approved program
22 for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in
23 the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the
24 provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall
25 be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the
26 Wage and Hour Division determines that there is an apprenticeship program associated with the

1 corresponding journeyman wage rate on the wage determination which provides for less than full fringe
2 benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and
3 participating in a training plan approved by the Employment and Training Administration shall be paid not
4 less than the applicable wage rate on the wage determination for the classification of work actually
5 performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under
6 the registered program shall be paid not less than the applicable wage rate on the wage determination
7 for the work actually performed. In the event the Employment and Training Administration withdraws
8 approval of a training program, the CONTRACTOR will no longer be permitted to utilize trainees at less
9 than the applicable predetermined rate for the work performed until an acceptable program is approved.

10 3. The utilization of apprentices, trainees and journeymen under this part shall be in
11 conformity with the equal employment opportunity requirements of Executive Order 11246, as amended,
12 and 29 CFR Part 30.

13 E. Compliance with Copeland Act requirements: CONTRACTOR shall comply with the
14 requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

15 F. Subcontracts: CONTRACTOR or subcontractor shall insert in any subcontracts the clauses
16 contained in 29 CFR Parts 5.5(a)(1) through (10) and such other clauses as the Federal Transit
17 Administration may by appropriate instructions require, and also a clause requiring the subcontractors to
18 include these clauses in any lower tier subcontracts. CONTRACTOR shall be responsible for the
19 compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part
20 5.5.

21 G. Contract termination – debarment: A breach of the contract clauses in 29 CFR Part 5.5 may
22 be grounds for termination of this Agreement, and for debarment as a contractor and a subcontractor as
23 provided in 29 CFR Part 5.12.

24 H. Compliance with Davis-Bacon and Related Act requirements: All rulings and interpretations
25 of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by
26 reference.

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2 I. Disputes concerning labor standards: Disputes arising out of the labor standards provisions
3 of Agreement shall not be subject to the general disputes clause of this Agreement. Such disputes shall
4 be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5,
5 6, and 7. Disputes within the meaning of this clause include disputes between CONTRACTOR (or any
6 of its subcontractors) and AUTHORITY, the U.S. Department of Labor, or the employees or their
7 representatives.

8 J. Certification of eligibility:

9 1. By entering into this contract, CONTRACTOR certifies that neither it (nor he or she)
10 nor any person or firm who has an interest in CONTRACTOR's firm is a person or firm ineligible to be
11 awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR Part
12 5.12(a)(1).

13 2. No part of this contract shall be subcontracted to any person or firm ineligible for award
14 of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR Part 5.12(a)(1).

15 3. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18
16 U.S.C. Section 1001.

17 K. In addition to the foregoing, CONTRACTOR agrees to comply with all other provisions of the
18 Labor Code of the State of California.

19 L. This contract is subject to requirements promulgated by the California Department of Industrial
20 Relations. The reporting requirements may be found at [https://www.dir.ca.gov/Public-](https://www.dir.ca.gov/Public-Works/Contractors.html)
21 [Works/Contractors.html](https://www.dir.ca.gov/Public-Works/Contractors.html). The Contractor is responsible for complying with all requirements of the
22 California Department of Industrial Relations, including filing electronic payroll reports.

23 M. CONTRACTOR or subcontractor will not be awarded this Agreement for public work on a
24 public works project unless registered with the Department of Industrial Relations pursuant to Labor Code
25 Section 1725.5.

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/**ARTICLE 41. CONTRACT WORK HOURS AND SAFETY STANDARDS**

If this Agreement exceeds \$100,000, CONTRACTOR agrees to comply with the Federal Contract Work Hours and Safety Standards (40 U.S.C. Sections 3701, *et seq.* as supplemented by 29 CFR Part 5).

A. Overtime requirements: CONTRACTOR, and any subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, shall not require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

B. Violation; liability for unpaid wages; liquidated damages: In the event of any violation of the clause set forth in paragraph (A) of this section CONTRACTOR and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, CONTRACTOR and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (A) of this section, in the sum of \$10 for each day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (A) of this section.

C. Withholding for unpaid wages and liquidated damages: AUTHORITY shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by CONTRACTOR or subcontractor under any such contract or any other Federal contract with CONTRACTOR, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by CONTRACTOR, such sums as may be determined to be necessary to satisfy any liabilities of CONTRACTOR or subcontractor for unpaid wages and liquidated damages as provided in the clause set

1 forth in paragraph (B) of this section.

2 D. Subcontracts: CONTRACTOR or subcontractor shall insert in any subcontracts the clauses
3 set forth in paragraphs (A) through (D) of this section and also a clause requiring the subcontractors to
4 include these clauses in any lower tier subcontracts. CONTRACTOR shall be responsible for compliance
5 by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (A) through (D)
6 of this section.

7 **ARTICLE 42. INSPECTION AND ACCEPTANCE**

8 A. All work (which term includes but is not restricted to materials, equipment, workmanship, and
9 manufacture and fabrication of components) shall be subject to inspection and testing by AUTHORITY
10 at all reasonable times and at all places prior to acceptance. Any such inspection and test is for the sole
11 benefit of AUTHORITY and shall not relieve CONTRACTOR of the responsibility of providing quality
12 control measures to assure that the work strictly complies with requirements of this Agreement. No
13 inspection or test by AUTHORITY or its representative shall be construed as constituting or implying
14 acceptance. Inspection or test shall not relieve CONTRACTOR of responsibility for damage to or loss of
15 the material prior to acceptance, nor in any way affect the continuing rights of AUTHORITY after
16 acceptance of the completed work under the terms of paragraph F of this Article, except as herein above
17 provided.

18 B. CONTRACTOR shall, without charge, replace any material or correct any workmanship found
19 by AUTHORITY not to conform to the requirements of this Agreement, unless in the public interest
20 AUTHORITY consents to accept such material or workmanship with an appropriate adjustment in the
21 price of this Agreement. CONTRACTOR shall promptly segregate and remove rejected material from
22 the premises.

23 C. CONTRACTOR shall furnish promptly, without additional charge, all facilities, labor,
24 equipment and material reasonably needed for performing such safe and convenient inspection and test
25 as may be required by AUTHORITY. All inspections and tests by AUTHORITY shall be performed in
26 such manner as to not unnecessarily delay the work. AUTHORITY reserves the right to charge to

1 CONTRACTOR any additional cost of inspection or test when material or workmanship is not ready at
2 the time specified by CONTRACTOR for inspection or test or when reinspection or retest is necessitated
3 by prior rejection.

4 D. If CONTRACTOR does not promptly replace rejected material or correct rejected
5 workmanship, AUTHORITY (1) may, by Agreement or otherwise, replace such material or correct such
6 workmanship and charge the cost thereof to CONTRACTOR, or (2) may terminate CONTRACTOR's
7 right to proceed in accordance with the clause of this Agreement entitled "Termination for Default."

8 E. Should it be considered necessary or advisable by AUTHORITY at any time before
9 acceptance of the entire work to make an examination of work already completed, by removing or
10 demolishing of same, CONTRACTOR shall, on request, promptly furnish all necessary facilities, labor
11 and material. If such work is found to be defective or nonconforming in any material respect, due to the
12 fault of CONTRACTOR or its subcontractors, CONTRACTOR shall pay all costs of such examination and
13 of satisfactory reconstruction. If, however, such work is found to meet the requirements of this
14 Agreement, an equitable adjustment shall be made in the Agreement price to compensate
15 CONTRACTOR for the additional services involved in such examination and reconstruction and, if
16 completion of the work has been delayed thereby, it shall in addition, be granted a suitable extension of
17 time.

18 F. Unless otherwise provided in this Agreement, acceptance by AUTHORITY shall be made as
19 promptly as practicable after completion and inspection of all work required by this Agreement, or that
20 portion of the work that AUTHORITY determines can be accepted separately. Acceptance shall be final
21 and conclusive except as regards latent defects, fraud, or such gross mistakes as may amount to fraud
22 or regarding AUTHORITY's rights under the warranty provisions set forth herein.

23 **ARTICLE 43. MATERIAL AND WORKMANSHIP**

24 A. Unless otherwise specifically provided in this Agreement, all equipment, material, and articles
25 incorporated in the work covered by this Agreement are to be new and of the most suitable grade for the
26 purpose intended. Unless otherwise specifically provided in this Agreement, reference to any equipment,

1 material, article or patented process, by trade name, make or catalog number, shall be regarded as
2 establishing a standard of quality and shall not be construed as limiting competition, and CONTRACTOR
3 may, at its option, use any equipment, material, article or process which, in the judgment of AUTHORITY,
4 is equal to that named. CONTRACTOR shall furnish to AUTHORITY for its approval the name of the
5 manufacturer, the model number and other identifying data and information respecting the performance,
6 capacity, nature and rating of the machinery and mechanical and other equipment, which CONTRACTOR
7 contemplates incorporating in the work. When required by this Agreement or when called for by
8 AUTHORITY, CONTRACTOR shall furnish AUTHORITY, for approval, full information concerning the
9 material or articles, which it contemplates incorporating in the work. When so directed, samples shall be
10 submitted for approval at CONTRACTOR's expense, with all shipping charges prepaid. Machinery,
11 equipment, material and articles installed or used without required approval shall be at the risk of
12 subsequent rejection.

13 B. All work under this Agreement shall be performed in a skillful and workmanlike manner.
14 Notwithstanding the provisions of Article 3 hereof, AUTHORITY may, in writing, require CONTRACTOR
15 to remove from the work any employee AUTHORITY deems incompetent, careless or otherwise
16 objectionable.

17 **ARTICLE 44. NON-CONFORMING WORK**

18 A. Nonconforming work rejected by AUTHORITY shall be removed and replaced so as to
19 conform to the requirements of this Agreement, at CONTRACTOR's cost and without a time extension;
20 and CONTRACTOR shall promptly take all action necessary to prevent similar deficiencies from occurring
21 in the future. The fact that AUTHORITY may not have discovered the nonconforming work shall not
22 constitute an acceptance of such nonconforming work. If CONTRACTOR fails to correct any
23 nonconforming work within ten (10) days of receipt of notice from AUTHORITY requesting correction, or
24 if such nonconforming work cannot be corrected within ten (10) days, and CONTRACTOR fails to; (1)
25 provide to AUTHORITY a schedule for correcting any such nonconforming work acceptable to
26 AUTHORITY within such ten (10)-day period, (2) commence such corrective work within such ten (10)-

1 day period and (3) thereafter diligently prosecute such correction in accordance with such approved
2 schedule to completion, then AUTHORITY may cause the nonconforming work to be remedied or
3 removed and replaced and may deduct the cost of doing so from any moneys due or to become due to
4 CONTRACTOR and/or obtain reimbursement from CONTRACTOR for such cost.

5 B. If AUTHORITY agrees to accept any nonconforming work without requiring it to be fully
6 corrected, AUTHORITY shall be entitled to reimbursement of a portion of the contract price in an amount
7 equal to the greater of the amount deemed appropriate by AUTHORITY to provide compensation for
8 future maintenance and/or other costs relating to the nonconforming work, or 100% of CONTRACTOR's
9 cost savings associated with its failure to perform the work in accordance with Contract requirements.
10 Such reimbursement shall be payable to AUTHORITY within ten (10) days after CONTRACTOR's receipt
11 of an invoice thereof. CONTRACTOR acknowledges and agrees that AUTHORITY shall have sole
12 discretion regarding acceptance or rejection of nonconforming work and that AUTHORITY shall have
13 sole discretion with regard to the amount payable in connection therewith.

14 **ARTICLE 45. CONTRACTOR INSPECTION SYSTEM**

15 CONTRACTOR shall maintain an adequate inspection system and perform such inspections as
16 will assure that the work performed under this Agreement conforms to the specified requirements, and
17 shall maintain and make available to AUTHORITY adequate records of such inspections.

18 **ARTICLE 46. SUPERINTENDENCE BY CONTRACTOR**

19 CONTRACTOR, at all times during performance and until the work is completed and accepted,
20 shall give its personal superintendence to the work or have on the work a competent superintendent,
21 satisfactory to AUTHORITY and with authority to act for and on behalf of CONTRACTOR.

22 **ARTICLE 47. OTHER CONTRACTS**

23 AUTHORITY may undertake or award other agreements for additional work, and CONTRACTOR
24 shall fully cooperate with such other CONTRACTOR's and AUTHORITY's employees and carefully fit its
25 own work to such additional work as may be directed by AUTHORITY. CONTRACTOR shall not commit
26 or permit any act, which will interfere with the performance of work by any other CONTRACTOR or by

1 AUTHORITY. Refer to Special Conditions for additional requirements.

2 **ARTICLE 48. INSPECTION OF SITE**

3 CONTRACTOR acknowledges that it has investigated and satisfied itself as to the conditions
4 affecting the work including, but not restricted to, those bearing upon transportation, disposal, handling
5 and storage of materials, availability of labor, water, electric power and roads and uncertainties of
6 weather, river stages, tides or similar physical conditions at the site, the conformation and conditions of
7 the ground, the character of equipment and facilities needed preliminary to and during prosecution of the
8 work. CONTRACTOR further acknowledges that it has satisfied itself as to the character, quality and
9 quantity of surface and subsurface materials or obstacles to be encountered insofar as this information
10 is reasonably ascertainable from an inspection of the site, including all exploratory work done by
11 AUTHORITY, as well as from information presented by the drawings and specifications made a part of
12 this Agreement. Any failure by CONTRACTOR to acquaint itself with the available information will not
13 relieve it from responsibility for the difficulty or cost of successfully performing the work. AUTHORITY
14 assumes no responsibility for any conclusions or interpretations made by CONTRACTOR on the basis
15 of the information made available by AUTHORITY.

16 **ARTICLE 49. DIFFERING SITE CONDITIONS**

17 A. CONTRACTOR shall immediately, and before such conditions are disturbed, notify
18 AUTHORITY in writing of: (1) subsurface or latent physical conditions at the site which differ materially
19 from those indicated in this Agreement, or (2) unknown physical conditions at the site, of an unusual
20 nature, which differ materially from those ordinarily encountered and generally recognized as inherent in
21 work of the character provided for in this Agreement. AUTHORITY will investigate the conditions within
22 three business days of receipt of notification, and if it finds that such conditions do materially so differ and
23 cause an increase or decrease in CONTRACTOR's cost of, or the time required for, performance of any
24 part of the work under this Agreement, whether or not changed as a result of such conditions, an equitable
25 adjustment shall be made and the Agreement modified in writing accordingly.

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2 B. No claim of CONTRACTOR under this Article shall be allowed unless CONTRACTOR has
3 given the written notice required above; no claim by CONTRACTOR for an equitable adjustment
4 hereunder shall be allowed if asserted after final payment under this Agreement.

5 **ARTICLE 50. SEISMIC SAFETY REQUIREMENTS**

6 CONTRACTOR agrees that the Work performed under this Agreement will be accomplished in
7 accordance with the standards for Seismic Safety required in DOT's Seismic Safety Regulations 49 CFR
8 Part 41 and will certify compliance to the extent required by the regulation for such work. CONTRACTOR
9 shall ensure that all work performed under this Agreement including work performed by a subcontractor
10 is in compliance with the standards required by the Seismic Safety Regulations and the certification of
11 compliance issued on the project.

12 **ARTICLE 51. RECYCLED PRODUCTS**

13 CONTRACTOR shall comply with all the requirements of Section 6002 of the Resource
14 Conservation and Recovery Act (RCRA), as amended (42 U.S.C. Section 6962), including but not limited
15 to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the
16 procurement of the items designated in subpart B of 40 CFR Part 247. CONTRACTOR agrees to include
17 this requirement in all of its subcontracts.

18 **ARTICLE 52. ENERGY CONSERVATION REQUIREMENTS**

19 CONTRACTOR shall comply with mandatory standards and policies relating to energy efficiency,
20 which are contained in the state energy conservation plan issued in compliance with the Energy Policy
21 Conservation Act.

22 **ARTICLE 53. CLEAN AIR**

23 CONTRACTOR shall comply with all applicable standards, orders or regulations issued pursuant
24 to the Clean Air Act, as amended, 42 U.S.C. Sections 7401 et seq. CONTRACTOR shall report each
25 violation to AUTHORITY, who will in turn, report each violation as required to assure notification to FTA
26 and the appropriate EPA Regional Office. CONTRACTOR agrees to include this requirement in each

1 subcontract exceeding \$100,000.

2 **ARTICLE 54. CLEAN WATER**

3 CONTRACTOR shall comply with all applicable standards, orders or regulations issued pursuant
4 to the Federal Water Pollution Control Act, as amended, 33 U.S.C. Sections 1251 *et seq.* as amended.
5 CONTRACTOR shall report each violation to AUTHORITY and understands and agrees that
6 AUTHORITY who will in turn, report each violation as required to assure notification to FTA and
7 appropriate EPA Regional Office. CONTRACTOR agrees to include this requirement in each subcontract
8 exceeding \$100,000.

9 **ARTICLE 55. OPERATIONS AND STORAGE AREAS**

10 A. All operations of CONTRACTOR (including storage of materials and equipment) on
11 AUTHORITY owned premises shall be confined to areas authorized or approved by AUTHORITY.
12 CONTRACTOR shall hold AUTHORITY and its officers and agents free and harmless from liability of any
13 nature occasioned by CONTRACTOR's operations.

14 B. Temporary building (storage sheds, shops, offices, etc.) may be erected by CONTRACTOR
15 with the written consent of AUTHORITY and the City of Santa Ana or Garden Grove (City), and shall be
16 built with labor and materials furnished by CONTRACTOR without expense to AUTHORITY. Such
17 temporary buildings and utilities shall remain the property of CONTRACTOR and shall be removed by
18 CONTRACTOR at its expense upon the completion of the work. With the written consent of AUTHORITY
19 and City, such buildings and utilities may be abandoned and need not be removed.

20 C. CONTRACTOR shall, under regulations prescribed by AUTHORITY, use only established
21 roadways or construct and use such temporary roadways as may be authorized by AUTHORITY. Where
22 materials are transported in the prosecution of work, vehicles shall not be loaded beyond the loading
23 capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state or local law
24 or regulation. When it is necessary to cross curbing or sidewalks, protection against damage shall be
25 provided by CONTRACTOR and any damaged roads, curbing or sidewalks shall be repaired by, or at
26 the expense of, CONTRACTOR.

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/**ARTICLE 56. BUY AMERICA**

A. If the Agreement exceeds \$150,000, CONTRACTOR shall comply with the Buy America requirements of 49 U.S.C. Section 5323(j) and 49 CFR Part 661, which provide that Federal funds may not be obligated unless all steel, iron, and manufactured products used in FTA funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. CONTRACTOR shall ensure that all subcontractors, at any tier, comply with the Buy America requirements "Buy America" requirements.

ARTICLE 57. PROTECTION OF VEGETATION, UTILITIES, IMPROVEMENTS

A. CONTRACTOR shall preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site of work which is not to be removed and which does not unreasonably interfere with the construction work. Care will be taken in removing trees authorized for removal to avoid damage to vegetation to remain in place. Any limbs or branches of trees broken during such operations or by the careless operation of equipment, or by workmen, shall be trimmed with a clean cut and painted with an approved tree pruning compound as directed by AUTHORITY.

B. CONTRACTOR shall protect from damage all existing improvements or utilities at or near the site of the work, the location of which is made known to it, and will repair or restore any damage to such facilities resulting from failure to comply with the requirements of this Agreement or the failure to exercise reasonable care in the performance of the work. If CONTRACTOR fails or refuses to repair any such damage promptly, AUTHORITY may have the necessary work performed and charge the cost to CONTRACTOR.

ARTICLE 58. CLEANING UP

A. CONTRACTOR shall at all times keep the construction area, including storage areas used by it, free from accumulations of waste material or rubbish, and prior to completion of the work remove any rubbish from AUTHORITY owned premises and all tools, scaffolding, equipment and materials not the property of AUTHORITY. Upon completion of the construction, CONTRACTOR shall leave the work and

1 premises in a clean, neat and workmanlike condition satisfactory to AUTHORITY.

2 B. After completion of all work on the project, and before making application for acceptance of
3 the work, CONTRACTOR shall clean the construction site, including all areas under the control of
4 AUTHORITY, that have been used by CONTRACTOR in connection with the work on the project and
5 remove all debris, surplus material and equipment, and all temporary construction or facilities of whatever
6 nature, unless otherwise approved by AUTHORITY. Final acceptance of the work by AUTHORITY will
7 be withheld until CONTRACTOR has satisfactorily complied with the foregoing requirements for final
8 cleanup of the project site.

9 C. Full compensation for conforming to the provisions in this Article, not otherwise provided for,
10 shall be considered as included in price of this Agreement and no additional compensation will be allowed
11 therefore.

12 **ARTICLE 59. USE AND POSSESSION TO COMPLETION**

13 AUTHORITY shall have the right to take possession of or use any completed or partially
14 completed part of the work. Prior to such possession or use, AUTHORITY shall furnish CONTRACTOR
15 an itemized list of work remaining to be performed or corrected on such portions of the project as are to
16 be possessed or used by AUTHORITY, provided that failure to list any item of work shall not relieve
17 CONTRACTOR of responsibility for compliance with the terms of this Agreement. Such possession or
18 use shall not be deemed an acceptance of any work under this Agreement. While AUTHORITY has such
19 possession or use, CONTRACTOR shall be relieved of the responsibility for the loss or damage to the
20 work resulting from AUTHORITY's possession or use. If such prior possession or use by AUTHORITY
21 delays the progress of the work or causes additional expense to CONTRACTOR, an equitable adjustment
22 in the Agreement price or the time of completion will be made and the Agreement shall be modified in
23 writing accordingly.

24 **ARTICLE 60. PROHIBITED INTERESTS**

25 A. CONTRACTOR covenants that, for the term of this Agreement, no director, officer or
26 employee of AUTHORITY, during his/her tenure in office or for one (1) year thereafter, shall have any

1 interest, direct or indirect, in this Agreement or the proceeds thereof.

2 B. No member of or delegates to the Congress of the United States shall have any interest, direct
3 or indirect, in this Agreement or the benefits thereof.

4 **ARTICLE 61. CONTRACTOR PURCHASED EQUIPMENT**

5 A. If during the course of this Agreement, additional equipment is required, which will be paid for
6 by AUTHORITY, CONTRACTOR must request prior written authorization from AUTHORITY's project
7 manager before making any purchase. As part of this purchase request, CONTRACTOR shall provide a
8 justification for the necessity of the equipment or supply and submit copies of three (3) competitive
9 quotations. If competitive quotations are not obtained, CONTRACTOR must provide the justification for
10 the sole source.

11 B. CONTRACTOR shall maintain an inventory record for each piece of equipment purchased
12 that will be paid for by AUTHORITY. The inventory record shall include the date acquired, total cost, serial
13 number, model identification, and any other information or description necessary to identify said
14 equipment or supply. A copy of the inventory record shall be submitted to AUTHORITY upon request.

15 C. At the expiration or termination of this Agreement, CONTRACTOR may keep the equipment
16 and credit AUTHORITY in an amount equal to its fair market value. Fair market value shall be determined,
17 at CONTRACTOR's expense, on the basis of an independent appraisal. CONTRACTOR may sell the
18 equipment at the best price obtainable and credit AUTHORITY in an amount equal to the sales price. If
19 the equipment is to be sold, then the terms and conditions of the sale must be approved in advance by
20 AUTHORITY's project manager.

21 D. Any subcontractor agreement entered into as a result of this Agreement shall contain all
22 provisions of this clause.

23 **ARTICLE 62. DEBARMENT AND SUSPENSION GUIDELINES**

24 CONTRACTOR shall not do business with a subcontractor or other participant who is debarred,
25 suspended or otherwise disqualified. CONTRACTOR shall comply with 2 CFR Part 180, as adopted and
26 supplemented by 2 CFR Part 1200. CONTRACTOR shall include the requirements in any lower tier

covered transaction it enters into.

ARTICLE 63. HEALTH AND SAFETY SPECIFICATIONS

CONTRACTOR shall comply with all requirements set forth in Exhibit H, Level 3 Safety Specifications.

ARTICLE 64. LOBBYING

CONTRACTOR shall comply with the lobbying requirements of 31 U.S.C. Section 1352 and the applicable regulations under 49 CFR Parts 19 and 20. If this Agreement exceeds \$100,000, CONTRACTOR shall file both the "Certification of Restrictions on Lobbying" and the "Disclosure of Lobbying Activities." CONTRACTOR shall also require each subcontractor to certify to CONTRACTOR that subcontractor will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. Section 1352. CONTRACTOR shall also require any subcontractor to disclose to CONTRACTOR the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. Section 1352.

ARTICLE 65. ADA ACCESS

Plans for facility construction and/or facility alterations that are described in the scope of work detailed under this contract have been designed with the intent of ensuring, to the maximum extent feasible, that the facility, or alterations thereof, shall be accessible to persons with disabilities including individuals who use mobility aids. The CONTRACTOR agrees to make each modification detailed in the project plans in a manner that assures that the area constructed or alterations to any area within the facility is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. Full compliance with the provisions of 49 CFR Part 37 is the intent of the facility owner and every aspect of this project, pursuant to this contract, shall be construed as being consistent with this intent and compliant with Subpart C – Transportation Facilities with particular reference to

1 Subsection 37.43 of FTA's regulations pursuant to the Americans with Disabilities Act of 1990 (ADA).
2 If any aspect of the plans or specifications for this project appear to be inconsistent with Subsection
3 37.9 Standards for accessible transportation facilities or any guidance issued by the Access Board, it
4 is essential that the CONTRACTOR notify the project manager designated by AUTHORITY about any
5 such concern as soon as practicable.

6 **ARTICLE 66. TRANSPORTATION OF EQUIPMENT, MATERIALS OR COMMODITIES BY**
7 **OCEAN VESSEL**

8 A. CONTRACTOR shall utilize privately owned United States-flag commercial vessels to ship at
9 least 50% of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners and tankers)
10 involved, whenever shipping any equipment, materials or commodities pursuant to this section, to the
11 extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

12 B. CONTRACTOR shall furnish within thirty (30) days following the date of loading for shipments
13 originating within the United States, or within forty (40) calendar days following the date of loading for
14 shipping originating outside the United States, a legible copy of a rated, "on-board" commercial ocean
15 bill-of lading in English for each shipment of cargo described in paragraph A of this Article to AUTHORITY
16 (through the prime CONTRACTOR in the case of subcontractor bills-of-lading) and to the Division of
17 National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590, marked
18 with appropriate identification of the project.

19 **ARTICLE 67. FLY AMERICA REQUIREMENTS**

20 CONTRACTOR agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance
21 with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that
22 recipients and subrecipient of Federal funds and their contractors are required to use U.S. Flag air carriers
23 for U.S. Government-financed international air travel and transportation of their personal effects or
24 property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity,
25 as defined by the Fly America Act. CONTRACTOR shall submit, if a foreign air carrier was used, an
26 appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was

1 not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a
2 certificate of compliance with the Fly America requirements. CONTRACTOR agrees to include the
3 requirements of this section in all subcontracts that may involve international air transportation.

4 **ARTICLE 68. SEAT BELT USE**

5 CONTRACTOR is encouraged to adopt and promote on-the-job use of seat belts, and to
6 include this provision in its subcontracts at all tiers, in accordance with Executive Order No. 13043,
7 "Increasing seat Belt Use in the United States," 04-16-1997, 23 U.S.C. Section 402 note.

8 **ARTICLE 69. OPTIONS**

9 The AUTHORITY may require the numbered line items, identified in the Schedule of Quantity and
10 Prices as optional items, at the price(s) stated in the Schedule. The AUTHORITY may exercise the
11 optional item(s) by written notice to the CONTRACTOR within one year of the effective date of the
12 Agreement.

13 **ARTICLE 70. FORCE MAJEURE**

14 Either party shall be excused from performing its obligations under this Agreement during the time
15 and to the extent that it is prevented from performing by an unforeseeable cause beyond its control,
16 including but not limited to: any incidence of fire, flood; acts of God; commandeering of material, products,
17 plants or facilities by the federal, state or local government; national fuel shortage; or a material act or
18 omission by the other party; when satisfactory evidence of such cause is presented to the other party,
19 and provided further that such nonperformance is unforeseeable, beyond the control and is not due to
20 the fault or negligence of the party not performing.

21 This Agreement shall be made effective upon execution by both parties.

22 /

23 /

24 /

25 /

26 /

1 /

2 **IN WITNESS WHEREOF**, the parties hereto have caused this Agreement No. C- 7-1904 to be
3 executed on the date first above written.

4 **ORANGE COUNTY TRANSPORTATION AUTHORITY**

5 By _____

5 By _____

6 Darrell Johnson
6 Chief Executive Officer

7 License No:

8
9 **APPROVED AS TO FORM:**

10 By _____

11 James M. Donich
11 General Counsel

12
13 **APPROVED:**

14 By _____

15 James G. Beil, PE
15 Executive Director, Capital Programs

16 Date _____

**OC Streetcar Project
GENERAL CONDITIONS**

**C-7-1904
EXHIBIT A**

rules, regulations, standards and orders of any public, quasi-public, or other authority relating to the safety of persons and their protection against injury, specifically including, but in no event limited to, the Federal Occupational Safety and Health Act of 1970 and the California Code of Regulations (CCR) Title 8 Standards, as amended, and all rules and regulations now or hereafter in effect pursuant to said Act; and CONTRACTOR shall provide, or cause to be provided, each worker on the Project Site the proper safety equipment for the duties performed by that worker and will not permit any worker on the Project Site who fails or refuses to use the same. The AUTHORITY shall have the right, but not the obligation, to order CONTRACTOR to send a worker off the Project Site for the day or to discharge a worker for his or her failure to comply with safety practices.

37.6 The CONTRACTOR shall, throughout the performance of the Work, maintain adequate and continuous protection of all Work and temporary facilities against loss or damage from whatever cause. The CONTRACTOR shall protect the property of the AUTHORITY and third parties from loss or damage from whatever cause arising out of the performance of Work and shall comply with the requirements of the AUTHORITY, its insurance carriers and with all applicable laws, codes, rules and regulations with respect to the prevention of loss or damage to property as a result of fire or other hazards to:

- Employees on the Work and other persons who may be affected thereby;
- The Work and materials and equipment to be incorporated therein, whether in storage on or off the Site, under care, custody or control of the CONTRACTOR or the CONTRACTOR's Subcontractors or Sub-subcontractors; and
- Other property at the Site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- Solvents, oils and any other substance, which may be harmful to plant life, shall be disposed of in containers and removed from the Site. At completion of the Work, any contaminated soil shall be removed and replaced with soil of equal quality prior to contamination by the CONTRACTOR at no increase in the Contract Price.

37.7 The AUTHORITY may, make periodic patrols of the Project Site as a part of its normal security and safety program. The CONTRACTOR shall not be relieved of its aforesaid responsibilities and the AUTHORITY shall not assume same, nor shall it be deemed to have assumed, any responsibility otherwise imposed upon the CONTRACTOR, as a result of safety patrols by the AUTHORITY.

The AUTHORITY may audit the CONTRACTOR's safety program for health, safety and environmental compliance at various intervals of the project, at the sole discretion of the AUTHORITY. Elements may include but, are not limited to; OSHA injury & illness records and logs, Job Safety Analysis and safety plans, equipment operator licenses and training records, incident reports, meeting minutes, engineered plans, safety meeting records, crane and rigging plans, equipment inspection records, qualifications of and interviews with key CONTRACTOR management personnel, and similar information. The CONTRACTOR shall support and cooperate with these audits at no additional compensation or schedule impacts with this contract.

37.8 The CONTRACTOR shall be responsible for the payment of all fines levied against the AUTHORITY for safety violations arising from or related to activities over which CONTRACTOR has responsibility under Contract Documents.

37.9 The CONTRACTOR shall give notice in writing, at least ~~forty-eight (48) hours~~ 14 calendar days before breaking ground in any subsegment, to ~~all persons having interests on or near the Site, Public Utility Companies, owners of property having structures or improvements in proximity to the Site of the Work, Superintendents, Inspectors, or those otherwise in charge of property, streets, water pipes, gas pipes, sewer pipes, telephone cables, electric cables, railroads or otherwise who may be affected by the CONTRACTOR's operation, in order that they may remove any obstruction for which they are responsible and have a representative on Site to see that their property is properly protected~~ the ENGINEER. Such notice does not relieve the CONTRACTOR of responsibility for any damages, claims,

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The CQCM shall be assigned as the Manager of the Program but may also perform project quality control duties. An alternate for the CQCM shall be identified in the plan to serve in the event of the CQCM's absence. The education and experience requirements for the alternate shall be the same as for the designated CQCM.

The CQCM shall be responsible to the CONTRACTOR, shall have the authority to make decisions concerning quality of the work or product, shall have the authority to reject work as defective or non-compliant, shall have the authority to require removal and correction of defective or non-compliant work, and the CQCM or the approved alternate CQCM shall be at the project site during performance of all work requiring inspection or testing. The CQCM cannot be the project manager, superintendent, project engineer, a foreman, member of the production crew, nor have other "production" duties on the project. The CQCM must work directly for an officer or principal of the CONTRACTOR. The CONTRACTOR's project manager, superintendent, or other on-site staff member, shall not have authority over the CQCM. A letter prepared and signed by an officer of the CONTRACTOR, addressed to the CQCM, which describes the CQCM's responsibilities and authority consistent with the requirements of these specifications shall be included with the CQCP. The CQCM may be employed by a subcontractor.

The CONTRACTOR shall provide qualified Contractor Quality Control staff to perform inspections and oversee testing under the CQCP. The minimum qualifications for the position of Quality Control Inspector are as follows:

- a) Inspection and test personnel shall be trained and qualified in their respective areas of responsibility. CONTRACTOR shall verify appropriate certifications for each Quality Control Inspector as required by the Contract Documents, Government Codes and Standards, and Industry Standards. Certification records shall be maintained and available to the Authority upon request.
- b) Concrete Inspectors shall hold a current ICC certification as a Reinforced Concrete Special Inspector.
- c) Masonry Inspectors shall hold a current ICC certification as a Structural Masonry Inspector.
- d) Electrical and mechanical inspectors shall have a minimum of five (5) years demonstrated experience in the inspection of electrical and/or mechanical work.
- e) Structural Steel Inspectors shall hold a current ICC certification as a Structural Steel and Bolting Special Inspector- S1.
- f) Welding Inspectors shall be an A.W.S. Certified Welding Inspector (CWI).
- g) Four (4) years construction experience on similar projects or other relevant experience.
- h) Two (2) years experience inspecting the work features that the inspector is assigned to as his/her primary responsibility; e.g., Roadway, Drainage, Utility Systems, Structures.
- i) Knowledge of construction practices, physical characteristics and properties of roadway, structures, drainage and utility systems construction materials, and the approved methods and equipment used in making physical test of construction materials.
- j) Ability to work independently and perform duties in the construction field office.
- k) Ability to effectively make decisions and communicate concerning work in progress and solving field problems.
- l) Proficient in the use of Microsoft Office computer application programs.

The CQCP shall identify personnel, equipment and documentation required for a complete inspection, sampling and testing program. The CQCP shall include, but not be limited to, a list of inspectors, samplers and testers, their duties, their certifications (as required), and their experience. It shall also list the name and location of laboratories that will be providing information to the Engineer, the testers who will be

New water service and meter	W Santa Ana Blvd station 76+35, 29' LT (W Santa Ana)	2", 12 gpm	Irrigation & meter, Water service & meter City of Santa Ana to own
New water service and meter	E Santa Ana Blvd station 98+29, 27' LT (W Santa Ana)	2", 8 gpm	Irrigation & meter, Water service & meter City of Santa Ana to own

**CITY OF SANTA ANA
NEW MAINTENANCE STORAGE FACILITY (MSF)
WATER SERVICE AND METER**

Type	Utility Location	Size/Capacity	Notes / Description
New Fire Protection water service and meter	MSF - Maintenance Storage Facility YL 12+77, 303' LT	8", 850 gpm	Fire Protection water service and meter to MSF OCTA to own
New Domestic water service and meter	MSF - Maintenance Storage Facility YL 12+77, 303' LT	63" , 92 gpm	Domestic water service and meter to MSF OCTA to own
New Irrigation water service and meter	MSF - Maintenance Storage Facility YL 12+77, 303' LT	2", 14 gpm	Irrigation water service and meter to MSF OCTA to own

Regarding the preceding water service tables, CONTRACTOR to include new water service lines and associated CONTRACTOR Work to support new water services in its base bid including but not limited to trenching, water service lines, junction boxes/valves, meter / meter pedestal / foundation, backfill, restoration of surface improvements including but not limited to sidewalk/pavement/irrigation and landscaping in conformance with City Standard Plans.

6.6.2 Coordination, Scheduling and Notification

CONTRACTOR shall submit to the Engineer written requests for utility shut downs, notices of scheduled utility company work windows, and notices of scheduled work performed by others, in accordance with the Advance Notice number of days specified in the Utility Contacts table below. CONTRACTOR shall provide notice to the Engineer three (3) to five (5) days in advance of the Advance Notice to the Utility Owners as required to achieve the full Advance Notice number of days to the Utility Owners. If the need date is re-scheduled by the CONTRACTOR, the CONTRACTOR shall submit to the Engineer a revised written request a minimum of the Advance Notice number of days before the revised scheduled need date. A notification must be provided for each specific utility work item and work by others item noted in the sub-sections that follow. A "blanket" notification for all items, or one notification for multiple items, is not acceptable.

Attention is directed to Section SC-23, Progress Schedule, of these Special Conditions regarding the inclusion in the CONTRACTOR's schedule of one or more separate utility company work activities in the CPM schedule for each separate work coordination task identified in this section. Separate activities shall be included for required notices to utility companies (and other third parties) and for the utility company (or other third party)

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13 47 13	CATHODIC PROTECTION	9
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DIVISION 26 Electrical

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26 05 53	IDENTIFICATION FOR ELECTRICAL SYSTEMS.....	6
26 05 72	OVERCURRENT PROTECTIVE DEVICE SHORT-CIRCUIT STUDY	7
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26 56 13	STREET LIGHTING.....	3
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27 05 16	SPARE PARTS AND TEST EQUIPMENT	3
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27 05 43	COMMUNICATIONS TRANSMISSION SYSTEM.....	30
27 05 56	SAFETY AND SYSTEM ASSURANCE.....	17
27 11 19	COMMUNICATIONS TERMINAL BLOCKS, CONNECTORS AND PATCH PANELS	5
27 15 23	OPTICAL FIBER HORIZONTAL CABLING.....	7
27 15 33	OUTDOOR COMMUNICATIONS CABINETS	15
27 21 29	GROUNDING OF COMMUNICATIONS EQUIPMENT	7
27 51 16	PASSENGER INFORMATION SYSTEM	29
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DIVISION 31 Earthwork

31 05 50	PROTECTING EXISTING UTILITIES	3
31 11 00	SITE CLEARING	5
31 20 10	STRUCTURE EXCAVATION AND BACKFILL	2
31 23 00	EXCAVATION AND FILL.....	1
31 23 05	BIORETENTION SOIL MEDIA.....	3
31 23 10	LIGHTWEIGHT FILL.....	3
31 23 19	DEWATERING	6
31 23 33	TRENCHING AND BACKFILLING	5
31 50 10	TEMPORARY SHORING	2
31 63 29	DRILLED CONCRETE PIERS AND SHAFTS	4

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32 11 23	AGGREGATE BASE COURSES	2
32 12 16	ASPHALT PAVING.....	4
32 12 33	PAVING FABRIC FOR ASPHALT OVERLAYS	6
32 13 13	CONCRETE PAVEMENT AND MINOR CONCRETE.....	76
32 14 00	PRECAST CONCRETE UNIT PAVING	10
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32 17 27	TACTILE WARNING SURFACING (STATION PLATFORMS).....	9
32 31 00	FENCES AND GATES	1
32 80 00	IRRIGATION	28
32 90 00	PLANTING.....	25
32 91 00	CU-STRUCTURAL SOIL	9
32 94 43	TREE GRATES	4

DIVISION 33 Utilities

33 01 30	ADJUSTMENT OF SURFACE UTILITIES TO GRADE	3
33 05 26	UTILITY IDENTIFICATION	3
33 05 31	PIPELINE JOINT MATERIALS	7
33 05 32	FLANGE INSULATING KITS	5
33 05 33	COUPLINGS, TIE RODS, AND FLANGE CONNECTORS	6
33 08 11	PRESSURE TESTING AND FLUSHING OF WATER UTILITIES.....	3
33 11 19	MASTIC AND TAPE-WRAP SYSTEMS FOR FERROUS FITTINGS	6
33 11 31	PVC PRESSURE PIPE (AWWA C900).....	14
33 11 32	PVC PRESSURE PIPE (AWWA C905).....	12
33 12 12	RESILIENT-WEDGE GATE VALVES	9
33 13 00	DISINFECTING OF WATER UTILITY DISTRIBUTION	5
33 30 33	SANITARY SEWER UTILITIES.....	17
33 30 34	SANITARY SEWER UTILITIES (OCSD)	2
33 40 00	STORM DRAIN SYSTEM	5
33 41 10	CHANNEL SUBDRAINAGE SYSTEMS	3
33 41 11	CHANNEL FILLS AND SUBGRADE PREPARATION	4
33 41 12	CONCRETE (CHANNEL LINING).....	1
33 46 16	UNDERDRAINS	4

DIVISION 34 Transportation

34 10 40	PRECAST CONCRETE PANELS - STRUCTURAL.....	5
34 11 13	RUNNING RAILS	7
34 11 16	FIELD WELDED RAIL.....	9
34 11 23	SPECIAL TRACKWORK.....	16
34 11 24	DIRECT FIXATION TRACK.....	9
34 11 26	BALLAST	6
34 11 27	SUBBALLAST	3
34 11 28	SPECIAL TRACKWORK CONSTRUCTION.....	67
34 11 30	EMBEDDED TRACK	8
34 11 33	CONCRETE TIES	31
34 11 36	DIRECT FIXATION FASTENERS.....	42
34 11 40	PRECAST CONCRETE CROSSING PANELS	12
34 11 93	TRACK APPURTENANCES AND ACCESSORIES	10
34 21 10	BASIC ELECTRICAL REQUIREMENTS - TRACTION POWER	10
34 21 15	SUBSTATION ENCLOSURE	15
34 21 17	DIELECTRIC FLOORING.....	4
34 21 19	HIGH-VOLTAGE AC POWER SWITCHGEAR	13
34 21 20	TRACTION POWER DC SWITCHGEAR	13
34 21 21	750 VOLT NEGATIVE BUS BOXES	4
34 21 22	METAL-ENCLOSED BUS AND BUSWAYS	4
34 21 27	TRACTION POWER INSULATED WIRES AND CABLES	11
34 21 28	DC INSULATED CABLES	6
34 21 29	CABLE TERMINATIONS	4
34 21 49	TRACTION POWER PROGRAMMABLE LOGIC CONTROLLER (PLC).....	7
34 21 50	BASIC ELECTRICAL MATERIALS AND METHODS- TRACTION POWER	22
34 21 52	TRACTION POWER SYSTEM INTERFACE REQUIREMENTS.....	12

4. Approved Equal.

- B. Install bollards where indicated on plans. Install bollards such that they are vertically aligned and plumb so they do not appear to lean from any direction.
- C. New bollards shall be fixed bollards with embedded in cement for permanent installation.
- D. Bollard material shall be cast gray iron or cast aluminum. All castings shall be manufactured true to pattern and component parts, and shall fit together in a satisfactory manner. The castings shall be of uniform pattern and quality, free from blowholes, hard spots, shrinkage, distortion, or other defects.
- E. Finish: Bollards shall be supplied a factory finished one coat primer and one top coat polyurethane paint semi-gloss with color to be specified by Engineer, or factory applied polyester powder coat over degassing primer low gloss texture with color to be specified by the Engineer.

2.02 REMOVABLE AND RETRACTABLE BOLLARDS

- A. Manufacturer: new removable and retractable bollards shall be supplied by manufacturers listed under Section 2.01.
- B. For removable and retractable bollards supply the receiving bollard harness or silo model as manufactured by listed manufacturers listed under Section 2.01.
- C. Install removable and retractable bollards and receivers for removable and retractable bollards where located on plans. Provide concrete footings for site conditions, as indicated on contract drawings. Provide gravel sump below footing for drainage.

2.03 SALVAGED BOLLARDS

- A. Existing bollards shall be removed as shown on the drawings and stored.
- B. Prime and paint existing bollards per Section 2.01.E.
- C. Salvaged bollards reinstalled at locations shown on the drawings.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Do not begin installation until site is properly prepared.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

SECTION 32 12 16

ASPHALT PAVING

PART 1 GENERAL

1.01 SUMMARY

- A. Requirements for furnishing transportation, labor, materials, and equipment to construct asphalt concrete pavement, place asphalt-rubber hot mix, cold mill asphalt concrete, and construct asphalt concrete maintenance access ramp as shown on the Contract Drawings and as directed by the Engineer.

1.02 DEFINITIONS (NOT USED)

1.03 REFERENCES

- A. Work shall conform to the corresponding standard plans and specifications (as applicable):
 - 1. Standard Plans for Public Works Construction (SPPWC) and Standard Specifications for Public Works Construction (SSPWC) Sections 200, 203, and 302
 - 2. Caltrans Standard Specifications Section 39
 - 3. ASTM C150 Standard Specification for Portland Cement

1.04 RELATED SECTIONS (~~NOT USED~~)

~~1.04A.~~ Paving Fabric For Asphalt Overlays 32 12 33

1.05 SUBMITTALS AND DELIVERABLES

- A. Include the following information for submittals:
 - 1. A copy of the asphalt mix design shall be submitted for the Engineer's approval. The asphalt test report required by Subsection 203-1 of the SSPWC shall be submitted to the Engineer for forwarding to the Engineer's testing laboratory.
 - 2. A list of equipment to be used for placing asphalt concrete shall be submitted to the Engineer prior to usage on the job.

1.06 DELIVERY, STORAGE AND HANDLING (NOT USED)

1.07 SCHEDULING, COORDINATION AND RESPONSIBILITIES (NOT USED)

1.08 PROJECT CONDITIONS (NOT USED)

SECTION 32 12 33

PAVING FABRIC FOR ASPHALT OVERLAYS

PART 1 GENERAL

1.01 SUMMARY

- A. Requirements for furnishing transportation, labor, materials, and equipment to install a strain relieving and waterproofing interlayer that is comprised of a self-adhering rubberized asphalt (peel and stick) and 25Kn paving mat to support asphalt concrete maintenance access ramps.

1.02 DEFINITIONS

- A. Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields at 97.7 percent degree of confidence that any sample taken during quality assurance testing will exceed value reported.

1.03 REFERENCES

- A. Work shall conform to the corresponding standard plans and specifications (as applicable):
1. Standard Specifications for Public Works Construction (SSPWC) Section 302-7.
 2. American Society for Testing and Materials (ASTM):
 - a. D123: Standard Terminology Relating to Textiles
 - b. D276: Test Method for Identification of Fibers in Textiles
 - c. D1777: Standard Test Method for thickness of Textile Materials
 - d. D4354: Practice for Sampling of Geosynthetics for Testing
 - e. D4439: Terminology for Geotextiles
 - f. D5035: Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
 - g. D5261: Standard Test Method for Measuring Mass per Unit Area of Geotextiles
 - h. D6241: Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile Related Products

1.04 RELATED SECTIONS

A. Asphalt Paving 32 12 16

1.05 SUBMITTALS

A. Include the following information for submittals:

Certification: The contractor shall provide to the Engineer a certificate stating the name of the manufacturer, product name, style number, chemical composition of the filaments or yarns and other pertinent information to fully describe the product.

1.06 DELIVERY, STORAGE AND HANDLING

A. Product labeling, shipment, and storage shall follow ASTM D4873. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.

B. During storage, the product rolls shall be elevated off the ground and adequately covered to protect them from the following: handling, rain, extended UV radiation including sunlight, chemicals that are highly acidic or alkaline, high temperatures, and any other environmental conditions that may damage the physical property values of the product.

1.07 SCHEDULING, COORDINATION AND RESPONSIBILITIES (NOT USED)

1.08 PROJECT CONDITIONS (NOT USED)

1.09 QUALITY CONTROL

A. Manufacturing Quality Control: Testing shall be performed at an accredited laboratory.

B. Manufacturer's certifications and testing of quality assurance samples obtained using Procedure B of ASTM D4354. A lot size for conformance or quality assurance sampling shall be considered to be the shipment quantity of the given product or a truckload of the given product, whichever is smaller.

1.10 QUALITY ASSURANCE

A. Pre-Construction Meeting: Prior to the installation of the interlayer, the Contractor shall arrange a meeting at the site with the manufacturer/supplier's representative and, where applicable, the installer. The Engineer shall be notified at least 3 working days in advance of the time of the meeting.

B. A manufacturer's representative shall be present, at minimum, for the first day of installation of the interlayer and available thereafter upon request by the Engineer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Saint-Gobain Adfors America, Inc. 14770 East Avenue, Albion, NY 14411;
- B. Propex, LLC. 4019 Industry Drive, Chattanooga, TN 37416; or
- C. Approved equal.

2.02 MATERIALS**A. Peel and Stick Paving Mat Interlayer:**

Strain relieving and waterproofing interlayer shall be comprised of a self-adhering rubberized asphalt (peel and stick) and a 25kN paving mat. A release film, which is removed prior to placement, covers the self-adhesive mastic. The interlayer shall conform to the properties in Table 1.

<u>Table 1 – Physical Properties</u>			
<u>Property</u>	<u>Test Method</u>	<u>Units</u>	<u>MARV</u>
<u>Grab Tensile Strength (min)</u>	<u>ASTM D4632</u>	<u>N</u> <u>(lbs)</u>	<u>889 x 889</u> <u>(200 x 200)</u>
<u>Grab Tensile Elongation (max)</u>	<u>ASTM D4632</u>	<u>Percent</u>	<u><7</u>
<u>Thickness (max)</u>	<u>ASTM D1777</u>	<u>mm</u> <u>(mils)</u>	<u>1.21</u> <u>(48)</u>
<u>CBR Puncture</u>	<u>ASTM E154</u>	<u>N</u> <u>(lbs)</u>	<u>329</u> <u>(74)</u>
<u>Mass per unit area</u>	<u>ASTM D3776</u>	<u>g/m2</u> <u>(oz/yd2)</u>	<u>1,186</u> <u>(35)</u>
<u>Strip Tensile</u>	<u>ASTM D882</u>	<u>kN/m</u> <u>(lbs/in)</u>	<u>8.8</u> <u>(50)</u>
<u>Cold Flexibility</u>	<u>ASTM D146</u>	<u>32°F</u> <u>(0°C)</u>	<u>Pass</u>
<u>Pliability</u>	<u>ASTM D146</u>	<u>No cracks in fabric or rubberized asphalt</u>	

PART 3 EXECUTION**3.01 EXECUTION**

- A. The surface on which the peel and stick paving mat is to be placed shall be reasonably free of dirt, water, vegetation or other debris.
- B. The peel and stick paving mat shall be placed on a primed drainable surface.
- C. Neither the primer asphalt tack coat nor the peel and stick paving mat shall be placed when weather conditions, in the judgment of the Engineer, are not suitable. The air temperature shall be 50 degrees F and rising for placement of the asphalt tack coat.
- D. Application of a primer tack coat, if specified, should provide full coverage, to promote adhesion of the extent of the peel and stick paving mat. The tack coat should be applied uniformly, and no pooling should be evident.
- E. The primer tack coat application, if specified, shall be wide enough to cover the entire width of peel and stick paving mat material. The primer tack coat shall be applied only as far in advance of the peel and stick paving mat material installation as is appropriate to ensure a tacky surface at the time of the peel and stick paving mat material placement.
- F. The peel and stick paving mat shall be placed onto the primer tack coat with minimum folds or wrinkles and before the primer tack coat has cooled and lost tackiness. As directed by the engineer, wrinkles or folds greater than 1 inch shall be slit and laid flat or pulled out and replaced. In these repaired areas, additional primer tack coat shall be applied as needed to achieve a sound bond to the substrate. Damaged peel and stick paving mat shall be removed and replaced, per the manufacturer's recommendations, at the contractor's expense with the same interlayer material.
- G. Brooms, or squeegees shall be used to remove any air bubbles and to maximize the peel and stick paving mat's contact with the pavement surface and shall be done in accordance with the manufacturer's specifications and to the satisfaction of the Engineer.
- H. No traffic, except necessary construction traffic or emergency vehicles, shall be driven on the installed peel and stick paving mat, unless approved by the Engineer. If traffic on the interlayer is approved by the Engineer, clean sand shall be lightly broadcasted over the peel and stick paving mat interlayer before trafficking, and any loose sand shall be removed prior to paving.
- I. The final coat of tack coat shall be placed prior to paving and allowed to break and cure. If the contractor chooses to do so, and with the agreement of the Engineer, the peel and stick paving mat can be installed into the full width applied tack coat, as opposed to using a primer tack coat, as long as the tack coat is allowed to break and cure.

- J. Placement of the first lift of the HMA overlay shall closely follow placement of the peel and stick paving mat. In the event of rainfall on the peel and stick paving mat prior to the placement of the first HMA overlay lift, the peel and stick paving mat shall be allowed to dry before the HMA is placed.
- K. The compacted thickness of the first lift of the HMA overlay on the peel and stick paving mat shall not be less than 1.5 inches. Where the total HMA overlay thickness is expected to be less than 1.5 inches, peel and stick paving mat shall not be placed.

END OF SECTION 32 12 33

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Individual Test	70 min.*
Moving Average	75 min.*

* For 2500 or less class concrete, except concrete pavement, a minimum 65 Individual Test Result and a minimum 70 Moving Average will be acceptable if 2500 psi 28-day strength criteria of Section 201-1.1.4 are met, at a 6-inch slump or greater.

2. Evaluation of Sand Equivalent and Cleanness Value results shall conform to the provisions of Subsections 200-1.4 and 200-1.5.

D. Coarse Aggregate: Conform to SSPWC Subsection 200-1.4.

E. Water: Conform to SSPWC Subsection 201-1.2.3.

F. Admixtures: No admixture of any type shall be used without the written approval of the Engineer.

G. Coloring Agent: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis, integral with concrete mix.

PART 3 EXECUTION

3.01 CONCRETE CURBS, GUTTERS, SIDEWALKS, RAMPS, DRIVEWAY APPROACHES, AND CROSS GUTTERS

A. This section shall conform to Sections 201, 303, and 400 of the SSPWC and these Special Provisions.

B. Curbs and/or gutters to be constructed shall match existing in all dimensions and shall conform to City of Santa Ana (C.S.A.) Standard Plans, City of Garden Grove (C.G.G.) Standard Plans, SPPWC, or Contract Drawings as indicated below:

1. Type A-1-6 Curb & Gutter per SPPWC Standard Plan 120-2.

2. Type A-2-6 Curb & Gutter per C.S.A. Standard Plan No. 1101.

2.3. Type A-2-6 (Mod) Curb & Gutter per Contract Drawings.

3.4. Type A-2-6 (Mod) Monolithic Curb and Extended Gutter per Contract Drawings.

4.5. Type A-2-8 Curb & Gutter per C.S.A. Standard Plan No. 1101.

~~5.6.~~ Type A-2-8 (Mod) Monolithic Curb and Extended Gutter per Contract Drawings.

7. Type A-6 Curb per C.G.G. Standard Plan B-112.

~~6.8.~~ Type A-8 Curb per C.G.G. Standard Plan B-112.

~~7.9.~~ Type B-1 Curb (Mod) per ~~C.S.A. Standard Plan 1101~~ Contract Drawings.

~~8.10.~~ Type A3-6 (150) Curb & Gutter per SPPWC Standard Plan No. 120-2.

11. Type C-8 Curb & Gutter per C.G.G. Standard Plan No. B-113.

~~9.12.~~ Type C-8 (Mod) Curb & Gutter per Contract Drawings.

~~10.13.~~ Mountable Curb per Contract Drawings.

Reconstructed curb and gutters shall be constructed so the top of curb matches the sidewalk surface elevation. When the plans do not show replacement limit stations, the Engineer may approve replacement limits. Prior to acceptance of the curb and gutter construction by the Engineer, a flow test shall be conducted by the Contractor in the presence of the Engineer.

- C. Curb depressions for driveway approaches and sidewalk thickness across driveway shall be in accordance with SPPWC Standard Plan No. 110-2 in lieu of dimensions indicated in Section 303-5.1.3 of the SSPWC.
- D. Alley and alley apron shall conform to City of Santa Ana Standard Plan No. 1111.
- E. All parkway drains encountered when replacing curb and gutter shall be reconstructed per City of Santa Ana Standard Plan No. 318 or City of Garden Grove Standard Plan B-209.
- F. All roof drains encountered when replacing curb and gutter shall be reconstructed and extended ~~in-kind as follows:~~
 - 1. For 6-inch to 8-inch curb face, a 4-inch roof drain should be installed.
 - 2. For 5-inch to 6-inch curb face, a 3-inch roof drain should be installed.
 - ~~F.3.~~ For 4-inch to 5-inch curb face, a rectangular squash box should be installed.
- G. Cross gutters shall conform to City of Santa Ana Standard Plan No. 1109.
- H. Longitudinal gutters shall conform to SPPWC Plan No. 122-2.

- I. During construction of driveway approaches, the Contractor shall maintain access to each business at all times. In some cases, construction of one-half of a driveway approach at a time may be required.
- J. Sidewalks in the parkway designated for replacement shall be replaced at the same width as existing unless otherwise specified and shall conform to City of Santa Ana Standard Plan No. 1104 or City of Garden Grove Standard Plan No. B-106. Sidewalk replacement shall include removing all existing materials below existing sidewalk to make necessary to construct new sidewalk.
- K. Curb ramps shall conform to the Contract Drawings unless otherwise specified.
- L. All new concrete shall be placed within five working days after removal of existing concrete unless approved by the Engineer.
- M. All concrete work shall be finished in texture, scoring, banding in generally the same manner as the adjacent existing improvements, unless specified.

3.02 PORTLAND CEMENT CONCRETE (PCC) PAVEMENT CONSTRUCTION

- A. PCC Pavement and bus pads shall conform to SSPWC Section 302-6 and these Special Provisions.
- B. PCC used for street pavement and bus pad construction shall be minimum class 560-A-3250. In addition to these minimum requirements, the concrete shall possess the following characteristics:
 - Flexural strength at 28 days: 550 p.s.i. min.
 - Flexural strength at 7 days: 430 p.s.i. min.
 - Compressive strength at 7 days: 2500 p.s.i. min.
- C. All cement to be used or furnished on this Project shall be Type II low alkaline Portland Cement conforming to ASTM C150.
- D. Prior to the start of construction, the Contractor shall furnish to the Engineer laboratory test data for the particular mix design he will use. The data will include the following:
 - 1. A detailed concrete mix design including the type and amount of cement used; complete gradation and source of the aggregate used; the amount of water used; and any proposed admixtures.
 - 2. Flexural strength test data for the same batch of concrete used in 1 above showing the compressive strength of the concrete at 3, 7, and 28 days.
- E. SSPWC Section 302-6.4.2 entitled "Tamping" shall be modified by adding the following:

The outer edge of the gutter shall not be used as a side form for the mechanical tamper except where existing gutter is to remain as shown on the construction Plans.

- F. Concrete pavement for bus pads shall be installed monolithic with the PCC curb and gutter.

- G. SSPWC Section 302-6.4.4 entitled "Final Finishing" shall be modified as follows:

Delete all reference to wetted burlap. Final finish of the pavement surface shall be textured by stiff brooming that will produce scoring perpendicular to the centerline of the street, performed at a time and in a manner to produce a hardened surface have a coefficient of friction of not less than 0.38 as determined by California Test 342. Curing to be applied immediately following brooming.

- H. Joints in the concrete pavement shall be constructed as shown on ~~the~~ a Jointing Plan (~~if to be provided by Contractor~~) and described in SSPWC Section 302-6.5 except as modified herein. Sawing of the joints shall begin as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling, usually four to 24 hours per Engineer's directions.

- I. For construction of PCC alleys, transverse weakened plane joints shall be constructed at 15 foot intervals and at power poles, manholes, meter boxes, and utility vaults. One longitudinal weakened plane joint shall be placed offset the centerline. Weakened plane joints shall be saw cut to a depth of 1/4 of the pavement thickness and 1/4-inch wide.

- J. All joints shall be sawed before uncontrolled shrinkage cracking occurs. A standby saw shall be available in the event of breakdown. All weakened plane joints shall be sawcut to a depth equal to one fourth of the pavement thickness. Longitudinal joint spacing shall be at 10 feet minimum and 15 feet maximum on either side of centerline joint. Transverse joint spacing shall be at 10 feet minimum and 15 feet maximum for pavement, curb and gutter. Longitudinal joints shall be aligned such that they will cross manholes and water valves at centerline if possible. Transverse construction joints within 1' shall cross all manholes and water valves. Provide a weakened plane joint around the perimeter of all utility vaults.

- K. Stamped concrete paving shall consist of placement of concrete per SSPWC Subsections 303-6 and 303-7.

1. Pattern shall be as identified on the Contract Drawings.
2. Color shall be per Method "B," Integral Color.
3. A 3- by 3-foot test sample shall be installed with the approval of the Engineer.

- L. Refer to Section 4 “Conclusions” of the Santa Ana / Garden Grove Streetcar Project Corrosion Control Survey and Stray Current Analysis Report (dated July 2016) by Corrpro Companies Inc. regarding PCC recommendations near STA 100+00.

3.03 CONCRETE LINING

- A. Concrete lining and concrete band edges shall conform to CSS 72-5.
- B. Rock Slope Protection shall conform to CSS Section 72-2.

END OF SECTION 32 13 13

- H. City of Santa Ana Standard Plan No. 1410, which calls for a conventional concrete mix as noted above, is to be used for adjusting valve box frames and covers on residential and local streets.
- I. At any locations where the existing riser sleeve between the valve box and the valve-operating nut is a 6" diameter pipe or smaller, the Contractor shall excavate and replace it with an 8" diameter SCH. 40 PVC pipe. Backfill around riser pipe shall be compacted to 90 percent relative compaction. The riser sleeve shall be kept clean and free of dirt or debris to provide clear access to the valve-operating nut.

2.05 AGENCY MANHOLES

- A. Agency utility manhole frames and covers shall be adjusted to grade with PCC collar in accordance with the respective Standard Plans.

2.06 SURVEY MONUMENTS

- A. Furnishing and installing survey monuments shall conform to SSPWC Section 309-1 and City of Santa Ana Standard Plan 1117. For survey monuments that are removed, they must be tied out by construction surveyor.

PART 3 NOT USED

END OF SECTION 33 01 30

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2. Workmanship to conform with AREMA Manual, Chapter 4, Section 2.1.13, "Workmanship".

PART 2 PRODUCTS

2.01 RAIL

- A. Tee-Rail: Rail shall be new 115 RE Head Hardened rail ("Premium Type Head Hardened" rail) conforming to AREMA Volume 1, Chapter 4, Section 2.1, "Specifications for Steel Rails." The rail shall be controlled cooled low alloy high strength rail, Grade HH (Head Hardened) or LH (Low Alloy Head Hardened) and shall meet or exceed 370 HB (Brinell Hardness).
- B. Tram Rail: Rail shall be new 112 TRAM premium rail. The rail shall be controlled cooled and shall meet or exceed 260 HB (Brinell Hardness).
1. The steel shall be melted using electric-furnace process.
 2. The steel in liquid form shall be vacuum degassed.
 3. The steel shall be produced using a continuous casting process. The minimum reduction ratio from cast bloom to final product will be 8:1.
 4. Tram Rail shall be hot rolled.
- C. 112 TRAM Rail Chemical Composition:
1. Premium Strength

<u>Element</u>	<u>Chemical Analysis (wt%)</u>	<u>Product Analysis Tolerance (wt%)</u>	
		<u>Under Min.</u>	<u>Over Max.</u>
Carbon	0.62 – 0.80	0.02	0.02
Manganese	0.70 – 1.20	0.05	0.05
Phosphorus Max.	0.025		0.008
Sulphur Max.	0.025		0.008
Silicon	0.15 – 0.58	0.02	0.02
Chromium Max.	0.15		0.03
Molybdenum Max.	0.050		
Aluminum Max.	0.010		
Copper Max.	0.40		
Hydrogen Max.	2.5 ppm		

- D. Hydrogen shall be subject to the limits listed above. If the hydrogen exceeds those limits, the blooms from the heat shall be slow cooled and the rails will be tested.

2.02 PRE-CURVED RAIL

- A. 115 RE Rail shall be pre-bent for curves with a radius of ~~400~~300 feet or less.

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- B. 112 TRAM shall be pre-bent for curves with a radius of ~~300~~400 feet or less.
- C. Pre-curved rails shall be uniformly curved to match the required geometry. Tolerances for rail bending must ensure that bent rails can be laid out on a flat concrete surface at the required geometry without requiring bracing or other measures to hold the required geometry. Any rail twisting that results in more than a 1/16" gap under any portion of the rail base will be cause for rejecting the curved rail.
- D. The Contractor must ensure the facility uses rollers to bend the rails (not a three-point press) unless otherwise approved by the owner's representative. Any rails damaged during the pre-bending process shall be replaced by the Contractor and the Contractor shall bear all the costs of replacing the damaged rails.
- E. Rail ends shall be cut square to the vertical axis of the rail. A tolerance of 1/32" out of square from the base to the head will be permitted.

2.03 STRAIGHTENING

- A. Straightened rail sections shall achieve the alignment tolerance as specified in AREMA Manual, Chapter 4.
- B. Any rail sections that cannot be straightened shall be cut back a sufficient distance to achieve the specified tolerances.
- C. If straightened rail does not meet specification tolerance in two passes through the straightener, it will be cut out of the string.

PART 3 EXECUTION**3.01 MANUFACTURING**

- A. Conform with AREMA Manual, Chapter 4, Section 2.1.2, "Manufacture".
- B. Conform with AREMA Manual, Chapter 4, Section 2.1.7, "Hydrogen Elimination".

3.02 TESTING

- A. Brinell Hardness Test - Perform in accordance with AREMA Manual, Chapter 4, Section 2.1.3.2, "Surface Hardness" and 2.1.3.3, "Internal Hardness of High-Strength Rail".
- B. Ultrasonic Testing - Determine the internal condition of the rails by nondestructive testing in accordance with AREMA Manual, Chapter 4, Section 2.1.8, "Ultrasonic Testing".

1. Check that alignment, gage, and surface meet Specifications.
 2. Verify that bolts, nuts, cotter pins, and other fastenings are in place, in good condition, and properly tightened.
 3. Verify that switch points are properly aligned and fit tightly against rail when switch is thrown in either position.
 4. Verify that connecting rod and switch rod bolts are equipped with cotter pins properly applied.
 5. Test-operate the switches for lost motion, difficult throw, or loose connections and adjust as necessary.
 6. Examine the rod and fastenings that connect the switch point to the switch stand to see that they are in place and in good condition.
- H. Joints within turnouts shall be welded.
- I. Switch machines, and/or switch earth boxes shall be so installed as to hold the switch point tightly against the stock rail when stand is in normal position, per the manufacturer's instructions.
1. Switch rods shall be adjusted to hold the opposite point tightly against the rail when stand is in reverse position.
 2. Switch machines or switch earth boxes shall be mounted on two concrete ties designed with required inserts and tie length to be compatible with the required switch machine and/or switch earth box.
- J. Install bonded insulated joints and bonded standard joints as specified in Section 34 11 93, Track Appurtenances and Accessories.
- K. The installation of asphalt paved special trackwork shall comply with Section 34 11 93 and the following:
1. Paved turnouts shall be equipped with insulated drains for the switch boxes. All drainage connections shall be HDPE piping.

2. Elastomeric Encapsulation shall be factory installed on special trackwork components per Specification Section 34 11 23, Special Trackwork. Standard rubber boot shall be field installed between encapsulated components to provide a fully insulated installation. Boot transition area shall be applied at the ends of all shop encapsulated areas, then sprayed with encapsulation material in the field. All rail boot and spray transition areas shall have a minimum six inch overlap. Deliver and handle completed encapsulated products in accordance with the manufacturer's recommendations so as not to damage encapsulating material.

3.043.03 INSTALLATION OF DIRECT-FIXATED SPECIAL TRACKWORK

- A. All work in place as foundation for the Trackwork shall be thoroughly inspected by the Contractor personnel who will have responsible charge of the track construction. All defects shall be corrected prior to commencing track installation.
- B. The track slab surface shall be cleaned by sandblasting or other effective means to remove all laitance from the surface which will be in contact with the elastomeric grout.
- C. Direct fixation Special Trackwork shall be installed in accordance with the approved direct fixation trackwork work plan described in Section 34 11 24, Direct Fixation Track.
- D. Special Trackwork
 1. Assemble rails, switches, and frogs, and attach to the special fasteners as indicated. Use indicated tangent offset tables to establish line for turnout rails.
 2. Install bonded joints as specified in Section 34 11 93, Track Appurtenances and Accessories.
 3. Adjust special trackwork, if required, to final vertical alignment with special fastener height adjustment shims placed between the special fastener elastomer pad and the second pour concrete. Do not use more than two shims under each special fastener. Total thickness of special fastener shims shall not exceed 1/4 inch.
 4. Join special trackwork to adjacent Section of track after adjustment has been made.
- E. Laying, Joining, and Anchoring CWR - Refer to Section 34 72 00, Trackwork.

3.053.04 INSTALLATION OF EMBEDDED SPECIAL TRACKWORK

- A. Construct embedded special trackwork in accordance with the detailed work plan and as indicated on the Contract Drawings.

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- B. The Contractor shall assemble the steel components with temporary tie bars and temporary bolted rail joints in accordance with manufacturer's instructions.
- C. All turnouts shall be equipped with insulated drains for the switch boxes. All drainage connections through trackway slab shall be HDPE piping.
- D. The assembled 25 M (82') turnout shall be raised and supported to final line, profile, and surface within the specified tolerances. The Contractor shall install bracing to hold the position of the trackwork during temperature changes and subsequent construction operations.
- E. Turnouts shall have manual, spring or powered switch throw mechanisms to be installed by the Contractor. Mechanism type and location shall be as shown on the Contract Drawings.
- F. Elastomeric Encapsulation shall be factory installed on special trackwork components per Specification Section 34 11 23, Special Trackwork. Standard rubber boot shall be field installed between encapsulated components to provide a fully insulated installation. Boot transition area shall be applied at the ends of all shop encapsulated areas, then sprayed with encapsulation material in the field. All rail boot and spray transition areas shall have a minimum six inch overlap. Deliver and handle completed encapsulated products in accordance with the manufacturer's recommendations so as not to damage encapsulating material.
- G. Elastomeric grout may be used at other locations where stray current control is required, but may not be used in locations where rail support is needed. The shore A hardness shall be between 6575 when measured in accordance with ASTM D 2240.
 - 1. Elastomeric grout shall be a two-component polyurethane material or approved equal consisting of a resin and a suitable hardener, mixed on site per manufacturer's instructions. Elastomeric grout shall be subject to the approval of the Engineer.
 - 2. Provide certification that the cured elastomeric grout possesses hard, elastic, vibration and sound absorbing properties and provides the level of track-to-earth electrical resistance, all as specified herein.
 - 3. Elastomeric grout shall be Icosit KC330 grout, Dural435 grout or approved equal.
 - 4. Equipment for elastomeric grout installation shall be as follows:
 - a. The Contractor shall furnish equipment to provide the manufacturer's specified environmental conditions in the Work area during cleaning and application operations where necessary to meet contracted completion schedules.

- b. Cleaning and application equipment shall be as recommended by the manufacturer and shall be sized to the configuration of the Work.
- c. Air supply lines shall be equipped with effective traps to remove moisture and oil. Traps shall be bled continuously.

3.063.05 LUBRICATION

- A. At the time of Installation, sliding surfaces of all special trackwork assemblies shall be lubricated with a dry film graphite lubricant in accordance with the manufacturer's recommendations.

END OF SECTION 34 11 28

SECTION 34 11 33

CONCRETE TIES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies the material requirements and performance criteria for production and inspection of monoblock, pretensioned, prestressed concrete ties including fastener furnished in accordance with the Contract Plans and Specifications.
- B. Work included in this Section encompasses work necessary for the manufacturing and production of concrete crossties, rail fastenings, pads and insulators.
- C. Track configuration for Concrete Ties Design:
 - 1. Concrete ties shall be designed using the loading parameters of the AREMA Flexural Performance Requirements. They will be used in ballasted track with 115RE running rail and nominal 4 foot 8-1/2 inch gauge, except as indicated elsewhere in the Contract Specifications.
 - 2. Tie Spacing:
 - a. Tangent track and curved track with a centerline radius above 1000 feet: 30 inches
 - b. Curved track, centerline radius less than 1000 feet: 24 inches
 - c. Grade Crossing Track: ~~18-20~~ inches
 - d. Special Trackwork: As shown on Contract Plans (~~18 inches maximum~~)
 - 3. Types of Concrete Ties to be Furnished:
 - a. Concrete Crossties: For tangent and curved track that do not require the use of emergency guardrail
 - b. Emergency Guardrail Crossties: For tangent and curved track requiring the use of emergency guardrail
 - c. Restraining Rail Crossties: For curved track requiring the use of restraining rail
 - d. Grade Crossing Crossties: For tangent and curved grade crossing track

1. Rail shall be protected with a rubber rail boot. The rubber boot material shall be tight and uniform against the running rail with no gaps great than 1/16" and shall extend between 3 and 6 inches beyond the adjacent paving.
 2. Flangeway shall be formed as shown on the Contract Drawings.
 3. End sections shall be sloped at 8:1 maximum.
 4. No cold joints.
 5. Place paving fabric on top of ballast for full length of paved track after completion of track construction and prior to placement of asphalt concrete pavement to form bond breaker. [Paving fabric shall conform to Caltrans Standard Specification Section 96-1.02J.](#)
- J. Ballasted track shall be anchored to the platform foundation every third tie as shown on the Contract Drawings. The anchoring system shall conform to the following requirements.
1. Timber spacer block shall be field-drilled for 1/2" diameter holes to fit the plate hole punching pattern. Holes shall be cleaned and injected with approved creosote preservative prior to bolting of plates.
 2. The length of the block shall be cut to fit between the end of concrete tie and platform foundation.
 3. Bent plate to tie bolts shall be torqued to allow for 1/4" to 1/2" bolt movement through the plates.

END OF SECTION 34 11 93

SECTION 34 42 13

GENERAL STREETCAR SIGNAL REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Description

1. This section specifies basic technical requirements to furnish and install new signal system elements for the OC Streetcar System as described in these specifications and shown in the associated Contract Drawings
2. These Contract Documents show and specify the design criteria, and the desired circuit function of the signal systems and equipment to be provided under this Contract. The Contractor shall develop bids based on the requirements presented in these Contract Documents. Final circuit plans and detailed wiring arrangements shall be developed further by the Contractor based on the design philosophy of these Contract Documents and actual equipment provided.
3. The Contractor shall furnish, install, cables, cable routing system and ancillary equipment such as junction boxes, foundations, etc. to facilitated the installation of a completely functional signal system as specified here and shown on the Contact Drawings.
4. The Contractor shall furnish new Signals, Switch Layouts, Track Circuits, Crossings, Detection Loops, Impedance Bonds, TWC equipment, and Vital Programmable Logic Controllers. Critical elements to be performed, furnished and installed by the Contractor include:
 - a. Train Detection at the terminal interlockings utilizing Power Frequency double rail 100 Hz phase selective AC track circuits with untuned impedance bonds to maintain traction power return continuity.
 - b. Wayside signals, mast mounted, utilizing LED lighting controlled directly from Vital Programmable Logic Controller (VPLC).
 - c. Electro-~~hydraulic~~hydraulic power switch machines, utilizing solid-state switch controllers for control, overload, and point indication.
 - d. Electro-~~hydraulic~~hydraulic embedded switch machines in the areas of embedded tracks.
 - e. Vital Programmable Logic Controllers (VPLC), will be utilized to control all

SECTION 34 42 28

EMBEDDED ELECTRIC SWITCH AND LOCK LAYOUT

PART 1 GENERAL

1.01 SUMMARY

A. Description

1. Furnish and install power electro-hydraulic switch and lock layouts as indicated on the Contract Drawings. Switch and lock layouts shall be dual-control, powered by 120 volts ~~-60Hz Alternating~~ Direct Current (ADC), and shall fit between the switch points. Switch and lock layouts shall be Contec CSV-24, or approved equivalent.
2. Where the Contract Drawings reference a "switch movement" or "switch," this implies provision and installation of a complete track switch and lock layout. A complete layout is shown on the Standard Drawings.

1.02 DEFINITIONS (NOT USED)

1.03 REFERENCES (NOT USED)

1.04 RELATED SECTIONS (NOT USED)

1.05 SUBMITTALS AND DELIVERABLES

A. Submittals

1. The Contractor shall submit the following to the Engineer for approval:
 - a. Assembly (product) drawings of each type of power switch and lock movement identifying all the components required for a complete layout.
 - b. Installation drawings of each type of switch and lock layout including, but not limited to:
 - I. Mounting details.
 - II. Conduit routing including entrance locations to the machine.
 - III. Operating, lock and point detection rod connections to switch points including all attachment bracket details and hardware details.

4. Ensure that the manufacturer pre-drills matching holes in the housing and backplate and provides stainless steel self-tapping screws appropriately sized to securely attach the housing to the backplate. Use brass threaded inserts embedded into polycarbonate resin components where machine screws are used.
 5. Anchor terminal blocks in the signal face to the housing with machine screws. Use 14 AWG wire terminal screws in the terminal blocks.
 6. Provide partitions to separate compartments and prevent passage of light between compartments.
 - a. Provide ample space for LED arrays, terminals, necessary adjusting devices.
 - b. Provide means of passing wiring between units.
 7. All doors shall have neoprene gaskets.
 8. Housing shall be ventilated. Vents shall be covered with fine mesh stainless steel, copper, or bronze screening. Exterior shall be hooded to minimize entrance of rain.
 9. Submit a materials list and accompanying manufacturer's certificate of compliance certifying that the listed materials conform to the contract.
- B. Signal housings shall be equipped with LED signal modules configured as shown on the Contract Documents. The signal modules shall be manufactured as follows:
1. White Bar, 120V AC LED transit symbol 12 inches in diameter.
 2. Outer lens: Robust hard-coated and UV-stabilized clear polycarbonate.
 3. Photocell-activated dimming for night time viewing.
 4. LEDs shall be mounted within an array, and an array within a compartment to prevent LEDs and arrays from coming loose due to vibration.
 5. Ensure that proper relation of lamp to lens can be readily made and maintained.
 6. Failure of one module shall not cause complete LED array to become dark.
 7. Rated life: Minimum 100,000 hours.
 8. Suitable for installation in ballasted, direct fixation and embedded types of track.
- C. Sighting Distance:

- b. Direct Fixation (DF) Track - Track constructed of rail and direct fixation rail fasteners attached to a concrete surface.
 - c. Embedded Track – Track constructed on a track slab and, except for the flangeways, embedded concrete, rubber epoxy, or other such material to the elevation of the top of rail.
32. Track Foot - A unit of measurement for payment purpose measured horizontally along the center line of track and which excludes track within the limits of special Trackwork units.
33. Transition Slab - A concrete slab located at the interface of ballasted track with embedded track, providing a transition from embedded track to ballasted track.
34. Zero Thermal Stress Temperature - The temperature at which a string of continuous welded rail is not be stressed due to thermal expansion or contraction.

1.03 REFERENCES

- A. American Railroad Engineering and Maintenance of Way Association (AREMA):
 - 1. Manual for Railway Engineering.
- B. FRA: 49 CFR Part 213, Track Safety Standards, most current and addenda, Federal Railroad Administration.
- C. American Society for Testing of Materials International (ASTM)
 - 1. ASTM G165: Standard Practice for Determining Rail-to-Earth Resistance.
- D. California Public Utilities Commission (CPUC)
 - 1. General Order 118-A – Regulations Governing the Construction, Reconstruction, and maintenance of walkways, Adjacent to Railroad Trackage and the Control of Vegetation Adjacent Thereto.

1.04 RELATED SECTIONS

A. Section 26 05 11 – Track Electrical Testing

~~A.B.~~ Section 32 12 16 – Asphalt Paving

~~B.C.~~ Section 34 11 13 – Running Rails

~~C.D.~~ Section 34 11 16 – Field Welded Rail

~~D.E.~~ Section 34 11 23 – Special Trackwork

~~E.F.~~ Section 34 11 24 – Direct Fixation Track

~~F.G.~~ Section 34 11 26 - Ballast

~~G.H.~~ Section 34 11 27 - Subballast

~~H.I.~~ Section 34 11 30 – Embedded Track

~~I.J.~~ Section 34 11 33 - Concrete Ties

~~J.K.~~ Section 34 11 36 – Direct Fixation Fasteners

~~K.L.~~ Section 34 11 93 – Track Appurtenances and Accessories

~~L.M.~~ Section 34 71 50 – Grade Crossings

1.05 SUBMITTALS AND DELIVERABLES

A. Submittals

1. Submit, under the provisions the General Conditions:

- a. Materials: Submit individual certifications that all materials furnished by the Contractor conform to the specified requirements.
- b. Shop Drawings:
 - I. Submit Shop Drawing and product data for trackwork items not specifically defined by engineering standards.
 - II. Shop Drawings for each size and direction of Turnout will be required.
 - III. Shop Drawings for each size and type (DF and Embedded) of Double Crossover will be required.
 - IV. Shop Drawings shall also be submitted in electronic media in the current edition of Bentley Microstation Version 8.
- c. Equipment: Provide submittal for all construction equipment proposed to be used as identified in the General Conditions.
- d. Procedure: Submit procedure for transporting, stockpiling and handling of trackwork Materials.

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- A. The Engineer will make a survey and visual inspection of the track before acceptance. The final horizontal and vertical alignment, gauge, cross level, and superelevation shall be within the specified tolerances. Survey will be made at 10 foot intervals.
- B. Correct track deviations, as disclosed by the survey, and the visual inspection.

3.19 ELECTRICAL TESTS

- A. All rail boots shall be high voltage spark tested as specified by manufacturer.
- ~~B. Track-to-earth resistance shall conform to Specification Section 26 05 11, Track Electrical Testing. tests will be performed by the Contractor.~~
 - ~~1. Testing will be conducted, per ASTM G165, by the Contractor as track construction progresses to ensure proper rail isolation is being achieved during construction.~~
- ~~C. The Contractor shall correct Contractor installations that fail the track-to-earth resistance tests, during construction testing or final acceptance testing. Following completion of these corrective measures, Contractor shall notify the Engineer as specified herein for testing and the installations will be re-tested. All corrective measures shall be completed at the expense of the Contractor.~~
- ~~D. Final acceptance testing of track to earth resistance will be performed by Contractor and results shall be submitted to Engineer in a final report to demonstrate compliance with tolerances.~~
- ~~E. Acceptance criteria: Track to earth resistance shall be less than:~~
 - ~~1. Embedded track: 100 ohms per 1000 linear feet of track.~~
- ~~F.B. Special trackwork: 100 ohms per 1000 linear feet of track.~~

3.20 CLEANUP

- A. Remove loose debris, track materials, and spilled concrete. Cut exposed stirrups and tie wires flush with the concrete surfaces. Remove from the Work site at no additional cost to OCTA.
- B. Sweep clean the concrete trackway and wash down with water.
- C. Examine drainage inverts, pipes, sumps, and other conduits for spilled concrete, and other debris. Remove such obstructions at no additional cost to OCTA.

END OF SECTION 34 72 00

CONSTRUCTION NOTES:

- 1 CONSTRUCT TYPE A-2-6 CURB & GUTTER PER C.S.A STD PLAN NO. 1101, UNLESS OTHERWISE SHOWN, MATCH HOR AND VERT ALIGNMENT OF EX FL AND TC.
- 1B CONSTRUCT TYPE A-2-6 (MOD) CURB AND GUTTER PER CONSTRUCTION DETAIL DRAWING CD07.
- 3 CONSTRUCT PCC CURB RAMP PER DETAIL DRAWINGS CD09 AND CD10.
- 5 CONSTRUCT 4" THICK PCC SIDEWALK CASE 3 PER C.S.A STD PLAN NO. 1104.
- 13 CONSTRUCT 12" WIDE BY 12" DEEP AC ON COMPACTED SUBGRADE.
- 16 CONSTRUCT CROSS GUTTER PER C.S.A. STD PLAN NO. 1109.
- 25 ADJUST WATER VALVE FRAME AND COVER TO FINISHED GRADE.
- 29 2" COLD MILL AND VAR AC OVERLAY.
- 32 PLACE 2" ARHM OVER 5" AC OVER 12" AB.
- 49 INSTALL CPUC STANDARD NO. 8 WARNING DEVICE PER METROLINK ENG STD PLAN NO. 8305.

DISPOSITION NOTES:

- | | |
|---|---|
| 1 | PROTECT IN PLACE |
| 2 | REMOVE BY OTHERS |
| 3 | RELOCATE BY THIRD PARTY |
| X | SEE W=WATER, S=SEWER, D=DRAINAGE, U=UTILITY |

CURVE NO.	R	Δ	T	L
1	410'	10°28'34"	37.59'	74.97'
2	15'	42°50'00"	5.88'	11.21'
3	15'	42°50'00"	5.88'	11.21'
4	15'	81°30'30"	12.93'	11.36'
5	844'	03°30'19"	25.83'	51.64'
6	-	-	-	-
7	15'	43°24'05"	5.97'	11.36'
8	800'	05°46'52"	40.39'	80.72'
9	35'	69°50'35"	24.44'	42.67'
10	35'	73°00'47"	25.90'	44.60'
11	30'	15°13'54"	4.01'	7.98'

LEGEND

- | | |
|--|-----------------------------|
| | EXIST SUBTERRANEAN BASEMENT |
| | AC PAVEMENT |
| | COLD MILL/OVERLAY |
| | PCC |

NOTES:

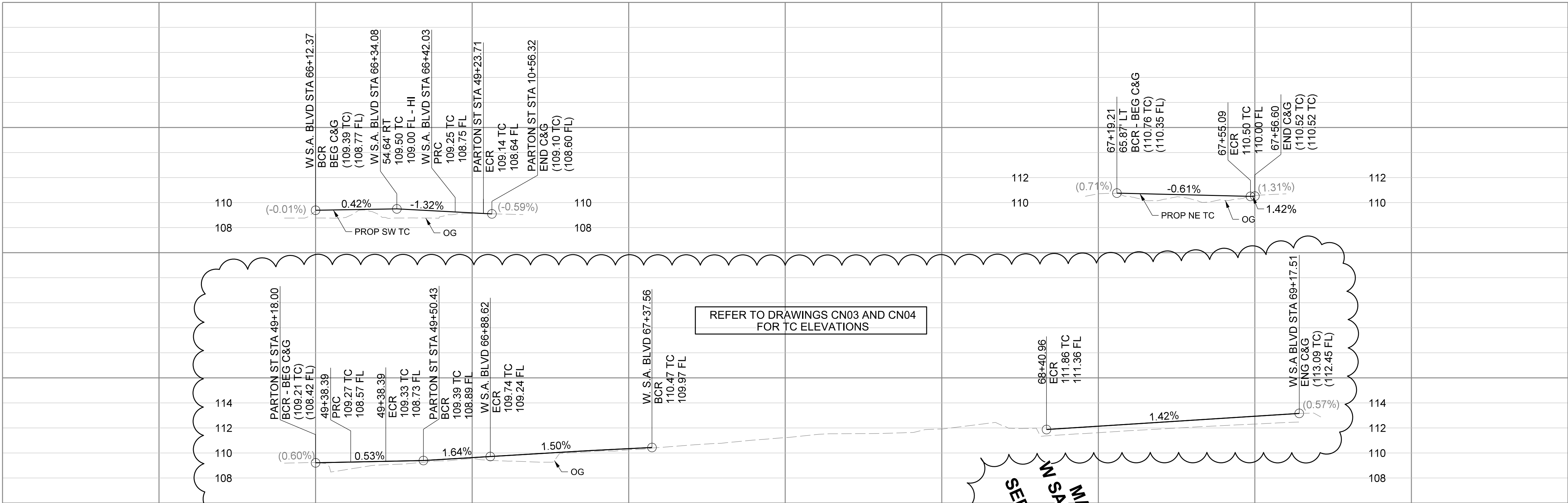
1. FOR LANDSCAPING, SEE LANDSCAPE PLANS.
2. USE #4 BARS, 18" LONG, TO DOWEL INTO EXISTING CROSS GUTTER.

Underground Service Alert
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CALL: **TOLL FREE 1-800-422-4133**
TWO WORKING DAYS
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NOTICE TO CONTRACTOR

PURSUANT TO ASSEMBLY BILL 3019 NO EXCAVATION PERMIT IS VALID UNLESS THE CONTRACTOR CONTACTS AND OBTAINS AN INQUIRY I.D. NUMBER FROM "UNDERGROUND SERVICE ALERT" (1-800-422-4133) AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING EXCAVATION.

(SCALE : 1" = 20')



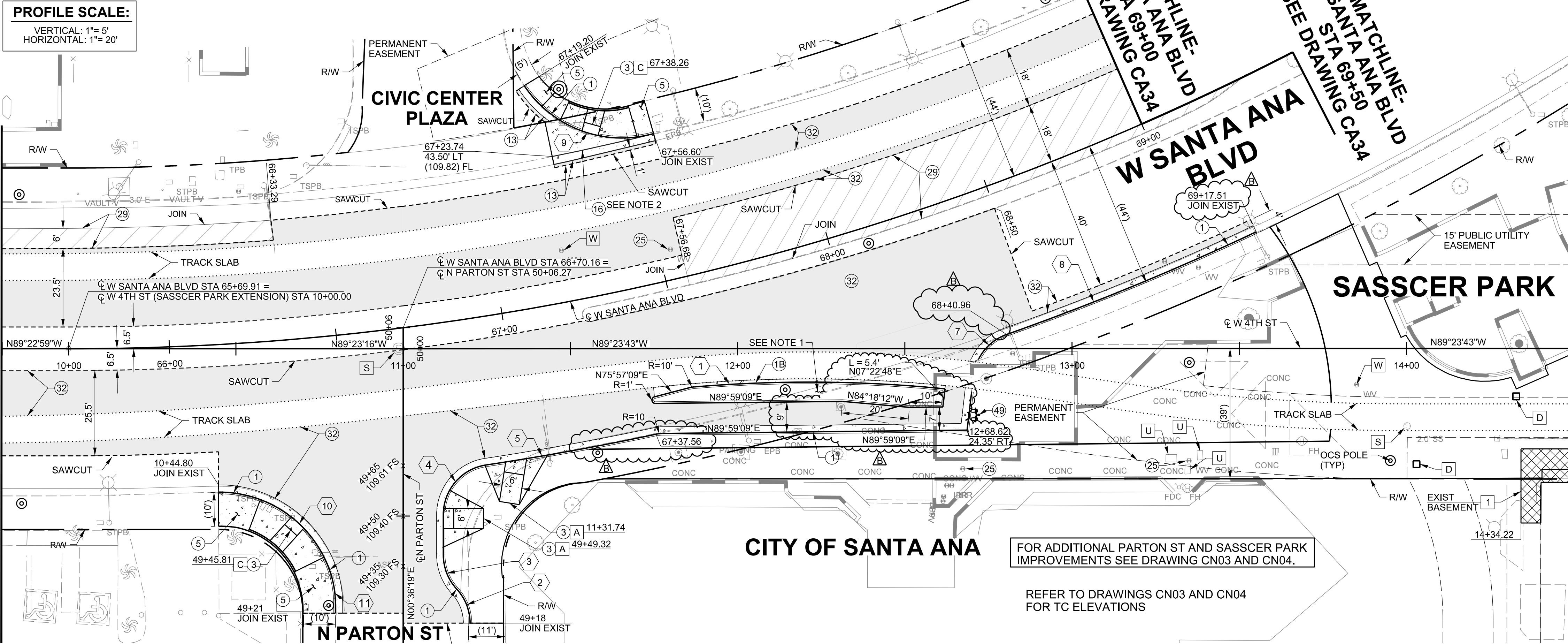
PROFILE SCALE:
VERTICAL: 1"= 5'
HORIZONTAL: 1"= 20'

MATCHLINE - W SANTA ANA BLVD STA 65+50
SEE DRAWING CA22

MATCHLINE-
W SANTA ANA BLVD
STA 69+00
SEE DRAWING CA34

MATCHLINE-
W SANTA ANA BLVD
STA 69+50
SEE DRAWING CA34

MATCHLINE - W 4TH ST STA 14+50
SEE DRAWING CA24



CITY OF SANTA ANA

FOR ADDITIONAL PARTON ST AND SASSCER PARK IMPROVEMENTS SEE DRAWING CN03 AND CN04.

REFER TO DRAWINGS CN03 AND CN04 FOR TC ELEVATIONS

SHT-CA23-62461-R0B.dgn 2/26/2018 7:26:32 AM

FILE NO.:

REVISIONS

NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED
A	12/2017		ISSUE FOR BID		
Δ	02/22/18	JJV	CPUC - BIKE LANE - SASSCER PARK		

REFERENCES

BENCHMARK NO.: 3B-98-85 (PT. 400) ELEV.: 140.19 (NAVD 88)
FOUND 3.75" OCS ALUMINUM BENCHMARK DISK STAMPED "3B-98-85", SET IN THE NORTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF FRUIT STREET AND THE ATCHINSON TOPEKA AND SANTA FE RAILROAD, 23 FT. EASTERLY OF THE CENTERLINE OF THE RAILWAY, 19.5 FT. SOUTHERLY OF THE CENTERLINE OF FRUIT STREET AND 14.3 FT. WEST OF A POWER POLE (#716815E)". ORANGE COUNTY SURVEYS, PUBLIC WORKS.

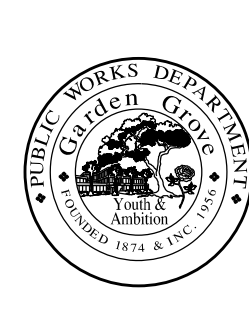


HNTB
The HNTB Companies
Infrastructure Solutions
220 E. Sandpointe Ave., Ste. 200
Santa Ana, CA 92707
Phone: 714-460-1600

PREPARED UNDER THE SUPERVISION OF: J. VAGLIANTI

DESIGNED: BAO TRAN DRAWN: S. KIVRIZIS CHECKED: J. VAGLIANTI

DATE
06/2019
10/2017



CIVIL IMPROVEMENT PLAN & PROFILE
W SANTA ANA BLVD AND 4TH ST (SASSCER PARK)
OC STREETCAR
W SANTA ANA BLVD STA 65+50 - W 4TH ST STA 14+50

ORANGE COUNTY TRANSPORTATION AUTHORITY

CITY OF SANTA ANA PROJECT NO. 17-6766-C: OC STREETCAR FROM HARBOR BLVD TO SARTC

NOTES:

- FOR SIGNING AND STRIPING, CHANNELIZATION PLANS.
- FOR LANDSCAPE AND HARDSCAPE IMPROVEMENTS, SEE LANDSCAPE PLANS.
- FOR TRAFFIC LIGHTING, SEE TRAFFIC LIGHTING PLANS.
- FOR UTILITIES, SEE UTILITY PLANS CU16-CU17.
- FOR DRAINAGE, SEE DRAINAGE PLAN QN20.

LINE	LENGTH	BEARING
L1	211.53'	N89°59'09"E
L2	27.87'	N89°23'43"W
L3	21.04'	N89°23'43"E
L4	21.48'	N89°23'43"E
L5	2.57'	N00°36'17"E
L6	1.40'	N00°36'17"E
L7	114.45'	N89°23'43"W
L8	36.06'	N89°23'43"W
L9	14.32'	N66°55'08"E
L10	19.32'	N66°55'08"E

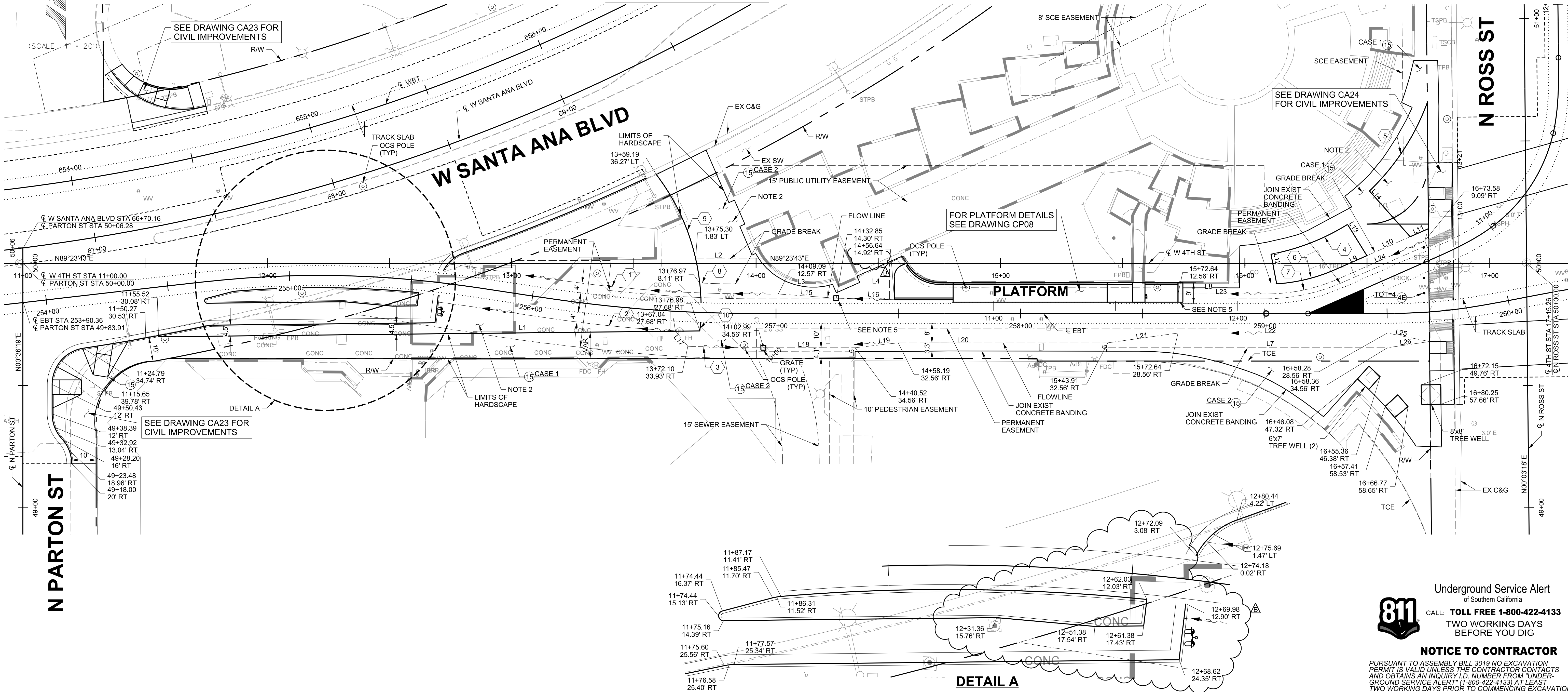
LINE	LENGTH	BEARING
L11	7.52'	N66°55'08"E
L12	12.32'	N10°07'47"E
L13	15.04'	N31°13'04"W
L14	25.03'	N41°07'17"W
L15	28.83'	N85°14'28"E
L16	23.79'	N87°53'59"W
L17	8.05'	N38°21'38"E
L18	36.68'	N89°23'43"E
L19	17.78'	N84°08'51"E
L20	85.72'	N89°23'43"W

LINE	LENGTH	BEARING
L21	28.94'	N82°39'31"E
L22	76.13'	N89°23'43"E
L23	36.15'	N89°23'43"E
L24	38.38'	N66°55'08"E
L25	17.62'	N78°04'31"W
L26	17.39'	N82°12'01"E

CURVE NO.	R	Δ	T	L
①	542.00'	5°25'42"	25.69	51.35'
②	558.00'	3°56'49"	19.23	38.44'
③	564.00'	1°19'5"	6.49	12.98'
④	91.78'	21°05'17"	17.08	33.78'
⑤	96.03'	26°02'17"	22.20	43.64'
⑥	70.02'	20°09'13"	12.44	24.63'
⑦	74.02'	23°41'09"	15.52	30.60'
⑧	538.00'	32°14'05"	2.52	5.04'
⑨	89.00'	36°12'15"	29.20	56.44'
⑩	89.00'	2°17'28"	1.78	3.57'

CONSTRUCTION NOTES:

- ④E INSTALL RETRACTABLE BOLLARDS PER DETAIL DRAWING CD08.
- ⑮ CONSTRUCT CONCRETE SLAB FOR CONCRETE PAVERS PER DETAIL DRAWING CD08.



Underground Service Alert

811
CALL: TOLL FREE 1-800-422-4133
TWO WORKING DAYS
BEFORE YOU DIG

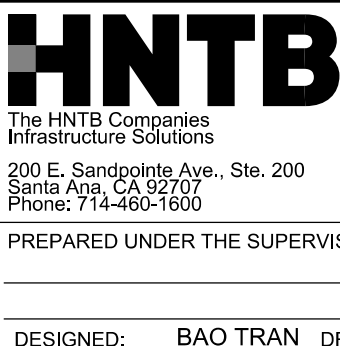
NOTICE TO CONTRACTOR

PURSUANT TO ASSEMBLY BILL 3019 NO EXCAVATION PERMIT IS VALID UNLESS THE CONTRACTOR CONTACTS AND OBTAINS AN INQUIRY I.D. NUMBER FROM "UNDERGROUND SERVICE ALERT" (1-800-422-4133) AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING EXCAVATION.

FILE NO.:
SHT-CN03-62481-ROB.DGN
2/29/2018 7:28:25 AM

REVISIONS					
NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED
A	12/2017		ISSUE FOR BID		
Δ	02/22/18	JJV	CPUC - BIKE LANE - SASSCER PARK		

REFERENCES	
BENCHMARK NO.: 3B-98-85 (PT. 400)	ELEV.: 140.19 (NAVD 88)
FOUND 3.75" OCS ALUMINUM BENCHMARK DISK STAMPED "3B-98-85", SET IN THE NORTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF FRUIT STREET AND THE ATCHINSON TOPEKA AND SANTA FE RAILROAD, 23 FT. EASTERLY OF THE CENTERLINE OF THE RAILWAY, 19.5 FT. SOUTHERLY OF THE CENTERLINE OF FRUIT STREET AND 14.3 FT. WEST OF A POWER POLE (#716815E). ORANGE COUNTY SURVEYS, PUBLIC WORKS.	



PREPARED UNDER THE SUPERVISION OF: J. VAGLIANTY		DATE
DESIGNED: BAO TRAN	DRAWN: S. KIVRIZIS	06/2019
CHECKED: J. VAGLIANTY	RCE NO.: C56141	10/2017



SASSCER PARK

OC STREETCAR

LAYOUT PLAN

ORANGE COUNTY TRANSPORTATION AUTHORITY

CN03


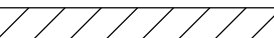

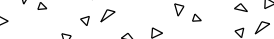
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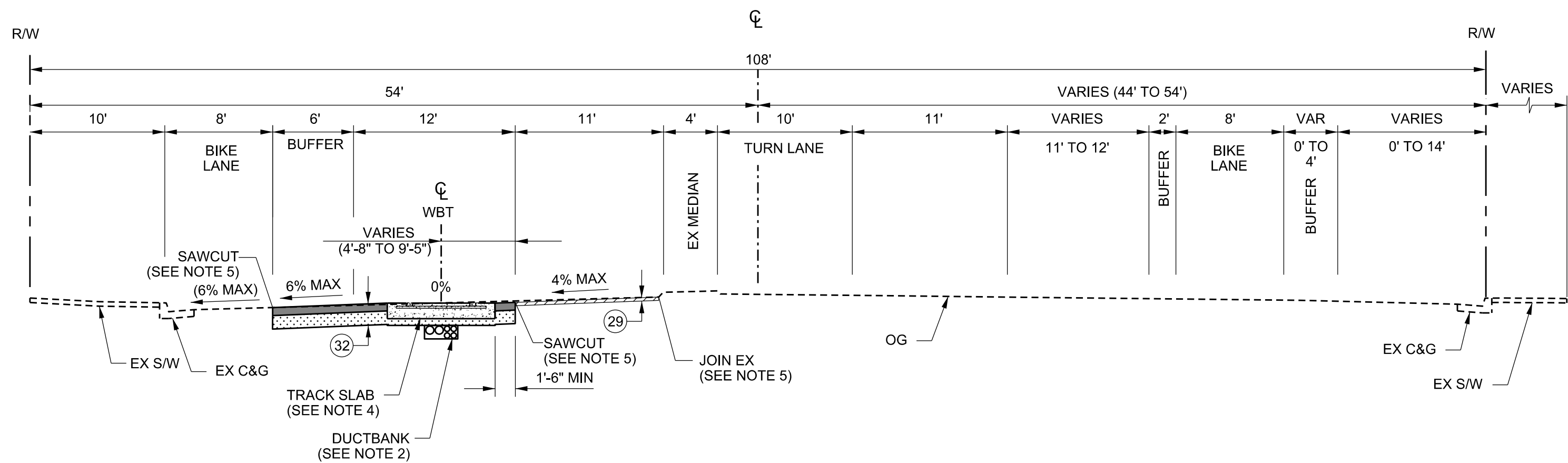
- (29) 2" COLD MILL AND VAR AC OVERLAY.
- (32) PLACE 2" ARHM OVER 5" AC OVER 12" AB.

NOTES:

1. FOR PLATFORM DETAILS, SEE DRAWINGS CP01 - CP16.
2. FOR DUCTBANK, SEE DRAWINGS U-DBN01 - U-DBN71.
3. FOR OCS POLES, SEE DRAWINGS U-OCSN01 - U-OCSN61.
4. FOR TRACK SLAB DETAILS, SEE DRAWING TD02. FOR TRACK SLAB DETAILS AT PLATFORMS, SEE DRAWINGS CD11-CD12.
5. SEE CIVIL IMPROVEMENT PLANS FOR TRANSITIONS, VARIATIONS IN HORIZONTAL DIMENSIONS, PAVEMENT LIMITS AND CROWN INFORMATION.
6. FOR LIMITS OF LANDSCAPING AND SIDEWALK PAVERS, SEE LANDSCAPE PLANS.

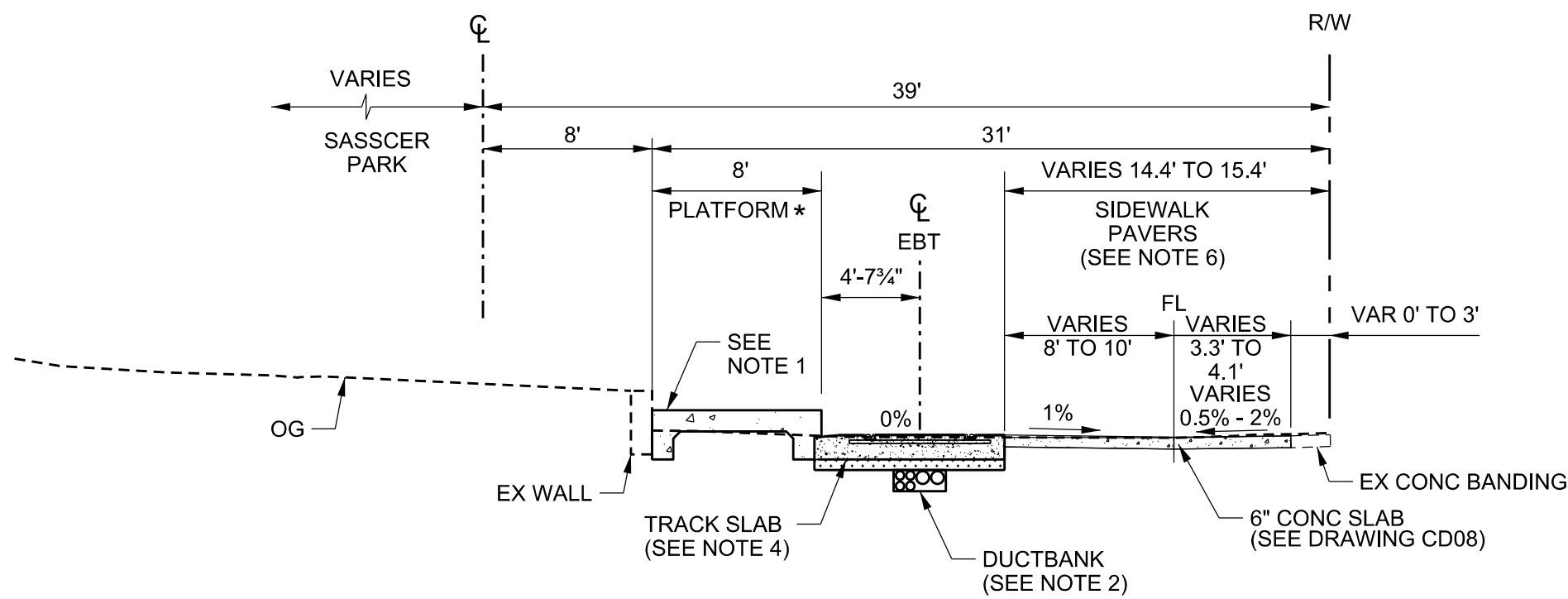
LEGEND

- | | |
|---|--------------------------|
|  | - AC PAVEMENT |
|  | - COLD MILL / OVERLAY |
|  | - PCC PAVEMENT |
|  | - CRUSHED AGGREGATE BASE |

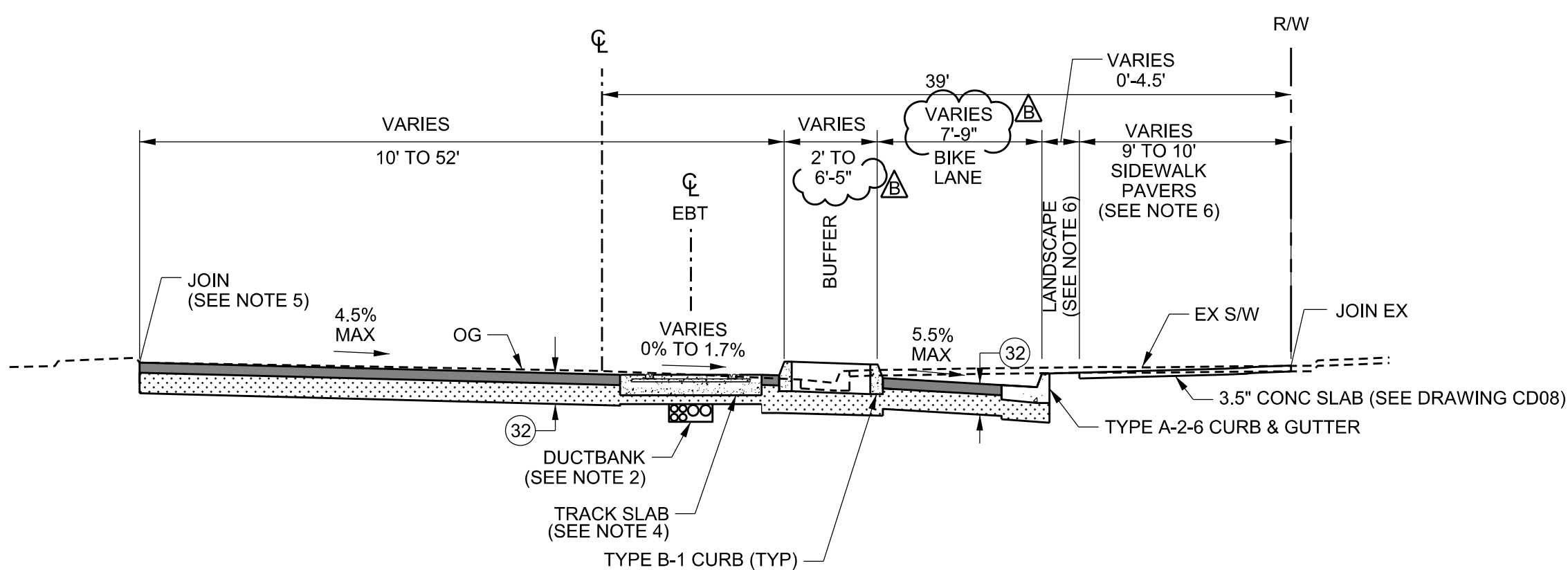


TYPICAL SECTION

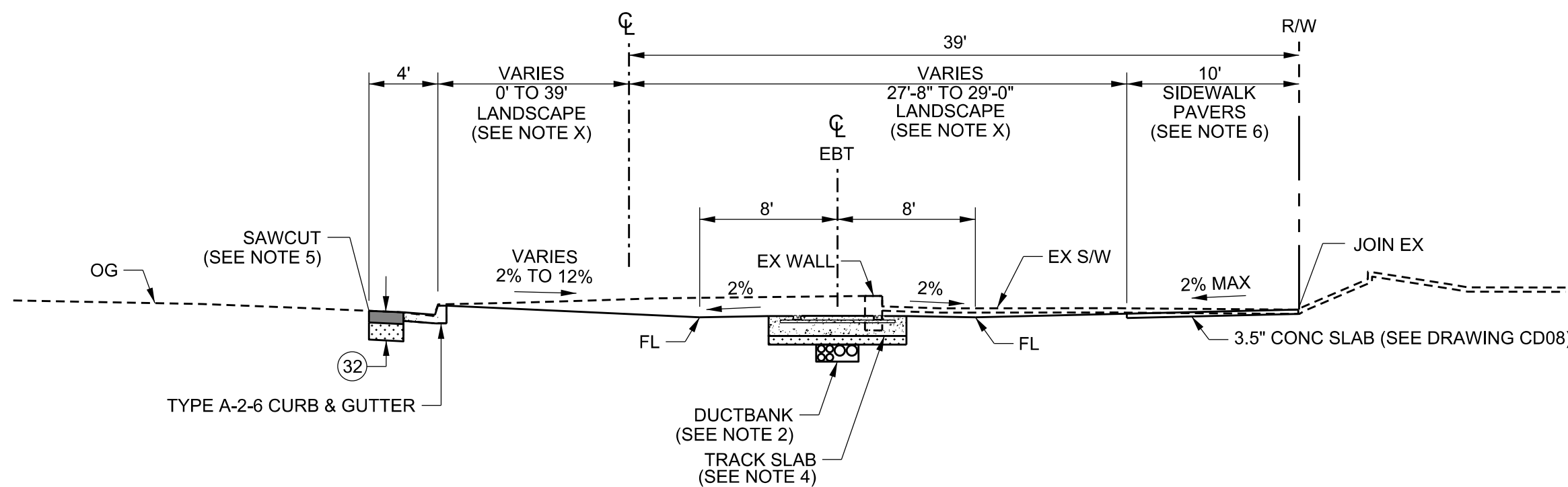
WEST SANTA ANA BLVD
STA 66+70.16 TO 73+90
NTS



TYPICAL SECTION
SASSCER PARK (4TH ST)
STA 13+76.98 TO 16+38
*** STA 14+80.64 TO 15+43.64**
NTS



TYPICAL SECTION
DOWNTOWN (4TH ST)
STA 11+00 TO 12+68.62
NTS



TYPICAL SECTION
DOWNTOWN (4TH ST)
STA 12+68.62 TO 13+76.98
NTS

Underground Service Alert

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BEFORE YOU DIG

NOTICE TO CONTRACTOR

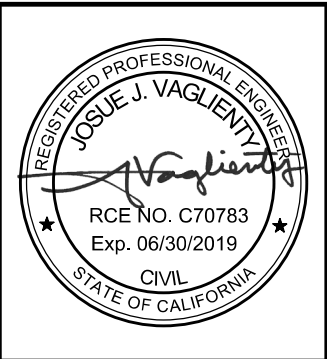
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[illegible]

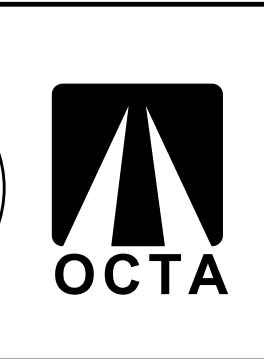
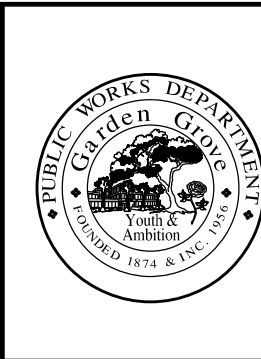
REFERENCES

BENCHMARK NO.: 3B-98-58 (PT. 400) ELEV.: 140.19 (NAVD 88)

FOUND 3.75" OCS ALUMINUM BENCHMARK DISK STAMPED "3B-98-58". SET IN THE NORTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF FRUIT STREET AND THE ATCHINSON TOPEKA AND SANTA FE RAILROAD, 23 FT. EASTERLY OF THE CENTERLINE OF THE RAILWAY, 19.5 FT. SOUTHERLY OF THE CENTERLINE OF FRUIT STREET, AND 14.3 FT. WEST OF A POWER POLE (#718815E)". ORANGE COUNTY SURVEYS, PUBLIC WORKS.



PREPARED UNDER THE SUPERVISION OF: J. VAGLIENTY				DATE
RCE NO.: C56141				06/2019
DESIGNED: BAO TRAN	DRAWN: J. MARTINEZ	CHECKED: J. VAGLIENTY		10/2017

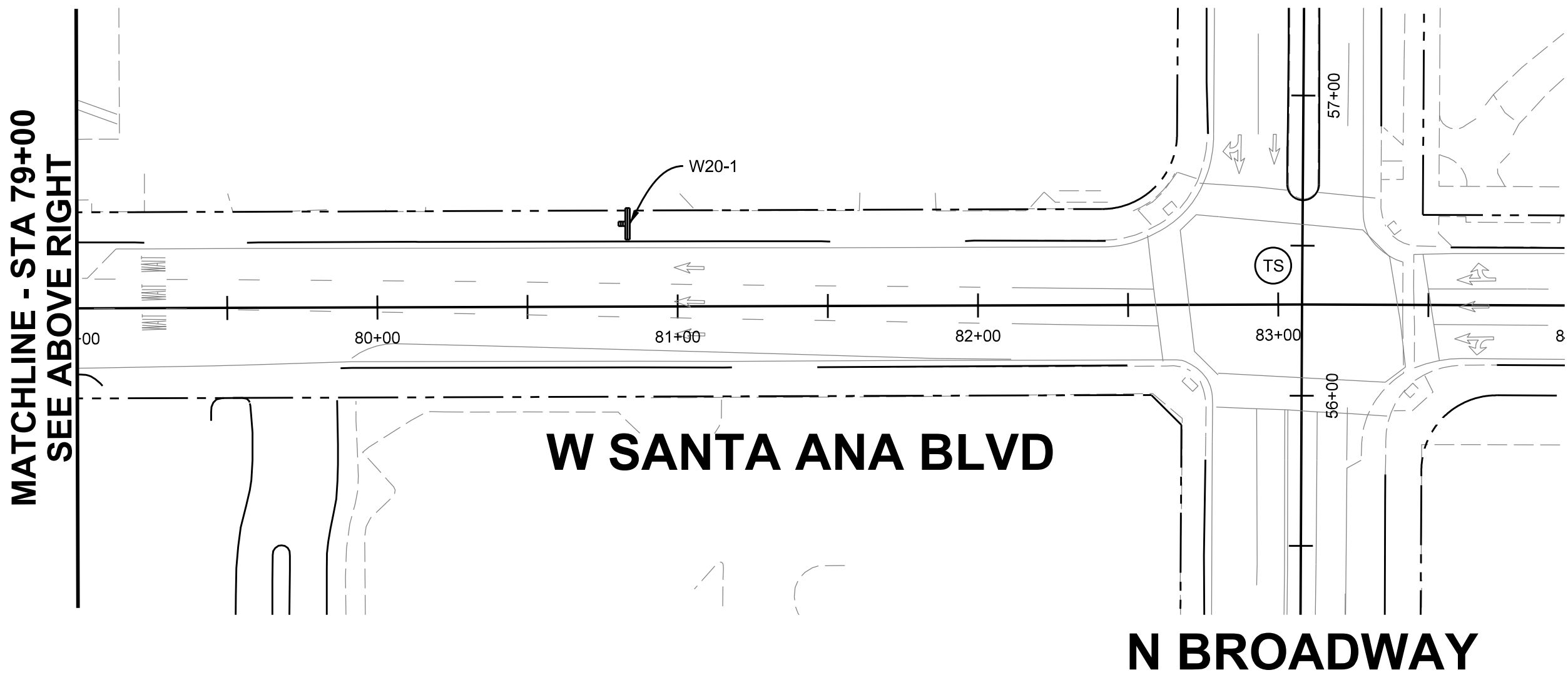
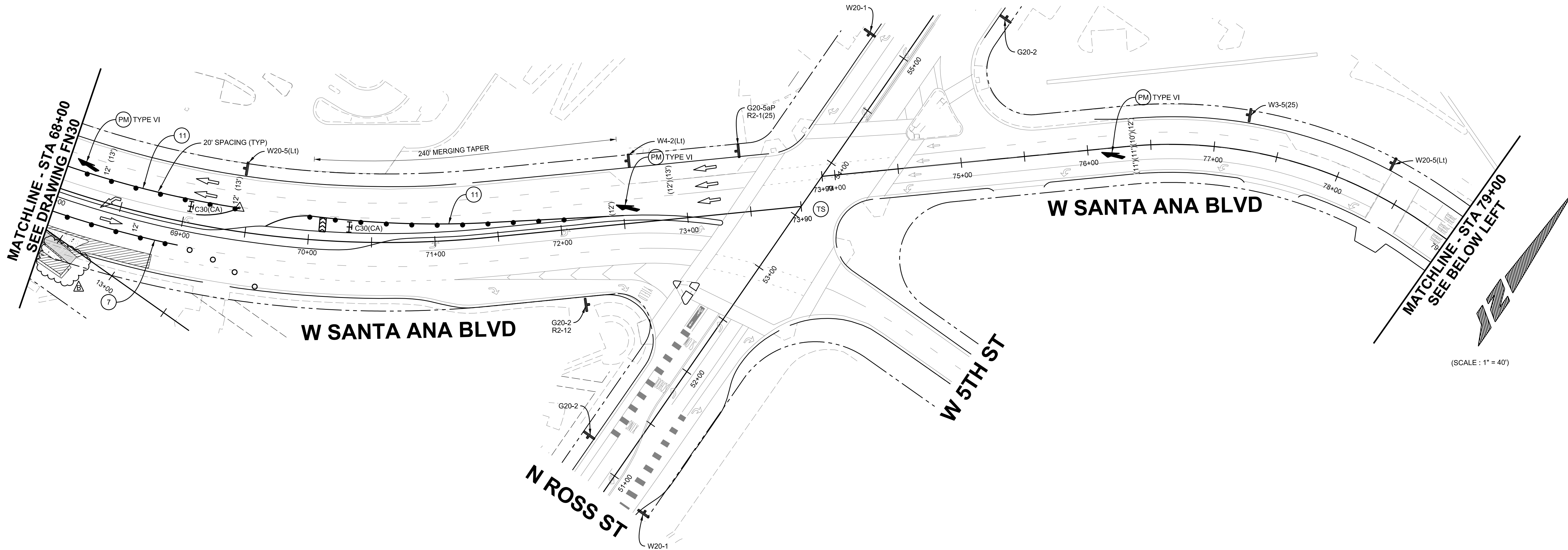


TYPICAL SECTIONS

OC STREETCAR

ORANGE COUNTY TRANSPORTATION AUTHORITY

CITY OF SANTA ANA PROJECT NO. 17-6766-C: QC STREETCAR FROM HARBOR BLVD TO SARTIC

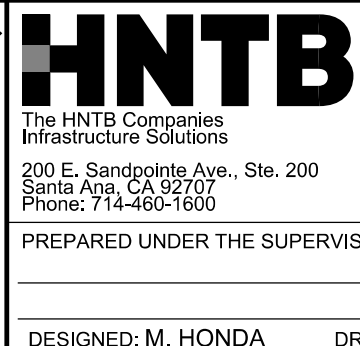
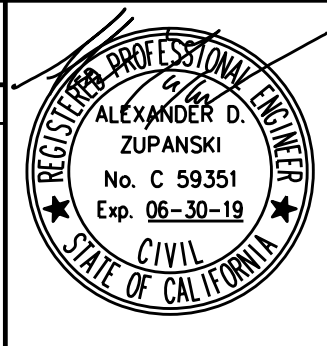


SHT-FN02B-S2_3-62481-FN03.dgn 2/9/2018 7:35:58 AM

FILE NO.:

REVISIONS					
NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED
A	12/2017	ADZ	ISSUE FOR BID		
Δ	02/22/18	ADZ	CPUC - SASSCER PARK BIKE CROSSING		

REFERENCES	
BENCHMARK NO.: 3B-98-85 (PT. 400)	ELEV.: 140.19 (NAVD 88)
FOUND 3.75" OCS ALUMINUM BENCHMARK DISK STAMPED "3B-98-85", SET IN THE NORTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF FRUIT STREET AND THE ATCHINSON TOPEKA AND SANTA FE RAILROAD, 23 FT. EASTERLY OF THE CENTERLINE OF THE RAILWAY, 19.5 FT. SOUTHERLY OF THE CENTERLINE OF FRUIT STREET AND 14.3 FT. WEST OF A POWER POLE (#716815E"). ORANGE COUNTY SURVEYS, PUBLIC WORKS.	



FPL *FPL and Associates, Inc.*
Traffic • Transportation • Civil
30 Corporate Park, Suite 401
Irvine, CA 92606
PHONE: 949-252-1688

PREPARED UNDER THE SUPERVISION OF: ALEXANDER D. ZUPANSKI

DATE

DESIGNED: M. HONDA DRAWN: J. OCHOA CHECKED: A. EAPEN

RCE NO.: C 59351 06/2019

10/2017

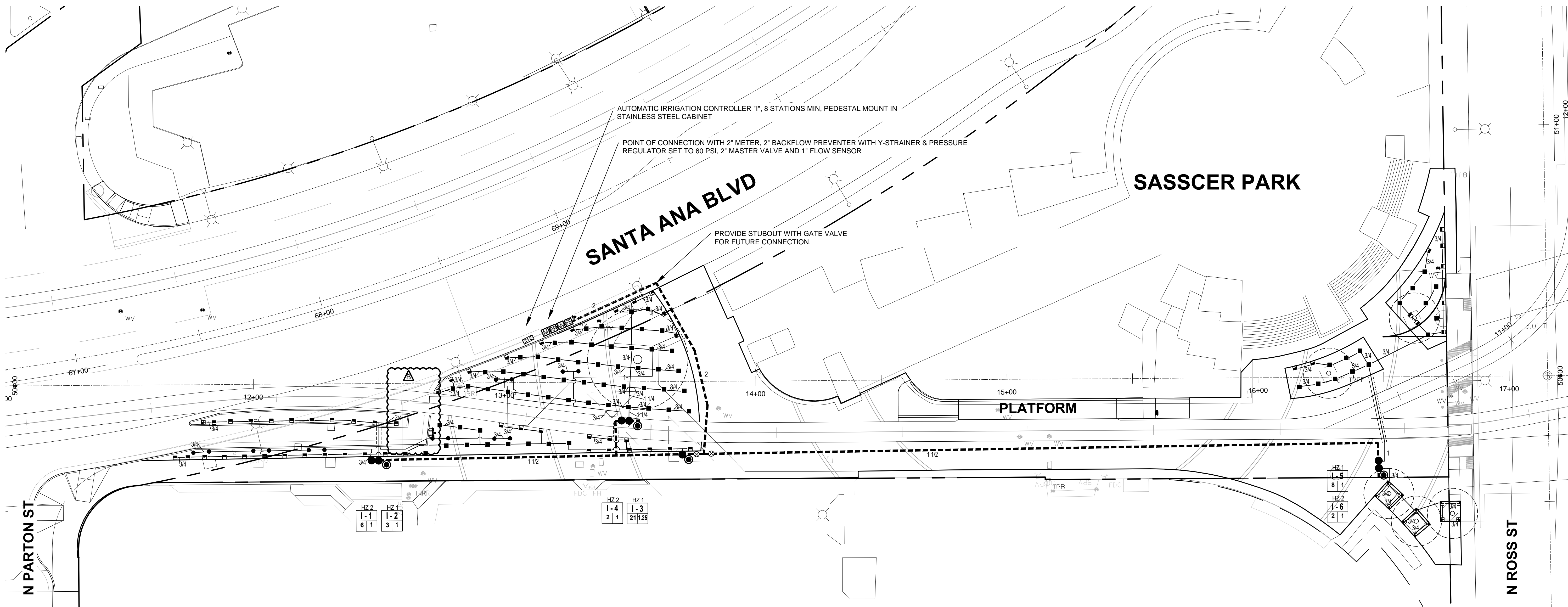


TRAFFIC CONTROL PLAN
W SANTA ANA BLVD
OC STREETCAR
SEGMENT 2B - STAGE 2

ORANGE COUNTY TRANSPORTATION AUTHORITY

FN31

NOTE: EXACT LOCATION FOR IRRIGATION CROSSINGS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION.



IRRIGATION LEGEND:

SYMBOL	DESCRIPTION	PSI	GPM	RAD	MFGR/MODEL
●	ROOT WATER SYSTEM	30	0.5	--	RAIN BIRD RWS-B-C-1402 OR APPROVED EQUAL
●	POP-UP BUBBLER HEAD (2 PER TREE)	30	0.5	--	RAIN BIRD 1402 W/ PA-80 ADAPTER IN 1806-SAM-PRS BODY OR APPROVED EQUAL
■ ■ ■	SQUARE SPRAY POP-UP HEAD, FULL, HALF, QUARTER	30	0.40, 0.20, 0.12	2.5' - 4'	RAIN BIRD SQ-FUL, SQ-HLF, SQ-QTR NOZZLES IN 1806-SAM-PRS BODY OR APPROVED EQUAL
----	DRIP LINE	30	.09 GPH	--	RAIN BIRD XFS-09-12 TUBING OR APPROVED EQUAL
⊗	SHUT-OFF VALVE, LINE SIZE, W/ BRONZE CROSS HANDLE				NIBCO T-113 OR APPROVED EQUAL
Ⓜ	WATER METER				PER CITY STANDARDS 1402 OR APPROVED EQUAL
Ⓜ	MASTER VALVE				GRISWOLD 2000 SERIES OR APPROVED EQUAL
●	REMOTE CONTROL VALVE				RAIN BIRD EFB-CP SERIES OR APPROVED EQUAL
▼	REMOTE CONTROL VALVE, DRIP SYSTEMS				RAIN BIRDXCZ-100-PRBR OR APPROVED EQUAL
○	QUICK COUPLER VALVE				RAIN BIRD 44-LRC OR APPROVED EQUAL
FS	FLOW SENSOR				RAIN BIRD FS100B OR APPROVED EQUAL
Ⓜ	REDUCED PRESSURE BACKFLOW PREVENTER IN ENCLOSURE				FEBCO 825Y W/ WILKINS 500Y STRAINER IN GUARDSHACK GS3 ENCLOSURE OR APPROVED EQUAL
Ⓜ	AUTOMATIC IRRIGATION CONTROLLER, # STATIONS PER PLANS				RAIN BIRD ESP-LXMEF IN STAINLESS STEEL PEDESTAL OR APPROVED EQUAL
---	LATERAL (NON-PRESSURE) PIPING, SIZE AS SHOWN				SCH 40
---	MAIN LINE (PRESSURE) PIPING, SIZE AS SHOWN				SCH 80
---	SLEEVE, PER PLAN, 2x DIAM OF CARRYING PIPE, MIN.				SCH 40

	HZ 1	HYDROZONE
CONTROLLER	A-1	SEQUENCE NUMBER
APPROXIMATE GPM	12 1	VALVE SIZE, INCHES

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BEFORE YOU DIG

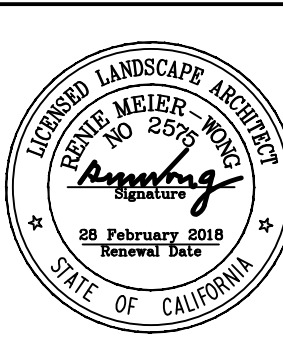
NOTICE TO CONTRACTOR
PURSUANT TO ASSEMBLY BILL 3019 NO EXCAVATION PERMIT IS VALID UNLESS THE CONTRACTOR CONTACTS AND OBTAINS AN INQUIRY I.D. NUMBER FROM "UNDERGROUND SERVICE ALERT" (1-800-422-4133) AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING EXCAVATION.

SHT-IN12-62481-R08.DGN 2/9/2018 10:56:06 AM

FILE NO.:

REVISIONS					
NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED
A	12/2017		ISSUE FOR BID		
Δ	2/22/2018	RW	CPUC - Bike Lane at Sassocer Park		

REFERENCES	
BENCHMARK NO.:	3B-98-85 (PT. 400) ELEV.: 140.19 (NAVD 88)
FOUND 3.75" OCS ALUMINUM BENCHMARK DISK STAMPED "3B-98-5". SET IN THE NORTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF FRUIT STREET AND THE ATCHINSON TOPEKA AND SANTA FE RAILROAD, 23 FT. EASTERLY OF THE CENTERLINE OF THE RAILWAY, 19.5 FT. SOUTHERLY OF THE CENTERLINE OF FRUIT STREET AND 14.3 FT. WEST OF A POWER POLE (#716815E). ORANGE COUNTY SURVEYS, PUBLIC WORKS.	



HNTB
The HNTB Companies
Infrastructure Solutions
200 E. Sandpointe Ave., Ste. 200
Santa Ana, CA 92707
Phone: 714-460-1600

CORNERSTONE STUDIOS, INC.
106 W 4th St, 5th Floor
Santa Ana, CA 92701
714. 973. 2200 Voice
714. 973. 0203 Fax

LANDSCAPE ARCHITECTURE • URBAN DESIGN • PLANNING • RESOURCE ANALYSIS

PREPARED UNDER THE SUPERVISION OF: REMIE MEIER WONG

DATE: 02/2018

DESIGNED: J. KIM DRAWN: J. ARREDONDO CHECKED: DON WILSON

RLA NO.: 2575

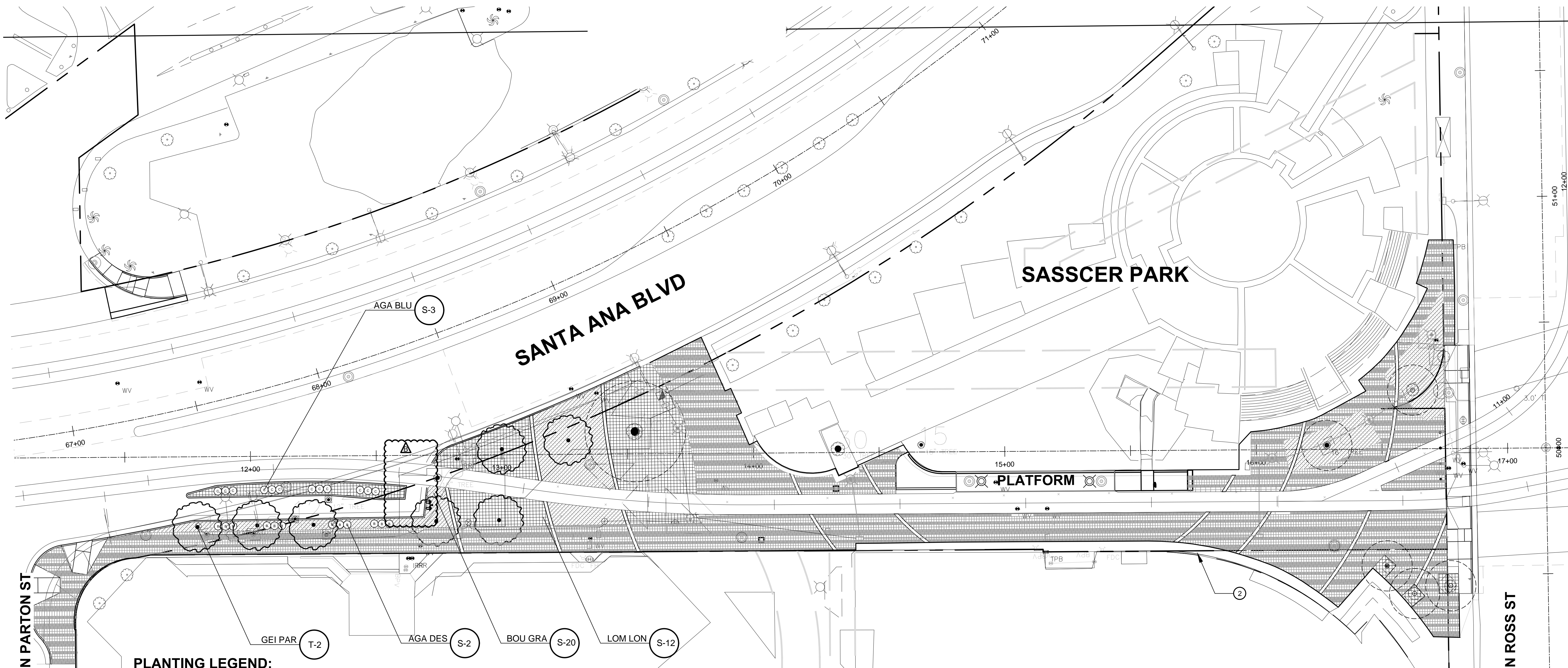


IRRIGATION PLAN

OC STREETCAR
SASSCER PARK

ORANGE COUNTY TRANSPORTATION AUTHORITY

IN12

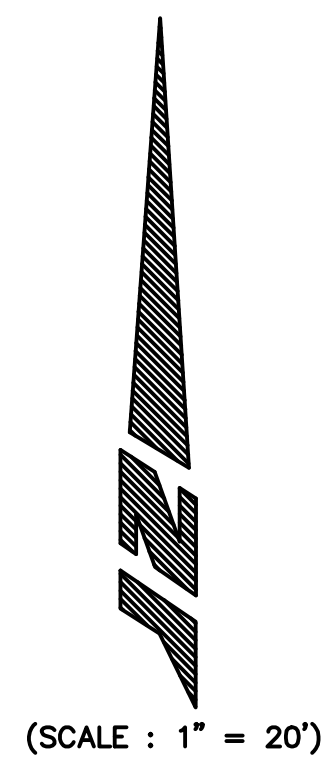


PLANTING LEGEND:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
T-2	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	STANDARD TRUNK, 36" BOX
T-8	EXISTING TREE		
SHRUBS			
S-2	AGAVE DESMETIANA 'VARIEGATA'	VARIEGATED SMOOTH AGAVE	5 GAL. @3' O.C.
S-3	AGAVE 'BLUE GLOW'	BLUE GLOW AGAVE	5 GAL. @3' O.C.
S-12	LOMANDRA LONGIFOLIA 'BREEZE'	BREEZE (TM) DWARF MAT RUSH PP#12420	5 GAL. @3' O.C.
S-20	BOUTELOUA GRACILIS 'BLONDE AMBITION'	BLONDE AMBITION BLUE GRAMA GRASS	5 GAL. @ 3' O.C.

BOTANICAL NAME (ABBREVIATED)

PLANT REF. A-1 SPE GEN A-1



Underground Service Alert
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TWO WORKING DAYS
BEFORE YOU DIG

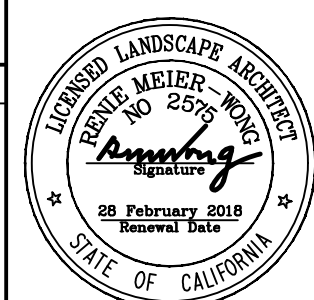
NOTICE TO CONTRACTOR
PURSUANT TO ASSEMBLY BILL 3019 NO EXCAVATION
PERMIT IS VALID UNLESS THE CONTRACTOR CONTACTS
AND OBTAINS AN INQUIRY I.D. NUMBER FROM "UNDER-
GROUND SERVICE ALERT" (1-800-422-4133) AT LEAST
TWO WORKING DAYS PRIOR TO COMMENCING EXCAVATION.

SHT:LN14-62481-ROB.DGN 2/6/2018 11:59:48 AM

FILE NO.:

REVISIONS					
NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED
A	12/2017		ISSUE FOR BID		
Δ	2/22/2018	RW	CPUC - Bike Lane at Sasscer Park		

REFERENCES	
BENCHMARK NO.:	3B-98-85 (PT. 400) ELEV.: 140.19 (NAVD 88)
FOUND 3.75" OCS ALUMINUM BENCHMARK DISK STAMPED "3B-98-5", SET IN THE NORTHWESTERLY CORNER OF A 4 FT. BY 6 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF FRUIT STREET AND THE ATCHINSON TOPEKA AND SANTA FE RAILROAD, 23 FT. EASTERLY OF THE CENTERLINE OF THE RAILWAY, 19.5 FT. SOUTHERLY OF THE CENTERLINE OF FRUIT STREET AND 14.3 FT. WEST OF A POWER POLE (#716815E). ORANGE COUNTY SURVEYS, PUBLIC WORKS.	



HNTB
The HNTB Companies
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Santa Ana, CA 92701
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CORNERSTONE STUDIOS, INC.
1106 W. 4th St., 5th Floor
Santa Ana, CA 92701
714. 973. 2200 Voice
714. 973. 0203 Fax
LANDSCAPE ARCHITECTURE • URBAN DESIGN • PLANNING • RESOURCE ANALYSIS

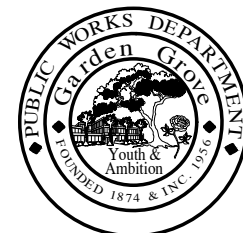
PREPARED UNDER THE SUPERVISION OF: RENIE MEIER WONG

DATE: 02/2018

DESIGNED: J. KIM DRAWN: J. ARREDONDO CHECKED: DON WILSON

RLA NO.: 2575

10/2017



LANDSCAPE PLAN

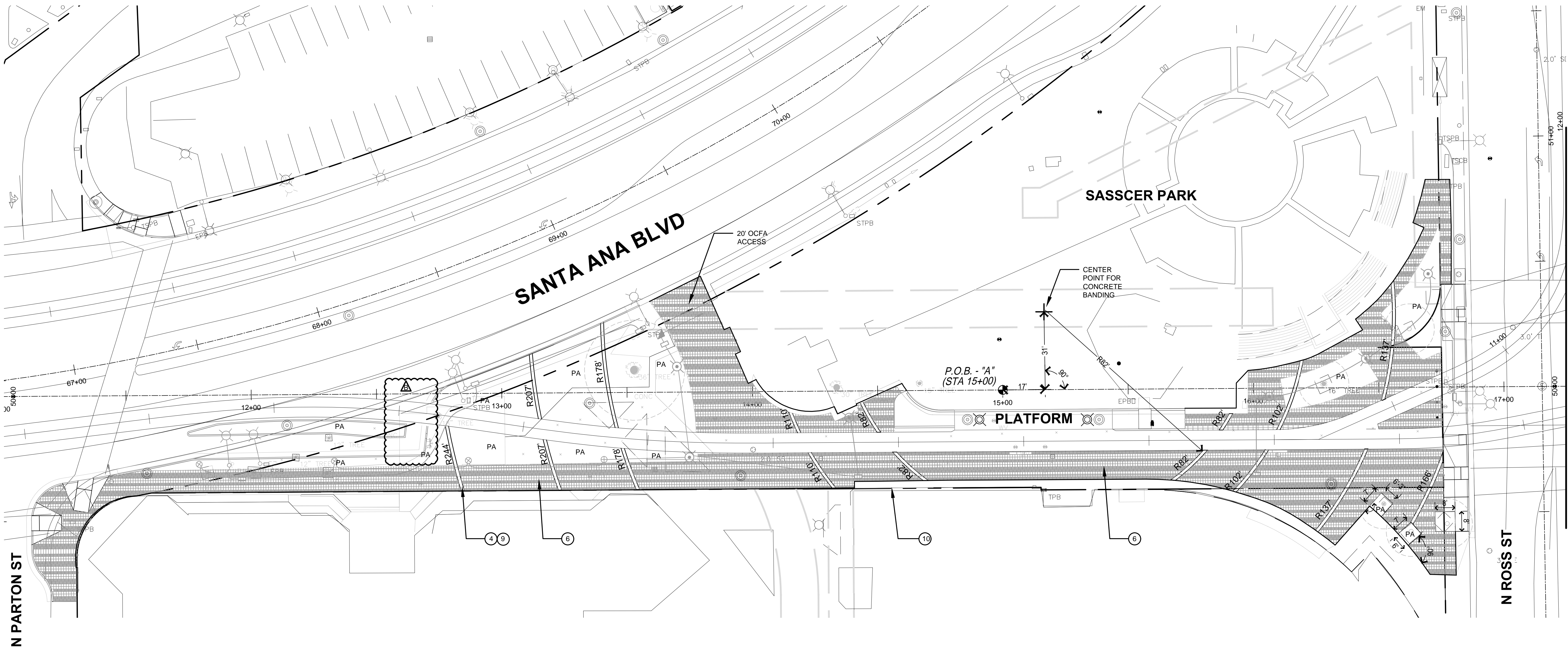
OC STREETCAR

SASSCER PARK

ORANGE COUNTY TRANSPORTATION AUTHORITY

LN12

CITY OF SANTA ANA PROJECT NO. 17-6766-C: OC STREETCAR FROM HARBOR BLVD TO SARTC
MATCHLINE - W 4TH ST STA 17+25
SEE DRAWING LN13

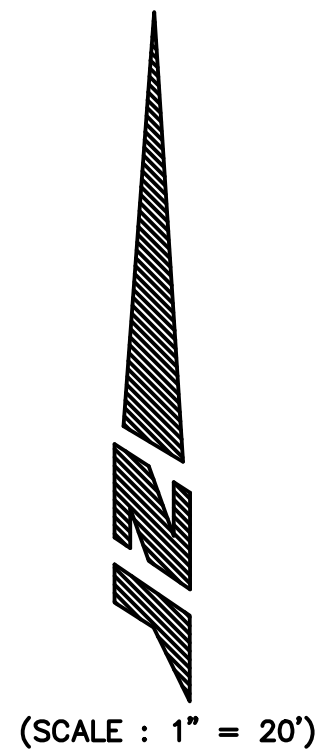


MATCHLINE - W 4TH ST STA 17+25
SEE DRAWING LN24

LANDSCAPE CONSTRUCTION LEGEND:

- ④ 15' WIDE CONCRETE BANDING. EXPOSED AGGREGATE-REVEALED FINISH BY BOMANITE (EX-RV-080211-13) OR APPROVED EQUAL. SAW-CUT JOINT AT 5' O.C., INSTALL EXPANSION JOINTS AT 15' O.C. ON BOTH SIDES OF BAND. SEE DETAIL A & C, SHT-LD06
- ⑥ CONCRETE LINEAR PAVERS (VEHICULAR) BY STEPSTONE INC. OR APPROVED EQUAL. SEE DETAIL A, SHT-LD05 FOR PAVING LAYOUT
- | SIZE | COLOR | FINISH |
|------------|-------------|------------------------------------|
| 3"X18"X4" | FRENCH GRAY | 1404 WITH LIGHT SAND BLAST FINISH |
| 12"X12"X4" | FRENCH GRAY | 1804 WITH MEDIUM SAND BLAST FINISH |
- ⑨ SAW-CUT JOINT. SEE DETAIL A, SHEET LD06
- ⑩ EXPANSION JOINTS. SEE DETAIL A, SHEET LD06

PA: PLANTING AREA, SEE LANDSCAPE PLANS LN01 - LN20
POB: POINT OF BEGINNING FOR DIMENSIONING OF 15' WIDE CONCRETE CIRCULAR BANDINGS.
↔: ALIGN



(SCALE : 1" = 20')

Underground Service Alert
of Southern California
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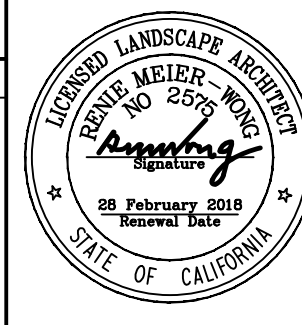
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SHT-LN23-62481-R08.DGN 2/6/2018 12:05:28 PM

FILE NO.: SHT-LN23-62481-R08.DGN

REVISIONS					
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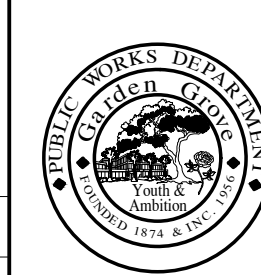
PREPARED UNDER THE SUPERVISION OF: RENIE MEIER WONG

DATE: 02/2018

DESIGNED: J. KIM DRAWN: J. ARREDONDO CHECKED: DON WILSON

RLA NO.: 2575

10/2017



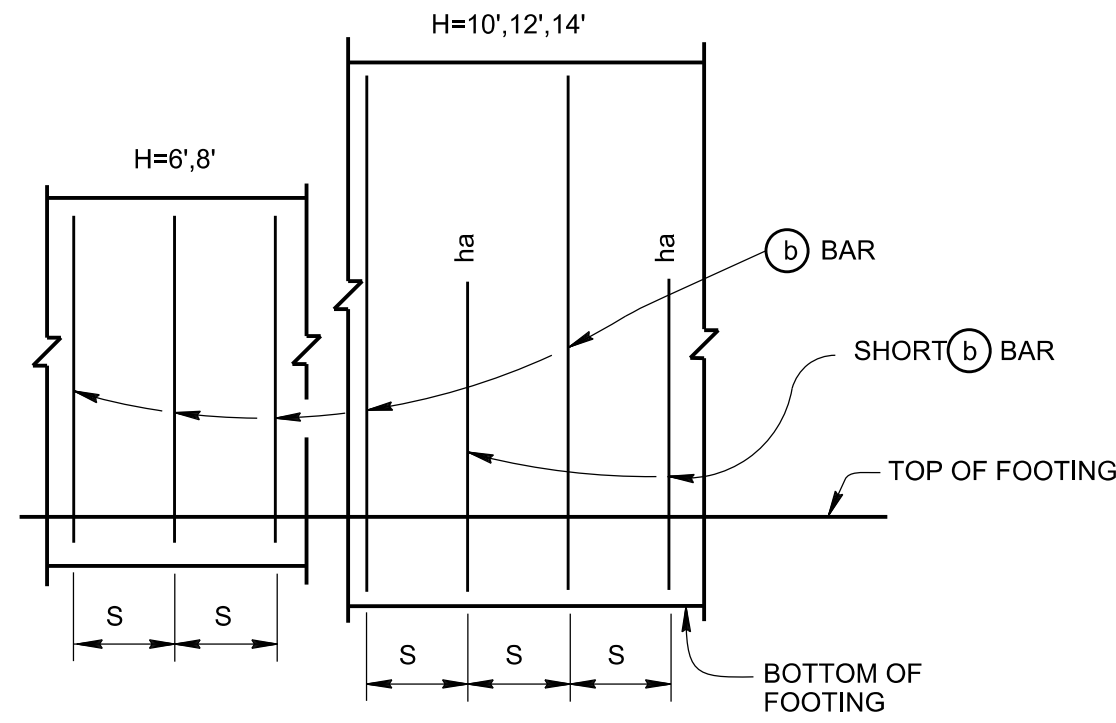
LANDSCAPE CONSTRUCTION PLAN

LN23

OC STREETCAR

SASSCER PARK

ORANGE COUNTY TRANSPORTATION AUTHORITY

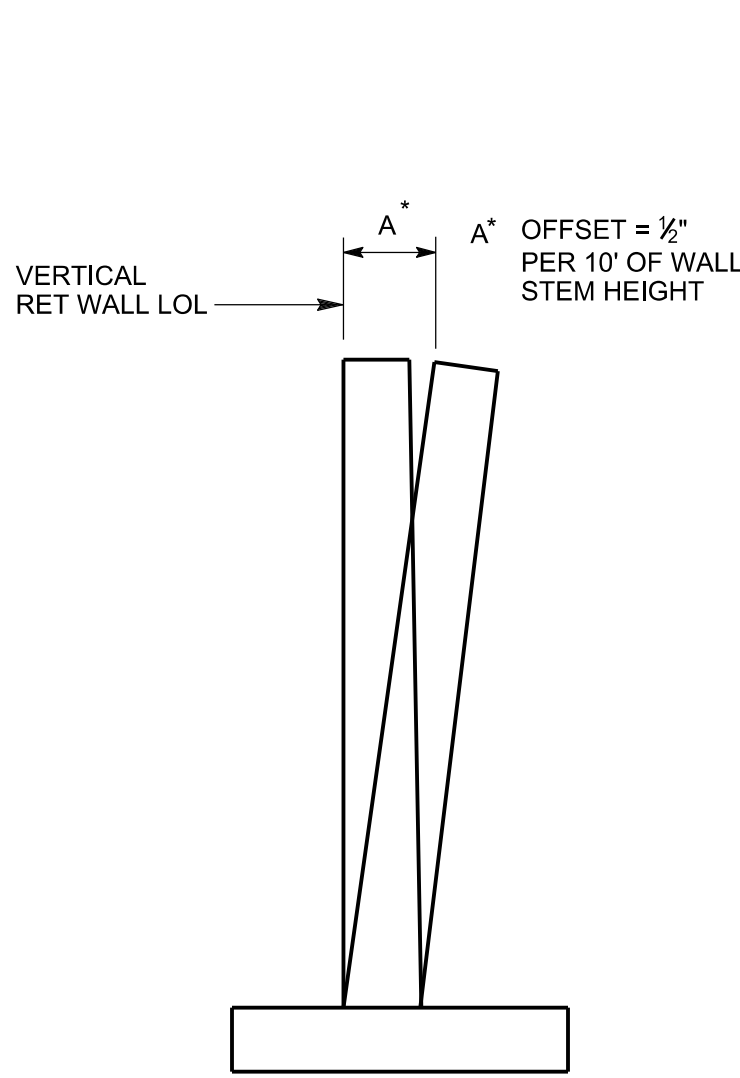


ELEVATION

NO SCALE

NOTES:

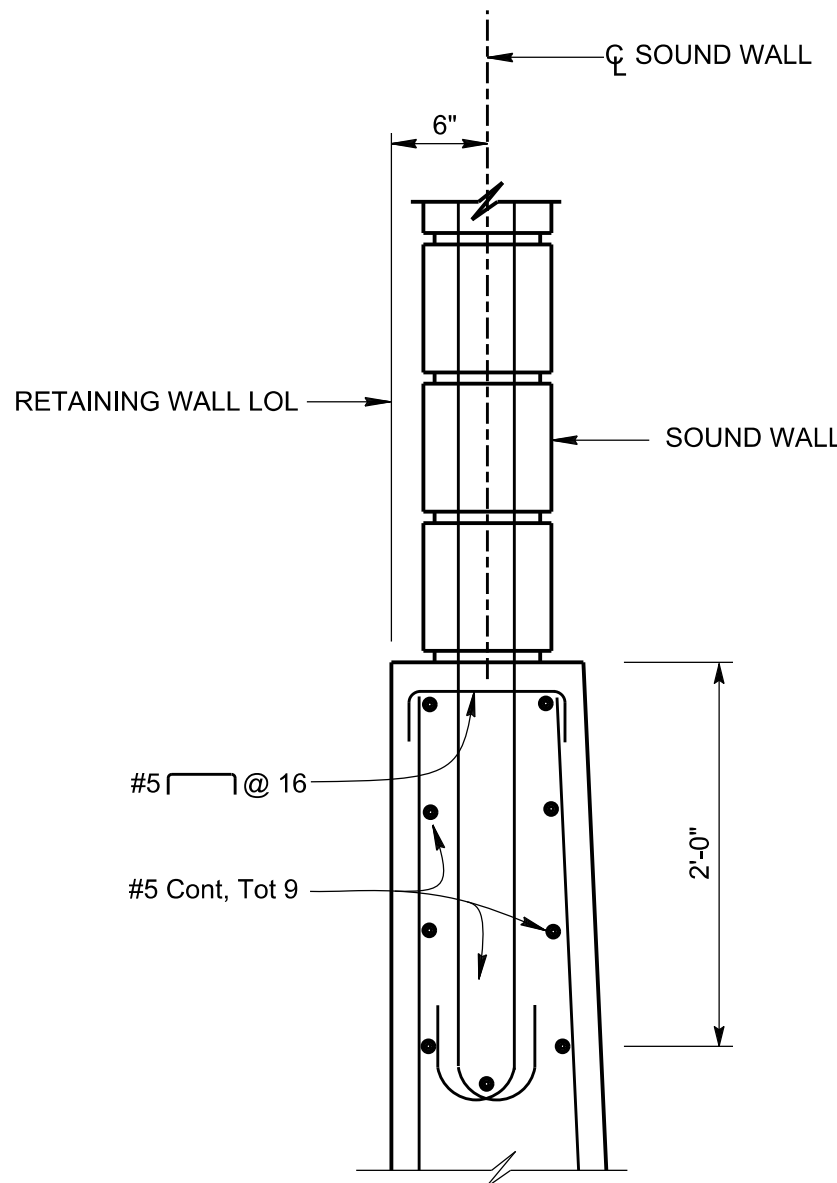
"HA" AND "HB" ABOVE (b) BARS INDICATE DISTANCE FROM TOP OF FOOTING TO UPPER END OF (b) BARS, SEE TABLE.
"S" IS (b) BAR SPACING, SEE TABLE.



WALL OFFSET

NO SCALE

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



DETAIL A

1" = 1'-0"

DESIGN DATA

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, WITH THE CALIFORNIA AMENDMENTS PREFACE DATED MARCH 2014 AND THE OC STREETCAR PROJECT BASIS OF DESIGN REPORT, DECEMBER 2016

WS: 33 PSF ON SOUND WALL
LS: VARIED SURCHARGE ON LEVEL GROUND SURFACE

EQE: MONONABE-OKABE METHOD
 $K_h = 0.3$
 $K_v = 0.0$

Soil: $\phi = 34^\circ$
 $\gamma = 120 \text{ pcf}$

REINFORCED CONCRETE: $f'_c = 3600 \text{ psi}$
 $f_y = 60,000 \text{ psi}$

LOAD COMBINATIONS AND LIMIT STATES

Service I $Q=1.00DC+1.00EV+1.00EH+1.00LS+0.30WS$
Service II $Q=1.00DC+1.00EV+1.00EH+1.00WS$
Strength I $Q=aDC+BEV+1.50EH+1.75LS$
Strength III $Q=aDC+BEV+1.50EH+1.40WS$
Strength V $Q=aDC+BEV+1.50EH+1.35LS+0.40WS$
Extreme I $Q=1.00DC+1.00EV+1.00EH+1.00EQD+1.00EQE$

WHERE:

Q: FORCE EFFECTS
a: 1.25 OR 0.90, WHICH EVER CONTROLS DESIGN
B: 1.35 OR 1.00, WHICH EVER CONTROLS DESIGN
DC: DEAD LOAD OF STRUCTURE COMPONENTS
EV: VERTICAL EARTH FILL PRESSURE
LS: LIVE LOAD SURCHARGE
EQE: SEISMIC EARTH PRESSURE
EQD: SOIL AND STRUCTURE COMPONENTS INERTIA.
SOIL INERTIA IGNORED FOR STEM DESIGN
WS: WIND LOAD ON SOUND WALL AND BARRIER

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA					
DESIGN H	6'	8'	10'	12'	14'
W	6'-9"	7'-3"	8'-0"	8'-9"	10'-0"
C	2'-3"	2'-5"	2'-8"	2'-11"	3'-4"
B	4'-6"	4'-10"	5'-4"	5'-10"	6'-8"
F SPREAD FOOTING	1'-3"	1'-3"	1'-3"	1'-3"	1'-6"
BATTER	0	1/2 : 12	1/2:12	1/2 : 12	1/2:12
(a) BARS					
(b) BARS	#8 @ 12	#8 @ 12	#7 @ 6	#8 @ 12	#7 @ 6
hy	2'-0"	2'-4"	5'-0"	6'-0"	7'-0"

LEGEND

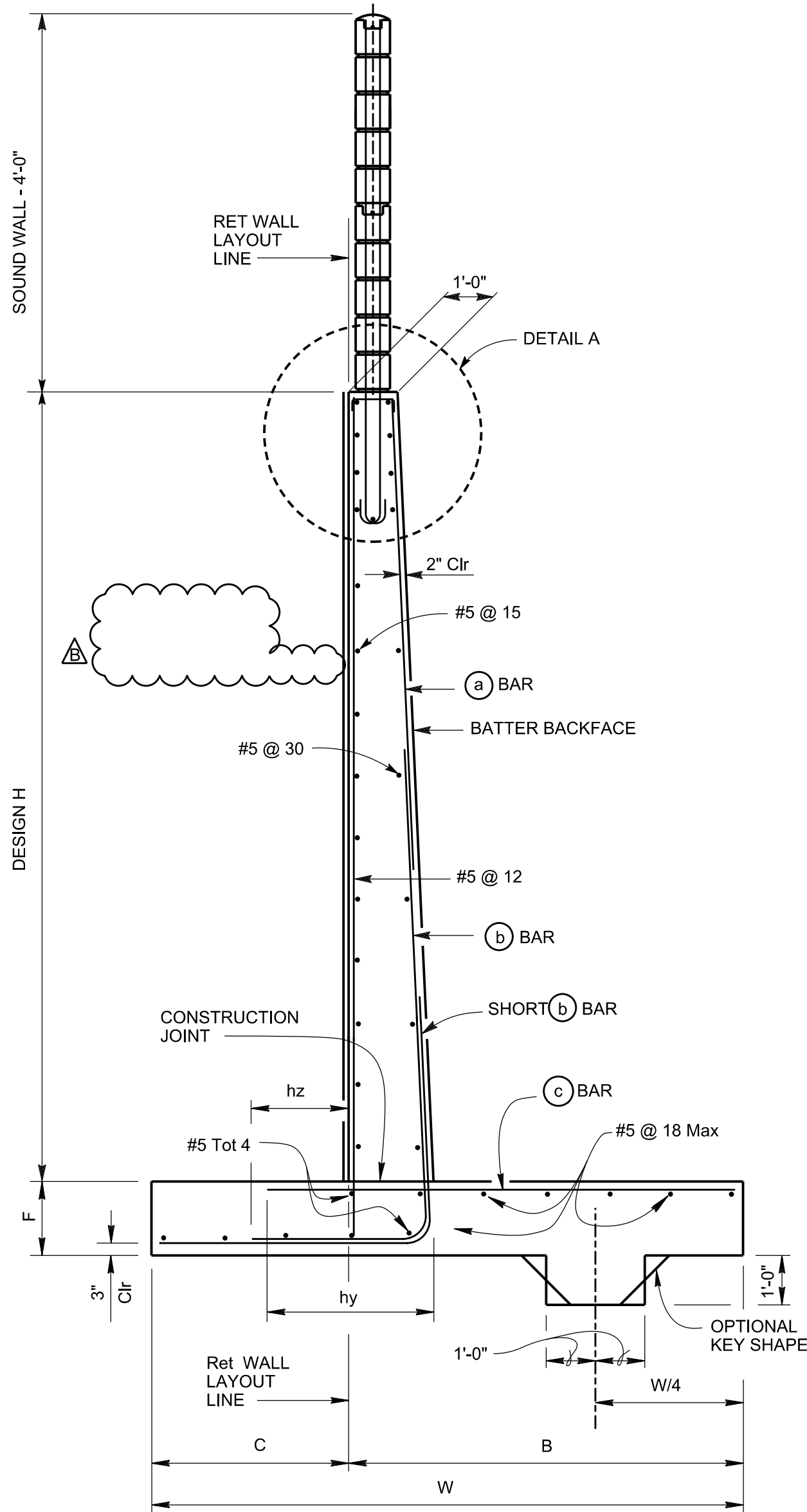
SER: SERVICE LIMIT STATE
STR: STRENGTH LIMIT STATE
EXT: EXTREME EVENT LIMIT STATE
B': EFFECTIVE FOOTING WIDTH (FT)

q_o : NET BEARING STRESS (KSF)
 q_o : GROSS UNIFORM BEARING STRESS (KSF)
 γ : 2 BAR BUNDLE

NOTES:

- FOR DETAILS NOT SHOWN AND DRAINAGE NOTES, SEE
- FOOTING COVER, 1'-6" MINIMUM.

B3-5



SPREAD FOOTING SECTION

No Scale

Underground Service Alert
of Southern California



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RETAINING WALLS

OC STREETCAR

RETAINING WALLS DETAILS NO. 1

ORANGE COUNTY TRANSPORTATION AUTHORITY

ND01

NOTE:
THE CONTRACTOR SHALL VERIFY
ALL CONTROLLING FIELD DIMENSIONS
BEFORE ORDERING OR FABRICATING
ANY MATERIAL.

FILE NO.:

REVISIONS

NUMBER	DATE	INITIALS	DESCRIPTION	APPROVED	INSTALLED
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Δ	02/22/18	PWP	RETAINING WALL NOTE UPDATE		

REFERENCES

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PREPARED UNDER THE SUPERVISION OF: P. PENCE

DATE

DESIGNED: P. PENCE DRAWN: L. ZHANG
CHECKED: G. CHANG

RCE NO.: 52680

12/31/2018

10/2017

