

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
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*Flex your power!
Be energy efficient!*

August 6, 2009

04-Son-101-14.4/22.4
04-0A18U4

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN SONOMA COUNTY IN AND NEAR COTATI AND ROHNERT PARK FROM 2.8 KM SOUTH OF RAILROAD AVENUE UNDERCROSSING TO ROHNERT PARK EXPRESSWAY OVERCROSSING.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Tuesday, August 25, 2009.

This addendum is being issued to revise the Project Plans, the Notice to Bidders and Special Provisions, and the Bid book.

Project Plan Sheets 2, 16, 29, 36, 39, 40, 45, 57, 58, 61, 63, 65, 68, 69, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 113, 119, 120, 122, 124, 126, 127, 128, 160, 193, 209, 219, 261, 265, 278, 296, 299, 301, 306, 319, 324, 325, 348, 349, 351, 376, 377, 378, 382, 413, 414, 415, 417, 422, 426, 429, 431, 435, 436, 437, 438, 439, 465, 485, 505, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 598, 599, 600, 602, 610, 620, 635, 637, 646, 647, 653, 654, 655, 656, 657, 658, 659, 661, 662, 680, 724, 725, 726, 727, 740, 741, 744, 749, 750, 760, 768, 769, 770, 781, 798, 799, 800 and 859 are revised. Copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 129A, 129B, 129C, 129D, 129E, 129F, 129G, 129H, 129I, 129J, 129K, 129L, 129M, 129N, 129O, 129P, 129Q, 129R, 129S, 129T, 129U, 129V, 129W, 349A, 349B, 798A, 832A, 832B, 838A and 838B are added. Copies of the added sheets are attached for addition to the project plans.

Project Plan Sheets 776, 777, 778 and 779 are deleted.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGE," is revised as attached.

In the Special Provisions, Section 5-1.07, "SUPPLEMENTAL PROJECT INFORMATION," in the second paragraph, Items 12 and 13 are added as follows:

- "12. United States Army Corps Of Engineers
13. State Of California Department Of Fish And Game."

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In the Special Provisions, Section 5-1.07, "SUPPLEMENTAL PROJECT INFORMATION," in the third paragraph, Item 7 is added as follows:

"7. Asbestos and Lead-Based Paint Survey at 7581 and 7561 Old Redwood Highway."

In the Special Provisions, Section 5-1.09, "RELATIONS WITH CALIFORNIA DEPARTMENT OF FISH AND GAME," is revised as attached.

In the Special Provisions, Section 5-1.12, "UNITED STATES FISH AND WILDLIFE SERVICE REQUIREMENTS," is revised as attached.

In the Special Provisions, Section 5-1.17, "NONHIGHWAY FACILITIES (INCLUDING UTILITIES)," the table in the first paragraph is revised as attached.

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the first, second, third, fourth, fifth and sixth paragraphs are revised as attached.

In the Special Provisions, Section 10-1.04, "CONSTRUCTION SITE MANAGEMENT," the following paragraph is added after the seventh paragraph:

"Refueling and maintenance of vehicles and staging areas shall be not less than 61 meters from riparian areas or water body."

In the Special Provisions, Section 10-1.31, "MAINTAINING TRAFFIC," Chart No. 1 is revised as attached.

In the Special Provisions, Section 10-1.44, "EARTHWORK," the following paragraph is added after the fourteenth paragraph:

"The construction sequence as shown on the plans may not result in achieving balanced earthwork quantities during each stage of construction. The Contractor shall be responsible for making all arrangements for handling surplus and borrow material to accommodate required earthwork quantities during stage construction. Full compensation for handling surplus and borrow material during stage construction shall be considered as included in the contract price paid per cubic meter for roadway excavation and no additional compensation will be allowed therefor."

In the Special Provisions, Section 10-1.825, "DEMOLITION OF BUILDING STRUCTURES," is added as attached.

In the Special Provisions, Section 10-1.827, "ANTI-GRAFFITI COATING," is added as attached.

In the Special Provisions, Section 10-3.02, "COST BREAK-DOWN," in the fourth paragraph, Item E is added as follows:

"E. Photovoltaic (PV) Panel."

In the Special Provisions, Section 10-3.34.01, "INTEGRATED CAMERA UNIT," subsection "PHYSICAL AND MECHANICAL REQUIREMENTS," the last sentence is deleted.

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In the Special Provisions, Section 10-3.34.01, "INTEGRATED CAMERA UNIT," subsection "ENVIRONMENTAL REQUIREMENTS," the last sentence is deleted.

In the Special Provisions, Section 10-3.34.04, "HYBRID CAMERA CABLE AND CONNECTORS," is revised as attached.

In the Special Provisions, Section 10-3.34.06, "CAMERA POLES," is deleted.

In the Special Provisions, Section 10-3.34.07, "CAMERA-MOUNTING ADAPTER," is deleted.

In the Special Provisions, Section 10-3.35, "SOLAR CAMERA STATION," is revised as attached.

In the Special Provisions, Section 10-3.42, "PAYMENT," the following paragraph is added after the fifth paragraph:

"Full compensation for furnishing and installing the support structure and foundation for the solar CCTV camera system shall be considered as included in the contract lump sum price paid for traffic operation system and no separate payment will be made therefor."

In the Special Provisions, Section 10-4, "SANITARY SEWER FACILITIES," subsection 10-4.01, "SEWERS," is added as attached.

In the Bid book, in the "Bid Item List," Items 34, 37, 47, 48, 49, 50, 63, 66, 68, 70, 79, 94, 106, 108, 136, 138, 166, 174, 183, 198, 200, 209, 210, 212, 215, 220, 229, 230, 231, 232, 324, 236, 237, 238 and 239 are revised, Items 267, 268, 269 and 270 are added and Items 42, 242, 243 and 266 are deleted as attached.

To Bid book holders:

Replace the entire "Bid Item List" in the Bid book with the attached revised Bid Item List. The revised Bid Item List is to be used in the bid.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the Notice to Bidders section of the Notice to Bidders and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the Bid book.

Submit bids in the Bid book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

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This addendum, and attachments are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/04/04-0A18U4

If you are not a Bid book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL
Chief, Office of Plans, Specifications & Estimates
Office Engineer
Division of Engineering Services

Attachments

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES

Complete the work within the number of working days bid starting on the 15th day after contract approval or on the day you start work at the job site, whichever occurs first.

Liquidated damages are \$17,800 per day starting on the 1st day after exceeding the number of working days bid and until work requiring lane or shoulder closures on State Highway Route 101 is complete.

If no further lane or shoulder closures are required on State Highway Route 101 to complete the work, liquidated damages are \$15,800 per day starting on the 1st day after exceeding the number of working days bid.

It is anticipated that water will be available in sufficient quantities for the prosecution of the work. However, water shortages may occur during the life of the contract. Arrangements or commitments obtained by the Department are not a part of the contract. It is expressly understood and agreed that the Department assumes no responsibility to the bidder or Contractor whatsoever in respect to the arrangements made with the source. The Contractor shall assume all risks in connection with the use of the source and the terms upon which the use shall be made. There is no warranty or guaranty, either expressed or implied, to the quantity of water that can be obtained from the source. If the Department has compiled "Materials Information," as referred to in "Watering" of these special provisions, the bidder or Contractor is cautioned to make independent investigations and obtain the commitments or allocations as the bidder or Contractor deems necessary to verify the quantity of water available. The Contractor shall make arrangements or obtain commitments or allocations necessary to provide water for the project.

During the progress of the work, if water becomes unavailable or unavailable in the quantities needed for prosecution of the work, the unavailability of water will be considered a "shortage of materials" in conformance with the provisions in Section 8-1.07, "Liquidated Damages," of the Standard Specifications except for compensation. The Contractor will be granted an extension of time and will not be assessed with liquidated damages for any portion of the delay in completion of the work beyond the time shown above for the completion of the work caused by the unavailability of water, provided the Contractor notifies the Engineer and furnishes proof of the "shortage of materials" as required in the third and fourth paragraphs in Section 8-1.07, "Liquidated Damages," of the Standard Specifications. If the Contractor sustains delay costs or damages which could not have been avoided by the judicious handling of forces, equipment and plant, there shall be paid to the Contractor the amount the Engineer may find to be a fair and reasonable compensation for the part of the Contractor's actual loss, as, in the opinion of the Engineer, was unavoidable, determined in the same manner as provided for right of way delays in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. The Contractor shall be entitled to no other compensation for such delay. The provisions in Section 5-1.116, "Differing Site Conditions," of the Standard Specifications shall not apply to the unavailability of water.

5-1.09 RELATIONS WITH CALIFORNIA DEPARTMENT OF FISH AND GAME

A portion of this project is located within the jurisdiction of the California Department of Fish and Game. An agreement regarding a stream or lake has been entered into by the Department of Transportation and the Department of Fish and Game. The Contractor shall be fully informed of the requirements of this agreement as well as rules, regulations, and conditions that may govern the Contractor's operations in these areas and shall conduct the work accordingly.

Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone (916) 654-4490, and are available for inspection at the Department of Transportation, District 04, Construction Office Duty Senior, 111 Grand Avenue, Oakland, CA 94612, telephone number (510) 286-5209.

It is unlawful for any person to divert, obstruct or change the natural flow of the bed, channel or bank of a stream, river or lake without first notifying the Department of Fish and Game, unless the project or activity is noticed and constructed in conformance with conditions imposed under Fish and Game Code Section 1602.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G, "Water Pollution," and 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

Modifications to the agreement between the Department of Transportation and the Department of Fish and Game which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the Department of Fish and Game for their consideration.

When the Contractor is notified by the Engineer that a modification to the agreement is under consideration, no work shall be performed which is inconsistent with the original agreement until the Department takes action on the proposed modifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Modifications to any agreement between the Department of Transportation and the Department of Fish and Game will be fully binding on the Contractor. The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

5-1.12 UNITED STATES FISH AND WILDLIFE SERVICE REQUIREMENTS

A portion of this project is located within the jurisdiction of the United States Fish and Wildlife Service (USFWS). The Department has entered into a programmatic agreement or has accepted a Biological Opinion (Reference No. 1-1-05-F-0300) for this project. The Contractor shall be fully informed of the requirements and all rules, regulations, and conditions that may govern the Contractor's operations in these areas and shall conduct the work accordingly.

The Contractor's attention is directed to the following avoidance, conservation measures, terms and conditions that are among those established by the Biological Opinion (Reference No. 1-1-05-F-0300) for this project:

- A. To prevent entrapment of California tiger salamander and other wildlife, all pits and trenches shall be covered by plywood at the end of each workday.
- B. USFWS personnel shall be allowed access to the project site for habitat inspections at all times.
- C. If the Contractor obtains an off-site staging area or contractor's yard for the project, the Contractor shall obtain all required environmental clearances and permits. The Contractor shall make the area accessible for pre-construction salamander surveys, if determined necessary by USFWS, in accordance with "Compliance with Species Regulations" of these special provisions.

Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone (916) 654-4490, and are available for inspection at the Department of Transportation, District 04, Construction Office Duty Senior, 111 Grand Avenue, Oakland, CA 94612, telephone number (510) 286-5209.

Modifications to the agreement between the Department and USFWS that are proposed by the Contractor shall be submitted in writing to the Engineer for consideration for transmittal to the USFWS for their consideration.

No work shall be performed which is inconsistent with the original agreement prior to receiving written approval from the Engineer.

Modifications to the agreement between the Department and USFWS shall be fully binding on the Contractor.

The provisions of this section and approved modifications shall be made a part of every subcontract executed pursuant to this contract.

Full compensation for conforming to "United States Fish and Wildlife Service Requirements" shall be considered as included in the various contract items of work involved and no additional compensation will be allowed therefor.

5-1.17 NONHIGHWAY FACILITIES (INCLUDING UTILITIES)

Utility Relocation and Date of the Relocation

| Utility | Location | Date |
|--|--|--------------------------|
| PG&E 115kv Overhead Electric | "ML" 107+20 Left "ML" 98+00 to 99+90 "CB" 10+30 to 10+90 | 10/1/2009 |
| ATT Fiber Optics Manhole | "GNN" 97+20 | 10/1/2009 |
| Comcast Underground Fiber Optics | "ML" 102+70 | 5/31/2009 (Completed) |
| Comcast Underground Fiber Optics and Boxes | "ML" 108+80 Right to "RD" 102+00 | 5/31/2009 (Completed) |
| PG&E 200 mm Gas Transmission | "ML" 108+50 to 108+70 Left | 5/31/2009 (Completed) |
| PG&E 75 mm Gas | "ML" 90+90 | 5/31/2009 (Completed) |
| PG&E 12kv Overhead Electric Temporary Shoe Fly | "ML" 84+50 | 10/1/2009 |
| PG&E 100 mm Gas Distribution | "ML" 102+70 | 5/31/2009 (Completed) |

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

Attention is directed to "Compliance with Species Regulations" of these special provisions regarding employee biological training class and pre-construction biological survey. Tree removal shall be in accordance with "Clearing and Grubbing" of these special provisions. Tree removal activities under clearing and grubbing in the Riparian Area shall be limited to August 15 to October 15. All other tree removal shall be limited to August 15 to February 15, unless approved by the Engineer.

Trimming of tree branches shall be to the absolute minimum necessary to allow for construction access as approved by the Engineer. Attention is directed to "Compliance with Species Regulations," of these special provisions.

Work within Copeland Creek, Laguna De Santa Rosa Creek, and the Riparian Area shall be confined to the period of June 15 to October 15. Any temporary structures used for diversion/dewatering of Copeland and Laguna De Santa Rosa Creeks shall utilize clean gravel, water bladders, sand bags or other non-erodible material and shall be completely removed from the work area at project completion. Downstream flow of Copeland and Laguna De Santa Rosa Creeks shall be maintained at all times. Re-vegetation work is not confined to this time period but must be completed in the same calendar year. Attention is directed to "Relations with California Department of Fish and Game," "United States Fish and Wildlife Service Requirements," "United States Army Corps of Engineers Requirements," "Environmentally Sensitive Area" and "Compliance with Species Regulations" of these special provisions.

Any area that is cold planed in a work period shall be paved with the first layer of asphalt concrete within the same work period before the area is opened to public traffic.

Prior to construction of sound walls, the Contractor shall positively field locate the existing utilities that are crossing under the sound walls and submit working drawings at least 30 days before the Contractor intends to begin the sound wall construction. These working drawings shall include layout plans and details for installation of the CIDH concrete piles, procedures, sequences, and features required to perform all aspects of sound wall construction in a safe and controlled manner to avoid damage to the existing utilities. The working drawings shall conform to the requirements for bridge removal plans under "Bridge Removal" of these special provisions. Full compensation for locating the existing utilities and working drawings, and for conforming to the applicable requirements for bridge removal plans, shall be considered as included in the various items of work involved for construction of the sound walls and no additional compensation will be allowed therefor.

10-1.31 MAINTAINING TRAFFIC

| Chart No. 1 Freeway Lane Requirements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|---|---|---|---|---|---|---|---|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|--|--|
| County: Sonoma | Route/Direction: Northbound Rte 101 | | | | | | | | | | KP 12.3 - 22.4 | | | | | | | | | | | | | | | | | |
| Closure Limits: Between Pepper Road and Rohnert Park Expressway | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FROM HOUR TO HOUR | 24 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | | |
| Mondays through Thursdays | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | |
| Fridays | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Saturdays | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | |
| Sundays | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | 1 | | | |
| Legend: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; border: 1px solid black; text-align: center;">1</td> <td>Provide at least one through freeway lane open in direction of travel</td> </tr> <tr> <td style="width: 5%; border: 1px solid black; height: 15px;"></td> <td>Work permitted within project right of way where shoulder or lane closure is not required.</td> </tr> </table> | | | | | | | | | | | | | | | | | | | | | | | | | 1 | Provide at least one through freeway lane open in direction of travel | | Work permitted within project right of way where shoulder or lane closure is not required. |
| 1 | Provide at least one through freeway lane open in direction of travel | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Work permitted within project right of way where shoulder or lane closure is not required. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REMARKS: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1- See Construction Staging Plans | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

10-1.825 DEMOLITION OF BUILDING STRUCTURES

Demolition and removing building structures shall conform to the provisions in Section 15, "Existing Highway Facilities," and Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

The Contractor shall remove and properly dispose of all structures, trash, rubbish, basement walls, floors, foundations, sidewalks, steps and driveways from the specified properties shown on the plans. Removed materials shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

The Contractor shall verify that any electrical system involved in removal work is de-energized. Coordinate with the utility company to have water service meters, electrical power lines, and electrical power meter devices removed.

Attention is directed to "Supplemental Project Information" of these special provisions. Asbestos and lead-based paint survey for the buildings to be removed are included in the report, entitled "Asbestos and Lead-based Paint Survey," prepared by Benchmark Environmental Engineering. The report is available for inspection at the Department of Transportation, 111 Grand Avenue, Oakland, CA 94612.

Holes and depressions caused by the removal of the buildings shall be backfilled with suitable backfill material in accordance with Section 19, "Earthwork," of these Special Provisions.

Lateral pipes or conduits shall be removed to the limits of work, or to the mains and capped with appropriate fixtures and fittings as directed by the Engineer

Demolition of building structures will be paid for on a lump sum basis.

The lump sum price for demolition of building structures shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in demolition and removal as shown on the Plans, as specified in these Special Provisions and as directed.

10-1.827 ANTI-GRAFFITI COATING

This work includes applying anti-graffiti coating to Sound wall (masonry block) surfaces. Comply with Section 59-6, "Painting Concrete," of the Standard Specifications. Submit manufacturer's application and removal instructions 7 days before starting work.

MATERIALS

Anti-graffiti coating must:

1. Be a nontoxic, sacrificial, nonflammable, water-based coating designed for protecting concrete from graffiti
2. Be compatible with the concrete surface treatment
3. Have a clear matte finish when dry
4. Be removable with a hot pressure washer

CONSTRUCTION

Test Sound wall (masonry block) surfaces for acceptance of coating under the manufacturer's recommendations before coating. Areas that resist accepting coating must be cleaned and retested.

Apply anti-graffiti coating under the manufacturer's recommendations in at least 2 even coats.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and applying anti-graffiti coating to sound wall (masonry block) surfaces shall be considered as included in the contract price paid per square meter for sound wall (masonry block) and no separate payment will be made therefor.

10-3.34.04 HYBRID CAMERA CABLE AND CONNECTORS

The Hybrid camera cable (HCC) shall consist of one RG-59/U type analog video coaxial cable, one 6-No. 22 AWG conductor group, one 8-No. 26 AWG conductor group and a two twist pair 4-No. 26 AWG conductor group in a common outer jacket. The hybrid camera cable cross section is shown on the plans.

The Coaxial cable shall conform to:

| Electrical | Coax |
|-------------------------------------|------------|
| Capacitance (picofarads/ft nominal) | 17.3 |
| Impedance (ohms-nominal) | 75 |
| Velocity of propagation (nominal) | 78 percent |
| Nominal Diameter (mm) | 6.147 |
| Insulation Rating | 300 V |

The cable attenuation at 20 °C shall measure at maximum as:

| Frequency (MHz) | Nominal dB/30 m |
|-----------------|-----------------|
| 1 | 0.30 |
| 10 | 0.90 |
| 50 | 2.10 |

The coaxial cable physical measurements:

| Component | Nominal O.D. (mm) |
|--|-------------------|
| Copper center conductor | 1.016 |
| Foam polyethylene dielectric | 4.572 |
| Sealed APA tape with 0.06-inch overlap | 5.486 |
| Woven aluminum braid | 6.121 |
| PVC outer jacket | 7.544 |

(APA = Aluminum polyolefin and aluminum with adhesive)

The 6-No. 22 AWG shall be stranded 7 x 30, tinned copper insulated with 0.229-mm nominal wall of S-R PVC and a nominal O.D. of 1.219-mm. The 6 conductors shall be color coded as follows:

1. Black
2. Red
3. Green
4. White
5. Blue
6. Yellow

The 8-No. 26 AWG shall be stranded 7 x 34, tinned copper insulated with 0.229-mm nominal wall of S-R PVC and a nominal O.D. of 0.940-mm. The 8 conductors shall be color coded as follows:

1. Brown
2. Blue
3. Orange
4. Yellow
5. Purple
6. Gray
7. White with Black Stripe
8. Red with Green Stripe

The 4-No. 26 AWG in 2 twisted pairs shall be stranded 7 x 34, tinned copper insulated with 0.229-mm nominal wall of S-R PVC and a nominal O.D. of 0.940-mm. The 4 conductors shall be color coded as follows:

Pair 1

1. Black
2. White

Pair 2

3. Red
4. Green

The HCC shall also have a 36 AWG tinned copper braid with 90-percent coverage, an O/A binder of 0.0254-mm polyester 25-percent overlap, and an outer jacket conforming to: color to match Fed-Std-595 color #24091, material 0.813-mm dark gray UV resistant PVC to 10.795 mm O. D. and must pass the VW-1 vertical flame test. Fillers shall be used as required to form a uniform round cable. The insulation rating of the overall cable jacket shall be 300 V.

The manufacture identification shall be surface printed in white ink every 0.3-m along the length of the cable.

The HCC shall be continuous from the integrated camera unit to CCU in the controller cabinet without splicing, unless shown on the plan or approved by the Engineer. The maximum length of HCC is 230 m.

The HCC shall be terminated with cable connectors on both ends. Connector AMP 206036-3 with a full set crimp contact pins and strain relief back shell, AMP 206070-1 shall be installed on the cable end toward CCU. Connector AMP 206037-1 with a full set crimp contact sockets and strain relief back shell, AMP 206070-1 shall be installed on the cable end toward the integrated camera unit. All connector contact shall be constructed with brass contact body material and with stainless steel spring that are sub-plated with 0.00127-mm nickel and plated with 0.000762-mm gold. Contact size shall be 16. AMP No. 305183 contact extraction tool shall be used to replace contact. AMP hand tool assembly 58495-1 with die assembly 58495-2 shall be used to place contacts on to each conductor. No other tool, unless approved by the Engineer shall be used for this work.

INSPECTION AND TESTING

Testing of HCC and connectors shall be performed in accordance with provisions in Section 86-2.14B, "Field Testing," of the Standard Specifications and these special provisions. Any cable lengths found to have faults shall be replaced and retested. The Contractor shall dispose of the removed faulty cable. The cable termination shall be randomly inspected for contact crimping quality control. Any contact found not crimped with the correct crimping tool and is defect shall be rejected. The Contractor shall redo the termination until all defects are corrected.

Prior to the beginning of work, the coaxial cable length of HCC shall be tested for attenuation and faults to ensure compliance with specifications contained herein using a time domain reflectometer (TDR). For the purpose of these special provisions, one or more of the following defines a fault in a long length of cable:

- a. Return loss measurements indicating that attenuation exceeds 3 dB at 5 MHz to 30 MHz in a portion of cable less than 10 feet long.
- b. A return loss measurement indicating that there is a short in the cable.
- c. A return loss measurement indicating a cut or open circuit in the cable.
- d. A visual inspection that reveals exposure of or damage to the cable shielding.

10-3.35 SOLAR CAMERA STATION

GENERAL

The Contractor shall furnish and install the following photovoltaic and closed circuit television (CCTV) equipment at each solar camera station as described in these special provisions and as shown on the plans:

1. One integrated camera unit.
2. One CCTV pole and camera-mounting adapter if required.
3. One camera control unit (CCU).
4. One video encoder unit (VEU).
5. Power strip.
6. Hybrid camera cable (HCC), connectors and fittings as required.
7. Interface cable and conductors as required.
8. Equipment shelf with brackets as required.
9. Six photovoltaic (PV) panels with panel support structure.
10. PV controller.
11. Inverter.
12. Six batteries.
13. NEMA 3R enclosure for batteries, PV controller and inverter.
14. One General Packet Radio Service (GPRS) wireless modem assembly.
15. Pull boxes, grounding electrode, conductors, conduits, pull rope.
16. Miscellaneous wiring and devices.

PHOTOVOLTAIC PANEL

Each photovoltaic (PV) panel shall be listed by the California Energy Commission (CEC) as an eligible California Solar Initiative (CSI) PV Module.

Each PV panel shall be designed to operate over a temperature range of -40 °C to 90 °C.

Each PV panel shall contain either single- or multi-crystal technology. The front surface of each panel shall be textured and coated with an anti-reflective film. All PV panels shall be of the same make and model. Each panel shall provide electrical grounding of all metal surfaces.

Each PV panel shall have a minimum rated power output of 175 W, ± 5 percent, with a minimum short-circuit current rating of 5.4 A and a minimum open-circuit voltage rating of 44 V(dc). These ratings shall be based on test conditions of 1,000 W/square meter, cell temperature of 25 °C and air mass of 1.5, per ASTM E1036.

Each PV panel shall resist damage from the impact of 1-inch diameter hailstones traveling at 50 mph.

Each PV panel shall have maximum dimensions of 1.6 m long by 0.84-m wide, with a maximum area of 1.34 square meters, by 51 mm deep, with a maximum weight of 17 kg.

Each PV panel shall pass salt tests to Mu-standard 810. Each PV panel shall carry a minimum 20-year power warranty. Stainless steel hardware shall be used for mounting the PV panel to its panel support structure.

PANEL SUPPORT STRUCTURE

The Panel Support Structure for Solar CCTV camera system shall be designed and constructed by the Contractor in conformance with the provisions in Section 56-1, "Overhead Sign Structures," of the Standard Specifications and "Sign Structures" of these special provisions.

The Panel Support Structure shall hold 6 PV panels to withstand wind speeds of 137 km/hr.

The Panel Support Structure shall have a minimum horizontal clearance of 1.2 meters from the edge of shoulder and shall maintain a minimum vertical clearance of 2.43 m from finished grade to bottom of PV panels.

The Panel Support Structure shall have a horizontal and vertical orientation such that efficiency of the PV panels is maximized.

The Panel Support Structure shall use stainless steel hardware.

Before commencing fabrication of the Panel Support Structure, the Contractor shall submit 2 sets of working drawings to the Engineer in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The working drawings shall include solar panel dimensions; span lengths post heights, anchorage layouts and proposed splice locations. Working drawings shall be 559 mm x 864 mm or 279 mm x 432 mm in size. The working drawings and calculations shall be stamped and signed by an engineer who is registered as a Civil Engineer in the State of California. The Contractor shall allow the Engineer 6 weeks to review the drawings after a complete set has been received.

PHOTOVOLTAIC CONTROLLER

The photovoltaic (PV) controller shall meet the following requirement:

1. The PV controller shall be designed to charge AGM/VRLA heavy-duty batteries
2. The PV controller shall utilize MPPT tracking
3. The PV controller shall be UL listed, NEC compliant
4. The PV controller shall have a maximum dimensions of 40 cm x 14 cm x 10 cm
5. The PV controller shall have controller that will accept #6 AWG wire

| Parameter | Minimum Requirements |
|---|--|
| NEC maximum solar array short circuit current | 35 A |
| System Voltage | 24 V(dc) |
| Operation power | 1 watt |
| Digital Meter | Display Battery Voltage, PV Current and Load Current |
| Self Test | Tests all load/charge controller internal circuits |

INVERTER

The inverter shall meet the following requirement:

1. Min. rated power output of 600 W
2. Max standby load of 8 watts
3. Output voltage 120 V(ac) \pm 8 percent
4. Nominal input voltage of 24 V(dc)
5. Typical efficiency of at least 87 percent
6. Max size 203 mm x 102 mm x 305 mm
7. Over voltage protection
8. Under voltage protection
9. Thermal protection

BATTERY

Each battery shall be identical in make and model. All connections shall be marine-grade. Each battery shall be 100 percent recyclable and capable of a minimum of 1,000 cycles to 25 percent depth of discharge (DOD) and 300 cycles at 50 percent DOD at a 20-hour rate.

Each battery shall be maintenance-free, sealed prismatic lead-calcium based, absorbed glass mat/valve regulated lead acid (AGM/VRLA), deep-cycle and heavy-duty type. Each battery shall have the following characteristics:

1. The battery shall have a voltage rating of 12 V(dc).
2. The battery shall be group size 27 (or 330 mm x 178 mm x 254 mm).
3. The battery shall have a 100 ampere-hour rating at a 100-hour discharge rate.
4. The battery shall have a carrying handle.
5. The battery shall be marked with date code and maximum recharge data and recharge cycles.
6. The battery connector shall be able to accept 6.35 mm diameter bolt as opposed to a battery that can have different sized posts.
7. The battery shall be fully charged when furnished.
8. The battery shall be free from damage or deformities.
9. The battery shall have a maximum weight of 32 kg.
10. The battery shall be certified by the manufacturer to operate over a temperature range of -25 °C to 60 °C.

PHOTOVOLTAIC EQUIPMENT ENCLOSURE

Photovoltaic (PV) equipment enclosure shall meet the following requirement:

1. Six batteries and equipment shall be housed in a single enclosure, with the six batteries on the bottom and equipment on top.
2. Battery compartment shall be vented.
3. Barrier between equipment and batteries shall be sealed.
4. Enclosure shall be aluminum.
5. Enclosure shall be NEMA 3R.
6. Enclosure finish shall be white powder-coated paint.
7. Equipment compartment shall have a minimum volume of 0.16-cubic meter.
8. Fully sealed door with stainless steel screened louvers.
9. Enclosure shall have a padlock clasp or latch and locking mechanism.

SECTION 10-4. SANITARY SEWER FACILITIES

10-4.01 SEWERS

This work shall consist of laying sewer pipe and constructing sewer structures as shown on the plans, these special provisions and as directed by the Engineer. No work shall be performed adjacent to the existing sanitary sewer mains without the City of Cotati representative present. The Contractor shall notify the Engineer and the City of Cotati, telephone (707) 665-3620 a minimum of 72 hours prior to performing any work adjacent to the mains.

Prior to performing any work on sewer facilities that will interfere with the existing sewage flows, the flow shall be bypassed by pumping the flow around the work area or sequencing the construction such that flow can be bypassed into new sewer line without pumping. The Contractor shall prepare and submit bypass pumping plans to the Engineer for review and approval.

The pumping system shall be of sufficient capacity to handle existing flow. The capacity of pump(s) shall be based on actual flow monitoring and measurement by the Contractor, or an estimate of flow by a registered civil engineer based on a reasonable methodology. Pumping shall be required on a 24-hour basis. Standby pumps and standby power shall be provided with complete 100 percent redundancy. Pumping shall be done by the Contractor in such a manner as will not damage public or private property or create nuisance or health menace. The pumped sewage shall be in an enclosed pipe and shall be reinserted into the sanitary systems. Sewage shall not be allowed to free flow in gutters, streets, or over sidewalks, etc., nor shall any sewage be allowed to flow into the storm inlets or conduits. After the work has been completed, flow shall be restored to normal.

The Contractor shall submit the shop drawings, which include a complete materials list, pipe thickness, design calculations, temporary shoring and construction details. The drawing shall be stamped by a registered structural or civil engineer. The Contractor shall submit 5 sets of drawings and allow eight weeks for Engineer's review.

Existing sewer pipe, where any portion of the pipe is within one meter of the grading plane in excavation areas, or within 0.3-m of original ground in embankment areas, or where shown on the plans to be removed, shall be completely removed and disposed of. Removal of existing asbestos material shall be performed by a contractor registered by Cal/OSHA and certified by the State Contractors Licensing Board for asbestos removal. Copies of the certification shall be submitted to the engineer prior to the commencement of any asbestos removal activities. The Contractor or subcontractor shall comply with all State and Federal laws regarding handling and removal of asbestos materials. The Contractor shall be responsible for the proper identification, removal and disposal of all asbestos materials.

Sanitary sewer pipe replacing the existing 150mm ACP pipe at Sta. 93+30 within the limits as shown on the plan shall be SDR 26 PVC pipe. SDR 26 PVC Sanitary sewer pipe shall meet the requirements of ASTM D3034. All pipe, fittings, and appurtenances shall be installed in accordance with the manufacturer's instructions. All connecting parts of pipe, rings, couplings, and castings shall be clean before assembly. Pipe assembly shall be in accordance with the manufacturer's recommendations. All fittings shall have joints that match the type of adjoining pipe.

All pipe, fittings, etc. shall be carefully handled and protected against damage to the lining and coating of the interior and exterior surfaces, impact shocks, and free fall. All pipes handling equipment shall be acceptable to the Engineer. Pipe shall not be placed directly on rough ground but shall be supported in a manner which will protect the pipe against injury whenever stored at the trench site or elsewhere. No pipe shall be installed where the lining or coating/interior or exterior surfaces show cracks that may be harmful as determined by the Engineer. Such damaged lining and coating/interior and exterior Surfaces, shall be repaired, or a new undamaged pipe shall be furnished and installed. The Contractor shall inspect each pipe and fitting to insure that there are no damaged portions of the pipe. The Contractor shall remove or smooth out any burrs, gouges or other small defects prior to laying the pipe.

Pipe bedding and backfill shall conform to the details shown on the plans and Section 65-1.03, "Earthwork," of the Standard Specifications.

Minor concrete backfill shall conform to the provisions in Section 90-10, "Minor Concrete," of the Standard Specifications.

The Contractor shall excavate, expose and isolate all building sewer connections prior to replacing the existing sewer. The existing connections may be encased in mortar, concrete or reinforced concrete. There will be no additional compensation for demolition of this concrete. The Contractor shall successfully test the installed sewer lateral pipe prior to reconnection of the building sewers. The sewer lateral pipes that failed the test shall be repaired or replaced and retested.

In all cases, flexibility of joints in or at the manhole base shall be preserved to prevent damage to the pipe by differential settlement.

Where the connection is to be made into an existing manhole, the Contractor shall make the connection by breaking through the manhole base, cutting a rough channel through the manhole shelf to the existing channel, finishing a new channel within the manhole, and repairing any damage to the structure. The existing sewer shall not be broken until immediately before the cleaning and flushing operation commences.

At the beginning of a new system, a plug shall be installed in the new pipe at the existing manhole and another plug installed on the downstream side of the first manhole upstream in the new system pipeline.

All temporary plugs shall be installed, secured, and removed in the presence of the Engineer. Temporary plugs shall remain intact until immediately prior to beginning of the cleaning and flushing operation. Premature removal of the plug may result in the Contractor's is required to clean existing downstream sewer mains.

The Contractor shall read and follow the instructions of the plug manufacturer. Non-compliance with the instructions and warnings for safe operation of pneumatic plugs can damage the equipment, sewerage facilities, work in progress, and cause serious bodily injuries.

Manholes shall be hydrostatically tested if required by the Engineer. The test shall consist of plugging all inlets and outlets and filling the manhole with water to a height determined by the Engineer. Leakage in each manhole shall not exceed 1.3 liter per hour per meter (or 0.1 gallon per hour per foot) of head above the invert. All manholes that do not meet the leakage test or are unsatisfactory from visual inspection shall be repaired to the satisfaction of the Engineer.

Upon satisfactory completion of the testing and after all necessary repairs and adjustments have been made, the entire new system of sewers shall be cleaned. Before beginning the cleaning operation, a standard sand trap shall be placed in the manhole at which the new work connects to the existing system, and it will remain in place until all solid matter has been removed. Under no conditions shall material other than clear flushing water be discharged into the existing system before final acceptance of the new work. Splattered mortar and all irregularities shall be removed from the flow channels, leaving smooth dense uniform surfaces finished in a thoroughly first class manner.

A high pressure sewer jet or hydraulically propelled ball shall be used to clean the entire system of new sewers. Those actions which cannot be visually inspected by mirroring between manholes will be cleaned only in the presence of the Engineer. Prior to the beginning of this work, excessive amounts of debris shall be removed by the Contractor.

Solid material washed into the lower manholes shall be removed from the system. The standard sand trap between the new work and the existing City system shall be removed only after all phases of the work have been approved after final inspection.

Upon completion of sewer cleaning by the Contractor, all sewer main lines shall be television inspected by the City prior to acceptance.

MEASUREMENT AND PAYMENT

The contract price paid per meter for sanitary sewer pipe of the sizes listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in construction of sewer pipe, removal of the existing sewer pipe and reconnection of building sewers, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The quantity of minor concrete backfill to be paid for by the cubic meter will be determined from the dimensions shown on the plans or other dimensions as may be ordered in writing, by the Engineer. Concrete placed outside the limits shown on the plans or ordered by the Engineer will not be measured nor paid for.

Full compensation for removing existing sewer pipe, where the new pipe is being installed shall be considered as included in the contract price paid per meter for sanitary sewer pipe.

Full compensation for testing the sewer line, bypass pumping, temporary shoring temporary plugs, and temporary metal plate covers and all other incidental work and material required to construct the sewer system shall be considered as included in the contract prices paid for the various items of sewer work and no separate payment will be made therefor.

Full compensation for the various types of surfacing and bases required to restore all trench excavations and other disturbed areas shall be considered as included in the contract price paid for the various contract items of sewer work and no additional compensation will be allowed therefor.

The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing sewers, complete in place, as shown on the plans, and as specified in these special provisions, and as directed by the Engineer.

**BID ITEM LIST
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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 1 | 070012 | PROGRESS SCHEDULE (CRITICAL PATH METHOD) | LS | LUMP SUM | LUMP SUM | |
| 2 | 070013 | SMALL BUSINESS UTILIZATION REPORT | EA | 11 | 250.00 | 2,750.00 |
| 3 | 070018 | TIME-RELATED OVERHEAD | LS | LUMP SUM | LUMP SUM | |
| 4 | 071322 | TEMPORARY FENCE (TYPE CL-1.8) | M | 1750 | | |
| 5 | 071325 | TEMPORARY FENCE (TYPE ESA) | M | 6640 | | |
| 6 | 041856 | JACKING SUPERSTRUCTURE | LS | LUMP SUM | LUMP SUM | |
| 7 | 073026 | 300 MM TEMPORARY CULVERT | M | 13 | | |
| 8 | 015992 | 450 MM TEMPORARY CORRUGATED STEEL PIPE | M | 32 | | |
| 9 | 073028 | 450 MM TEMPORARY CULVERT | M | 130 | | |
| 10 | 073029 | 600 MM TEMPORARY CULVERT | M | 3 | | |
| 11 | 015993 | 450 MM TEMPORARY FLARED END SECTION | EA | 3 | | |
| 12 | 015994 | 600 MM TEMPORARY FLARED END SECTION | EA | 1 | | |
| 13 | 015995 | 450 MM TEMPORARY SLOTTED CORRUGATED STEEL PIPE (1.63 MM THICK) | M | 1990 | | |
| 14 | 015996 | 300 MM TEMPORARY WELDED STEEL PIPE (6.35 MM THICK) | M | 14 | | |
| 15 | 074015 | TEMPORARY ACTIVE TREATMENT SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 16 | 074016 | CONSTRUCTION SITE MANAGEMENT | LS | LUMP SUM | LUMP SUM | |
| 17 | 074019 | PREPARE STORM WATER POLLUTION PREVENTION PLAN | LS | LUMP SUM | LUMP SUM | |
| 18 | 074028 | TEMPORARY FIBER ROLL | M | 4000 | | |
| 19 | 074029 | TEMPORARY SILT FENCE | M | 4550 | | |
| 20 | 074032 | TEMPORARY CONCRETE WASHOUT FACILITY | EA | 6 | | |

**BID ITEM LIST
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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|---|-----------------|--------------------|------------|------------|
| 21 | 074033 | TEMPORARY CONSTRUCTION ENTRANCE | EA | 6 | | |
| 22 | 074034 | TEMPORARY COVER | M2 | 3400 | | |
| 23 | 074035 | TEMPORARY CHECK DAM | M | 300 | | |
| 24 | 074037 | MOVE-IN/MOVE-OUT (TEMPORARY EROSION CONTROL) | EA | 8 | | |
| 25 | 074038 | TEMPORARY DRAINAGE INLET PROTECTION | EA | 50 | | |
| 26 | 015997 | TEMPORARY CREEK DIVERSION SYSTEM | EA | 6 | | |
| 27 | 074040 | TEMPORARY HYDRAULIC MULCH (BONDED FIBER MATRIX) | M2 | 26 100 | | |
| 28 | 074041 | STREET SWEEPING | LS | LUMP SUM | LUMP SUM | |
| 29 | 120090 | CONSTRUCTION AREA SIGNS | LS | LUMP SUM | LUMP SUM | |
| 30 | 120100 | TRAFFIC CONTROL SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 31 | 120120 | TYPE III BARRICADE | EA | 14 | | |
| 32 | 120149 | TEMPORARY PAVEMENT MARKING (PAINT) | M2 | 1150 | | |
| 33 | 120159 | TEMPORARY TRAFFIC STRIPE (PAINT) | M | 165 000 | | |
| 34 | 120165 | CHANNELIZER (SURFACE MOUNTED) | EA | 480 | | |
| 35 | 120300 | TEMPORARY PAVEMENT MARKER | EA | 9210 | | |
| 36 | 128650 | PORTABLE CHANGEABLE MESSAGE SIGN | LS | LUMP SUM | LUMP SUM | |
| 37 | 129000 | TEMPORARY RAILING (TYPE K) | M | 53 700 | | |
| 38 | 129100 | TEMPORARY CRASH CUSHION MODULE | EA | 860 | | |
| 39 | 129510 | TEMPORARY RETAINING WALL | M2 | 4520 | | |
| 40 | 150206 | ABANDON CULVERT | M | 980 | | |

**BID ITEM LIST
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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 41 | 150221 | ABANDON INLET | EA | 21 | | |
| 42 | BLANK | | | | | |
| 43 | 150608 | REMOVE CHAIN LINK FENCE | M | 1840 | | |
| 44 | 150662 | REMOVE METAL BEAM GUARD RAILING | M | 2680 | | |
| 45 | 015998 | REMOVE DOUBLE THRIE BEAM BARRIER | M | 7890 | | |
| 46 | 150668 | REMOVE FLARED END SECTION | EA | 5 | | |
| 47 | 150704 | REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE | M | 18 500 | | |
| 48 | 150714 | REMOVE THERMOPLASTIC TRAFFIC STRIPE | M | 37 100 | | |
| 49 | 150715 | REMOVE THERMOPLASTIC PAVEMENT MARKING | M2 | 180 | | |
| 50 | 150722 | REMOVE PAVEMENT MARKER | EA | 8140 | | |
| 51 | 150742 | REMOVE ROADSIDE SIGN | EA | 110 | | |
| 52 | 150760 | REMOVE SIGN STRUCTURE | EA | 4 | | |
| 53 | 150801 | REMOVE OVERSIDE DRAIN | EA | 7 | | |
| 54 | 150805 | REMOVE CULVERT | M | 480 | | |
| 55 | 150820 | REMOVE INLET | EA | 24 | | |
| 56 | 150821 | REMOVE HEADWALL | EA | 12 | | |
| 57 | 150826 | REMOVE MANHOLE | EA | 1 | | |
| 58 | 150860 | REMOVE BASE AND SURFACING | M3 | 3790 | | |
| 59 | 015999 | SALVAGE CITY SIGN | EA | 1 | | |
| 60 | 152351 | RELOCATE HYDRANT | EA | 1 | | |

**BID ITEM LIST
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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 61 | 016000 | RESET RAILING | LS | LUMP SUM | LUMP SUM | |
| 62 | 152370 | RELOCATE MAILBOX | EA | 1 | | |
| 63 | 152386 | RELOCATE ROADSIDE SIGN-ONE POST | EA | 24 | | |
| 64 | 152387 | RELOCATE ROADSIDE SIGN-TWO POST | EA | 13 | | |
| 65 | 152402 | ADJUST WATER VALVE COVER TO GRADE | EA | 4 | | |
| 66 | 152430 | ADJUST INLET | EA | 5 | | |
| 67 | 152440 | ADJUST MANHOLE TO GRADE | EA | 10 | | |
| 68 | 152604 | MODIFY INLET | EA | 16 | | |
| 69 | 153103 | COLD PLANE ASPHALT CONCRETE PAVEMENT | M2 | 36 700 | | |
| 70 | 153210 | REMOVE CONCRETE | M3 | 300 | | |
| 71 | 155003 | CAP INLET | EA | 9 | | |
| 72 | 157551 | BRIDGE REMOVAL, LOCATION A | LS | LUMP SUM | LUMP SUM | |
| 73 | 157552 | BRIDGE REMOVAL, LOCATION B | LS | LUMP SUM | LUMP SUM | |
| 74 | 157561 | BRIDGE REMOVAL (PORTION), LOCATION A | LS | LUMP SUM | LUMP SUM | |
| 75 | 157562 | BRIDGE REMOVAL (PORTION), LOCATION B | LS | LUMP SUM | LUMP SUM | |
| 76 | 157563 | BRIDGE REMOVAL (PORTION), LOCATION C | LS | LUMP SUM | LUMP SUM | |
| 77 | 160101 | CLEARING AND GRUBBING | LS | LUMP SUM | LUMP SUM | |
| 78 | 170101 | DEVELOP WATER SUPPLY | LS | LUMP SUM | LUMP SUM | |
| 79 | 190101 | ROADWAY EXCAVATION | M3 | 54 500 | | |
| 80 | 190107 | ROADWAY EXCAVATION (TYPE Y-1) (AERIALY DEPOSITED LEAD) | M3 | 4030 | | |

**BID ITEM LIST
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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 81 | 190108 | ROADWAY EXCAVATION (TYPE Y-2) (AERIALY DEPOSITED LEAD) | M3 | 16 900 | | |
| 82 | 190110 | LEAD COMPLIANCE PLAN | LS | LUMP SUM | LUMP SUM | |
| 83 (F) | 192003 | STRUCTURE EXCAVATION (BRIDGE) | M3 | 2325 | | |
| 84 (F) | 041857 | STRUCTURE EXCAVATION (CHANNEL STRUCTURE) (TYPE D) | M3 | 390 | | |
| 85 (F) | 192037 | STRUCTURE EXCAVATION (RETAINING WALL) | M3 | 1371 | | |
| 86 (F) | 193003 | STRUCTURE BACKFILL (BRIDGE) | M3 | 1310 | | |
| 87 (F) | 041858 | STRUCTURE BACKFILL (CHANNEL STRUCTURE) | M3 | 275 | | |
| 88 (F) | 193013 | STRUCTURE BACKFILL (RETAINING WALL) | M3 | 2261 | | |
| 89 (F) | 193030 | PERVIOUS BACKFILL MATERIAL | M3 | 6 | | |
| 90 (F) | 193031 | PERVIOUS BACKFILL MATERIAL (RETAINING WALL) | M3 | 235 | | |
| 91 | 193114 | SAND BACKFILL | M3 | 280 | | |
| 92 | 194001 | DITCH EXCAVATION | M3 | 560 | | |
| 93 (F) | 197020 | EARTH RETAINING STRUCTURE | M2 | 2820 | | |
| 94 | 198001 | IMPORTED BORROW | M3 | 6130 | | |
| 95 | 203016 | EROSION CONTROL (TYPE D) | HA | 6 | | |
| 96 | 203018 | EROSION CONTROL (NETTING) | M2 | 39 100 | | |
| 97 | 016001 | BIOFILTRATION SWALES | M2 | 470 | | |
| 98 | 203021 | FIBER ROLLS | M | 4640 | | |
| 99 | 016002 | DRAINAGE INLET PROTECTION | EA | 4 | | |
| 100 | 203025 | COMPOST, INCORPORATE | M2 | 5470 | | |

**BID ITEM LIST
04-0A18U4**

| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 101 | 203026 | MOVE-IN/MOVE-OUT (EROSION CONTROL) | EA | 7 | | |
| 102 (F) | 208038 | NPS 3 SUPPLY LINE (BRIDGE) | M | 287 | | |
| 103 | 016003 | 75MM CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT | M | 160 | | |
| 104 | 208731 | 200 MM CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT | M | 97 | | |
| 105 | 250401 | CLASS 4 AGGREGATE SUBBASE | M3 | 66 700 | | |
| 106 | 260301 | CLASS 3 AGGREGATE BASE | M3 | 5020 | | |
| 107 | 280000 | LEAN CONCRETE BASE | M3 | 30 500 | | |
| 108 | 390131 | HOT MIX ASPHALT | TONN | 97 700 | | |
| 109 | 390134 | HOT MIX ASPHALT (OPEN GRADED) | TONN | 15 600 | | |
| 110 | 390140 | RUBBERIZED HOT MIX ASPHALT (GAP GRADED) | TONN | 28 300 | | |
| 111 | 394074 | PLACE HOT MIX ASPHALT DIKE (TYPE C) | M | 270 | | |
| 112 | 394076 | PLACE HOT MIX ASPHALT DIKE (TYPE E) | M | 4330 | | |
| 113 | 394077 | PLACE HOT MIX ASPHALT DIKE (TYPE F) | M | 1540 | | |
| 114 | 394090 | PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA) | M2 | 15 | | |
| 115 | 397005 | TACK COAT | TONN | 130 | | |
| 116 | 041859 | FURNISH PILING (CLASS 625) (ALTERNATIVE "W") | M | 57 | | |
| 117 | 041860 | DRIVE PILE (CLASS 625) (ALTERNATIVE "W") | EA | 8 | | |
| 118 | 041861 | FURNISH PILING (CLASS 625) (ALTERNATIVE "X") | M | 3746 | | |
| 119 | 041862 | DRIVE PILE (CLASS 625) (ALTERNATIVE "X") | EA | 276 | | |
| 120 | 041863 | FURNISH PILING (CLASS 400) (ALTERNATIVE "X") | M | 422 | | |

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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|------------|-----------|---|-----------------|--------------------|------------|------------|
| 121 | 041864 | DRIVE PILE (CLASS 400) (ALTERNATIVE "X") | EA | 38 | | |
| 122 | 498027 | 400 MM CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL) | M | 5780 | | |
| 123 | 498030 | 600 MM CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL) | M | 88 | | |
| 124 | 016004 | 900 MM CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL) | M | 52 | | |
| 125 | 500001 | PRESTRESSING CAST-IN-PLACE CONCRETE | LS | LUMP SUM | LUMP SUM | |
| 126 (F) | 510051 | STRUCTURAL CONCRETE, BRIDGE FOOTING | M3 | 481 | | |
| 127 (F) | 510053 | STRUCTURAL CONCRETE, BRIDGE | M3 | 3378 | | |
| 128 (F) | 510060 | STRUCTURAL CONCRETE, RETAINING WALL | M3 | 839 | | |
| 129 (F) | 041865 | STRUCTURAL CONCRETE, CHANNEL STRUCTURE | M3 | 305 | | |
| 130 (F) | 510072 | STRUCTURAL CONCRETE, BARRIER SLAB | M3 | 660 | | |
| 131 (F) | 510086 | STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N) | M3 | 380 | | |
| 132 (F) | 016005 | CLASS 2 CONCRETE (WINGWALL) | M3 | 1 | | |
| 133 (F) | 510129 | CLASS 2 CONCRETE (BOX CULVERT) | M3 | 8 | | |
| 134 (F) | 510135 | CLASS 2 CONCRETE (HEADWALL) | M3 | 6 | | |
| 135 (F) | 510413 | CLASS 1 CONCRETE (BOX CULVERT) | M3 | 113 | | |
| 136 (F) | 510502 | MINOR CONCRETE (MINOR STRUCTURE) | M3 | 262 | | |
| 137 (F) | 510524 | MINOR CONCRETE (SOUND WALL) | M3 | 175 | | |
| 138 (F) | 510526 | MINOR CONCRETE (BACKFILL) | M3 | 165 | | |
| 139 (F) | 016006 | ORNAMENTAL LOGO (GLASCRETE CONCRETE MEDALLION) | EA | 24 | | |
| 140 | 511106 | DRILL AND BOND DOWEL | M | 210 | | |

**BID ITEM LIST
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| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 141 | 511110 | DRILL AND BOND DOWEL (CHEMICAL ADHESIVE) | EA | 204 | | |
| 142 | 515020 | REFINISH BRIDGE DECK | M2 | 10 | | |
| 143 | 515072 | CORE CONCRETE (0 - 50 MM) | M | 3 | | |
| 144 (F) | 517961 | SOUND WALL (BARRIER) (MASONRY BLOCK) | M2 | 4680 | | |
| 145 (F) | 518002 | SOUND WALL (MASONRY BLOCK) | M2 | 3043 | | |
| 146 | 519120 | JOINT SEAL (MR 15 MM) | M | 23 | | |
| 147 | 519142 | JOINT SEAL (MR 40 MM) | M | 143 | | |
| 148 (F) | 520101 | BAR REINFORCING STEEL | KG | 14 871 | | |
| 149 (F) | 520102 | BAR REINFORCING STEEL (BRIDGE) | KG | 421 600 | | |
| 150 (F) | 520103 | BAR REINFORCING STEEL (RETAINING WALL) | KG | 41 801 | | |
| 151 (F) | 041866 | BAR REINFORCING STEEL (CHANNEL STRUCTURE) | KG | 31 800 | | |
| 152 (F) | 520107 | BAR REINFORCING STEEL (BOX CULVERT) | KG | 17 568 | | |
| 153 (F) | 041867 | BAR REINFORCING STEEL (BARRIER SLAB) | KG | 30 600 | | |
| 154 (F) | 041868 | BAR REINFORCING STEEL (HEADWALL AND WINGWALL) | KG | 220 | | |
| 155 (F) | 560218 | FURNISH SIGN STRUCTURE (TRUSS) | KG | 86 050 | | |
| 156 (F) | 560219 | INSTALL SIGN STRUCTURE (TRUSS) | KG | 86 050 | | |
| 157 | 560233 | FURNISH FORMED PANEL SIGN (OVERHEAD) | M2 | 150 | | |
| 158 | 560238 | FURNISH SINGLE SHEET ALUMINUM SIGN (1.6 MM-UNFRAMED) | M2 | 130 | | |
| 159 | 560239 | FURNISH SINGLE SHEET ALUMINUM SIGN (2.0 MM-UNFRAMED) | M2 | 120 | | |
| 160 | 560241 | FURNISH SINGLE SHEET ALUMINUM SIGN (1.6 MM-FRAMED) | M2 | 6 | | |

**BID ITEM LIST
04-0A18U4**

| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 161 | 560242 | FURNISH SINGLE SHEET ALUMINUM SIGN (2.0 MM-FRAMED) | M2 | 25 | | |
| 162 | 561015 | 1524 MM CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION) | M | 61 | | |
| 163 | 562001 | METAL (ROADSIDE SIGN) | KG | 32 | | |
| 164 | 016007 | METAL (SOUNDWALL MOUNTED SIGN) | KG | 350 | | |
| 165 | 562004 | METAL (RAIL MOUNTED SIGN) | KG | 2030 | | |
| 166 | 566011 | ROADSIDE SIGN - ONE POST | EA | 92 | | |
| 167 | 566012 | ROADSIDE SIGN - TWO POST | EA | 8 | | |
| 168 | 568001 | INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD) | EA | 17 | | |
| 169 | 568016 | INSTALL SIGN PANEL ON EXISTING FRAME | M2 | 13 | | |
| 170 | 568023 | INSTALL ROADSIDE SIGN (LAMINATED WOOD BOX POST) | EA | 2 | | |
| 171 | 016008 | PAINT POST MILE MARKINGS | EA | 110 | | |
| 172 | 620904 | 300 MM ALTERNATIVE PIPE CULVERT | M | 100 | | |
| 173 | 620908 | 375 MM ALTERNATIVE PIPE CULVERT | M | 19 | | |
| 174 | 620909 | 450 MM ALTERNATIVE PIPE CULVERT | M | 1800 | | |
| 175 | 620913 | 600 MM ALTERNATIVE PIPE CULVERT | M | 400 | | |
| 176 | 620919 | 750 MM ALTERNATIVE PIPE CULVERT | M | 15 | | |
| 177 | 620924 | 900 MM ALTERNATIVE PIPE CULVERT | M | 69 | | |
| 178 | 655365 | JACKED 450 MM REINFORCED CONCRETE PIPE (CLASS III) | M | 200 | | |
| 179 | 664008 | 300 MM CORRUGATED STEEL PIPE | M | 390 | | |
| 180 | 664016 | 450 MM CORRUGATED STEEL PIPE (2.77 MM THICK) | M | 59 | | |

**BID ITEM LIST
04-0A18U4**

| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 181 | 680933 | 200 MM PERFORATED PLASTIC PIPE UNDERDRAIN | M | 3170 | | |
| 182 | 016009 | 200 MM PLASTIC PIPE | M | 340 | | |
| 183 | 682020 | CLASS 1 PERMEABLE MATERIAL | M3 | 6230 | | |
| 184 | 692383 | 300 MM ANCHOR ASSEMBLY | EA | 52 | | |
| 185 | 692385 | 450 MM ANCHOR ASSEMBLY | EA | 8 | | |
| 186 | 700617 | DRAINAGE INLET MARKER | EA | 18 | | |
| 187 | 700659 | 900 MM CORRUGATED STEEL PIPE INLET (2.77 MM THICK) | M | 9 | | |
| 188 | 703545 | 300 MM WELDED STEEL PIPE (6.35 MM THICK) | M | 4 | | |
| 189 | 705334 | 300 MM ALTERNATIVE FLARED END SECTION | EA | 3 | | |
| 190 | 705336 | 450 MM ALTERNATIVE FLARED END SECTION | EA | 12 | | |
| 191 | 705337 | 600 MM ALTERNATIVE FLARED END SECTION | EA | 5 | | |
| 192 | 016010 | GRATE LOCKING DEVICE | EA | 23 | | |
| 193 | 721008 | ROCK SLOPE PROTECTION (LIGHT, METHOD B) | M3 | 720 | | |
| 194 | 721024 | ROCK SLOPE PROTECTION (1/4T, METHOD B) | M3 | 28 | | |
| 195 | 721430 | CONCRETE (CHANNEL LINING) | M3 | 73 | | |
| 196 (F) | 721810 | SLOPE PAVING (CONCRETE) | M3 | 89 | | |
| 197 | 729010 | ROCK SLOPE PROTECTION FABRIC | M2 | 2580 | | |
| 198 | 731502 | MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION) | M3 | 480 | | |
| 199 | 016011 | MINOR CONCRETE (MEDIUM BROOM FINISH) | M2 | 2240 | | |
| 200 (F) | 750001 | MISCELLANEOUS IRON AND STEEL | KG | 29 732 | | |

**BID ITEM LIST
04-0A18U4**

| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 201 | 016012 | TREE GRATE | EA | 14 | | |
| 202 (F) | 750501 | MISCELLANEOUS METAL (BRIDGE) | KG | 320 | | |
| 203 (F) | 800381 | CHAIN LINK FENCE (TYPE CL-0.9) | M | 10 | | |
| 204 | 800382 | CHAIN LINK FENCE (TYPE CL-0.9, VINYL-CLAD) | M | 1600 | | |
| 205 | 800391 | CHAIN LINK FENCE (TYPE CL-1.8) | M | 210 | | |
| 206 | 800392 | CHAIN LINK FENCE (TYPE CL-1.8, VINYL-CLAD) | M | 90 | | |
| 207 | 802585 | 1.2 M CHAIN LINK GATE (TYPE CL-1.8) | EA | 4 | | |
| 208 | 802596 | 3.7 M CHAIN LINK GATE (TYPE CL-1.8) | EA | 3 | | |
| 209 | 820107 | DELINEATOR (CLASS 1) | EA | 180 | | |
| 210 | 832003 | METAL BEAM GUARD RAILING (WOOD POST) | M | 2570 | | |
| 211 | 839310 | DOUBLE THRIE BEAM BARRIER | M | 8 | | |
| 212 | 839541 | TRANSITION RAILING (TYPE WB) | EA | 27 | | |
| 213 | 839581 | END ANCHOR ASSEMBLY (TYPE SFT) | EA | 19 | | |
| 214 | 839584 | ALTERNATIVE IN-LINE TERMINAL SYSTEM | EA | 8 | | |
| 215 | 839585 | ALTERNATIVE FLARED TERMINAL SYSTEM | EA | 13 | | |
| 216 | 839601 | CRASH CUSHION (TYPE CAT) | EA | 1 | | |
| 217 | 839602 | CRASH CUSHION (TYPE CAT) BACKUP | EA | 1 | | |
| 218 (F) | 839701 | CONCRETE BARRIER (TYPE 60) | M | 1335 | | |
| 219 (F) | 839702 | CONCRETE BARRIER (TYPE 60A) | M | 185 | | |
| 220 (F) | 839703 | CONCRETE BARRIER (TYPE 60C) | M | 7782 | | |

**BID ITEM LIST
04-0A18U4**

| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|------------|-----------|---|-----------------|--------------------|------------|------------|
| 221 (F) | 839704 | CONCRETE BARRIER (TYPE 60D) | M | 204 | | |
| 222 (F) | 016013 | CONCRETE BARRIER (TYPE 60 R) | M | 52 | | |
| 223 (F) | 016014 | CONCRETE BARRIER (TYPE 60 R MODIFIED) | M | 89 | | |
| 224 (F) | 839717 | CONCRETE BARRIER (TYPE 732 MODIFIED) | M | 252 | | |
| 225 (F) | 839720 | CONCRETE BARRIER (TYPE 732) | M | 27 | | |
| 226 (F) | 839726 | CONCRETE BARRIER (TYPE 736A) | M | 321 | | |
| 227 (F) | 839727 | CONCRETE BARRIER (TYPE 736 MODIFIED) | M | 596 | | |
| 228 (F) | 839734 | CONCRETE BARRIER (TYPE 736SV) | M | 1419 | | |
| 229 | 840515 | THERMOPLASTIC PAVEMENT MARKING | M2 | 550 | | |
| 230 | 840561 | 100 MM THERMOPLASTIC TRAFFIC STRIPE | M | 55 100 | | |
| 231 | 840562 | 150 MM THERMOPLASTIC TRAFFIC STRIPE | M | 1440 | | |
| 232 | 840563 | 200 MM THERMOPLASTIC TRAFFIC STRIPE | M | 4670 | | |
| 233 | 840564 | 200 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 3.66 M - 0.92 M) | M | 1840 | | |
| 234 | 016015 | 150 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 2.44 M-1.22 M) | M | 220 | | |
| 235 | 840570 | 100 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 10.98 M - 3.66 M) | M | 300 | | |
| 236 | 840571 | 100 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 5.18 M - 2.14 M) | M | 1450 | | |
| 237 | 840656 | PAINT TRAFFIC STRIPE (2-COAT) | M | 57 | | |
| 238 | 850101 | PAVEMENT MARKER (NON-REFLECTIVE) | EA | 9820 | | |
| 239 | 850111 | PAVEMENT MARKER (RETROREFLECTIVE) | EA | 4690 | | |
| 240 | 860090 | MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION | LS | LUMP SUM | LUMP SUM | |

**BID ITEM LIST
04-0A18U4**

| Item No. | Item Code | Item Description | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|----------|-----------|--|-----------------|--------------------|------------|------------|
| 241 | 016016 | TRAFFIC OPERATION SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 242 | BLANK | | | | | |
| 243 | BLANK | | | | | |
| 244 | 860253 | SIGNAL AND LIGHTING (LOCATION 3) | LS | LUMP SUM | LUMP SUM | |
| 245 | 860254 | SIGNAL AND LIGHTING (LOCATION 4) | LS | LUMP SUM | LUMP SUM | |
| 246 | 860257 | SIGNAL AND LIGHTING (LOCATION 7) | LS | LUMP SUM | LUMP SUM | |
| 247 | 860259 | SIGNAL AND LIGHTING (LOCATION 9) | LS | LUMP SUM | LUMP SUM | |
| 248 | 860298 | SIGNAL AND LIGHTING (STAGE CONSTRUCTION) | LS | LUMP SUM | LUMP SUM | |
| 249 | 860305 | SIGNAL AND LIGHTING (CITY STREET LOCATION 5) | LS | LUMP SUM | LUMP SUM | |
| 250 | 860306 | SIGNAL AND LIGHTING (CITY STREET LOCATION 6) | LS | LUMP SUM | LUMP SUM | |
| 251 | 016066 | SIGNAL AND LIGHTING (CITY STREET LOCATION 8) | LS | LUMP SUM | LUMP SUM | |
| 252 | 860415 | LIGHTING (STAGE CONSTRUCTION) | LS | LUMP SUM | LUMP SUM | |
| 253 | 860460 | LIGHTING AND SIGN ILLUMINATION | LS | LUMP SUM | LUMP SUM | |
| 254 | 860520 | HIGHWAY ADVISORY RADIO SYSTEM | EA | 1 | | |
| 255 | 860701 | INTERCONNECTION CONDUIT AND CONDUCTOR | LS | LUMP SUM | LUMP SUM | |
| 256 | 016017 | VEHICLE SENSOR NODE | EA | 24 | | |
| 257 | 016018 | EMERGENCY VEHICLE DETECTION SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 258 | 016019 | DIAL-UP MODEM FOR CHANGABLE MESSAGE SIGN | EA | 1 | | |
| 259 | 016020 | INTEGRATED CAMERA UNIT | EA | 7 | | |
| 260 | 016021 | CAMERA CONTROL UNIT (CCU) | EA | 7 | | |

