



Patricia Romo, P.E.
Director of Transportation

COUNTY OF RIVERSIDE

TRANSPORTATION AND LAND MANAGEMENT AGENCY

Mojahed Salama, P.E.
Deputy for Transportation/Capital Projects
Richard Lantis, P.L.S.
Deputy for Transportation/Planning and
Development

Transportation Department

ADDENDUM NUMBER 3

Dated April 12, 2018

to the
Specifications and Contract Documents
for the construction of

Limonite Avenue at Interstate 15 (I-15)
Interchange Improvements Project
In the City of Eastvale and the City of Jurupa Valley
Project No. A3-0393

Bids Due: (Revised)
Wednesday, May 2, 2018; 2:00 p.m.
14th Street Transportation Annex
3525 14th Street; Riverside, CA 92501
(951) 955-6780

This Addendum is issued pursuant to the Instructions to Bidders, Item No. 8, of the Contract Documents for the reference project. This Addendum is issued as a supplement to the specification and special provisions for the referenced project. The revisions to the specifications shall become a part of the Contract Documents, and each bidder shall acknowledge receipt thereof on the Bid (Proposal). Bidders are directed to sign this addendum as acknowledged, and attach the signed addendum to the contractor's submitted proposal.

Note: During the advertisement period of this project, this document and attachments (if any) are available upon request at the office of the Transportation Department, and are available as a free download at the Transportation Department's website:

<http://rctlma.org/trans/Contractors-Corner/Notices-Inviting-Bids>

MODIFICATIONS / CLARIFICATIONS TO SPECIAL PROVISIONS:

Item 1: The new designated date and time for the receipt and opening of bids is revised as follows:

Wednesday, May 2, 2018; 2:00 p.m.
14th Street Transportation Annex
3525 14th Street; Riverside, CA 92501
(951) 955-6780

Item #2: Revised Proposal. Refer to "Proposal" pages B2-B11. Delete and replace "Proposal" (pages B2-B11) with "Proposal (Revised)" pages B2-B11A attached herewith as Attachment "A".

- a. The following additional bid schedules are being included in the contract and made part thereof.

- Alternate Bid Schedule E

Landscaping within the interchange on the City of Eastvale side of I-15 has been removed from the Base Bid and included as an Alternate Bid Schedule E.

- b. The following bid schedules are being revised and included in the contract and made part thereof.

- Alternate Bid Schedule C

Items associated with the JCSD waterline construction on the overcrossing have been updated.

- Alternate Bid Schedule D

Items associated with the CDA waterline construction on the overcrossing have been updated.

- c. The following bid items have been deleted from the bid proposal.

Item 41, Import Borrow
Item 196, Double Midwest Guardrail System
Item 203, Crash Cushion (Type CAT)

- d. The following new bid items have been added to the bid proposal.

Item 41, Embankment
Item 58, 2" Backflow Preventer Assembly
Item 59, Backflow Preventer Enclosure
Item 76, Class 2 Aggregate Subbase
Item 134, 268 and 272, 24" Welded Steel Pipe Casing (Bridge)
Item 200, Concrete Barrier (Type 60G)
Item 201, Concrete Barrier (Type 60GE)
Item 264, PVC Conduit (Sleeve)
Item 268 and 272, 24" Welded Steel Pipe Casing (Bridge)
Item 269, 18" Welded Steel Pipe (0.250" Thick) (Non-Potable Water Line) (JCSD)
Item 270 and 274, Seismic Expansion Assembly
Item 271 and 275, 2" Combination Air Release and Air/Vacuum Valve
Item 273, 18" Welded Steel Pipe (0.250" Thick) (Water Line)

- e. All changes to bid items and quantities shown on the Proposal supersede those shown on the plans.

Item #3: Special Notices

Refer to the Special Notices on page 1 of the Special Provisions. Add the following Special Notice (references noted are included as Attachment "B"):

Note that possession of all properties needed for construction is pending. Reference to the project parcels subject to work-around and the anticipated dates parcels will be available for construction are included herein.

Item #4: 00-1.05A Liquidated Damages

Refer to section 00-1.05A, "Liquidated Damages," on page 5 of the Special Provisions. Replace section 00-1.05A, "General," with the following:

Pay to the County the sum per the table below per day, for each and every day's (as noted below) delay in finishing the work past the milestone completion date listed.

Milestone Completion	Completion Date (Milestone)	\$/Day* (Early/Late)	Maximum Day* (Early/Late)	Maximum Bonus
Construct Temporary Loops	10/01/2018	\$5,000/ \$5,000	10/unlimited	\$50,000
Complete Stage 1 – Bridge portion, south side of Limonite Ave and ramps. Shift traffic to south side of Limonite Ave	04/16/2019	\$20,000/ \$20,000	10/unlimited	\$200,000
Complete Stage 2 – Complete bridge, Limonite Ave and ramps. Open to full traffic.	10/30/2019	\$25,000/ \$25,000	10/unlimited	\$250,000
Complete remaining landscape, work outside of traffic area and final clean up – punch list	-	\$0/ \$10,000	10/unlimited	-

* Each early day is based on working days, and each day late is based on calendar days.

Refer to section 00-1.05A(1) Additional Liquidated Damages on page 5 of the Special Provisions. Add following provisions to this section and made part thereof.

00-1.05A(1)b Water Pollution Control and SWPPP

If the Contractor fails to comply with the requirements of Special Provisions Section 13, "Water Pollution Control", all referenced requirements in this section, and the approved Water Pollution Control Program, the Contractor shall pay to the County of Riverside the sum of **\$1,000.00** per day for each and every working day after the expiration of 72 hours written notification from the Engineer.

Item #5: 00-1.23 Construction Area Lighting

The following Special Provision section added to section 00 County Miscellaneous and made part thereof.

The Contractor shall furnish, install, maintain, and remove when no longer required, construction area lighting in accordance with these Special Provisions, and as directed by the Engineer.

In all construction areas where work is to be performed during the hours of darkness, the working areas shall be lighted in conformance with the minimum illumination intensities established by the California Division of Industrial Safety construction safety orders. The term hours of darkness shall be as defined in Section 12-3.01 "General" of the Standard Specifications. All lighting fixtures shall be mounted and directed in a manner precluding glare to approaching traffic, adjacent businesses and adjacent residences.

All construction and warning signs and construction area signs required for night time operations shall be illuminated during the hours of work. All electrical power shall be provided by the Contractor.

Full compensation for construction area lighting shall be considered as included in the contract price paid for the various items of work involved and no additional compensation will be allowed therefor.

Item #6: 00-1.24 Reference Specific Brands or Product

The following Special Provision section added to section 00 County Miscellaneous and made part thereof.

Although the Special Provisions and construction plans reference specific brands or products, the intent of these references is as a guideline only, and products from alternate manufacturers will be accepted, provided that the product and its performance are a close approximation of the specified product. The Contractor shall submit information and specifications of the proposed alternate product to the Engineer for evaluation and approval prior to placing an order with the vendor.

Item #7: 00-1.25 Requesting Work Outside the Working Hours and on Legal Holidays

The following Special Provision section added to section 00 County Miscellaneous and made part thereof.

Refer to Section 13, Hours of Work, of the Instructions to Bidders; and Section 12-4.02A(2), of these Special Provisions for designated hours of work and legal Holidays.

The Contractor shall notify the Engineer in writing at least 1 week in advance if any work will be requested to be performed outside the designated working hours and on designated legal holidays.

The Contractor will be responsible for covering the cost of the Engineer premium inspection costs during work performed outside the designated working hours and on designated legal holidays, unless otherwise approved in writing by the Engineer.

Item 8: Supplemental Project Information.

Refer to Section 2-1.06B Supplemental Project Information and table showing supplemental items on page 18 of Special Provisions. Following items are made part of the table.

- 10-A. UtilityPlans.SCE
- 10-B. UtilityPlans.Charter
- 10-C. UtilityPlans.SoCalGas
- 10-D. UtilityPlans.AT&T

The Supplemental Project Information is available on the County of Riverside Transportation Department website:

<http://rctlma.org/trans/Contractors-Corner/Notices-Inviting-Bids>

Item #9: Nonhighway Facility Rearrangement

Refer to section 5-1.36C(3) on page 19 of the Special Provisions. Replace the table in section 5-1.36C(3) with the following:

Utility Relocation and Contractor-Arranged Time for the Relocation

Utility	Utility address	Location	Working days
Charter Communications	7337 Central Ave Riverside, CA 92504	Park-N-Ride Lot	20 days
So Cal Gas	9400 Oakdale Ave ML SC9314 Chatsworth, CA 91311	Limonite Ave and Park-N-Ride Lot	5 days (concurrent)
Southern California Edison	300 N. Pepper Ave. Bldg. B Rialto, CA 92376	Limonite Ave	160 days
AT&T Mobility	1452 Edinger Avenue Tustin, CA 92780	Park-N-Ride Lot	21 days
Sprint	1643 W. Orange Grove Ave. Orange CA, 926868	Park-N-Ride Lot	21 days
T-Mobile	2008 McGaw Irvine, CA 92614	Park-N-Ride Lot	21 days
Charter Communications	7337 Central Ave Riverside, CA 92504	Limonite Ave Overcrossing	20 days
Jurupa Valley Community Services District (JCSD)	11201 Harrel Street Jurupa Valley, CA 91752	Limonite Avenue Overcrossing	25 days*
Chino Basin Desalter Authority (CDA)	2151 South Haven Avenue, Suite 202 Ontario, CA 91761	Limonite Avenue Overcrossing	25 days*

* The working days noted for JCSD and CDA work on the Limonite Avenue Overcrossing are required if the work included in Alternate Bid Schedule C and D are not included in the Contract, and the work is performed by JCSD and CDA.

Item #10: 10-2 Median Paving

The following Special Provision section added to section 10 of the Special Provisions and made part thereof. The referenced Chapter 11, "Pavement," of the I-15 Express Lanes Project, Technical Provisions, RFP 16-31-057-00 is attached herewith as **Attachment "C"**, are being included in the contract and made part thereof.

Replace "Reserved" in Section 10-2 of the RSS with:

10-2 MEDIAN PAVING

Section 10-2 includes specifications for constructing paving within the median of mainline I-15 associated with structural section 13 shown on the plans.

Comply with Chapter 11, "Pavement," of the I-15 Express Lanes Project, Technical Provisions, RFP Number 16-31-057-00.

Payment of the bid items included in structural section 13 are paid for in compliance with section 9-1.03.

Item #11: 19-6 Embankment Construction

Refer to section 19 on page 41 of the Special Provisions. The following has been added and made part thereof.

Add to the end of section 19-6.03A:

If an ordered change increases the quantity of excavation or decreases the quantity of embankment so that surplus excavation has to be disposed of, disposing of the surplus material is change order work.

If an ordered change either increases or decreases the quantity of borrow required to complete the planned embankments:

1. Supplying borrow to the job site is change order work.
2. Increase in embankment that requires an increase in borrow at the bid item price for embankment, as change order work or at the price of \$0.50 per cubic yard. Agree with the Engineer on your payment method.
3. Increase in excavation that results in a decrease in borrow at the bid item price for excavation, but you must pay the Department the estimated cost of furnishing the quantity of the decrease in borrow, computed as if the work were performed on a force account basis. The Department deducts from sums due or that may become due you.
4. Department decrease the embankment quantity if there is a decrease in the borrow.

Item #12: 19-7 Borrow Material

Refer to section 19 on page 41 of the Special Provisions. The following has been added and made part thereof.

Replace *Reserved* in section 19-7.02B with:

In addition to the locations described for excavation, obtain local borrow from:

1. the 11,000 cubic yard stockpile located within the interchange limits (the stockpile has been tested and confirmed non-hazardous material suitable to be used as embankment material)

After you obtain local borrow, grade the borrow site such that it drains and blends in with the surrounding area.

Item #13: Reinforcement

Refer to section 52 on page 57 of the Special Provisions. The following has been added and made part thereof.

Add to the end of section 52-1.01A:

Copper cable and electrical rebar bonding must comply with section 52-7.

Item #14: Concrete Curbs and Sidewalk

Refer to section 73 on page 63 of the Special Provisions. The following has been added and made part thereof.

Add to section 73-1.02A:

Plastic pipe and grates for wall drains must comply with the specifications for pipe for edge drains and edge drain outlets in section 68-4.

Item #15: Pipeline Special Requirements

The following "Pipeline Work – I-15/Limonite Avenue Interchange" specifications, attached herewith as **Attachment "C-1"**, as referenced by section 77-1 of the Special Provisions, are being included in the contract and made part thereof.

Item 16: Project Information; Questions and Responses

Questions and Responses information list is available as a free download at the following County website:

<http://rctlma.org/trans/Contractors-Corner/Notices-Inviting-Bids>

This (downloadable) file is provided for reference only. For any discrepancy written on the Questions and Responses, the Contractor shall conform to the contract documents.

The Contractor Questions and Responses are included as **Attachment "D"**.

Item 17: Caltrans Encroachment Permit

Caltrans has issued Encroachment Permit No. 08-18-A-OP-0298 and is being provided to all bidders for compliance. **See attachment "E"**.

MODIFICATIONS / CLARIFICATIONS TO THE PLANS

Item #18: JCSD Standard Detail D-3

Refer to sheets 160 and 161 of the plans. Where shown, the JCSD Std. D-3 Revised 4-11-18 is attached herein as **Attachment "E-1"** and is being included in the contract and made part thereof.

Item #19: Plan sheet revisions and additions

The following plan sheets are revised by Addendum 3 as **Attachment "F"**.

Delete and replace the following one hundred ten (110) plan sheets:

- Plan sheets 2, 4, 7, 10-16, 135, 136, 142, 144, 148, 149, 160, 161, 166, 169, 170, 171, 176, 180, 186-193, 195-201, 233, 234, 244, 245, 303-305, 308, 308A, 309, 310A, 311, 311A, 327, 328, 328A, 329, 330, 330A, 331, 331A, 332, 333, 334, 334A, 335, 336, 337, 337A, 338, 338A, 339, 340, 340A, 341, 342, 343, 343A, 344, 344A, 345, 345A, 346, 346A, 347, 348, 348A, 349, 349A, 350, 351, 352, 352A, 353-364, 377, 378, 380, 381, 409, and 425 of 570.

The following nineteen (19) plan sheets are added and are made a part hereby:

- Plan sheets 308B, 309B, 311B, 327A, 327B, 328B, 329B, 331B, 333B, 336B, 338B, 339B, 341B, 344B, 345B, 346B, 347B, 349B and 351B of 570.

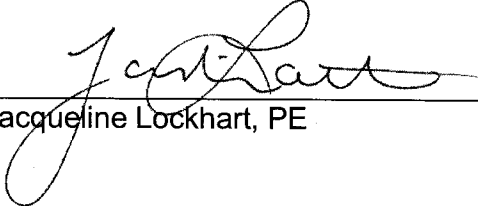
Item #20: Slope Paving

Refer to sheets 534, 542, and 560 of the plans. Where shown, "ROCK BLANKET, SEE ROAD PLANS" shall be replaced with "SLOPE PAVING-FULL SLOPE." Rock blanket referenced by the previous note has been removed from the Base Bid and included in Alternate Bid Schedule E. The quantity for Slope Paving in the Base Bid has been updated.

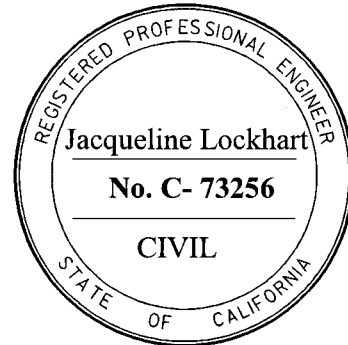
Note: New and Revised plan sheet(s) is (are) posted on the County website and available for download during the advertisement period.

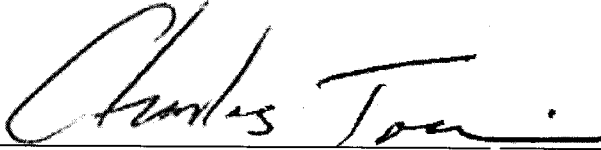
<http://rctlma.org/trans/Contractors-Corner/Notices-Inviting-Bids>

This addendum has been prepared under the direction of the following registered Civil Engineer(s):

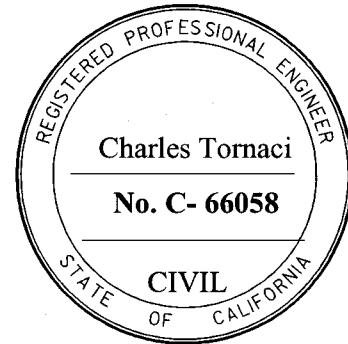


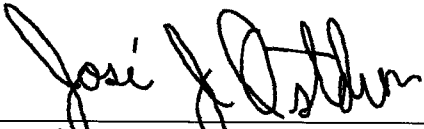
Jacqueline Lockhart, PE





Charles Tornaci, PE



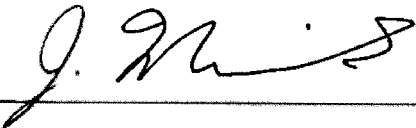


Jose Ostdiek, PE



Addendum No. 3
Limonite Ave. at Interstate 15 (I-15) Interchange Imp. Project
In the City of Eastvale and the City of Jurupa Valley
Project No. A3-0393
April 12, 2018
Page 11 of 12

Recommended by:



John Marcinek, PE
County Project Manager

Concurrence:



Khalid Nasim, PE
Engineering Division Manager

Acknowledged: _____ **Date:** _____

(Contractor)

JRJ:jj:sb

Note: Refer to Instruction to Bidders Item No. 8, "Addenda". Submission of all addendum pages and non-bidding document attachments of addendum are not necessary for Bid submittal. Submittal of this acknowledgement page is adequate for Bid reception. Bidders are reminded to list addendum number(s) received on the first page of the Bid form (Proposal).

ATTACHMENTS

- A – Revised Proposal
- B – Right of Way Maps
- C – Technical Provisions-RFP Execution
- C-1 – Pipeline Special Requirements (JCSD)
- D – Questions and Responses
- E – Caltrans Encroachment Permit
- E-1 – JCSD Standard Plan
- F – Revised Plans (129 Sheets)

Limonite Avenue at Interstate 15 (I-15)
Interchange Improvements Project
In the City of Eastvale and the City of Jurupa Valley
Project No. A3-0393

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID						
1	066105	Resident Engineers Office	LS	1		
2	019902	Course of Construction Insurance	LS	1		
3	070030	Lead Compliance Plan	LS	1		
4	080050	Progress Schedule (Critical Path Method)	LS	1		
5	100100	Develop Water Supply	LS	1		
6	120090	Construction Area Signs	LS	1		
7	120100	Traffic Control System	LS	1		
8	120120	Type III Barricade	EA	79		
9	120149	Temporary Pavement Marking (Paint)	SQFT	2,310		
10	120151	Temporary Traffic Stripe (Tape)	LF	1,497		
11	120159	Temporary Traffic Stripe (Paint)	LF	126,600		
12	120165	Channelizer (Surface Mounted)	EA	1,210		
13	120199	Traffic Plastic Drum	EA	61		
14	120300	Temporary Pavement Marker	EA	1,419		
15	124000	Temporary Pedestrian Access Route	LS	1		
16	128652	Portable Changeable Message Sign	LS	1		
17	129000	Temporary Railing (Type K)	LF	25,200		
18	129100	Temporary Crash Cushion Module	EA	182		
19	129100	Temporary Crash Cushion (ABSORB 350)	EA	9		
20	130100	Job Site Management	LS	1		
21	130300	Prepare Storm Water Pollution Prevention Plan	LS	1		
22	130330	Storm Water Annual Report	EA	2		
23	130505	Move-In/Move-Out (Temporary Erosion Control)	EA	5		
24	130520	Temporary Hydraulic Mulch	SQYD	192,133		
25	130610	Temporary Check Dam	LF	2,647		
26	130620	Temporary Drainage Inlet Protection	EA	50		
27	130640	Temporary Fiber Roll	LF	45,482		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
28	130710	Temporary Construction Entrance	EA	20		
29	130730	Street Sweeping	LS	1		
30	130900	Temporary Concrete Washout	LS	1		
31	000003	Remove Yellow Traffic Stripe (Hazardous Waste)	LF	29,800		
32	141120	Treated Wood Waste	LB	24,717		
33	148005	Noise Monitoring	LS	1		
34	160110	Temporary High-Visibility Fence	LF	9,707		
35	170103	Clearing and Grubbing	LS	1		
36	190101(F)	Roadway Excavation	CY	195,190		
37	192003(F)	Structure Excavation (Bridge)	CY	2,250		
38	192037(F)	Structure Excavation (Retaining Wall)	CY	4,770		
39	193003(F)	Structure Backfill (Bridge)	CY	1,452		
40	193013(F)	Structure Backfill (Retaining Wall)	CY	1,570		
41	198050(F)	Embankment	CY	11,000		
42	200114(F)	Rock Blanket	SQFT	19,330		
43	200123	Cultivation	SQYD	150		
44	202004	Iron Sulfate	LB	70		
45	202006	Soil Amendment	CY	3		
46	202039	Slow-Release Fertilizer	LB	150		
47	204011	Plant (Group K)	EA	17		
48	204036	Plant (Group B)	EA	71		
49	204099	Plant Establishment Work	LS	1		
50	205035	Wood Mulch	CY	81		
51	206559(P)	Control and Neutral Conductors (Armor-Clad)	LS	1		
52	206562(P)	1" Remote Control Valve	EA	14		
53	206564(P)	1 1/2" Remote Control Valve	EA	6		
54	206565(P)	2" Remote Control Valve	EA	3		
55	206760(P)	16-18 Station Irrigation Controller (Pedestal Mounted)	EA	1		
56	000003(P)	48 Station Irrigation Controller (Pedestal Mounted)	EA	2		
57	208301(P)	Irrigation Controller Enclosure Cabinet	EA	3		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
58	208426(P)	2" Backflow Preventer Assembly	EA	3		
59	208440(P)	Backflow Preventer Enclosure	EA	3		
60	208442(P)	Flow Sensor	EA	3		
61	208445(P)	Tree Well Sprinkler Assembly	EA	105		
62	208575(P)	2" Gate Valve	EA	1		
63	208588(P)	3" Gate Valve	EA	12		
64	208594(P-F)	3/4" Plastic Pipe (Schedule 40) (Supply Line)	LF	565		
65	208595(P-F)	1" Plastic Pipe (Schedule 40) (Supply Line)	LF	745		
66	208597(P-F)	1 1/2" Plastic Pipe (Schedule 40) (Supply Line)	LF	707		
67	208598(P-F)	2" Plastic Pipe (Schedule 40) (Supply Line)	LF	1,770		
68	208607(P-F)	3" Plastic Pipe (Class 315) (Supply Line)	LF	2,415		
69	208683(P)	Ball Valve	EA	5		
70	208762(P)	12" Corrugated Steel Pipe Conduit (.064" Thick)	LF	746		
71	210350	Fiber Rolls	LF	55,500		
72	210430	Hydroseed	SQFT	1,263,000		
73	210610	Compost	CY	6,306		
74	210630	Incorporate Materials	SQFT	1,263,000		
75	211111	Permanent Erosion Control Establishment Work	LS	1		
76	250201(F)	Class 2 Aggregate Subbase	CY	19,330		
77	260203(F)	Class 2 Aggregate Base	CY	16,230		
78	280000(F)	Lean Concrete Base	CY	11,750		
79	360200	Base Bond Breaker	SQYD	73,000		
80	377501	Slurry Seal	TON	155		
81	390100	Prime Coat	TON	167		
82	390132	Hot Mix Asphalt (Type A)	TON	28,317		
83	390137	Rubberized Hot Mix Asphalt (Gap-Graded)	TON	3,265		
84	397005	Tack Coat	TON	206		
85	398200	Cold Plane Asphalt Concrete Pavement	SQYD	526		
86	401050(F)	Jointed Plain Concrete Pavement	CY	25,020		
87	414202	Joint Seal (Preformed Compression)	LF	96,345		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
88	414241	Isolation Joint Seal (Silicone)	LF	12,220		
89	420201	Grind Existing Concrete Pavement	SQYD	29,616		
90	490601	16" Cast-In-Drilled-Hole Concrete Piling	LF	610		
91	490603	24" Cast-In-Drilled-Hole Concrete Piling	LF	5,746		
92	498050	54" Cast-In-Drilled-Hole Concrete Pile (Sign Foundation)	LF	30		
93	498052	60" Cast-In-Drilled-Hole Concrete Pile (Sign Foundation)	LF	100		
94	500001(P)	Prestressing Cast-In-Place Concrete	LS	1		
95	510051(F)	Structural Concrete, Bridge Footing	CY	820		
96	510053(F)	Structural Concrete, Bridge	CY	4,040		
97	510054(F)	Structural Concrete, Bridge (Polymer Fiber)	CY	1,678		
98	510060(F)	Structural Concrete, Retaining Wall	CY	1,370		
99	510061(F)	Structural Concrete, Sound Wall	CY	82		
100	510086(F)	Structural Concrete, Approach Slab (Type N)	CY	450		
101	510090(F)	Structural Concrete, Box Culvert	CY	500		
102	510092(F)	Structural Concrete, Headwall	CY	8.0		
103	510094(F)	Structural Concrete, Drainage Inlet	CY	63.0		
104	510502(F)	Minor Concrete (Minor Structure)	CY	112		
105	510526	Minor Concrete (Backfill)	CY	50		
106	511055(F)	Concrete Surface Texture	SQFT	6,140		
107	519092(P)	Joint Seal (MR 2 1/2")	LF	278		
108	520102(P-F)	Bar Reinforcing Steel (Bridge)	LB	1,566,099		
109	520103(P-F)	Bar Reinforcing Steel (Retaining Wall)	LB	135,000		
110	520107	Bar Reinforcing Steel (Box Culvert)	LB	82,000		
111	520120(P-F)	Headed Bar Reinforcement	EA	16		
112	560218(F)	Furnish Sign Structure (Truss)	LB	86,500		
113	560219(F)	Install Sign Structure (Truss)	LB	86,500		
114	560244	Furnish Laminated Panel Sign (1"-Type A)	SQFT	829		
115	568046	Remove Sign Structure	EA	4		
116	582001(P-F)	Sound Wall (Masonry Block)	SQFT	10,052		
117	600017	Remove Retaining Wall	LF	90		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
118	600097	Bridge Removal	LS	1		
119	610403	18" Temporary Culvert	LF	565		
120	610404	24" Temporary Culvert	LF	125		
121	641107(P)	18" Plastic Pipe	LF	118		
122	641113(P)	24" Plastic Pipe	LF	308		
123	641131(P)	48" Plastic Pipe	LF	866		
124	650014(P)	18" Reinforced Concrete Pipe	LF	1,938		
125	650018(P)	24" Reinforced Concrete Pipe	LF	1,229		
126	650022(P)	30" Reinforced Concrete Pipe	LF	93.6		
127	650026(P)	36" Reinforced Concrete Pipe	LF	56		
128	665024(P)	24" Corrugated Steel Pipe (.109" Thick)	LF	103.2		
129	665048(P)	48" Corrugated Steel Pipe (.138" Thick)	LF	1,009.2		
130	665111(P)	12" Bituminous Coated Corrugated Steel Pipe (0.64" Thick)	LF	746		
131	667017(P)	29"x18" Corrugated Steel Pipe Arch (.109" Thick)	LF	42		
132	667024(P)	42"x29" Corrugated Steel Pipe Arch (.109" Thick)	LF	96		
133	690117(P)	18" Corrugated Steel Pipe Downdrain (.079" Thick)	LF	436		
134	703460(P)	24" Welded Steel Pipe Casing (Bridge)	LF	154		
135	705011	18" Steel Flared End Section	EA	5		
136	705015	24" Steel Flared End Section	EA	6		
137	705408	29"x18" Steel Flared End Pipe Arch Section	EA	1		
138	705206	24" Concrete Flared End Section	EA	12		
139	710114	Abandon Pipeline	EA	3		
140	710150	Remove Inlet	EA	20		
141	710136	Remove Pipe	LF	1,765		
142	710167	Remove Flared End Section	EA	5.0		
143	710260	Remove Concrete (Channel)	CY	20.0		
144	721017(F)	Rock Slope Protection (Facing, Method B)	CY	35.9		
145	721019(F)	Rock Slope Protection (No. 3, Method B)	CY	10.3		
146	721028(F)	Rock Slope Protection (No. 2, Method B)	CY	15.7		
147	720000(F)	Rock Slope Protection (No. 2, Method A)	CY	1.9		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
148	721810	Slope Paving (Concrete)	CY	50		
149	729011(P)	Rock Slope Protection Fabric (Class 8)	SQYD	168		
150	730020	Minor Concrete (Curb)	CY	224		
151	730045	Minor Concrete (Gutter)	CY	48		
152	730070	Detectable Warning Surface	SQFT	293		
153	731504	Minor Concrete (Curb and Gutter)	CY	252		
154	017302	Minor Concrete (Cross Gutter)	CY	30.0		
155	017312	Minor Concrete (Commercial Driveway)	CY	86		
156	731519	Minor Concrete (Stamped Concrete)	SQFT	20,183		
157	731521	Minor Concrete (Sidewalk)	CY	302		
158	731623	Minor Concrete (Curb Ramp)	CY	24		
159	731710	Remove Concrete Curb	LF	377		
160	731780	Remove Concrete Sidewalk	SQYD	810		
161	731840	Remove Concrete (Curb and Gutter)	LF	2,151		
162	066151	Remove Concrete [Cross Gutter]	SQYD	29		
163	066151	Remove Concrete [Curb Ramp]	SQYD	76		
164	066151	Remove Concrete [Island]	SQYD	742		
165	066151	Remove Concrete [Driveway]	SQYD	2,801		
166	750001	Miscellaneous Iron and Steel	LB	18,614		
167	750501(P-F)	Miscellaneous Metal (Bridge)	LB	1,732		
168	000003	Metal Script Lettering (Railing Mounted)	LS	1		
169	770010(P)	Signal and Lighting (City)	LS	1		
170	770090(P)	Lighting (City Street)	LS	1		
171	780433	Paint Curb (2-Coat)	SQFT	152		
172	780500	Parking Bumper (Precast Concrete)	EA	6		
173	000003	Reconstruct Monument Sign	EA	1		
174	800360(P)	Chain Link Fence (Type CL-6)	LF	4,380		
175	802580	12' Chain Link Gate (Type CL-6)	EA	2		
176	803020	Remove Fence	LF	4,611		
177	803060	Remove Gate	EA	2		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
178	803170	Relocate Fence	LF	170		
179	810170	Delineator (Class 1)	EA	145		
180	810230(P)	Pavement Marker (Retroreflective)	EA	2,002		
181	820250	Remove Roadside Sign	EA	68		
182	820300	Remove Roadside Sign (Strap and Saddle Bracket Method)	EA	17		
183	820610	Relocate Roadside Sign	EA	10		
184	820750	Furnish Single Sheet Aluminum Sign (0.063"-Unframed)	SQFT	664.2		
185	820760	Furnish Single Sheet Aluminum Sign (0.080"-Unframed)	SQFT	866.5		
186	820780	Furnish Single Sheet Aluminum Sign (0.063"-Framed)	SQFT	292		
187	820840	Roadside Sign - One Post	EA	117		
188	820850	Roadside Sign - Two Post	EA	9		
189	820860	Install Sign (Strap and Saddle Bracket Method)	EA	30		
190	820880	Install Sign (Mast-Arm Hanger Method)	EA	14		
191	832005(P)	Midwest Guardrail System	LF	4,275		
192	832070	Vegetation Control (Minor Concrete)	SQYD	1,780		
193	833031(P-F)	Chain Link Railing (Type 6)	LF	763		
194	833088	Tubular Handrailing	LF	66		
195	839521(P-F)	Cable Railing	LF	1,352		
196	839543(P)	Transition Railing (Type WB-31)	EA	3		
197	839581	End Anchor Assembly (Type SFT)	EA	7		
198	839584	Alternative In-line Terminal System	EA	6		
199	839585	Alternative Flared Terminal System	EA	3		
200	839706	Concrete Barrier (Type 60G)	LF	105		
201	839709	Concrete Barrier (Type 60GE)	LF	245		
202	839752	Remove Guardrail	LF	1,434		
203	839704(P)	Concrete Barrier (Type 60D)	LF	1,352		
204	839719	Concrete Barrier (Type 732SW Modified)	LF	854		
205	840501	Thermoplastic Traffic Stripe	LF	77,794		
206	846007	6" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility)	LF	36,278		
207	846009	8" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility)	LF	17,035		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
BASE BID (CONTINUED)						
208	846008	6" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility) (Broken 8-4)	LF	3,241		
209	846010	8" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility) (Broken 12-3)	LF	2,375		
210	840516	Thermoplastic Pavement Marking (Enhanced Wet Night Visibility)	SQFT	5,133		
211	840617	6" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility) (Broken 6-1)	LF	1,085		
212	840623	6" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility) (Broken 36-12)	LF	46,265		
213	840621	6" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility) (Broken 17-7)	LF	4,984		
214	840651	Painted Stall Lines and Pavement Markings	SQFT	1,146		
215	150710	Remove Traffic Stripe	LF	84,465		
216	150713	Remove Pavement Marking	SQFT	745		
217	870009	Maintain Existing Traffic Management System Elements During Construction	LS	1		
218	870136	Electrical Service for Irrigation	LS	1		
219	871812	Interconnection Conduit and Cable	LS	1		
220	872130	Modifying Existing Electrical System	LS	1		
221	995100	Water Meter Charges	LS	1		
222	999990	Mobilization	LS	1		

BASE BID TOTAL: _____ \$ _____
 ITEMS 1-222 "WORDS"

ALTERNATE BID SCHEDULE A; WATERLINE EXTENSION FOR (CDA/JCSD)

223	000003	Preconstruction Video and Pipeline Work Close-out	LS	1		
224	000003	Trench and Excavation Sheet piling, Shoring and Bracing	LS	1		
225	000003	Furnish and Install 30" Class 200 CML/CMC Welded Steel Pipe	LF	739		
226	000003	Furnish and Install 48" Steel Casing (.750" Thick) with Dielectric Coating	LF	282		
227	000003	Furnish and Install 24" Manway	EA	2		
228	000003	Furnish and Install 4" Air Valve	EA	2		
229	000003	Furnish and Install Cathodic Protection Test Station	EA	2		
230	000003	Furnish and Install 6" Blow-off	EA	2		
231	000003	Connection to Existing 30" Waterline (Station 11+60 to 11+68)	LS	1		
232	000003	Connection to Existing 30" Waterline (Station 27+24 to 27+34)	LS	1		
233	000003	Connection to Existing 30" Waterline (Station 14+86 to 15+04)	LS	1		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
ALTERNATE BID SCHEDULE A; WATERLINE EXTENSION FOR (CDA/JCSD) CONTINUED						
234	000003	Connection to Existing 30" Waterline (Station 23+29 to 23+53)	LS	1		
235	000003	Support of Existing Utilities	LS	1		
236	000003	Pressure Testing and Disinfection	LS	1		
237	000003	Abandon Waterline and Appurtenances	LS	1		
238	000003	Prepare Cut Sheets	LS	1		

ALT. BID SCH. A, TOTAL: _____ \$
 ITEMS 223-238 "WORDS"

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
ALTERNATE BID SCHEDULE B; LANDSCAPE (JURUPA VALLEY)						
239	200114(F)	Rock Blanket	SQFT	43,391		
240	200123	Cultivation	SQYD	13,133		
241	202004	Iron Sulfate	LB	3,442		
242	202006	Soil Amendment	CY	148		
243	202039	Slow-Release Fertilizer	LB	6,534		
244	204011	Plant (Group K)	EA	67		
245	204035	Plant (Group A)	EA	3,200		
246	204036	Plant (Group B)	EA	2,554		
247	204038	Plant (Group U)	EA	60		
248	204099	Plant Establishment Work	LS	1		
249	205035	Wood Mulch	CY	1,095		
250	206559(P)	Control and Neutral Conductors (Armor-Clad)	LS	1		
251	206562(P)	1" Remote Control Valve	EA	8		
252	206564(P)	1 1/2" Remote Control Valve	EA	5		
253	206565(P)	2" Remote Control Valve	EA	21		
254	208445(P)	Tree Well Sprinkler Assembly	EA	95		
255	208446(P)	Riser Sprinkler Assembly (Gear Driven)	EA	34		
256	208447(P)	Pop-up Sprinkler Assembly (Gear Driven)	EA	110		
257	208594(P-F)	3/4" Plastic Pipe (Schedule 40) (Supply Line)	LF	3,457		
258	208595(P-F)	1" Plastic Pipe (Schedule 40) (Supply Line)	LF	2,639		

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
ALTERNATE BID SCHEDULE B; LANDSCAPE (JURUPA VALLEY) CONTINUED						
259	208597(P-F)	1 1/2" Plastic Pipe (Schedule 40) (Supply Line)	LF	2,491		
260	208598(P-F)	2" Plastic Pipe (Schedule 40) (Supply Line)	LF	2,632		
261	208607(P-F)	3" Plastic Pipe (Class 315) (Supply Line)	LF	2,230		
262	208670(P)	Check Valve	EA	24		
263	208683(P)	Ball Valve	EA	10		
264	208690(P-F)	PVC Pipe Conduit (Sleeve)	LF	285		
265	210430	Hydroseed	SQFT	93,400		
266	730020	Minor Concrete (Curb)	CY	17		
267	414241	Isolation Joint Seal (Silicone)	LF	560		

ALT. BID SCH. B, TOTAL: _____ \$ _____
 ITEMS 239-267 "WORDS"

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
ALTERNATE BID SCHEDULE C; WATERLINE ON OVERCROSSING (JCSD)						
268	703460(P)	24" Welded Steel Pipe Casing (Bridge)	LF	154		
269	703555(P)	18" Welded Steel Pipe (0.250" Thick) (Non-Potable Water Line) (JCSD)	LF	912		
270	000003	Seismic Expansion Assembly	EA	4		
271	000003	2" Combination Air Release and Air/Vacuum Valve	EA	2		

ALT. BID SCH. C, TOTAL: _____ \$ _____
 ITEMS 268-271 "WORDS"

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
ALTERNATE BID SCHEDULE D; WATERLINE ON OVERCROSSING (CDA)						
272	703460(P)	24" Welded Steel Pipe Casing (Bridge)	LF	77		
273	703555(P)	18" Welded Steel Pipe (0.250" Thick) (Water Line)	LF	456		
274	000003	Seismic Expansion Assembly	EA	2		
275	000003	2" Combination Air Release and Air/Vacuum Valve	EA	1		

ALT. BID SCH. D, TOTAL: _____ \$ _____
 ITEMS 272-275 "WORDS"

PROPOSAL (REVISED)

ITEM No.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY	ITEM PRICE (IN FIGURES)	TOTAL (IN FIGURES)
ALTERNATE BID SCHEDULE E; LANDSCAPE (EASTVALE)						
276	200114(F)	Rock Blanket	SQFT	45,060		
277	200123	Cultivation	SQYD	13,430		
278	202004	Iron Sulfate	LB	3,415		
279	202006	Soil Amendment	CY	138		
280	202039	Slow-Release Fertilizer	LB	6,140		
281	204011	Plant (Group K)	EA	56		
282	204035	Plant (Group A)	EA	2,905		
283	204036	Plant (Group B)	EA	2,462		
284	204038	Plant (Group U)	EA	57		
285	204099	Plant Establishment Work	LS	1		
286	205035	Wood Mulch	CY	1,240		
287	206559(P)	Control and Neutral Conductors (Armor-Clad)	LS	1		
288	206564(P)	1 1/2" Remote Control Valve	EA	36		
289	206565(P)	2" Remote Control Valve	EA	1		
290	208445(P)	Tree Well Sprinkler Assembly	EA	112		
291	208446(P)	Riser Sprinkler Assembly (Gear Driven)	EA	66		
292	208447(P)	Pop-up Sprinkler Assembly (Gear Driven)	EA	172		
293	208594(P-F)	3/4" Plastic Pipe (Schedule 40) (Supply Line)	LF	2,500		
294	208595(P-F)	1" Plastic Pipe (Schedule 40) (Supply Line)	LF	5,270		
295	208597(P-F)	1 1/2" Plastic Pipe (Schedule 40) (Supply Line)	LF	4,010		
296	208598(P-F)	2" Plastic Pipe (Schedule 40) (Supply Line)	LF	1,840		
297	208607(P-F)	3" Plastic Pipe (Class 315) (Supply Line)	LF	2,130		
298	208670(P)	Check Valve	EA	61		
299	208683(P)	Ball Valve	EA	9		
300	208690(P-F)	PVC Pipe Conduit (Sleeve)	LF	260		
301	210430	Hydroseed	SQFT	96,600		

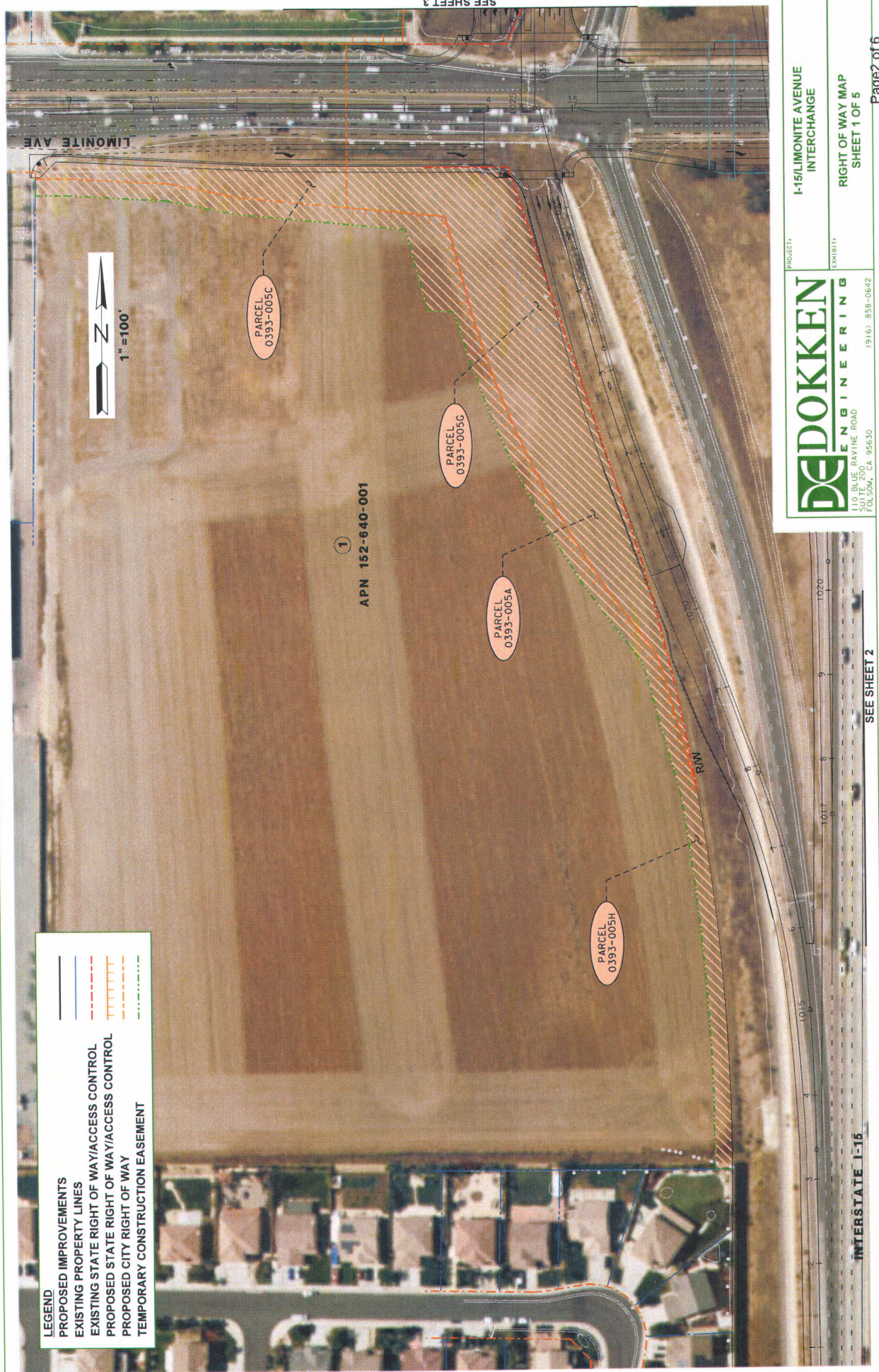
ALT. BID SCH. E, TOTAL: _____ \$ _____
 ITEMS 276-301 "WORDS"

PROJECT TOTAL: _____ \$ _____
 ITEMS 1-301 "WORDS"

PARCEL #	TITLE CODE	GRANTOR	AREA (SQ FT)		REMARKS
			TOTAL	REQUIRED [UF]	
0393-001A	F	LOWES HW INC.	535,529	2,205	STATE RIGHT-OF-WAY
0393-001B	TCE	LOWES HW INC.	535,529	11,214	TCE
0393-001C	F	MCPX VERNOLA	319,202	1,010	STATE RIGHT-OF-WAY
0393-002F	F	MCPX VERNOLA	319,202	5,037	STATE RIGHT-OF-WAY
0393-002G	TCE	MCPX VERNOLA	319,202	3,520	STATE RIGHT-OF-WAY
0393-002H	TCE	MCPX VERNOLA	319,202	9,014	STATE RIGHT-OF-WAY
0393-002I	TCE	MCPX VERNOLA	319,202	1,010	STATE RIGHT-OF-WAY
0393-003A	F	SKY COUNTRY INV/CO EAST	2,812,671	16,470	STATE RIGHT-OF-WAY
0393-003B	TCE	SKY COUNTRY INV/CO EAST	2,812,671	68,614	CITY OF JURUPA VALLEY ACCESS CONTROL "109.83" LINEAR FEET
0393-003C	TCE	SKY COUNTRY INV/CO EAST	2,812,671	2,744,056	TCE
0393-005A	F	ANTHONY P. VERNOLA/ANTHONY P. VERNOLA TRUST (U/D/I) (PAT AND MARY ANN VERNOLA EXEMPTION TRUST)	880,476	55,105	STATE RIGHT-OF-WAY
0393-005B	F	ANTHONY P. VERNOLA/ANTHONY P. VERNOLA TRUST (U/D/I) (PAT AND MARY ANN VERNOLA EXEMPTION TRUST)	880,476	10,371	CITY OF ESATVALE RIGHT-OF-WAY
0393-005C	E	ANTHONY P. VERNOLA/ANTHONY P. VERNOLA TRUST (U/D/I) (PAT AND MARY ANN VERNOLA EXEMPTION TRUST)	880,476	5,980	JCSD EASEMENT FOR "WATER LINE PURPOSES"
0393-005D	TCE	ANTHONY P. VERNOLA/ANTHONY P. VERNOLA TRUST (U/D/I) (PAT AND MARY ANN VERNOLA EXEMPTION TRUST)	880,476	36,513	TCE
0393-007A	TCE	EASTVALE GATEWAY II	131,879	3,143	TCE
0393-008A	TCE	HAMNER PARK ASSOC	5,364,265	3,613	TCE
0393-009A	TCE	ANTHONY P. VERNOLA	967,709	13,786	TCE

ASSASSOR PARCEL NUMBER	A.P.N.	RW Cert. 3W P.d.s Date of Possession*
152-630-029-28		7/13/2018
160-050-023, 021, 073, 068, AND 005		7/13/2018
152-640-001		7/13/2018
160-030-070		7/13/2018
160-030-005		7/13/2018
160-050-074		7/13/2018

* - Parcels hereon subject to Certification 3 work-around. Anticipated Order of Possession Effective Date: 7/13/2018



LEGEND

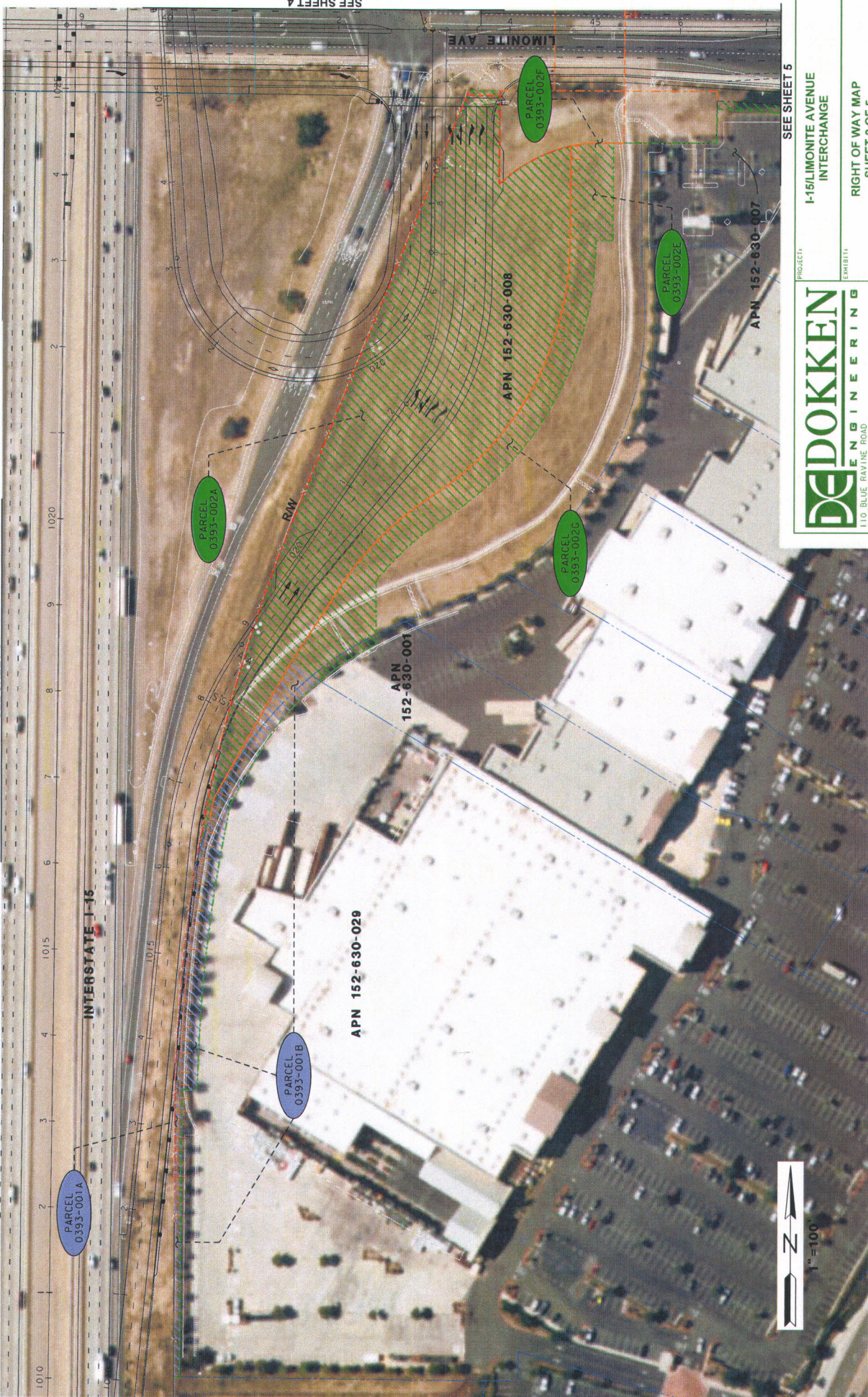
- PROPOSED IMPROVEMENTS
- EXISTING PROPERTY LINES
- PROPOSED STATE RIGHT OF WAY/ACCESS CONTROL
- PROPOSED STATE RIGHT OF WAY/ACCESS CONTROL
- PROPOSED CITY RIGHT OF WAY
- TEMPORARY CONSTRUCTION EASEMENT

DE DOKKEN
ENGINEERING

101 BLUE RAVINE ROAD
SUITE 200
FOLSOM, CA 95630
(916) 858-0642

PROJECT: I-15/LIMONITE AVENUE INTERCHANGE
EXHIBIT: RIGHT OF WAY MAP SHEET 1 OF 5

SEE SHEET 1



SEE SHEET 5

DE DOKKEN
ENGINEERING

110 BLUE RAVINE ROAD
SUITE 200
FOLSOM, CA 95630
(916) 858-0642

PROJECT: I-15/LIMONITE AVENUE INTERCHANGE

EXHIBIT: RIGHT OF WAY MAP SHEET 2 OF 5



DEDOKKEN ENGINEERING 510 BLUE RAVINE ROAD FOLSOM, CA 95630 (916) 858-0642	PROJECT: I-15/LIMONITE AVENUE INTERCHANGE
	EXHIBIT: RIGHT OF WAY MAP SHEET 3 OF 5

Page 4 of 6

SEE SHEET 3



SEE SHEET 5

DEDOKKEN
ENGINEERING

110 BLUE RAYVINE ROAD
SUITE 200
FOLSOM, CA 95630
(916) 858-0642

PROJECT:

I-15/LIMONITE AVENUE
INTERCHANGE

EXHIBIT:

RIGHT OF WAY MAP
SHEET 4 OF 5



SEE SHEET 4

SEE SHEET 2

DE DOKKEN
ENGINEERING

110 BLUE GRAYLINE ROAD
SUITE 200
FOLSOM, CA 95630
(916) 858-0642

PROJECT: I-15/LIMONITE AVENUE INTERCHANGE

EXHIBIT: RIGHT OF WAY MAP SHEET 5 OF 5

11 PAVEMENTS

11.1 General

This TP Section 11 (Pavements) applies to pavement subgrade investigations, temporary pavement design, and construction of temporary and permanent pavement.

11.2 Administrative Requirements

11.2.1 Standards

Perform the pavement construction and pavement subgrade investigation in accordance with the relevant requirements of the Project Standards, applicable Governmental Approvals and Governmental Rules, and otherwise in accordance with the Contract.

11.2.2 Meetings

RCTC, TSP, and DB Contractor shall meet at the request of any one of the parties, as necessary, to discuss and resolve matters relating to the roadway pavement Work during the design and construction stages of the Project. The requesting party shall provide the other parties with not less than five Business Days prior notice of such meetings. Prepare and distribute meeting minutes within five Business Days after the meeting.

Schedule and participate in a pavement review meeting, after completion of the Materials Report, to discuss the pavement and subgrade design. Finalize the Materials Report for the Project after the meeting.

Include the TSP in meetings relating to pavements (design and construction schedule) for ELs and shoulder pavements at the Tolling Zones.

11.2.3 Coordination with Other Agencies and Disciplines

Coordinate, conduct meetings, and participate in any meetings with Local Agencies to ensure that Local Agency requirements are met, including but not limited to detours and construction haul routes. Document the resolutions of issues, meeting minutes, and memoranda when coordinating with Local Agencies.

11.3 Design Requirements

11.3.1 General

Construct the permanent pavement section as prescribed in Tables 11-1, 11-2, and 11-3.

The designs shown in Tables 11-1, 11-2, and 11-3 are based on Type II subgrade. For locations where Type I subgrade exists, based on subsurface investigation during construction, showing four consecutive pavement borings at an interval of 500 feet with R-value >40, the aggregate

11-1

subbase (AS) layer can be eliminated. The selected subgrade R-value shall be used for the entire width of the northbound or southbound newly constructed pavement section, including travel lanes, buffer, and outside shoulder.

11.3.2 Permanent Pavement Structural Sections

I-15 Mainline Inside Lane and Shoulder Widening

Construct the jointed plain concrete pavement ("JPCP") structural section for the inside travel lanes and median shoulders as shown in Table 11-1.

TABLE 11-1 INSIDE LANES AND SHOULDERS PAVEMENT STRUCTURAL SECTION				
Location	Design Life (years)	TI	*Structure Section Thickness (feet)	Total Depth (feet)
Mainline and Shoulder (widened slab)	40	11	0.75 JPCP BB 0.35 LCB 0.60 AS	1.70
Abbreviations: JPCP=Jointed plain concrete pavement BB= Bond Breaker LCB= Lean concrete Base AS = Class 2 aggregate subbase *This design is based on Type II subgrade. Type III subgrade shall be removed and replaced with Type I or Type II subgrade, or treated in accordance with the HDM and Standard Specification to achieve an R-value of 20 or greater.				

I-15 Mainline Outside Lane Widening and Shoulder

When outside travel lane and shoulder widening is required, construct the pavement structural section, as shown in Table 11-2.

TABLE 11-2 OUTSIDE TRAVEL LANES AND SHOULDERS PAVEMENT STRUCTURAL SECTION				
Location	Design Life (years)	TI	*Structure Section Thickness (feet)	Total Depth (feet)
Mainline and Shoulder (No lateral support)	40	17	1.30 JPCP BB 0.35 LCB 0.70 AS	2.35

TABLE 11-2 OUTSIDE TRAVEL LANES AND SHOULDERS PAVEMENT STRUCTURAL SECTION				
<i>Location</i>	<i>Design Life (years)</i>	<i>TI</i>	<i>*Structure Section Thickness (feet)</i>	<i>Total Depth (feet)</i>
Abbreviations JPCP=Jointed plain concrete pavement BB Bond Breaker LCB=Lean concrete base AS = Class 2 aggregate subbase				
*This design is based on Type II subgrade. Type III subgrade shall be removed and replaced with Type I or Type II subgrade, or treated in accordance with the HDM and Standard Specification to achieve an R-value of 20 or greater.				

Ramps and Connectors

Match existing pavement surface type and structural section materials and thicknesses when widening existing ramps.

If a ramp is required to be entirely reconstructed, construct with the pavement section shown in Table 11-3:

TABLE 11-3 CONNECTOR, RAMPS AND SHOULDER PAVEMENT STRUCTURAL SECTION				
<i>Location</i>	<i>Design Life (years)</i>	<i>TI</i>	<i>*Structure Section Thickness (feet)</i>	<i>Total Depth (feet)</i>
Travel Lane and Shoulder (with lateral support)	40	11	0.80 JPCP BB 0.35 LCB 0.60 AS	1.75
Abbreviations JPCP = Jointed plain concrete pavement BB= Bond Breaker LCB= Lean concrete base AS = Class 2 aggregate subbase				
*This design is based on Type II subgrade. Type III subgrade shall be removed and replaced with Type I or Type II subgrade, or treated in accordance with the HDM and Standard Specification to achieve an R-value of 20 or greater.				

For off-ramps that require pavement reconstruction, rigid ramp termini shall be provided and shall extend a minimum length of 150 feet from the corner return or beyond the first set of signal loops at the end of the off-ramp, whichever is further. Install new signal loops as required within the newly reconstructed pavement.

Additional Pavement Design Requirements

- Longitudinal construction joints shall not be underneath the wheel paths. Wheel paths are defined as 1 foot to 3 feet from either edge of a travel lane.

Inside Lane Widening

- Do not tie the existing pavement to the new inside JPCP. Installing tie bars across longitudinal joints between new inside JPCP and existing concrete pavement is not allowed.
- Use isolation joint per Revised Standard Plan P-18 between new inside JPCP express travel lane and adjacent GP travel lane.
- Construct single (blade-width) saw cut joints for both transverse and longitudinal working joints for the two inside travel lanes.
- Use rubberized asphalt joint sealer meeting the Standard Specification requirements to seal the transverse and weakened plane joints for the inside travel lanes.
- Transverse Joint spacing shall be 14 feet apart for the two inside travel lanes.
- Tie the two inside travel lanes and inside shoulder. Do not tie the inside shoulder to the inside shoulder of the opposite direction.
- The slab width for the inside travel lane (Lane 1) next to the median shoulder shall be 14 feet wide (12 feet travel lane plus two feet widened slab). The slab width for the lane next to the buffer shall be 14 feet wide (12 feet travel lane plus two feet buffer).

Outside Lane Widening

- Existing drainage layer and edge drain are present on the outside travel lanes. Remove the edge drain, if it is exposed, and place pavement structural section shown in Table 11-2.
- Use isolation joint per Revised Standard Plan P-18 between new outside JPCP widening and adjacent lane.

11.3.2.1 Seal Concrete Pavement Joints

DB Contractor shall seal all new joints including expansion joints, isolation joints, contact joints, and transverse and longitudinal weakened plane joints. Sealing shall be per the Revised Standard Plans, Special Provisions, and these TPs. Do not seal until concrete placement, repair, grinding, and grooving has been completed for the location to be sealed.

11.3.3 Pavement Subgrade

Geotechnical subsurface exploration, analysis, design, and construction shall meet the following requirements. Preliminary geotechnical subsurface exploration data and reports are provided in the Reference Documents. DB Contractor shall conduct final subsurface investigations and

provide the data prior to the Pavement Review Meeting. In areas of proposed pavement, perform borings and provide subsurface data at an approximate interval of 1,000 feet in median widening areas and in outside widening areas, to a minimum depth of 6 feet below finished grade.

Overexcavation

Overexcavation is defined as the excavation of subgrade soils not meeting Type I or II subgrade, to a depth stated in this TP Section 11.3.3, and including all work necessary to remove such subgrade soils, replace with Type I or Type II subgrade materials, and compact the new material. It does not include the excavation required for pavement structural sections shown in Tables 11-1 through 11-3.

The subgrade directly below new Project pavements shall be Type I or Type II in accordance with the Caltrans *Highway Design Manual*. Soils with plasticity index (PI) greater than 12 and less than 20 may be considered Type II, provided that the Expansion Index (EI) is tested and shown to be less than or equal to 50.

Existing subgrade soils not meeting Type I or Type II requirements, and subgrade soils not meeting design R-value requirements, are considered unsuitable and shall be removed and replaced or treated in accordance with the HDM and Standard Specification to achieve an R-value of 20 or greater. Limits of removal shall be at least the full width of pavement for a length extending from the location of each boring showing unsuitable subgrade material to the midpoint between that boring and the nearest adjacent boring showing suitable subgrade conditions. Subgrade soils shall be removed to the specified minimum depth and the following requirements:

- Four feet below the finished grade where subgrade does not meet the above requirements.

In new fill areas, the depth of Type I or Type II subgrade shall be a minimum of 4 feet below the grading plane, and the lateral limits of new Type I or Type II subgrade for the edge not adjacent to existing pavement shall be the zone bounded by a 1:1 slope extending downward and outward from the bottom edges of new pavements. In areas where removal and replacement of existing subgrade are required, the lateral limits of removal and replacement shall be a vertical plane extending below the edge of existing pavements to remain, and a 1:1 slope extending downward and outward from the bottom edges of new pavements where no existing adjacent pavement is to remain.

Other requirements:

- Keep overexcavated areas free of water while work is in progress;
- Maintain existing site drainage around overexcavated areas; and
- Protect open overexcavated areas from flooding and damage due to rainfall and surface run-off.

11.3.4 Pavements for Local Agencies

Design and construct pavements for new construction and reconstruction for Local Agency facilities in accordance with Local Agency Standards.

11.3.5 Temporary Pavements

Design, construct, and maintain new and existing temporary pavements for the Work within the Project in compliance with the following performance requirements:

- Provide documentation describing the assumptions used to design the temporary pavement, at a minimum the documentation shall include design life, anticipated traffic loading, structural evaluation of existing pavement and shoulder for each temporary pavement location for the Work.
- Temporary pavement shall be engineered to handle traffic loads while the detour is in place without cracking, rutting, ravelling, spalling, bleeding, low skid, or faulting that may impact the safety and comfort of the travelling public. Any pavement defects that may compromise the safety of the traveling public are required to be corrected immediately at no additional cost to the Local Agency.
- Temporary pavement placed for detour purposes shall be removed prior to Substantial Completion.
- Existing pavements used as detour or haul roads shall be restored to their original condition prior to Substantial Completion. Submit an approach to evaluate existing pavement proposed as detour or haul roads before and after the pavement is used.

Any existing shoulders used for temporary traffic handling for more than one year shall be evaluated and restored to their original structural capacity (i.e., at the Effective Date) after their use as a temporary pavement. As a minimum, the shoulder shall be milled full width to a depth of 0.25 feet and filled with 0.25 feet of RHMA-G.

Any existing outside shoulder used for temporary traffic handling for more than a total of fourteen days and less than one year shall be milled full width to a depth of 0.25' and filled with 0.25' of RHMA-G.

Remove temporary pavement and restore facilities, including drainage and signage, to their condition prior to construction of temporary pavements as condition for Final Acceptance.

11.3.6 Pavement for Tolling Zones

Provide a section of concrete pavement that is 50 feet long subject to confirmation with the TSP, and extends from the inside shoulder median to the outside edge of the Express Lanes for each Toll Collection Site. The section of concrete pavement shall be:

- A single slab within each lane or shoulder for the full length of the loop array
- Free of any metallic material

- Reinforced with Fiber Reinforced Polymer ("FRP") bars or RCTC approved equivalent
- Conform to ACI 440.6-08; and
- Include ties and chairs only of plastic or other nonmetallic material approved by RCTC

Coordinate with the TSP for design of in-pavement conduits, risers and junction boxes to provide for connection of traffic detection leads from the express lanes and shoulder to TCS gantry mounted cabinets.

Notify and coordinate with the TSP for installation of in-pavement conduits, risers, and junction boxes prior to pouring of the concrete at the Tolling Zones.

Coordination of final pavement with regards to the design and pour schedule for the Express Lanes and shoulder pavement at the Tolling Zones will involve the TSP and will take place prior to TSP Ready For Construction Certification.

Reconstruct existing concrete pavement for any Toll Collection Sites located within existing paved median to meet the requirements of this TP Section 11.3.6.

11.3.7 Haul and Detour Roads

See TP Sections 2 (Project Management and Administration), 11 (Pavements), and 18 (Maintenance of Traffic) for the requirements of haul roads and detours.

11.3.8 Materials Report

Prepare a Materials Report to include the following for all permanent and temporary pavements:

- Subgrade R-value, Plasticity Index, and Expansion Index
- Pavement structural section
- Stationing and mile post
- Lane number
- Any deviation to the pavement designs provided in Tables 11-1, 11-2, or 11-3 approved by RCTC and the Department
- Project description and Work
- Existing facilities and proposed improvements
- Geology and climate conditions
- Field and laboratory investigation
- Subsurface soil and groundwater conditions
- Corrosion test results
- Corrosion assessment and materials selection for culverts

- Summary of existing pavement sections from as-built and field data
- Summary of proposed pavement sections
- Design traffic index and design life for each proposed pavement
- Design subgrade criteria for each proposed pavement
- Summary of subgrade test results and classification
- Recommendations and limits for subgrade preparation and remediation
- Removal and replacement of subgrade materials
- Lime treatment
- Summary of permanent rigid pavement design, including justification of lateral support conditions
- Summary of permanent flexible pavement design
- Design recommendations for temporary pavements
- Construction considerations
- Temporary excavations
- Potential for encountering groundwater or poor subgrade
- Recommended remedial measures for groundwater or poor subgrade
- Figures
- Project vicinity map
- Exploration and proposed pavement location plan
- Appendices
- Pavement subgrade boring records
- Laboratory test results
- Design documentation and calculations
- Shoulders

Submit the Materials Report for review at least eight weeks prior to the start of pavement construction. Materials Report shall be based on geotechnical investigation and recommendations from the pavement review meeting. DB Contractor shall obtain approval of the Materials Report from RCTC and the Department prior to commencement of pavement construction.

11.3.9 Miscellaneous Pavement

Reconstruct the shoulder that was disturbed due to construction of the soundwall with the same pavement type and structural section as the existing shoulder.

Pave the median that is outside of the Basic Configuration for lanes and shoulders, between the SR-91 Express Lane direct connectors with no less than 4 inches of HMA-A.

11.4 Construction

Construction of pavement for the Project shall comply with the following requirements:

1. Saw-cut existing pavement, full depth, prior to constructing additional pavement. Saw-cut the existing concrete pavement from the edge of the existing pavement to provide a straight and smooth vertical edge before placing the new pavement. Repair any spalls and corner breaks prior to paving operation. There will be no direct payment for saw cutting and pavement repair at the interface of the new and existing pavement.
2. Pavement and treated base shall be removed without affecting the adjacent pavement to remain. In the event material underlying removed pavement is disturbed, it shall be re-compacted to a relative compaction of not less than 95 percent.
3. Remove pavement and base not used in the final roadway configuration.
4. Rapid strength concrete is not allowed for travel lanes and shoulders. Isolated sections, such as gore areas, may use rapid strength concrete if approved in advanced by RCTC and the Department.
5. Provide an approved method of marking the locations of the transverse joints.
6. Correct any damage caused by DB Contractor to the adjacent pavement during the slab removal or new pavement construction at no additional expense to RCTC.
7. Concrete placement and curing – As part of QC plan, discuss steps that will be taken to minimize uncontrolled shrinkage cracking and curling of the slab. Software program such as HIPERPAV software shall be utilized to control shrinkage cracking.
8. In addition to meeting the placement tolerance requirements of Department Standard Section 40-1.01 by coring of the pavement, DB Contractor is required to use Magnetic Imaging Technology ("MIT") to verify the location of dowel bars for 100 percent of the joints for the entire length of the project. The MIT verification shall be performed as soon as possible so corrective measures can be taken in case of misaligned dowel bars. Submit MIT verification results to RCTC for review and approval. Nonconformances will be handled using "Table B1 Weighting Factors Used to Determine Joint Score" of FHWA publication titled *Use of Magnetic Tomography Technology to Evaluate Dowel Placement* "Appendix B Guidelines for Evaluating Dowel Alignment Using MIT Scan-2". Any joints with a joint score of 10 or higher will be rejected and will require corrective action.
9. Provide just-in-time training workshop 72 hours prior to the start of concrete paving.

10. In addition to meeting the requirements of concrete mix design for JPCP, the concrete mix shall meet the requirements of Coefficient of Thermal Expansion ("CTE") specified for continuously reinforced concrete pavement ("CRCP").
11. Grind all PCC pavements in existing lanes where it will interface with the new pavement for the full width of the existing lane in accordance with Department standards.
12. DB Contractor shall perform MRI/IRI testing, and in addition to meeting Department smoothness specifications for new pavement, DB Contractor shall meet the requirements of Contract Section 20.6.
 - If, at Package Turnover, any 0.1-mile segment of new pavement within that Turnover Area or the Project (as applicable) has an MRI measured value less than 85.0, RCTC will calculate the sum total of each 0.10-mile segment's Pavement Adjustment and rollover the balance to the next Package Turnover and so forth until all of the new pavement is accounted for.
 - Where any 0.1-mile segment has an MRI measurement between 65.1 and 85.0 (inclusive), DB Contractor may carry out Corrective Measures to reduce or eliminate any potential Pavement Adjustment as part of the Work required to achieve the applicable Package Turnover. Alternatively, DB Contractor may pay the Pavement Adjustment.
 - Where any 0.1-mile segment has an MRI measurement greater than 85.0, DB Contractor shall complete Corrective Measures as part of the Work required to achieve the applicable Package Turnover.
 - DB Contractor cannot grind into an incentive.
 - DB Contractor shall provide Notice to RCTC identifying the 0.1-mile segment for which DB Contractor will perform the Corrective Measures prior to carrying out such Corrective Measures.
 - DB Contractor shall meet minimum pavement thickness requirements after any Corrective Measures are performed.
 - The performance by DB Contractor of Corrective Measures, whether required by this Section or at DB Contractor's election, shall in no way result in an extension of time or other Claim by DB Contractor under this Contract.

11.5 Submittals

Table 11-4 reflects a nonexclusive list of Submittals identified in this TP Section 11 (Pavements) and is not intended to be an all-inclusive or exhaustive listing of Submittals. It is DB Contractor's responsibility to determine and submit all Submittals, as required by the Contract, Project Standards, Governmental Approvals, and Governmental Entities.

PIPELINE WORK – I-15/Limonite Avenue Interchange

PIPELINE SPECIAL REQUIREMENTS

TABLE OF CONTENTS
OF SPECIAL REQUIREMENTS

	<u>Page</u>
1. THE REQUIREMENT	1
2. LOCATION OF CONTRACT WORK SITE	1
4. CONTRACT COMPLETION SCHEDULE	2
5. CONTRACT DRAWINGS	2
6. RIGHTS-OF-WAY	3
7. PERMITS AND FEES	4
9. DATA TO BE SUBMITTED BY CONTRACTOR	6
10. SCHEDULE	7
11. MATERIAL FURNISHED BY CONTRACTOR	8
12. NOT USED	8
13. NOT USED	8
14. PIPELINE INSPECTION	8
15. NOT USED	8
16. NOT USED	8
17. CONSTRUCTION VIDEO PHOTOGRAPHY	8
18. GEOLOGICAL INFORMATION	9
19. NOT USED	10
20. CONNECTIONS TO EXISTING WATER SYSTEM	11
21. CONSTRUCTION STAGING	11
22. SCHEDULE OF PROPOSED PIPELINE CONSTRUCTION ACTIVITIES	12
24. PAVEMENT REPAIR, REPLACEMENT, AND RECAPPING	15
25. ACCESS TO CONFINED SPACES IN EXISTING STRUCTURES	15

TABLE OF CONTENTS
OF SPECIAL REQUIREMENTS
(continued)

	<u>Page</u>
26. ACCESS OF OWNER'S AND DISTRICT'S REPRESENTATIVE'S PERSONNEL TO CONFINED SPACES IN STRUCTURES UNDER CONSTRUCTION	15
27. WATER FACILITIES ABANDONMENT, SALVAGE AND DEMOLITION	16
28. RELOCATION OF PROPOSED APPURTENANCES	17
29. MISCELLANEOUS SPECIAL CONDITIONS	17

SPECIAL REQUIREMENTS
FOR
I-15/LIMONITE AVENUE INTERCHANGE PROJECT

1. THE REQUIREMENT

The Contractor shall construct the specified waterline transmission facilities, all associated demolition and abandonment with all appurtenances for the Jurupa Community Services District, Jurupa Valley, California as part of the I-15/Limonite Avenue Interchange project; furnishing all labor, materials (except those materials to be furnished by Owner or District), equipment, and methods necessary to complete said construction, in order to provide the District with complete, correctly operating water pipeline facilities with all appurtenances, all in accordance with the Contract Documents. The Contractor shall test the facilities with appurtenances, and he shall check all material installed by him, making repairs and/or adjustments necessary in order to provide the District with correctly functioning pipeline facilities with appurtenances.

For the purposes of this section and Sections A, B and C of the pipeline specifications, the following definitions apply:

Owner – Riverside County, Construction Manager or their designee

District – Jurupa Community Services District and Chino Basin Desalter Authority

2. LOCATION OF CONTRACT WORK SITE

The contract work site is in Eastvale and Jurupa Valley, California.

- Limonite Avenue – Interstate 15 bridge ramps and under the Interstate 15 just South of said bridge

3. STANDARDS MANUAL

The Jurupa Community Services District "Standards Manual", Latest Edition (including all Addendums), is hereby incorporated into these Specifications, and in case of conflict the highest and most stringent requirement shall govern. Copies of the "Standards Manual" are available at the District office for review and/or purchase by prospective bidders. In case of conflict between the JCSD Specifications (Pipeline Special Requirements, Sections A, B, C) and any Caltrans standards or other standards or requirements referenced in the project specifications, the JCSD specifications shall supersede other documents for the pipeline work.

4. CONTRACT COMPLETION SCHEDULE

All work under Bid Schedule I – Jurupa Community Services District 30" Diameter Pipeline Relocation South of Limonite Bridge shall be completed and operational within the schedule for the I-15/Limonite Avenue Interchange Project.

Other restrictions are set forth in Section 22 SCHEDULE OF PROPOSED PIPELINE CONSTRUCTION ACTIVITIES. Please refer to Section 6B and 7E pertaining to easements.

IF CONTRACTOR DOES NOT CONFORM TO THE ABOVE LISTED CONTRACT OPERATIONAL AND COMPLETION SCHEDULES, THEN THE OWNER WILL ENFORCE THE AGREEMENT IN THE GENERAL CONDITIONS TITLED "LIQUIDATED DAMAGES".

5. CONTRACT DRAWINGS

The Contract work to be executed under these specifications, its location, nature, size and extent, and the form and detail of its various features are shown on the listed Drawings, which are hereby made a part of these Specifications.

A. DESIGN DRAWINGS:

Jurupa Community Services District - 30" Diameter Pipeline
Relocation South of Limonite Bridge

Sheet No. Sub-Title

- W-1 Waterline Plans
- W-2 Waterline Plans
- WD-1 Waterline Details

JCSD

<u>Standard No.</u>	<u>Title</u>
A-1	Typical Trench Detail
A-2	Special Bedding Detail
A-4	Standard Guard Post Installation
B-1	Gate Valve Installation
C-1	Thrust Blocks for DIP Pipelines, Class 200 psi Max.
C-2	Thrust Blocks for Welded Steel Pipelines, Class 200 psi Max.
C-3	Typical Butt Strap Connection
C-4	Typical Cut-to-Fit Details for Types I, II, III
C-6	Outlet Reinforcement Details
C-8	Formed Bell & Spigot, Rubber Gasket Joint for CML & CMC Pipe

C-9	Lap Welded Slip Joint Belled-End CML & CMC Pipe
E-2	Air Valve Installation 3" or 4" Dia.
F-2	6" Dia. Blow-Off Installation
I-1	Manway Installation 20" or 24" Dia.
K-3	Cathodic Protection Test Station Steel Cylinder Pipe
K-4	Thermite Braze Detail

6. RIGHTS-OF-WAY

A. GENERAL

Construction under this Contract is located upon lands and/or near existing interference facilities under the jurisdiction of the following Agencies/Companies:

1. City of Jurupa Valley
2. City of Eastvale
3. Caltrans
4. Easements in Favor of JCSD or CDA

It shall be the Contractor's responsibility to conduct all operations within the public right-of-way and easements provided as shown on the Contract Documents.

B. LANDS UNDER JURUPA COMMUNITY SERVICES DISTRICT JURISDICTION (EASEMENT)

1. The County of Riverside has acquired permanent and temporary easements and rights-of-way to allow for the construction of the pipeline work as part of the project. The status of easements is as follows:
 - a. 30" Waterline (east) – Easement Pending
 - b. 30" Waterline (west) – Easement Pending

TO BE DELETED WHEN EASEMENT ACQUIRED
Acquisition and work to be performed by the County is expected to be complete prior to start of construction. If the Contractor reaches a point where he cannot proceed in a normal manner because the easements or work have not been acquired/performed by the Owner, the Contractor shall accomplish all other practical work prior to stopping

construction on the project until the easement or work has been acquired/performed. The time for contract completion will be extended (the number of days remaining on the contract when the Contractor stopped plus five (5) extra calendar days for mobilization/demobilization); but additional charges, by the Contractor to the Owner for construction delays will not be allowed; only the one applicable bid price for additional mobilization/demobilization will be allowed. This bid item shall apply for each portion of easement/right-of-way to be acquired and work to be performed per Bid Schedule.

It shall be the Contractor's responsibility to conduct all his operations within the easements provided for him as shown on the Drawings or within the public right-of-way. Additional easements that may be required by the Contractor to complete the work as hereby proposed shall be obtained by the Contractor at his own expense.

C. OTHER UTILITIES AND ORGANIZATIONS

The existing underground facilities are shown on the contract drawings in accordance with recorded locations per the particular utility's atlas sheets. Refer to section titled "Permits and Fees" for additional information.

7. PERMITS AND FEES

A. GENERAL

Contractor shall secure at his own expense all permits (including riders) and/or licenses necessary to the prosecution of the contract work, except for any permits and/or licenses stated herein to have been secured and paid for by the Owner or the District. The Contractor shall also be liable for any expense, of any kind, associated with any permit or license, including those obtained by Owner or the District, in excess of payments made prior to Contract Award.

Contractor shall comply with the applicable requirements of all permits and/or licenses that have been secured by the Owner or the District, all at no additional cost to the Owner or the District.

B. RULES AND REGULATIONS OF UTILITIES AND OTHER ORGANIZATIONS

The Contractor shall determine and comply with all the applicable rules and regulations of the utilities and organizations listed in Paragraph "A" of section titled "Rights-of-Way" of these Special Provisions. The Contractor shall contact all of the listed utilities and/or organizations prior to the start of construction so they may make the exact location of their facilities or utilities that may be in conflict with this project.

C. EASEMENT REQUIREMENTS

As indicated, Jurupa Community Services District along with Riverside County is securing or has secured various temporary and permanent easements for construction and operations of the water within various private properties. The Contractor shall comply with the requirements of these easements and the operations that occur on these properties. It shall be the Contractor's responsibility to coordinate with the property owners and/or tenants of the properties for operations, deliveries, security, and access and shall be reflected in the Contractor's construction schedule. No additional compensation will be awarded to the Contractor due to any delays caused by the property owner's and/or tenant's operations. The Contractor shall incorporate the following parameters into the construction schedule and activities:

- Contractor shall maintain clean sites, all debris, mud, dirt, materials, equipment, etc. shall be cleared from sites or maintained within a pre-designated location at the end of each day. If said items are maintained on site as described above, Contractor shall secure all items per specifications.
- Contractor shall block off only the maximum amounts for pipelines as designated in the specifications. Once this area of work is completed, Contractor shall provide for back fill, restoration, temporary paving, etc., remove any temporary fencing, barricades, etc.

The following is a specific summary of easement areas:

- Water Relocation sheet W-1 of the water relocation plan, APN 152 640 001, 50' permanent easement

- Water Relocation sheet W-2 of the water relocation plan, APN 152 630 008, 50' permanent easement

8. PRIORITY CONNECTIONS

Contractor shall make water system connections, including all required and applicable site work, restoration, testing, flushing, disinfection, paving per plans, specifications and applicable Permits in the sequence as determined by the District. This order of work shall be reflected in the Contractor's schedule.

9. DATA TO BE SUBMITTED BY CONTRACTOR

Contractor shall submit to the District for approval detailed shop drawings and schedule for cylinder thicknesses, etc., for straight pipe and for all specials, fittings, and connections for all mainline piping. No pipe shall be manufactured until the drawings have been approved.

Contractor shall submit high quality, high resolution digital files, (PDF format) through e-mails or CD-Rom, whichever is more applicable and three (3) hard copies. Any files not readable, legible or poor quality will be sent back rejected and no additional compensation will be provided. The District will review and return submittals within ten (10) working days.

The Contractor shall notify the District of any deviations from the contract documents. The District's approval of the Contractor's submittal data shall not relieve the Contractor from having the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for misfits due to any errors in the Contractor's submittal.

The Contractor shall, prior to pipe fabrication drawings preparation, determine in the field the exact O.D. cylinder dimension of existing pipelines at all connections, and shall be responsible for all field measurements.

In addition to the above, the Contractor shall submit to the District for approval, manufacturers' data sheets, brochures, etc. for appurtenant materials, shoring and bracing design, etc. A list of the **minimum** required submittals for the pipeline work is as follows:

- Construction Schedule for pipeline construction phase
- Pre-Construction Video(s)
- Pothole Log, Signed Utility Report
- Disinfection and Flushing Plans

Hydrostatic Testing Procedures
Start-up and Testing Procedures
Dewatering Equipment and Procedure
Couplings
Steel Casing Pipes
CML/CMC Pipe, Fittings and Appurtenances
Gate Valves
Air Valves
Blowoffs/Hydrants
Concrete Mix Designs
Controlled Density Fill (Slurry)
Copies of Permits Required to be Obtained by Contractor
Sheeting, Shoring and Bracing
Survey Cut Sheets

10. SCHEDULE

Successful Bidder shall be required to submit a pipeline construction schedule at the pre-construction meeting. The schedule shall conform to the completion schedule stated herein, and shall show dates for beginning and completion of all aspects of contract work associated with the pipeline work. Bidder shall understand that this schedule will be tentative, and subject to modification and updating by the Contractor (as approved by the District) as the contract work progresses. The Contractor's schedule shall reflect progress of project as work is being completed. The schedule shall provide the following main items along with corresponding details:

- Submittals
- Submittals review and approval period
- Material delivery
- Schedule of construction
 - Potholing and verify existing facilities
 - Project phasing
 - Installations
 - Water facilities shut downs
 - Testing and start up
 - Final site work and cleanup

- Demolition/removals

Contractor shall submit updated project schedules to District as follows:

- Once per month after Contractor initiates the pipeline work
- Any time a change in the schedule and/or change in the work has occurred
- Submitted with progress pay requests (status/completion items as shown on the schedules shall be consistent with the progress pay requests)

11. MATERIAL FURNISHED BY CONTRACTOR

The Contractor shall furnish all materials necessary to complete the pipeline work, all in strict accordance with the Contract Documents.

In addition, the Contractor shall furnish all labor, skills and services required for the installation of the material to be furnished by him in order to provide the Owner and the District with a complete pipeline project in accordance with the Contract Documents.

12. NOT USED

13. NOT USED

14. PIPELINE INSPECTION

The pipeline related work performed by the Contractor shall be inspected and accepted by the District appointed inspector. The Contractor shall notify the District appointed inspector at least three days prior to commencing any pipeline work. Any pipeline work not inspected and accepted by the District appointed inspector is subject to rejection. See additional requirements in Pipeline Section A.

15. NOT USED

16. NOT USED

17. CONSTRUCTION VIDEO PHOTOGRAPHY

A. DESCRIPTION

This Section covers pre-construction video photography of the pipeline work area to support proof of pre-existing pavement, site, facilities, conditions, sign locations etc. for visual comparison to the post-construction conditions. The requirements specified in the Condition of Contract also form part of this Section. Video shall be performed in the presence of the District's Representative.

B. VIDEO PHOTOGRAPHY

Provide video DVD of the site prior to placing markings of any kind on the pavement, sawcutting or removal of materials. The video recording media shall be DVD format, new and previously unexposed and shall be playable on computer and DVD player.

C. DESCRIPTION

Identify each DVD on the front. List name of project, orientation of view, date and time of view, name and address of photographer.

D. TECHNIQUE

Provide factual presentation. Provide correct exposure and focus, high resolution and sharpness. Panning and zooming shall be performed slow and steady, with no shakes. Video the construction area from a vehicle moving at a slow rate of speed to permit the District to view the DVD and determine pre-existing conditions. Provide audio explanation of pavement failure areas and of other items which require special notation.

Areas of local distress shall be videoed with the camera held without moving, using zoom control to record pavement cracking and alligating.

E. SUBMITTALS

Contractor shall deliver minimum of three (3) copies of the DVD discs within three (3) days after exposure with transmittal letter. The Owner will retain one of each DVD which will be the permanent record.

18. GEOLOGICAL INFORMATION

It is the Contractor's responsibility to examine the site and perform any and all testing and evaluations necessary from which to draw conclusions regarding:

1. The ease or difficulty of excavation.
2. The presence, nature and extent of any rock.

3. The depth and quantity of groundwater.
4. The stability of excavations.
5. The suitability and quantity of excavated materials for pipe bedding and backfill or sources for importing bedding and backfill materials.
6. All excavation shall be unclassified and it shall be the Contractor's responsibility prior to submitting his proposal to familiarize himself with the conditions that he may encounter during construction of the Contract Work. All costs for excavation for all soils conditions (including any groundwater or required rock excavation) shall be included in the Contractor's applicable bid prices for constructing the various improvement facilities and no additional compensation shall be made therefore.

Where investigations of subsurface conditions have been made by the District in respect to foundation or other structural design, and that information is shown in the plans, or included in the Specifications, said information represents only the statement by the District as to the character of material which has been actually encountered by it in its investigation, and is only included for the convenience of bidders. Investigations of subsurface conditions are made for the purpose of design, and the District assumes no responsibility whatever in respect to the sufficiency or accuracy of borings or of the log of test borings or other preliminary investigations, or of the interpretation thereof, and there is no guaranty either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unlooked for developments may not occur. Making such information available to bidders is not to be construed in any way as waiver of the provisions of the first part of this article and bidders must satisfy themselves through their own investigations as to conditions to be encountered.

The District does not guarantee the present or future validity of this material, and the material is in no way to be construed as a warranty of geologic conditions. Personal investigation by the Contractor is mandatory so that he can satisfy himself with regard to all geologic conditions affecting the Work hereunder. All costs for excavation for all soils and soils conditions shall be in the Contractor's bid prices for the applicable site Work and facilities, and no additional compensation shall be made therefore.

19. NOT USED

20. CONNECTIONS TO EXISTING WATER SYSTEM

Contractor shall furnish and install connections to the existing water system at locations shown on Drawings, and perform all work required including any necessary field measurements, cuts-to-fit, temporary connections, and field fabrications AS REQUIRED TO MEET EXISTING CONDITIONS.

Contractor shall construct all said connections so that any downtime of existing water systems, due to connection work, shall occur during normal working hours as directed by the District. However, the District reserves the right to require the connections be made after normal working hours if the conditions warrant.

CONTRACTOR SHALL COOPERATE WITH OWNER IN SCHEDULING ALL CONNECTIONS.

The District will operate all existing valves necessary for Contractor to accomplish said connection work.

Contractor shall conduct his work activities in order that the existing water system will be kept in service as long as practical. After the new water system is operational, the existing system shall be abandoned (where indicated on Drawings) and the Contractor shall remove all abandoned waterlines as required and directed in the field by the District.

21. CONSTRUCTION STAGING

The main objective of the pipeline work portion of the project is to relocate the District's existing water facilities and associated appurtenances prior to major bridge and grading work. The proposed relocation of these District facilities would facilitate Riverside County's work with minimal impact and disruption to the District. As such, the construction and work to perform the proposed District facilities relocation shall be staged to minimize disruption to these facilities. In order to meet these goals and objectives, Contractor shall:

- Remain on schedule pursuant to the Contract
- Provide for staging of work, improvements, testing and startup plan and incorporate this plan into the contract schedule
- Provide submittals in a timely manner, provide submittals for long lead items as soon as possible

The following are general staging guidance. The Contractor shall take the guidance into consideration and incorporate into the contract completion schedule:

Water Relocation

- A. Perform water pipeline construction, perform all test, flush, disinfection, video inspection, provide for all temporary blow-offs, thrust restraints, all other efforts as specified on the plans and specifications.
- B. Upon acceptance of waterline, prepare the connections for connection to proposed waterline.
- C. Construct connections pursuant to requirements herein these specifications and all proper disinfection and place water systems back in service.
- D. Perform all demolition and abandonment work per plans and specifications.

22. SCHEDULE OF PROPOSED PIPELINE CONSTRUCTION ACTIVITIES

The District will require, at minimum, the following construction activities to implement the pipeline construction work. The Contractor must submit a connection plan to the District for approval prior to scheduling any connection work.

- 1) Potholing of connection points
- 2) Construction of 30-in pipeline from STA 11+72 to STA 14+89 and STA 23+51 to STA 27+16.
- 3) Pressure test and BAC-T Test pipeline (all testing must pass)
- 4) After the proposed pipeline sections above are constructed, the Contractor shall schedule shutdown(s) to implement the final connections.
- 5) District to shutdown pipeline.
- 6) Dewater existing pipelines.
- 7) Install connections (east side) within 48 hours
- 8) Pipeline is put back in service.
- 9) District shutdown pipeline.
- 10) Contractor dewater existing pipelines
- 11) Install connection (west side) within 48 hours.

The Contractor must submit a detailed shutdown plan to the District for approval prior to the shutdown. The contractor's plan shall include, at minimum, all steps necessary to complete the shutdown and bring the pipeline back in service, including responsibilities of the District or other entities, and contingency plans in the event the shutdown lasts longer than 48 hours.

The contractor may propose to implement the east side and west side shutdowns concurrently, but must provide enough equipment and labor to complete the work within the specified period.

23. GROUNDWATER DEWATERING

A. GENERAL.

Contractor shall investigate the possibility of groundwater prior to submitting a bid and shall assume all cost and liabilities incurred, should a groundwater problem arise.

It is not anticipated that groundwater will be encountered based upon the preliminary soils reports and the depths of proposed pipelines and structures. If groundwater is encountered, the Contractor shall be required to provide all labor, equipment, materials and methods necessary for adequate dewatering to construct the proposed facilities. Contractor shall provide written plan to the District for review if groundwater is encountered.

B. PERFORMANCE REQUIREMENTS

Design, provide, test, operate, monitor and maintain a dewatering system of sufficient scope, size and capacity to control ground water flow into excavations and permit construction to proceed on dry, stable subgrades. Work includes dewatering operations to ensure erosion is controlled, stability of excavations maintained, and flooding of excavation and damage to structure are prevented. Work includes removing dewatering system from project site upon completion of dewatering.

Dewatering operations shall be performed by an experienced organization which specializes in dewatering systems similar to those required for this project.

C. DEWATERING

Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, piping, valves, appurtenances, water disposal, and surface-water controls.

Before excavation below ground-water level, place system into operation to lower water to specified levels and then operate it continuously until drains, sewers, and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.

Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.

Dispose of water removed from excavations in a manner to avoid endangering public health, property, and portions of work under construction or completed. Dispose of water in a manner to avoid inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.

Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on a continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to the District.

D. PERMITTING AND REGULATORY REQUIREMENTS

Comply with water disposal and/or monitoring requirements of authorities having jurisdiction. Contractor shall be solely responsible for conforming with all regulatory and associated requirements pertaining to dewatering operations. Construction of any temporary facilities such as percolation ponds shall be subject to approval of the District.

E. SUBMITTALS

Provide shop drawings and details for dewatering system showing arrangement, locations, and details of wells and well points; locations of headers and discharge lines; and means of discharge and disposal of water.

F. PAYMENT

All costs for dewatering operations for all groundwater conditions encountered shall be included under the specified Bid Items, and no additional compensation will be made therefore.

24. PAVEMENT REPAIR, REPLACEMENT, AND RECAPPING.

Pavement replacement associated with the pipeline work shall be temporary pavement and comply with the overall project specifications for the work. It is anticipated that the final roadbed and pavement work will be performed during a later phase of the overall project as a separate item under a different bid schedule. All costs to sawcut and remove the existing pavement and place temporary pavement associated with the pipeline work shall be included in the price paid for various items of work, and no additional compensation shall be made therefore.

25. ACCESS TO CONFINED SPACES IN EXISTING STRUCTURES

The Contractor's attention is directed to the General Industry Safety Orders of the State of California, Article 108, Permit-Required Confined Spaces, Section 5157. All Contractor entry into confined spaces must meet the requirements of Section 5157. (Refer to California Code of Regulations, Title 8, Confined Spaces, Sections 5156, 5157, and 5158).

The Contractor shall provide personnel and equipment, including standby personnel, observers, and authorized competent person to stand by while entrants are inside the space, temporary ventilation equipment, or self-contained breathing apparatus, to assist the personnel of the Owner's Representative in obtaining access to permit-required confined spaces.

26. ACCESS OF OWNER'S AND DISTRICT'S REPRESENTATIVE'S PERSONNEL TO CONFINED SPACES IN STRUCTURES UNDER CONSTRUCTION

1. The Contractor shall provide the following assistance to the personnel of the Owner's and District's Representative when said personnel must enter confined spaces in structures under

construction or structures which have not been accepted by the Owner.

- a. Training program for the Owner's and District's Representative's personnel relevant to the specific structures being entered.
 - b. Testing equipment and personnel to operate said equipment for testing the atmosphere in the confined spaces for oxygen deficiency, explosive gases, and toxic gases.
 - c. Authorized competent person to stand by each confined space while entrants are inside the space.
 - d. Safety equipment (breathing apparatus, harnesses, and rescue equipment) in good working order.
 - e. Communication equipment.
 - f. Access equipment (hoists and ladders).
 - g. Signs.
 - h. Alarm system.
 - i. Ventilation system.
2. The Contractor shall identify confined spaces on the project, mark them with warning signs per OSHA requirements, and notify the Owner's and District's Representative that these structures now exist.

27. WATER FACILITIES ABANDONMENT, SALVAGE AND DEMOLITION

Water Facilities (Pipelines and Appurtenances) shall be abandoned, demolished and removed as part of this project. Procedures for abandoning and demolishing of said facilities are outlined on the plans and in the specifications. The water pipes to be abandoned shall be removed, disposed and the trench backfilled. The Contractor shall remove and dispose of air valves, blow-offs, valve cans and various appurtenances. Pipes connected to said appurtenances shall be removed and disposed. All excavations shall be properly backfilled and compacted.

28. RELOCATION OF PROPOSED APPURTENANCES

This pipeline work is part of Caltrans' Interstate 15 /Limonite Avenue Interchange Project. The installation of the waterline will occur before the interchange project's grading. There are five appurtenances (two air valves, two valve cans and one CTS) that cannot be installed in the final location when the proposed pipeline is to be installed. During the remainder of the project, the contractor must protect the proposed appurtenances in place and relocate those appurtenances to their final locations during the course of other work within the project. As a result, the contractor will need to coordinate with the grading operations and the District regarding the relocation of the proposed appurtenances.

29. MISCELLANEOUS SPECIAL CONDITIONS

A. PIPELINE PROJECT MEETINGS

1. ATTENDEES. Unless otherwise specified or required by the Owner, all meetings for just the pipeline work shall be attended by the Owner, the District, the District's Inspector, and the Contractor and his Superintendent and the pipeline subcontractors if applicable. Other subcontractors may attend when involved in the matters to be discussed or resolved but only when requested by the Owner, the District, or Contractor.

2. MEETING RECORDS. The Owner or the District will record minutes of each meeting and will furnish copies to the Contractor within five (5) working days thereafter. If the Contractor does not submit written objection to the contents of such minutes within seven (7) days after presentation to him, it shall be understood and agreed that the Contractor accepts the minutes as a true and complete record of the meeting.

3. MEETING SCHEDULE. The dates, times and locations for the progress meetings for just the pipeline work shall be agreed upon and recorded at the pipeline preconstruction conference. Then after, changes to the schedule shall be by agreement between the Owner and Contractor, with appropriate written notice to all parties involved.

4. PIPELINE PRECONSTRUCTION CONFERENCE. Prior to start of construction for the pipeline phase, a pipeline preconstruction conference shall be held at the location, date, and

time designated by the Owner. In addition to the attendees named herein, the meeting shall be attended by the Pipeline Subcontractor, if applicable and the District, and such other persons the Owner may designate.

5. EXECUTION AND SUBMITTAL OF DOCUMENTS. At the pipeline preconstruction conference, unless otherwise specified or agreed by the Owner and the District, the Contractor shall provide, at minimum, a detailed schedule for the pipeline work and list of submittals anticipated for the pipeline work.

6. AGENDA. In general, the matters to be discussed or resolved and the instructions and information to be furnished to or given by the Contractor at the preconstruction conference include:

1. Pipeline work schedule
2. Schedule of values for the pipeline work
3. Communication procedures between the parties involved in the pipeline work.
4. The names, addresses, and telephone numbers of all those authorized by the Contractor to act for him in emergencies.
6. Construction permit requirements, procedures, and posting.
7. Interfaces with other Contractors, sub-contractors or with utility owners.
8. Contractor's provisions for barricades, traffic control, utilities, sanitary facilities, and other temporary facilities and controls necessary for the pipeline work.
9. Construction surveyor contact information.
10. Methods of construction proposed by the Contractor.
11. Equipment proposed for use during construction by the Contractor.

8. SPECIAL MEETINGS. Upon appropriate notice to the other parties, special meetings may be called by the Owner, the District, or Contractor. Special meetings will be held where and when designated by the Owner.

9. REGULATORY AGENCIES. When requested, the

Contractor shall attend meetings held or required by the governmental regulatory agencies having jurisdiction of the pipeline work or by various California State agencies or Owners of affected utilities.

B. REIMBURSEMENT TO OWNER FOR COMPACTION RE-TESTS

The Owner will arrange for a soils engineering laboratory to perform the trench compaction testing for the water pipeline. The Owner will pay for required compaction tests, with the exception that the Owner shall be reimbursed by the Contractor for any compaction tests that fail to meet the minimum relative compaction requirements. The Bidder is hereby notified that the amount of the reimbursement to the Owner shall be Seventy-Five Dollars (\$75.00) for each required retest for insufficient compaction, said amount includes costs for testing, overhead and administration.

C. CONTRACTOR'S FIELD SUPERINTENDENT

The Contractor shall be required to designate a field superintendent, from his organization or from the pipeline sub-contractor's organization at the jobsite during pipeline work construction activities to manage the affairs of the Contractor and Sub-Contractor to receive directions or instruction from the Owner. Contractor shall provide the Owner with a 24 hour emergency phone number for field superintendent prior to beginning of construction.

D. COOPERATION WITH OTHER CONTRACTORS

The Contractor shall cooperate with other contractors that are working within the project area, as directed by the Owner.

E. AS-BUILT DRAWINGS

The Contractor shall be responsible for maintaining one up-to-date set of as-built drawings, on the job site, available for review by the District representative. These drawings shall be clean, neat, legible and show deviations from the original plan and profile design. This set of as-built drawings shall be submitted for review on a monthly basis and given to the Owner and the District upon project completion.

Failure to provide acceptable up-to-date as-built drawings as required herein is considered a material breach of the Contract and shall result in withholding of progress payments and/or final payment at the sole discretion of the Owner. Failure to submit the final as-built drawings shall of and by itself, be grounds for assessment of liquidated damages not withstanding any other contractual action which may be taken.

Full compensation for conforming to the above requirement will be considered as included in the prices bid for various contract items of work and no additional compensation will be allowed therefore.

PIPELINE WORK – I-15/Limonite Avenue Interchange

BASIC SPECIFICATIONS

SECTION B

**WATERLINE PIPELINE MATERIALS
SPECIFICATIONS**

(Public Works)

Date April 12, 2004

Revised February 1, 2010

Revised September 22, 2011

Revised: March 6, 2013

Revised: July 18, 2014

Revised: November 12, 2014

Revised: August 6, 2015

Revised: July 6, 2016

Revised for Limonite Relocation Project May 5, 2017

REVISIONS TO BOILERPLATE SPECS
 BASIC SPECIFICATIONS
 SECTION B
 WATER PIPELINE MATERIALS SPECIFICATIONS

<u>Date</u>	<u>Section Revised (Description)</u>	<u>Project Manager Approval Signature</u>
2/1/10	Updated to Create Master	Per Bill Malone
9/22/11	Updated entire Section B to match Section V Basic Specification B of District's updated Standards Manual	Per Bill Malone
3/6/13	Updated Section No. 1, Subsection B To reference District's "List of Approved Manufactured Materials" (Appendix F of Standards Manual, Latest Edition)	Per Bill Malone
7/18/14	Updated yield stress and design stress pipe to 36,000 psi and 18,000 psi	Per JCSD
11/12/14	Updated Section 2 in reference to the gauge, manufacture and supplier requirements, updated wall and lining thicknesses on table	Per Bill Malone
8/5/15	Updated Reference Section 1B for Substitutions from "Section C, Par 26D" to "Section A Par. 32"	Per Bill Malone
7/6/16	Corrected spelling Polyvinyl and Appendix Reference Approved Materials List	Per Bill Malone
5/5/17	Revised specification for Limonite Relocation Project	Per B. Sackett

BASIC SPECIFICATIONS
SECTION B

WATER PIPELINE MATERIALS
SPECIFICATIONS

BASIC SPECIFICATIONS

SECTION B

WATER PIPELINE MATERIALS SPECIFICATIONS

TABLE OF CONTENTS

	<u>Page</u>
1. General	B-1
A. Alternate Pipeline Materials	B-1
B. Contractor Furnished Materials	B-1
C. Exposed Piping Supports	B-1
D. Piping Sizes.....	B-1
E. Dissimilar Metals	B-2
F. Material Identification.....	B-2
2. Welded Steel Pipe, CML&CMC.....	B-2
3. Ductile Iron Water Pipe	B-3
4. Polyvinyl Chloride (PVC) pipe	B-4
5. Welded Steel Fittings	B-4
6. Ductile Iron Fittings	B-9
7. AWWA Gate Valves	B-10
8. Rubber Seated Butterfly Valves	B-10
9. Copper Tubing	B-11
10. Black Steel Pipe.....	B-12
11. Red Brass Pipe	B-12
12. Stainless Steel Pipe	B-12
13. Insulating Unions.....	B-12
14. Pressure Gauges	B-12

Attachment "C-1" to Addendum 3

BASIC SPECIFICATION
SECTION B
WATER PIPELINE MATERIALS SPECIFICATIONS
TABLE OF CONTENTS
(continued)

	<u>Page</u>
15. Pressure Regulating Valves	B-13
A. General.....	B-13
B. Pump Control Valves.....	B-13
C. Pressure Relief Valves	B-13
D. Rate of Flow Control Valves	B-14
E. Pressure Reducing/Pressure Sustaining Valves	B-14
F. Altitude Valves.....	B-15
G. Coatings	B-15
H. Options	B-16
16. Flow Meters.....	B-16
A. Service Flow Meters	B-16
B. Tube Flow Meters.....	B-16
17. Protecto Wrap	B-17
18. Precast Concrete Vaults	B-17
19. Fusion Bonded Epoxy Coating.....	B-18
20. NSF Compliance	B-18

BASIC SPECIFICATIONS

SECTION B

WATER PIPELINE MATERIALS SPECIFICATIONS

1. GENERAL

A. Alternate Pipeline Materials

Where alternate pipeline materials are allowed by the District, the Contractor shall select such materials and construction methods as will result in a satisfactory completed project. All pipe materials shall be new and unused unless otherwise specified. Materials and strength of pipe shall be as shown on the plans or as specified herein.

B. Contractor Furnished Materials

The Contractor shall furnish (excepting materials specifically listed in the Special Requirements to be furnished by the District) and install all pipe, fittings, supports, bolts, nuts, gaskets, jointing materials, appurtenances, auxiliary piping and connections to equipment in accordance with the drawings and specifications, all as required for a complete and workable piping system. The materials to be furnished shall be in accordance with the District's "List of Approved Manufactured Materials" and the requirements of the Contract Drawings and Specifications. Refer to Section A Par. 32 for requirements pertaining to Contractor-proposed substitutions.

C. Exposed Piping Supports

All exposed piping shall be adequately supported with devices of appropriate design unless otherwise approved by Engineer, the support shall conform to the Standard Drawing A-5 or as shown on the Drawings.

D. Piping Sizes

Pipe sizes are nominal inside diameter unless otherwise noted. All sizes and types of pipe are noted on the Drawings, and specified herein. Where pipe is lined, the nominal diameter shall be the inside diameter of the cement mortar lining, except for wrought iron pipe.

E. Dissimilar Metals

All dissimilar metals shall be insulated from one another with approved insulating flange sets or unions.

F. Material Identification

All pipe and fittings delivered to the job site shall be clearly marked to identify the manufacturer's name, material, class, and thickness. All material shall be new and free of blemishes. Acceptance of pipe and accessories by the District will be based on load bearing tests, and inspection of the complete products as specified hereinafter. Acceptance of installed piping will be based on inspection and leakage tests as specified hereinafter.

2. WELDED STEEL PIPE, CML & CMC

Shop fabricated pipe with machine-applied lining and coating, dye-check shop welding performed after hydrostatic testing of cylinders, pipe per AWWA C200, steel plate per ASTM A1011/A1011M, 10 ga. minimum, minimum yield 36,000 psi, cement mortar coating and lining per AWWA C205. Design stress shall not exceed 18,000 psi. Each pipe section shall be provided, prior to delivery, with temporary plastic end covers, with exposed steel shopcoated, 40' maximum joint lengths, lap weld bell x plain end spigot, or rubber gasket bell x rubber gasket spigot (as indicated on the Drawings and/or Bidding Sheet), including rubber gaskets and gasket lubricant. Pipe furnished herein shall be from an organization which has had not less than ten (10) years successful experience providing pipelines of the type specified.

The minimum steel plate thicknesses utilized for water pipeline shall be as shown below:

**JURUPA COMMUNITY SERVICES DISTRICT
MINIMUM WATER PIPELINE THICKNESS**

<u>Nominal Pipe Diameter</u>	<u>Minimum Cylinder Diameter</u>	<u>Class 150 Minimum Plate Thickness</u>	<u>Minimum Cement Mortar Lining Thickness</u>	<u>Minimum Cement Mortar Coating Thickness</u>
6"	6-5/8" O.D.	0.1345"	1/4"	3/4"
8"	8-5/8" O.D.	0.1345"	1/4"	3/4"
12"	12-3/4" O.D.	0.1345"	5/16"	3/4"
16"	17-3/8" O.D	0.188"	5/16"	3/4"
18"	19-3/8" O.D	0.188"	5/16"	3/4"
20"	21-3/8" O.D.	0.188"	5/16"	3/4"
24"	25-3/8" O.D.	0.188"	3/8"	3/4"
30"	31-3/8" O.D.	0.188"	3/8"	3/4"
36"	37-3/8" O.D.	0.188"	3/8"	3/4"

NOTES

1. Steel thicknesses indicated hereon are minimum; and design steel thickness shall be determined from the pressure imposed (Class, the design stress of the steel and the O.D. of the cylinder). The minimum acceptable yield strength of the steel shall be 36,000 psi. Design stress shall not exceed 18,000 psi regardless of yield strength of steel.
2. All materials shall conform with AWWA Specifications C200 (Steel Pipe CML/CMC, Section C205)

3. DUCTILE IRON WATER PIPE

Ductile Iron Water Pipe shall be used only where specifically approved by District; and shall comply with ANSI A21.51 rubber gasket push-on type joint bell and spigot, conforming to ANSI A21.11 manufactured in sections of 18 feet or 20 feet. Fittings shall be rubber gasket push-on manufactured in accordance with ANSI A21.10. Where indicated on the Project Drawings, restrained joints shall mean the use of T.R. Flex Pipe as manufactured by U.S. Pipe or approved equal.

All ductile iron pipe shall be provided with double polyethylene encasement for the entire length of the pipeline, per AWWA C105.

Unless otherwise specified, the interior of the Ductile Iron Water Pipe and fittings shall be lined with a uniform thickness of cement mortar "double thickness" then sealed with a bituminous coating in accordance with AWWA C104 (latest). The outside surfaces of D.I.P. and fittings shall be coated with a bituminous coating in accordance with ANSI A21.6 or ANSI A21.51.

Standard pressure class for Ductile Iron Water Pipe shall be based on internal pressures and external loadings. Unless otherwise noted, minimum design pressure class shall be 150 psi. Ductile Iron Pipe thickness Class 53 shall be used where flanged or Victaulic-type pipe joints are specified or indicated on the plans.

All service connections made to the Ductile Iron Pipe shall be a brass double service strap type.

4. NOT USED

5. WELDED STEEL FITTINGS

All bends, reducers, increasers, tees, crosses, wyes, and other special fittings, except as specifically noted on the Drawings, shall be constructed of cement mortar lined steel pipe with coating as specified for balance of pipeline, and shall be shop fabricated in accordance with the latest revision of AWWA C208. (as modified below).

ELBOWS

Angle	0-22 1/2°	22 1/2°-45°	45°-67 1/2°	67 1/2°-90°
No. Pieces	2	3	4	5

NOTE: At the break point angles (i.e. 22 1/2°, 45°, and 67 1/2°) the Contractor shall use the elbow with the largest number of pieces.

All fittings shall have a steel cylinder thickness equal to or greater than the specified wall thickness of the pipeline, but not less than 10 gauge. The minimum radius for all bends shall not be less than 2.5 times the nominal

diameter of the pipelines. Where simulated weld bells are used for lap-welded fittings, the bell plate thickness shall be 1/4".

Special fittings shall be fabricated from machine cement mortar lined and machine outside coated. The individual parts of the fittings shall be cut from the pipe, welded together, and the coating and lining of shop joints shall be hand applied to provide a finished cement mortar lined and finished outside coated joint comparable to the mechanically applied lining and coating detailed herein.

Specials and fittings fabricated from cylinders that have been hydrostatically tested in accordance with these specifications shall be tested by the dye-check method, or approved equal, prior to the lining and coating of said material. Contractor shall submit fabrication drawings for all AWWA shop fabricated fittings to the District for approval prior to construction.

6. DUCTILE IRON FITTINGS

Bends, Tees, Crosses, Reducers, Bushings, Adapters, Caps, and Plugs: ANSI/AWWA C110-(latest), minimum 250 psi rated working pressure, cement mortar lining shall be "double thickness" in accordance with AWWA C104-(latest), flange ends (F) shall conform in dimensions and drilling to ANSI B16.1 for cast-iron flanges and flanged fittings for 125 lb., produced by a "District Approved Manufacturer". Short body pattern is acceptable. Properly fitting rubber gasket joint fittings are also acceptable. Fittings shall be double polyethylene encased per AWWA C105.

7. AWWA GATE VALVES

All resilient seat gate valves shall meet the requirements of AWWA C509-(latest) for rubber seated gate valves and shall be tested bubble-tight. In addition, RS Gate Valves shall be furnished with the following items:

- Valve body and bonnet shall be fusion bonded epoxy coated inside and out (10 mils nominal thickness) and meet all requirements of AWWA C550.
- Low zinc bronze stems.
- All stainless steel body hardware. Resilient seat gate valves shall be produced by a "District Approved Manufacturer".

8. NOT USED

9. NOT USED

10. NOT USED

11. NOT USED

12. STAINLESS STEEL PIPE

Stainless steel pipe shall be Type 316 welded, full finished, and shall conform to the "Specification for Seamless and Welded Austenitic Stainless Steel Pipe (ASTM A312/A312M).

13. INSULATING UNIONS

Where dissimilar pipe materials are joined, suitable insulating unions shall be installed. Insulating unions shall be produced by a "District Approved Manufacturer".

14. NOT USED

15. NOT USED

16. NOT USED

17. PROTECTO WRAP

For specified outside wrapped steel pipelines and/or where specifically directed by the District, outside pipe wrapping shall be Protecto Wrap No. 200 cold applied pipe tape, or 310 butyl rubber tape with Protecto universal water based primer, or as produced by a "District Approved Manufacturer".

18. NOT USED

19. FUSION BONDED EPOXY COATING

Wherever fusion-bonded epoxy coating is specified on steel piping or equipment for potable water, the coating system shall consist of one coat of Scotchkote 134; Tnemec Series 104 or District approved equal. Minimum dry film thickness shall be 12.0 mils. Surface preparation shall be SSPC-10. Coating shall be in accordance with NSF-61. Method of application shall be electrostatic spray method heat fusion per coating manufacturer's specifications.

Submit manufacturer's data sheets for review and approval, including: method of application; minimum and maximum DFT; recommended surface preparation; application instructions and curing requirements; etc.

20. NSF COMPLIANCE

All materials in contact with domestic water shall comply with the applicable provisions of California Title 22 Regulations Related to Drinking Water, including NSF 60 and 61 certifications; all at no additional cost to the District. Additionally, Contractor shall provide the District with a written "Affidavit of Compliance" with the California Drinking Water Regulations as part of the submittal approval process. District will provide copies of the Contract Documents and related project information to the California Department of Public Health for their approval.

PIPELINE WORK – I-15/Limonite Avenue Interchange

BASIC SPECIFICATIONS

SECTION C

**WATER PIPELINE CONSTRUCTION
SPECIFICATIONS**

(Public Works)

Date April 12, 2004
Revised February 1, 2010
Revised September 22, 2011
Revised August 6, 2015
Revised July 6, 2016
Revised for Limonite Relocation Project May 5, 2017

REVISIONS TO BOILERPLATE SPECS
 BASIC SPECIFICATIONS
 SECTION C
 WATER PIPELINE CONSTRUCTION SPECIFICATIONS

<u>Date</u>	<u>Section Revised (Description)</u>	<u>Project Manager Approval Signature</u>
4/12/04	Page C-2, first paragraph on that page under Section 1A, add the word "Property" before the word "Owner" in the first sentence as well as in the second sentence.	Per Tom O'Neill
4/12/04	Page C-9, third paragraph under Section 1H(4) add the following wording: "The aforementioned labor and equipment shall be readily available to perform the necessary work when required. Should the contractor not be ready to perform such work in support conducting the compaction test, and standby charges are incurred by the Owner for such a delay, the contractor shall be responsible for payment of said standby charges."	Per Tom O'Neill
4/12/04	Page C-9, last paragraph on that page under section 1H(6), add the word "property" before the word "owner".	
2/1/10	Updated to Create Master	Per Bill Malone
9/22/11	Updated Entire Section C to Match Section V Basic Specification Section C of District's Updated Standards Manual.	Per Bill Malone
8/6/15	Revised Jacked Steel Casing Specification in Entirety	Per Bill Malone

7/6/16	Corrected Contract Appendix Reference to General Conditions. Added Permanent Trench Pavement Section 5.C.	Per Bill Malone
5/5/17	Revised specification for Limonite Relocation Project	Per B. Sackett

BASIC SPECIFICATIONS
SECTION C

WATER PIPELINE CONSTRUCTION
SPECIFICATIONS

BASIC SPECIFICATIONS
SECTION C
WATER PIPELINE CONSTRUCTION SPECIFICATIONS
TABLE OF CONTENTS

	<u>Page</u>
1. WATER PIPE INSTALLATION.....	1
A. General.....	1
B. Installation	1
C. Handling	1
D. Joints (CML/CMC Pipelines)	2
E. Curved Alignment.....	3
F. Manufacturer Access.....	3
G. Allowable Variations in Pipeline Alignment.....	3
H. Pipeline Cover	3
I. NOT USED.....	4
J. Measurement and Payment	4
2. WELDING SPECIFICATIONS.....	5
A. General.....	5
B. Field Welded Pipe Joints	7
3. PAINTING SPECIFICATIONS	8
4. CONCRETE WORK.....	10
A. General.....	10
B. Portland Cement Concrete Classification	11
5. PAVEMENT REMOVAL AND REPLACEMENT.....	11
A. General.....	11
B. Pavement Cutting.....	12
C. Permanent Trench Pavement.....	12
D. Asphalt Concrete Cap	12
6. STEEL FLANGES, BOLTS, NUTS AND GASKETS	12
7. ELBOWS, SIDE OUTLETS, TEES, BUTTSTRAPS, CROSSES.....	13
8. TACKWELDED AND WELDED JOINTS - INSTALLATION	14

Attachment "C-1" to Addendum 3

BASIC SPECIFICATION
SECTION C
WATER PIPELINE CONSTRUCTION SPECIFICATIONS
TABLE OF CONTENTS
(continued)

9.	CONNECTIONS TO EXISTING WATER SYSTEM	14
10.	FILLING, TESTING, AND CHLORINATION.....	15
11.	PROTECTION OF DOMESTIC WATER MAINS FROM CONTAMINATION.....	15
12.	FIELD HYDROSTATIC TEST AND LEAKAGE TEST	15
13.	DISINFECTING PIPELINES	17
16.	JACKED STEEL CASING	20
18.	NOT USED.....	23
19.	VIDEO INSPECTION (CML/CMC WATERLINES).....	23
	VIDEO INSPECTION COMPANY REQUIREMENTS	25

BASIC SPECIFICATIONS

SECTION C

WATER PIPELINE CONSTRUCTION SPECIFICATIONS

1. WATER PIPE INSTALLATION

A. General

The Contractor shall furnish and install all water pipeline material required for the construction of the water pipeline and appurtenances as herein specified and shown on the Drawings. All pipeline material shall be installed per manufacturer's published recommendations and per the applicable published standards for the particular material being installed unless otherwise modified herein. In case of any conflict, the most stringent and highest requirement shall govern, and the Contractor shall adhere to said requirement, all at no additional cost to the District.

B. Installation

Pipe shall be accurately laid to alignment and grade shown on Drawings or established by District. Each section of pipe shall be lowered into trench in a manner that will prevent injury to pipe, coating, or joints and shall be carefully bedded to provide continuous bearing and prevent uneven settlement. Inside of pipe shall be clean and free from foreign material of any kind before being installed. Contractor will lay pipe units with bell ends in direction of laying, unless otherwise ordered by District or set forth in these Specifications and Drawings.

C. Handling

Contractor may find it necessary to move or haul pipe during progress of the work. Dropping or bumping of pipe will not be permitted, and all damaged pipe will be rejected. Rejected pipe may be repaired if permitted by District, and such repairs shall be subject to approval of District. If pipe is damaged beyond repair through Contractor's hauling or moving program, Contractor shall, at his own expense, replace the pipe. After District and/or material supplier has delivered pipe to Contractor in good order and condition on the job, it shall be Contractor's responsibility to keep it in good condition, and he shall repair or replace, at his own expense, any pipe damaged from any cause after delivery.

Contractor shall take all necessary precautions to prevent pipe from floating due to water entering trench from any source, shall assume full responsibility for any damage due to this cause, and shall, at his own expense, restore and replace pipe to its specified condition and grade if it is displaced due to floating. Contractor shall maintain inside of pipe free from foreign materials and in a clean, sanitary condition until its acceptance by District.

At all times when work of installing pipe is not in progress, all openings into pipe and ends of pipe in trench shall be tightly closed to prevent entrance of animals and foreign materials.

D. Joints (CML/CMC Pipelines)

(1) Type of Joints and Bonding Requirements

Water pipeline joints shall be constructed in accordance with District Standards. All rubber gasket joints shall be bonded (in the field) per District standard. Where indicated on the Drawing, Contractor shall install insulation flange kits in accordance with District requirements.

(2) Field Joints - Cement Mortar Lining

Mortar shall be Hubs all patch quickset non shrink commercial grout or a District approved equal packaged dry mortar mix consisting of one part cement and three parts sand. Quantity of water shall be sufficient so that when mortar is firmly compressed into a ball shape, it will hold its shape without slump. Mortar shall be mixed separately for each joint to be patched.

Special care should be taken to avoid damage to lining or coating during lowering pipe into trench.

(3) Field Joints - Cement Mortar Coating

Outside field joints are required to be coated with cement-mortar. This shall be accomplished by wrapping a canvas or paper diaper around the joint. The diaper is held on each side by steel strapping. Cement mortar shall be composed of 1 part cement and not more than 3 parts sand and mixed to a consistency of thick cream. The top of the pour must be covered with a protective material, such as cloth or paper.

E. Curved Alignment

Laying pipe on curved alignment with unsymmetrical closure of spigot into bell rings shall be permitted as recommended by pipe manufacturer. For the purpose of reducing angular deflection at pipe joints and for closure sections, Contractor shall be permitted to install pipe sections of less than standard length.

Closing courses and short sections of pipe shall be fabricated and installed by Contractor as found necessary in the field. Where closing pieces are required, Contractor shall make the necessary measurements and shall be responsible for their correctness.

F. Manufacturer Access

Pipe manufacturer shall have free access to the work during laying operations and testing. Any improper act on the part of Contractor which pipe manufacturer may observe shall be reported to District.

G. Allowable Variations in Pipeline Alignment

The pipeline alignment, as shown on the Plans, was determined from record land net data and interference information obtained from contacting the various utilities, along with conducting a field check during design. After the award and prior to the commencement of construction, it will be necessary to review the pipeline alignment shown on the Drawings, just prior to Contractor's trenching for verification of field conditions regarding interference facilities. Contractor and, Engineer and District shall field-review each section of the proposed pipeline to verify the alignment for trenching purposes. The specifications provide that the District may vary pipe alignment (ALL AT NO ADDITIONAL COST TO THE DISTRICT).

H. Pipeline Cover

Pipeline cover as shown on the attached Standard Drawings and/or the Design Drawings, is hereby defined to be Design Cover over pipeline. Therefore, should field conditions determined at time of construction show that any pipe grade changes are required, District reserves the right to authorize said changes in pipeline grades, and Contractor shall trench and lay pipeline accordingly, ALL AT NO ADDITIONAL COST TO THE DISTRICT.

All pipeline within public roadways shall be installed with no less than 48" of cover below road grade (or projected existing road grade, in case of embankments) unless otherwise shown on the Drawings or approved by the Engineer.

I. NOT USED

J. Measurement and Payment

(1) Pipe

Contractor shall understand that pipeline lengths are approximate and are to be used for establishing unit bid prices and extensions for comparison of bids. UNLESS OTHERWISE STATED IN THE "SPECIAL REQUIREMENTS", all payments shall be based upon said unit bid prices applied to the net centerline pipeline length (station difference - or length shown on drawings) installed by Contractor and shall include all specials, tees, bends, fittings, etc., except when shown otherwise on Bidding Sheet.

The District shall approve pipeline length used for payment purposes. The District reserves the right to increase or decrease the amount of pipeline indicated on Drawings and Bidding Sheet, with no change in Contractor's unit bid price.

Contractor shall include under pipeline unit bid prices, all costs to completely perform all contract work, including but not limited to, the construction of thrust blocks, locator wire along non-metallic pipelines, shoring methods and materials, and supplying barricades or other safety devices, except costs which are specifically required to be included under separate bid item numbers on Bidding Sheet.

(2) Pipeline Appurtenances

All pipeline appurtenances, including air valve installations, blowoff installations, side outlet valve installations, blind flange installations, valve marker installations, guard post installations, slope protection cut-off wall installations, slope protection cut-off ditch installations, pedestal mounted terminal housing installations for direct burial cable used and for cathodic protection use, specified connections, specified appurtenances, etc., are shown in

detail on Standard Drawings attached in back of these Specifications or are described in the Specifications and/or Drawings. Contractor shall understand and agree that District may elect to eliminate all or a portion of said installations and that he shall receive payment in amount bid therefore, only for those installations he actually constructs.

2. WELDING SPECIFICATIONS

A. General

All welding operators shall be qualified under the Standard Qualification Procedure of the American Welding Society and all applicable provisions of the latest edition of "Structural Welding Code" (ANSI/AWS D1.1) published by the American Welding Society are incorporated into this Specification. Contractor shall adhere to all Cal-OSHA, American Welding Society, American National Standards Institute and local agency safety regulations (including fire) regarding all welding operations.

The District shall have the right at any time to call for and witness making of test specimens by any welder in accordance with these Specifications, and the expense of such tests shall be borne by Contractor.

The provisions of these sections do not apply to the fabrication of pipe or special fittings in conflict with AWWA Standard Specifications for pipe.

All hand welding in both shop or field shall be done by welders certified in accordance with ASA B31.1 latest (AWWA C206-latest).

All welds shall be made by an electric shielded arc method of welding.

Plates shall be held in correct position. Abutting edges shall be properly prepared. Each deposited layer of welded metal shall be thoroughly cleaned before additional metal is applied to its surface. Finished weld bead shall be central to the seam, and the finished joint shall be free from depressions, undercut edges, burrs, irregularities resulting from welding, other than normal bead necessary.

All welds shall be a type that will produce complete fusion with base metal and shall be free from cracks, oxides, and gas pockets within the limits set forth under these Specifications. If the automatic welding machine does not obtain a fusion weld that will penetrate through to the inside of the pipe and protrude beyond the contour of the plate surface, an inside pass shall be made in the root of the groove on the inside of the pipe. Chipping out of the weld in the root of the groove will be required when deemed necessary by the District.

If welding is stopped for any reason, special care shall be taken when welding is resumed to obtain complete penetration between welded metal, plate, and welded metal previously deposited, and if flux is used, it must be redistributed before work is resumed.

The height of the outside weld bead above the contour of the plate surface shall be measured and shall be not less than 1/16-inch. Heights of the outside weld bead above the contour of the plate surface exceeding 1/8-inch shall be removed by grinding or chipping.

Welds found deficient in dimensions but not in quality shall be enlarged by additional welding after thorough cleaning of the surface of previously deposited metal and adjoining plate. However, if work performed since making a deficient weld has rendered the weld inaccessible or has caused new conditions which would make such reinforcement dangerous or ineffective, the original conditions shall be restored by removal of welds, members, or both, before enlarging the deficient weld, or the deficiency shall be compensated by additional work as prescribed by the District.

Welds considered by the District to be deficient in quality or made contrary to any mandatory provision of these Specifications shall be removed by chipping or melting and shall be remade. The weld metal shall be removed throughout its depth to expose clean base metal, but if a strictly local deficiency, the weld need not be removed throughout its entire length, provided that sufficient amount shall be removed to insure that sound weld metal only remains. A cracked weld shall be removed throughout its length.

When removing part or all of a weld by cutting or chipping, such cutting or chipping shall not extend into the base metal beyond the depth of weld penetration. When removing part or all of a weld by melting, care

shall be taken not to burn or otherwise injure the base metal. After the melting operation, burned metal shall be removed to clean, sound metal.

Overheated weld metal and any overheated base metal adjoining same shall be removed and replaced by new weld metal properly applied. However, if the plate is so badly or extensively injured by overheating that it cannot satisfactorily be replaced by weld metal, such additional work as prescribed by the District shall be performed, all at his own expense, with no additional compensation.

All longitudinal, spiral, and girth seams of straight pipe sections, and special sections when practicable, shall be welded with an automatic welding machine. If requested, sample welds shall be submitted to the District for testing in accordance with these Specifications. Approval of such tests shall be required prior to welding of pipe.

Hand welding will be permitted only when it is impracticable to use an automatic welding machine.

Fillet welds shall have full penetration into the corner. Excessive cutting back of the edges of fillet welds is a defect and shall be repaired. Butt welds shall be made by adding weld metal to both sides of the joint, and the underside of the weld in groove shall be chipped out, removing all slag and unsound metal, containing a clean surface for the application of weld metal; in making butt and fillet welds, weld metal shall be deposited in successive layers, so there will be as many passes as there are complete multiples of 1/8-inch in the plate thickness, provided there shall be a minimum of two passes.

B. Field Welded Pipe Joints

Welded field joints in steel pipe shall be lapwelded unless otherwise shown. Welders shall be certified in accordance with the American Standard Code for Pressure Piping (ASA B31.1) or the "Standard for Field Welding of Steel Water Pipe Joints" (AWWA C206). The welding of each such field joint shall be performed at a time when the temperature is approximately the lowest during the 24-hour day, and after at least 150 linear feet of pipe have been laid and the joints have been welded ahead of said joint. In all hand welding, the metal shall be deposited in successive layers so that there will be at least as many passes or beads in the completed weld as indicated in the following table:

Plate Thickness	Fillet Weld
<u>Inches</u>	<u>Minimum Number of Passes</u>
3/16	2
1/4	2
5/16	3
3/8	3
13/32	3
7/16	4
15/32	4
1/2	4
More than 1/2	1 for each 1/8 of an inch

Each pass, except the final one shall be thoroughly bobbed or peened to relieve shrinkage stresses and to remove dirt slag, or flux, before the succeeding bead is applied. Each pass shall be thoroughly fused into the plates at each side of the welding groove or fillet, and shall not be permitted to pile up in the center of the weld. Under-cutting along the side will not be permitted.

3. PAINTING SPECIFICATIONS

The Contractor shall provide all labor, material, and equipment necessary for completion of all painting work specified in these Specifications and Drawings.

The Contractor shall deliver all painting materials to the work site in the original containers with seals unbroken and unmutated and with labels attached. All paints and coatings shall be in compliance with all South Coast Air Quality Management District requirements including volatile organic chemicals (VOC). Containers shall not be opened until after they have been inspected by the District.

Material for prime coat shall be produced by a "District Approved Manufacturer".

Material for finish coat shall be automotive grade synthetic industrial enamel, produced by a "District Approved Manufacturer" unless specifically stated otherwise in these Specifications or Drawings.

The Contractor shall submit a color chart to the District, who will select the finish colors.

All work shall be done by thoroughly qualified painters in a neat, workmanlike manner. All work which shows carelessness or lack of skill in the execution or is defective due to any other cause will be rejected and repainted to the satisfaction of the District, at the expense of the Contractor.

Unless otherwise specified, paint shall be applied by brush or spray.

Paint shall be applied only on thoroughly clean, dry surfaces. Paint shall not be applied in extreme heat, cold, damp, or humid weather or in dust or smoke-laden air.

All exposed iron and steel work, including piping and valves, etc., shall be prime painted at the shop. After installation, said materials shall be cleaned and all welds, tool marks, etc., shall be touched up with primer and given two coats of finish enamel.

Prepared material shall be used without cutting or addition of any material whatsoever, except as directed by the manufacturer and approved by the District. Each coat must be thoroughly dry before application of the next coat.

If brushes are used, they shall have sufficient body and length of bristle to spread the paint in a uniform coat. Paint shall be evenly spread and thoroughly brushed out and with no residual brush marks remaining. On surfaces which are inaccessible for brushing, the paint shall be applied by spray or by sheepskin daubers or other means necessary to obtain a proper thickness of paint as approved by the District.

If a spray method is used, the operator shall be thoroughly qualified in the use of the equipment required. Air compressors employed in spray painting shall be equipped with a suitable trapping device to keep water, oil, and other impurities from entering the air lines. Runs, sags, thin areas, or other imperfections in the paint coat shall be considered as cause for rejection, and the Contractor shall be required to make all necessary corrections to the satisfaction of the District.

Paint materials shall be kept sealed or covered when not in use. Oily rags or waste shall be kept in covered containers and disposed of at frequent intervals.

The Contractor shall be held responsible for protecting freshly painted surfaces from accumulation of dust, dirt, water, or other foreign materials, whatever the cause or source. Any damaged surfaces shall be wiped clean,

sanded, or stripped to a clean, dry condition and repainted to the satisfaction of the District.

The Contractor shall protect all parts of the work site against disfigurement by his operations. Tarps and cloths shall be placed where required to protect floors and equipment from spatter and droppings. Electric switchplates, lighting fixtures, hardware, glass, vehicles, etc., shall be removed, covered or otherwise protected from disfigurement by the painting operations. The Contractor shall clean or otherwise restore any spattered surfaces to the satisfaction of the District.

4. CONCRETE WORK

A. General

Concrete shall be composed of portland cement, natural aggregates, and water proportioned to produce required strength and well mixed into required consistency.

Portland cement concrete for thrust blocks, cradles, encasements, and structures shall be composed of portland cement, fine aggregate, coarse aggregate and water proportioned and mixed in accordance with the requirements of Section 90 of the State of California Department of Transportation Standard Specifications, except as may be herein modified.

Concrete for cradles and encasements, and all other concrete structures, shall be constructed to the lines and grades and in accordance with the design shown in the details on the plans.

Prior to placing any concrete, the Contractor shall submit to the District the design mix proposed to be used. Said mix shall set forth the weights of cement, sand, coarse aggregate and the amount of water to be used. (Source of supply shall also be furnished to the District.) The proposed mix shall be approved by the District prior to placing any concrete.

B. Portland Cement Concrete Classification

Concrete Class	Compressive Strength <u>@ 28 days (psi)</u>	Sacks of Cement/CY
"A"	3,500	6
"B"	2,500	5
"C"	2,000	4
"D"	4,000	7

The amount of free water used in concrete shall not exceed 312 pounds per cubic yard, plus 20 pounds for each required 100 pounds of cement in excess of 564 per cubic yard.

5. **PAVEMENT REMOVAL AND REPLACEMENT**A. General

Pavement removal and replacement for all public roads, including aggregate base and temporary paving where required, shall comply with all the requirements of the agency issuing the Encroachment Permit. In roads established under formation of a special road district, the specifications of the Encroachment Permit shall apply. Any private roads and streets, including driveways, in which the surface is removed or damaged, shall be restored to the original grade and crown by the Contractor. Removed or damaged sections shall be restored with the type of improvements (or better) conforming to that which existed at the time the Contractor entered upon the work.

It shall be the responsibility of the bidder to satisfy himself as to the existing pavement sections prior to submitting his bid.

Full compensation for temporary resurfacing, including the replacement of base material as required, shall be included in the unit bid price for various items of work. Any required pavement removal and replacement for services, fire hydrants, air valves, or other appurtenances shall be considered included in the bid price for the various items, and no additional compensation shall be made therefore.

B. Pavement Cutting

Pavement shall be saw cut to a straight edge parallel to the pipe alignment prior to excavation. Method of pavement cutting shall be as specified by the Agency having jurisdiction. Under no circumstances shall excavation be started prior to scoring of pavement. If the adjacent pavement is disturbed during the Contractor's operation, the pavement shall be recut on a straight line to remove the damaged pavement before resurfacing. Portland cement concrete pavement and sidewalk shall be saw cut. Pavement cutting shall be considered included in the bid price for various items of work, and no additional compensation shall be made therefore.

C. Permanent Trench Pavement

NOT USED

D. Asphalt Concrete Cap

NOT USED

6. STEEL FLANGES, BOLTS, NUTS AND GASKETS*

Flanges for steel pipe shall conform to requirements for ASA 150-lb. flanges and flanged fittings or ASA 300-lb. flanges and flanged fittings, as noted on Drawings. All flanges shall be forged steel welding-neck or slip-on flanges. Dimensions and drilling of flanges for steel pipe shall conform to ASA 150 or 300, respectively, steel pipe flanges and flanged fittings, and all flanges shall be attached with bolt holes straddling vertical axis of pipe, unless otherwise shown on Drawings. Flanges and their attachment to pipe shall conform to applicable requirements of latest edition of API-ASME Code for Unfired Pressure Vessels. Welding-neck flanges shall be bored to same inside diameter as adjoining pipe.

Bolts shall be heavy hexhead machine per ASTM A307, Grade B. Nuts shall be heavy hex and conform to ASTM A563 (ASME B18.2.2). Washers shall be provided on both nut and bolt sides and shall be of the same material as the nuts. Studs with nuts on both ends shall be furnished wherever close clearances make removal and replacement of fixed head bolts difficult. Bolts and studs shall be of such lengths that not less than two or more than four threads shall project through nut when nut is drawn tight. All bolts, studs, or cap screws used in tapped holes shall be of sufficient length to provide an engagement of length of

* Flanges shall be as per Specifications, except that at the option of the Contractor A.S.A. 150-lb. flanges may be changed to Class "E" steel plate flanges per Table 3 of AWWA C207-01.

threaded portion of not less than nominal diameter of bolt for steel nor less than one and one-half times the diameter for cast iron fittings.

Unless stainless steel nuts and bolts are used, each steel/iron type fitting below grade shall be equipped with at least one (1) sacrificial zinc anode cap. Said cap shall be "protecto-cap" or District approved equal.

Slip-on flanges shall be welded along the inner seam surrounding the pipe diameter as well as along the outside pipe and flange interface.

Gaskets for flanged joints shall be 1/16 inch thick compressed non-asbestos sheet, produced by a "District Approved Manufacturer". Flat-faced flanges shall be provided with full face gaskets with bolt holes prepunched. Raised-face flanges shall be provided with ring gaskets.

7. ELBOWS, SIDE OUTLETS, TEES, BUTTSTRAPS, CROSSES

For steel pipe, all elbows, side outlets, top outlets, tees, crosses, etc., shall be furnished by the Contractor and shall be shop fabricated in accordance with AWWA C208 (latest); except the minimum radius for all bends shall not be less than 2.5 times the nominal diameter of the pipelines. Whenever the Contractor must perform minor amounts of field fabrication, he will be required to do all fabrication in a manner such that the lining and wrapping/coating may be repaired by hand to a quality equal to the shop applied lining and wrapping/coating. Buttstraps, shearrings, etc. shall be per the applicable Standard Drawings, the Drawings, or applicable AWWA Standards or Manuals.

Service outlets shall be constructed in accordance with the Standard Drawing.

Wherever collar reinforcement is required, both the collar and the plain-end of the flanged x p.e. (plain-end) outlet shall be preshaped to mate with curvature of the main line pipeline, and both the collar and the flanged x p.e. (plain-end) outlet shall be welded into place.

All collar and wrapper reinforcing shall be in accordance with the Standard Drawing and with the following reinforcement guides:

- A. District's Standard for Outlet Reinforcement.
- B. Steel Pipe, Design and Installation, AWWA Manual M-II, latest.

- C. An equal pipeline manufacturer's reinforcing guide, as approved by Engineer.
- D. API-ASME Code for Unfired Pressure Vessels for Petroleum liquids and gases.

If case of conflict, the highest and most stringent standard shall govern.

8. TACKWELDED AND WELDED JOINTS - INSTALLATION

All rubber gasket joints shall be bond welded in accordance with the District standards, unless an alternate method is approved by the District.

The pipe manufacturer shall direct the Contractor on the method of welding the fully welded joints, or the cut-to-fit joints, in order that the joints shall not pull apart or leak when subjected to design pressures stated herein.

9. CONNECTIONS TO EXISTING WATER SYSTEM

Unless otherwise stated in the Special Requirements, Contractor shall furnish and install connections to the existing water systems at locations shown on Drawings. Prior to connecting to the existing water system, the Contractor shall "pothole" the connection location(s) and provide this information along with "Shop Drawings" of the proposed fitting(s) to the District for approval prior to the fabrication of said fitting(s). The Contractor shall perform all work required including any necessary field measurements, cuts-to-fit, temporary connections, and field fabrications to meet existing conditions.

Contractor shall install the proposed pipelines about 3' to 4' short of the connection points to the existing pipelines. Hydro-static/leakage tests SHALL NOT be performed against closed valves that separate the proposed system from the existing system.

Connections SHALL NOT be made between existing District pipelines and proposed pipelines until successful hydrostatic/leakage and disinfection testing of the proposed pipelines has been completed. Upon successful completion of the hydrostatic/leakage and disinfection testing and only upon approval by the District, final connections can be made to the existing pipelines. The pipeline material and appurtenances utilized to make the final connections shall be "swabbed" with a high strength chlorine solution. Minimum dosage in parts per million (ppm) to be determined by District.

Contractor shall construct all said connections so that any down-time of existing water systems, due to connection work, shall occur during normal working hours as directed by District.

Contractor shall cooperate with District in scheduling said connections.

District will operate all existing valves necessary for Contractor to accomplish said connection work.

10. FILLING, TESTING, AND CHLORINATION

The Contractor shall fill all contract pipelines (through an approved and certified backflow device furnished by the Contractor) with construction water and may obtain said construction water through hydrants, blow-offs, etc.

The Contractor shall hydrostatically test all contract pipelines, as detailed in the Basic Specifications, to at least 150% of the specified pipe class.

The Contractor shall chlorinate all contract pipelines, as detailed in the Basic Specifications.

Payment by the District to the Contractor for all filling, testing, and chlorination work required under these Specifications SHALL BE INCLUDED IN THE BID PRICES FOR PIPELINE CONSTRUCTION PER THE BIDDING SHEET.

11. PROTECTION OF DOMESTIC WATER MAINS FROM CONTAMINATION

The Contractor shall protect all domestic water mains from contamination by any existing septic tank and/or leach line facilities, etc., which may be adjacent to the jobsite, and payment to the Contractor for any special construction required shall be made per the Extra Work Provisions of the General Conditions herein. Said special construction shall be approved by the District and the State Health Department.

12. FIELD HYDROSTATIC TEST AND LEAKAGE TEST

Upon completion of laying, joining, and backfilling, and after pipe lengths comprising the line ARE NOT LESS THAN 14 DAYS OLD, and prior to resurfacing, pipeline, including all appurtenances (e.g. fire hydrants, services, air valves, etc...) shall be hydrostatically tested. Prior to performing the test, the section of pipeline to be tested shall be filled with water and placed under a slight