# Department of Administrative Services
## Purchasing and Contracts

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CLARK COUNTY, NEVADA
BID NO. 603188-13
CC215 BRUCE WOODBURY BELTWAY NORTH FORT APACHE BRIDGE AND DURANGO BRIDGE

February 13, 2014

**ADDENDUM NO. 4**

INVITATION TO BID

1. The Bid Opening Date of February 20, 2014, remains unchanged.

GENERAL CONDITIONS

2. Add the following to General Conditions, Section 1: General, Section 1.1: NOTICE(S) TO PROCEED.

   B. **Materials Notice to Proceed**

   Owner will issue a Materials Notice to Proceed to the Contractor authorizing the ordering of supplies, materials, equipment, etc. The supplies, materials, equipment, etc. must be received within **90 calendar days**. During this period of time, the Owner may issue the Notice to Proceed for the work.

BID FORM

3. **Disregard** the Bid Form, pages 4-1 through 4-5 and **replace** with the attached Revised Bid Form, pages 4-1 through 4-5 attached to this Addendum No. 4.

SPECIAL PROVISIONS

4. The following are changes and/or clarifications to the special provisions for the above referenced project.

   **Delete** the first two paragraphs under **DESCRIPTION** on page 100-1 in their entirety and **replace** with the following:

**DESCRIPTION**

These Special Provisions supplement and modify the *Uniform Standard Specifications for Public Works Construction Off-Site Improvements, Clark County Area, Nevada, Third Edition*, and all other revisions through date of advertisement. These Special Provisions also supplement and modify the *Standard Specifications for Road and Bridge Construction, State of Nevada Department of Transportation*, 2001 edition (hereinafter referred to as the NDOT Standard Specifications). All of the requirements and provisions of said Standard Specifications shall apply except where modified by the drawings and these Special Provisions.


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For clarity, each Special Provision section includes a header line that references the appropriate Standard Specification (either Uniform or NDOT) to be used with that section. The bridge structure, approach slab, impact attenuators, and portland cement concrete pavement shall be constructed in accordance with the NDOT Standard Specifications. All other work shall be constructed in accordance with the Uniform Standard Specifications. Where used in these Special Provisions and in both Standard Specifications, the references to State, Department, Contracting Agency, or Engineer shall refer to Clark County.

## SECTION 104 SCOPE OF WORK

**Delete** this subsection *104.04 Maintenance of Traffic* in its entirety and **replace** with the following.

### 104.04 MAINTENANCE OF TRAFFIC

*Paragraph A of this subsection is **changed** to read as follows:*

The Contractor shall maintain all school walk routes affected by construction on each school day for any school's walking attendance boundary within the project limits for the following time periods:

- From the thirty (30) minute period before, to a minimum of five (5) minutes after each school day begins, and
- From a minimum of five (5) minutes before, to thirty (30) minutes after each school day ends.

Contractor shall be responsible to verify the attendance boundary for the specific school from the Clark County School District website located at www.ccsd.net. Contactor shall be responsible to contact the specific school to determine the time school begins and ends.

The Contractor shall construct the required improvements along main arterial streets in such a manner and sequence that not less than two 12-foot wide paved travel lanes (one in each direction) remain open to traffic at all times, unless otherwise specified in subsection 104.04 or approved by the Engineer.

The Contractor shall be required to keep not less than one 12-foot wide paved travel lane open to traffic while he is working during the day along and when crossing the remaining streets. Not less than two travel lanes (one in each direction) shall be reopened to traffic at the end of each working day and shall remain open until work begins the following morning. At those locations where only one lane is left open while the Contractor is working during the day, the Contractor shall provide sufficient flaggers whose sole duty is to direct traffic in accordance with the requirements of subsection 624.03.02.

<u>Travel lanes shall only be closed while active work is taking place.</u>

*Add the following to this Subsection:*

Contractor shall construct the required improvements throughout the project in such a manner and sequence that the following condition and restrictions are adhered to and that at all other times the existing lane configuration and lane widths are maintained unless otherwise provided for herein.

For all time periods specified for lane closure or detours, the start time indicates the earliest time that Contractor may begin placement of traffic control signs and devices to close a lane or detour traffic and the end time indicates the latest time when the lane shall be open to traffic or traffic is no longer detoured.

The City of Las Vegas' "Rancho-Fort Apache Storm Drain" project will be constructed concurrently with this project. The Contractor shall coordinate with the City of Las Vegas and the Contractor for the Rancho-Fort Apache Storm Drain project. The Contractor shall cooperate fully with the other contractors and conduct operations to cause minimum interference with work of other contractors constructing concurrent projects, including the following:

1. City of Las Vegas project: Rancho-Fort Apache Storm Drain; contact Randy McConnell, 702-229-2186.

**Fort Apache Road**

The Contractor will not be allowed to access the project site from Fort Apache Road north of CC 215 for the first 150 calendar days from the date Notice to Proceed is issued. Contractor may access the project site from CC215.

The Contractor will not be allowed to work on Fort Apache Road improvements between "FA" 101+50 to "FA" 108+74 for the first 150 calendar days from the date Notice to Proceed is issued.

**CC215**

The Contractor will not be allowed to access the project site from Fort Apache Road north of CC 215 for the first 150 calendar days from the date Notice to Proceed is issued. Contractor may access the project site from CC215.

The contractor shall enter and exit the CC215 in the same direction of travel. The contractor is not allowed to cross travel lanes and/or median, to access other side of CC215. Such action will result in permanent expulsion of Contractor's personnel from the project site.

The Contractor shall maintain 4 travel lanes of traffic (2 eastbound and 2 westbound) on CC215 during the hours of 5:30AM to 9:00 PM, daily. The Contractor shall maintain a minimum of 2 travel lane (one lane in each direction) during all other times.

Temporary crossover detours on CC215 will be permitted only between hours of 9:00 PM to 5:30 AM daily, Sunday night through Friday morning, for girder placement and bridge deck concrete placement. The crossover detour on CC215 shall have a minimum design speed of 45 MPH in accordance with the schematic as shown in Exhibit 1. The Contractor shall design the temporary cross over detour on CC215 and shall be prepared and stamped by a Nevada Professional Engineer and approved by the Engineer.

Contractor shall close the East bound off ramp and West bound on ramps at the CC215/Durango Drive Intersections while the temporary cross over detour on CC215 is in effect. Contractor shall design detour in accordance with schematic shown in Exhibit 2.

The Contractor will not be allowed to pour concrete over live traffic.

Contractor shall construct necessary detours and additional pavement improvements to meet the foregoing requirements. Detour improvements shall also include temporary traffic signals or modification of existing signals as required. Temporary signal design shall be prepared and stamped by a Nevada Professional Engineer and approved by the Engineer.

**Durango Drive**

The Contractor shall maintain the travel lanes on Durango Drive as shown on "Falsework Detail" on Drawing B-203 between the hours of 5:30 AM and 9:00 PM, daily. The Contractor shall maintain pedestrian access along Durango Drive at all times.

Contractor shall provide a detour for Durango Drive traffic during falsework erection/removal and concrete placement between hours of 9:00 PM to 5:30 AM, Sunday night through Friday morning. Contractor shall design detour in accordance with schematic shown in Exhibit 3.

Contractor shall provide Emergency Vehicle access through the Durango Drive Bridge construction zone at all times.

The Contractor will not be allowed to pour concrete over live traffic.

Access to businesses along Durango Drive shall be maintained at all times.

Contractor shall stage the work at each intersection on Durango Drive to accommodate turning vehicles at all times.

The traffic signals at the two Durango/CC215 ramp Intersections shall remain in operation at all times.

Left-turn lanes shall be provided on Durango Drive at all times for the following movements except when the movement is closed due to CC215 temporary crossover detour or when Durango Drive is closed:

- South-to-east left turn at the intersection with the eastbound CC215 on ramp. The existing storage length shall be maintained.
- North-to-west left turn at the Intersection with the westbound CC215 on ramp. The existing storage length shall be maintained.

Contractor shall construct necessary detours and additional pavement improvements to meet the foregoing requirements. Detour improvements shall also include temporary traffic signals or modification of existing signals at the Durango Drive/CC215 Interchange as required. The Contractor shall design the temporary detour on Durango Drive and shall be prepared and stamped by a Nevada Professional Engineer and approved by the Engineer.

**SECTION 104 SCOPE OF WORK**

Add this subsection to *104 Scope of Work*

**METHOD OF MEASUREMENT**

**104.05.01 MEASUREMENT**

CC215 median crossover pavement will be measured for payment on a lump sum basis.

**SECTION 104 SCOPE OF WORK**

**Add** this subsection to *104 Scope of Work*

**BASIS OF PAYMENT**

**104.06.01 PAYMENT**

The lump sum price bid paid for CC215 median crossover pavement shall be considered full compensation for construction and removal of the median crossover including excavation, embankment, saw cutting, plantmix bituminous surface, prime coat, tack coat, aggregate base, restoration of the CC215 median to original condition including replacement of the gravel mulch, restoration of the CC215 plantmix bituminous median, shoulders, and all labor, tools, equipment and incidentals necessary to complete the work in accordance with the Exhibit-1 as specified herein and as directed by the Engineer.

All other items incidental to this item will be paid for by Section 107.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| CC215 Median Crossover Pavement | Lump Sum |

**SECTION 105.00 CONTROL OF WORK**

*Delete subsection 105.08 Construction Stakes, Lines and Grades in its entirety; and replace with the following.*

**105.08 CONSTRUCTION STAKES, LINES AND GRADES**

*Paragraph C is changed to read:*

The Contractor shall preserve property line and corner survey monuments except where their destruction is determined by the Engineer to be unavoidable. Monuments that are disturbed or destroyed by the Contractor's operations will be replaced in accordance with all applicable Nevada Revised Statutes and Standard Drawings by a Nevada Professional Land Surveyor and the cost for such replacement will be deducted from any money due, or which may become due, the Contractor under this contract.

*Paragraphs F and G of this subsection are deleted and the following is added:*

The Contractor shall allow a minimum of two (2) working days notice when submitting survey work requests. If multiple requests are submitted, prioritization of said requests will be provided by the Contractor with consideration given to the length of time required to complete each ordered task.

The following construction stakes will be furnished by the Owner:

1. Stakes at 50-foot intervals along the back of all curb and gutter and at the ends and center of each curb return, or at offsets that may be requested by the Contractor.
2. Stakes at 50-foot intervals for construction of drainage and utility pipes along an offset line chosen by the Contractor.
3. Two (2) stakes, containing horizontal and vertical control for each manhole, and drop inlets.
4. Stakes at the corners of junction structures containing horizontal and vertical control.
5. One (1) stake for each streetlight pole and two (2) stakes for each traffic signal pole containing horizontal and vertical control.
6. Subgrade stakes will be placed at 100' intervals (plus grade breaks) and three (3) across the asphaltic pavement area (maximum). Type II stakes will be placed at a maximum three (3) stakes per 50' station plus grade breaks.
7. Stakes at 50-foot intervals along the flow line at the ends, and grade breaks of valley gutters at offsets requested by the contractor.
8. Control Surveys to establish and maintain control during bridge construction.
9. Two stakes containing horizontal and vertical control for each bridge pier, abutment, and wingwall layout lines.
9. Stakes at 50-foot intervals along the layout line for retaining walls along an offset requested by Contractor.
10. Top of Steel Girder Control. Horizontal and vertical control for fabricated steel girders to verify elevation at tenth (1/10) points of each span.
11. Bidwell Rail Grades. Vertical control points at 30-inch intervals to set rail grades with Bidwell machine in place. (Dry run method)
12. Verify overhang. Vertical verification of edge of overhang at tenth (1/10) points.
13. Approach Slab Grading. One set of stakes for each of the following tasks: Subgrade redheads, finish grade bluetops, and concrete control.
14. Offset stakes to one side of the fence line(s) at 100-foot intervals and angle points.
15. Rough grade stakes to delineate top and toe of slopes at 50-foot intervals marked sufficiently for construction of embankment and cut areas.
16. Subgrade stakes will be placed at 100-foot intervals (plus grade breaks) and three (3) across the asphaltic pavement area (maximum). Type II stakes will be placed at a maximum three (3) stakes per 50' stations plus grade breaks.

17. Marks on existing improvements for saw cuts and removal areas including saw cut lines at intersection streets and driveway locations.

18. Stakes not delineated above which the Engineer may determine are necessary to insure the work will be properly constructed.

The Engineer will also mark existing pavement for sawcut lines at all intersection streets and driveway locations.

The Contractor shall notify the Engineer prior to placement of curb and gutters at drop inlets to verify the form work elevations.

The above constructed stakes shall constitute the field control by and in accordance with which the Contractor shall execute the work, and will be furnished at no expense to the Contractor. The Engineer will set stakes in addition to these delineated above, if required by and requested by the Contractor; however, costs for setting said additional stakes shall be paid by the Contractor and will be deducted from any amounts due or to become due the Contractor.

After stakes and marks have been set it shall be the responsibility of the Contractor and his employees to protect the stakes and marks against vandalism and/or destruction. Should any of the stakes or marks be destroyed or disturbed by the Contractor's operations or otherwise, the cost of replacing said stakes or marks shall be paid by the Contractor and will be deducted from any amounts due or to become due the Contractor.

**SECTION 409 PORTLAND CEMENT CONCRETE PAVEMENT**

**Delete** section *409 Portland Cement Concrete Pavement* in its entirety; and **replace** with the following.

Add the following to the header (top left corner) of the specification pages:

SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS-409

**SECTION 409**

**PORTLAND CEMENT CONCRETE PAVEMENT**

DESCRIPTION

**409.01.01 General.** This work consists of constructing Portland cement concrete pavement, on a prepared surface.

MATERIALS

**409.02.01 General.** Material shall conform to the following Sections and Subsections unless otherwise provided herein:

Portland Cement Concrete..... Section 501
Reinforcing Steel..... Section 505
Portland Cement..... Section 701
Concrete Curing Materials and Admixtures..... Section 702
Aggregate..... Section 706
Joint Sealer..... Subsection 707.03.07
Water..... Section 722

Portland cement shall be Type II, Type V, or Type IP "blended" cement. Use a minimum 20% by weight Type F Flyash.

**409.02.02 Gradation Requirements.** Gradation requirements shall conform to Subsection 501.02.02.

**409.02.03 Concrete Properties and Tests.** Portland cement concrete pavement shall conform to the following requirements and test methods:

| Test | Test Method | Requirements |
|---|---|---|
| Flexural Strength of Concrete | Nev. T442 | Subsection 409.03.14, 4.5 MPa (650 psi) (min.) |
| Length of Drilled Cores | Nev. T452 | Subsection 409.04.02 |
| Proportions of Coarse Aggregate in Fresh Concrete | Nev. T449* | Compliance with Mix Design |
| Slump | | Nev. T439 or Nev. T438 Table I |
| Evaluation of Profiles | Nev. T446 | Subsection 409.03.12 |
| Method of Test for Specific Gravity and Absorption of Coarse Aggregate | Nev. T492 | Min. saturated surface dry condition |
| Method of Test for Specific Gravity and Absorption Of Fine Aggregate | | Nev. T493 Min. saturated surface dry condition |
| Entrained Air Content | Nev. T431 | Table I |
| Compressive Strength of Concrete 28 MPa (4,000 psi) (min.) | | ASTM C39 Subsection 409.03.01, |
| Unit Wt., Volume and Cement Factor of Concrete | Nev. T435 | Table I and Subsection 409.03.01 |

* Referee Test Method.

**409.02.04 Admixtures.** Use admixtures conforming to Subsection 501.02.03.

CONSTRUCTION

**409.03.01 Classification and Proportions.** Give not less than 32 days notification in advance of use of the proposed sources of materials. Make arrangements for the Engineer to obtain samples as required for testing purposes.

When requested and approved in writing, samples will not be required from aggregate sources previously tested within the past year.

Samples will not exceed 225 kg (500 lb) for each separate grading.

Furnish a written concrete mix design for approval giving the source and proportions of cement, water, and each size of aggregate by mass, in SSD condition, per $m^3$ ($yd^3$) of concrete and the percentage of air in the concrete proposed for use in the work. The mix design shall also show the gradation for each individual primary aggregate nominal size, and the mathematically combined, by volume or mass, gradation of the proposed proportions of each individual size. If proposing to use an admixture other than an air-entraining agent, state its complete brand name and the quantity proposed to be used per $m^3$ ($yd^3$) of concrete.

Do not make changes in batch proportions and materials as permitted in this Subsection without written prior approval.

Use stockpiled aggregates in a saturated surface dry condition just before batching. Condition the stockpiles to a homogeneous moisture content. Begin conditioning stockpiles at a minimum of 15 hr. prior to batching, or as directed by the Engineer. The moisture content of the aggregate shall be such that no visible separation of moisture and aggregate will take place during transportation from the

proportioning plant to the point of mixing. Stockpile aggregate containing excess moisture before use until sufficiently dried to meet the above requirements.

Maintain at least one week's production supply of concrete aggregate in stockpiles during the paving operations.

Proportion Portland cement concrete, using the aggregates tested, such that the requirements in this Subsection will be satisfied without falling below the minimum, or exceeding the maximum values given.

Batch concrete in accordance with Subsection 501.03.05.

Prior to performing concrete pavement placement, construct a test strip of at least 100 m (300 ft) in length and to a width that will be common to the majority of production placement. Construct the test strip with the equipment and mix design that will be used throughout the concrete paving operation. Should a change in the equipment or mix design occur at any time during the concrete paving operation, an additional test strip may be required. The test strip shall be constructed under the same conditions that will occur during production. These conditions are to include anticipated working shift and atmospheric and surface temperatures. Suspend concrete pavement placement operations for 10 working days. During this suspension, the test strip will be evaluated to ensure conformance with the plans and specifications.

Remove field trial test strips not conforming to the requirements of the plans and specifications from the roadway at own expense. Construct additional test strips conforming to this section until approval is given to begin the production of concrete pavement placement. Test strips conforming to the plans and specifications will be considered as permanent concrete pavement and will be measured for payment as specified in Subsection 409.04.01. Acceptance of the test strip shall not relieve the Contractor of responsibility to complete the remainder of work in accordance with the plans and specifications.

For mix design approval and as a project control requirement, the proposed proportions of coarse and fine aggregate, combined mathematically, by volume or mass, shall produce a mixture within the grading limits for combined aggregates specified as follows:

**Grading Limits of Combined Aggregates**

| Sieve Sizes | Percent by Mass Passing |
|---|---|
| 50 mm (2 in.) | 100 |
| 37.5 mm (1.5 in.) | 90-100 |
| 25 mm (1 in.) | 50-86 |
| 19 mm (3/4 in.) | 45-75 |
| 9.5 mm (3/8 in.) | 38-55 |
| 4.75 mm (No. 4) | 30-45 |
| 2.36 mm (No. 8) | 23-38 |
| 1.18 mm (No. 16) | 15-33 |
| 600 µm (No. 30) | 8-22 |
| 300 µm (No. 50) | 4-13 |
| 150 µm (No. 100) | 1-5 |
| 75 µm (No. 200) | 0-3 |

**TABLE I**
**Class P.C.A.A. Concrete**

| Cement Range kg/m$^3$ (lb/yd$^3$) | Coarse Aggregate Size No. | Maximum Water Cement Ratio kg/kg (lb/lb)* | Slump Range mm (in.) | Entrained Air Range Percent** | Unit Mass Variation kg/m$^3$ (lb/yd$^3$) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 360-420 (611-705) | 467 | 0.45 (0.45) | 25-75 (1.0-3.0) | 5-7 | 50 (3) |

*Based on aggregate in a saturated surface dry condition.

**The air range indicated is not required in Clark County.

The nominal slump shall be 75 mm (3 in.); the maximum slump shall be 90 mm (3.5 in.). When the slump of concrete is found to exceed the nominal slump, adjust the mixture as directed to reduce slump to a value within the nominal range. Four slump tests will be considered sufficient to determine nominal slump. The difference in slump, determined by comparing slump tests on 2 samples of mixed concrete for each individual batch tested, shall not exceed 25 mm (1 in.). When the difference in slump does exceed 25 mm (1 in.), adjust procedures to reduce the difference in slump to not more than 25 mm (1 in.).

The concrete shall have a minimum 28 day compressive strength of 28 MPa (4,000 psi). The 28 day compressive strength requirement will be evaluated for design requirements according to the "STATISTICAL EVALUATION OF CONCRETE STRENGTH" provisions of Subsection 501.02.04, except that for trial batch approval, the average compressive strength of 5 standard 152 mm x 305 mm (6 in. x 12 in.) cylinders, taken from a single batch and tested at 28 days, shall be 15% greater than the specified 28 day compressive strength and no individual cylinder shall have a strength less than the specified strength.

Flexural strength for mix design approval shall demonstrate that 4.5 MPa (650 psi) (minimum) will be achieved at 28 days or at the time of anticipated opening to traffic, if sooner. An average of 3 beams, when cured and tested in accordance with NV T442, shall meet or exceed 4.5 MPa (650 psi) with no individual beam shall have a strength less than the specified strength.

Compressive strength tests made for acceptance will be evaluated by the method set forth in Subsection 501.02.04.

**409.03.02 Equipment.**

(a) General. Equipment and tools necessary for handling materials and performing all parts of the work must be approved as to design, capacity, and mechanical condition. Provide this equipment on the site, available for inspection, testing, and approval before paving operations are started. Maintain all equipment, tools, and machinery in a satisfactory working condition.

Provide equipment of such capacity that the paver will operate continuously or at a constant rate of production. If any piece of equipment does not have sufficient capacity to keep pace with the other operations, the Engineer may limit the size of the batch or otherwise limit the rate of production to prevent poor workmanship, overloading of equipment, or frequent delays.

Equipment that will be operating entirely or partially on any existing pavement must have rubber-tired wheels in contact with the pavement. No hard tracked equipment will be allowed to run on the pavement regardless of the pavement age or strength.

Provide lightweight concrete saws (early entry saws) specifically designed for sawing fresh concrete without the use of water for constructing weakened plane joints in the concrete pavement.

Provide vibratory equipment to consolidate the concrete.

Provide adequate internal vibrating equipment, including power, to enable the Engineer to fabricate concrete cylinders for testing purposes.

(b) Batch Plant and Equipment. Certify concrete production facilities and delivery equipment by complying with National Ready-Mix Concrete Association certification requirements. Certification will be observed by Department Headquarters Construction Division prior to performing any work.

For all batches with a volume of 1 $m^3$ (1 $yd^3$) or more, provide the batching equipment conforming to one of the following combinations:

1. Separate boxes and separate dial or beam scales for weighing each size of aggregate.

2. Single box and dial or multiple beam type scales for all aggregates.

3. Single box or separate boxes and automatic weighing mechanism for all aggregates.

In order to check the accuracy of batch masses, determine the gross mass and tare mass of batch trucks, truck mixers, and truck agitators, when ordered. Weigh the equipment on approved scales.

Proportion aggregates and bulk cement for use in pavement by mass by means of automatic proportioning devices of approved type conforming to the requirements specified herein.

Weigh bulk cement on scales separate and distinct from the aggregate hoppers. Interlock the discharge mechanism of the bulk cement hopper against opening before the full amount of cement is in the hopper, against closing before the contents of the hopper are entirely discharged and the scales are back in balance, and against opening when the amount of cement in the hopper is either over or under mass by more than 1% of the amount specified.

Interlock the bulk cement batcher and aggregate batcher so that a new batch of cement cannot be started until all weigh hoppers are empty, the scale is at zero, and the discharge gates are closed. Equip the batch plant with a numerical printout device that will make a continuous, permanent, and accurate record of the masses of cement, gravel, and sand as well as the amount of water and additives used in each batch of concrete and the target weights. Give the record to the Engineer immediately after each load is produced.

Design the discharge gate on the cement hopper so as to permit regulating the flow of cement into the aggregate as approved.

Control material discharged from the bins by gates or by mechanical conveyors. Interlock the means of withdrawal from the bins, and of discharge from the weigh hopper, so that not more than one bin can discharge at a time; that the order of discharge can be changed; and that the weigh box cannot be tripped until the required quantity from each of the bins has been deposited therein. Should a separate weigh hopper be used for each size of aggregate, all may be operated and discharged simultaneously.

When the discharge from the bins is controlled by gates, actuate each gate automatically so that the required mass is discharged into a weigh hopper, after which the gate shall automatically close and lock.

Provide a weighing device which is automatic to the extent that the only manual operation required for proportioning the aggregates and cement for a batch is a single operation of a switch or a starter.

Provide a stable platform with canopy from which the inspector can step onto the bed of the trucks in order to take samples. Locate platform no farther than 75 m (250 ft) from the mixer. Provide platform with a height equal to the height of the truck beds and at least 10.7 m (35 ft) long and 2.4 m (8 ft) wide with a 2.4 m x 2.4 m x 2.4 m (8 ft x 8 ft x 8 ft) lockable insulated shed at one end for cylinder

storage. Provide the platform with adequate railing and stairs with handrail down to ground level. Construct the platform of either wood or steel, and conforming to the standards contained in "Safety and Health Regulations for Construction" of the Department of Labor. Temperature control the shed in order to maintain the concrete test cylinders within the temperature range required by Test Method No. Nev. T428. Supply potable running water to the platform, 110 V electrical power, suitable lights, vibrators and outlets. Furnish radios or telephones so the inspector on the platform can communicate with the batch plant operator.

(c) Mixers. Furnish mixing equipment conforming to Subsection 501.03.06.

(d) Vibrators. Furnish internal vibrators with rigid or flexible shafts, preferably powered by electrical motors, capable of operating at a frequency of 7,000 vibrations per minute or greater. The outside diameter or the side dimensions of the vibrating element shall be, at least, 19mm (3/4 in.) and not greater than 38mm (1 ½ in.). The length of the shaft shall be at least 600mm (24 in.). Furnish a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

Do not rest vibrators on new pavements or side forms. Connect power to the vibrators so that vibration will cease when the forward or backward motion of the machine is stopped.

(e) Forms. Use equipment utilizing stationary side forms or slip-form paving equipment.

1. Side Form. Use only metal side forms, weighing not less than 26 kg/m (18 lb/ft), without stakes.

Furnish side forms of sufficient rigidity, both in the form and in the interlocking connection with the adjoining forms, so that springing will not occur under the mass of the grading and paving equipment or from the pressure of the pavement when placed.

Furnish straight side form sections, free from warps, bends, indentations, or other defects. Remove defective forms from the work.

2. Slip Form. Equip slip-form paving equipment with traveling side forms of sufficient dimensions, shape, and strength to support the concrete laterally for a sufficient length of time during placement to produce pavement of the required cross section.

Do not create abrupt changes in longitudinal alignment of the pavement. Do not deviate more than 30 mm (1.2 in.) horizontally from the established alignment.

(f) Vibrators for Testing Purposes. Provide adequate internal vibrating equipment, including power, to enable the Engineer to perform tests.

Furnish internal vibrators with rigid or flexible shafts, preferably powered by electric motors, capable of operating at a frequency of 7,000 vibrations per minute or greater. The outside diameter or the side dimensions of the vibrating element shall be at least 19 mm (0.75 in.) and not greater than 38 mm (1.5 in.). The length of the shaft shall be at least 600 mm (24 in.).

(g) Fogging Machine. Provide a fogging machine capable of applying water in the form of a fine mist spray over the entire width of the concrete pavement. Create fine mist by pumping water, or a combination of air and water under high pressure in combination with a suitable atomizing nozzle. Adapt fogging machine for intermittent or continuous use to prevent excessive wetting of the concrete, and make it capable of repeated passes in order to prevent shrinkage cracking of the concrete. An evaporation retarder may be used in lieu of the fogging machine, as indicated in Subsection 409.03.10.

**409.03.03 Preparation of Grade.** Place concrete pavement on prepared roadbed. Place bond breaker on the prepared roadbed surface as specified in the Plans. If not otherwise specified, use white pigmented wax based curing compound as listed on the Qualified Products List (QPL). The rate of applications shall be 0.60 ± 0.10 L/m$^2$ (2 gal/150 ft$^2$ ± 50 ft$^2$) applied as a single application. Allow adequate time for the bond breaker to cure as per the manufacture's recommendations before placing concrete.

**409.03.04 Setting Forms.** Before placing side forms, construct the underlying material to the proper grade. Place side forms with full bearing upon the foundation throughout their length and width of base and place to the required grade and alignment of the edge of the finished pavement. Support forms so that they will not deviate vertically at any time more than 3 mm (0.01 ft) from the grade established.

Do not deviate more than 3 mm (0.01 ft) vertically from the top of any side form to a 3.6 m (12 ft) straightedge. Do not vary the inside face more than 6 mm (0.02 ft) from a 3.6 m (12 ft) straightedge. Provide stake pockets and interlocking devices that will prevent movement of the form.

Stake side forms firmly by means of steel stakes at each end of the section and at intermediate points not more than 1.5 m (5 ft) apart and design so that stakes may be driven through the base of the form. Provide forms with means for locking stakes in position. Lay side form sections with an expansion gap of approximately 3 mm (0.01 ft). Use stakes of sufficient length so that the side forms will be held firmly in place. Provide longer stakes if lateral movement of forms is greater than 6 mm (0.02 ft) while supporting moving equipment.

Immediately in advance of placing pavement and after all subgrade operations are completed, true and maintain side forms to the required line and grade for a distance sufficient to prevent delay in placing the pavement.

Keep side forms in place until the day after placing the pavement, and in all cases until the edge of the pavement no longer requires the protection of the forms.

Thoroughly clean and oil side forms each time they are used.

**409.03.05 Reinforcement.** Install reinforcing steel if required.

Hold bar reinforcement accurately and firmly in position during the placing and compacting of the concrete without sagging by means of supporting devices to be left in place. Specifically manufacture the supports for this purpose. Design each support to hold a minimum vertical load of 90 kg (200 lb).

**409.03.06 Mixing.** Mix concrete according to Subsections 501.03.06, and 501.03.08, and the following requirements.

Provide and maintain suitable nonresettable batch counter in proper operating order, which will correctly indicate the number of batches proportioned at the batching plant and mixed in the mixers.

Thoroughly mix all concrete to a homogeneous appearance, without lumps of sand or cement or other evidence of undispersed cement. Non-homogeneous concrete will be rejected.

Mix concrete not less than 60 seconds or more than 90 seconds. The actual mixing time will be determined. Begin mixing time upon completion of charging of all materials into the mixing drum. Mixing time ends when mix discharge begins. Transfer time in multiple drum mixers is included in mixing time. Remove the contents of an individual mixer drum before a succeeding batch is emptied therein.

Charge the batch into the drum so that a portion of the mixing water enters in advance of the cement and aggregates. Uniformly add all water in the drum by the end of the first 15 seconds of the

mixing period. Keep the throat of the drum free of such accumulations as may restrict the free flow of materials into the drum.

Once the batch has been mixed and a batch ticket produced for the load, no retempering of any kind will be permitted.

**409.03.07 Placing Concrete.** Prevent delay in delivery and placing of the concrete. An interval of more than 45 minutes between placing of any 2 consecutive batches or loads will constitute cause for stopping paving operations. If so ordered to shut down, make a contact joint at the location and of the type directed, in the concrete already placed.

Place concrete pavement in 3.6 m (12 ft) traffic lane widths separated by contact joints, or place monolithically 2 or more lanes wide without a contact joint, but with a longitudinal weakened plane joint at each traffic lane line.

After the concrete has been batched and delivered to the project, only one attempt may be made, by adding approved admixtures, to bring the slump and air content into specification. Do not make any adjustments to the mix, if more than 10% of the originally batched concrete has been discharged from the delivery vehicle.

Do not use any concrete showing improper proportions of materials, including water. Remove and dispose of any such unsatisfactory concrete.

Protect freshly placed concrete from damage by any cause. Repair all damage.

Protect expansion joint material while depositing fresh concrete adjacent thereto.

Adequately barricade concrete work area in all directions to protect the work.

Equipment that damages the base course will be prohibited from traveling thereon.

Do not place concrete on the base when the surface temperature is than less than 0° C (32° F) or greater than 32° C (90° F). Do not place concrete where ponded water, snow or other foreign debris is on the pavement surface. If necessary, the pavement surface may be cooled by watering sufficiently in advance of concrete placement.

Protect the previously constructed or existing pavements from damage by the paving equipment.

**409.03.08 Spreading, Compacting, and Shaping.**

(a) Side Form Construction. Distribute the concrete uniformly with a mechanical spreader.

Vibrate, screed, and tamp the spread concrete by a machine or machines.

Vibrate the concrete, for the full paving width, by means of surface vibrators with internal vibrators adjacent to each longitudinal edge or by some other method of vibration that produces equivalent results without segregation. Vibrate at a rate of not less than 3,500 vibrations per minute for surface vibrators and 5,000 vibrations per minute for internal vibrators. Operate the amplitude of vibration to be perceptible on the surface of the concrete more than 300 mm (12 in.) from the vibrating element.

Furnish adequate machines to perform the work required at a rate equal to the progress of the mixer. Any delay in excess of 15 minutes in vibrating, screeding, and tamping will constitute cause for stopping the mixer until the machines performing such work are again in proper position in the paving train.

Perform screeding and tamping by making at least 2 complete passes over the entire area of the pavement. On the first pass, adjust the tamper to produce the proper tamping action and do not operate the tamping bar during the second pass unless otherwise directed. Adjust the screeds to an elevation slightly above grade so that when properly consolidated and finished, the completed surface of the pavement will be at the established grade, true to the cross section shown on the plans, and free from porous areas. Keep the tops of the forms or the adjacent pavement and the contact surface of the crawler tracks or wheels clean by effective devices attached to the machine. Maintain the travel of the machine true without lift, wobble, or other variation tending to affect precision screeding. During each pass of the machine, maintain a roll of concrete ahead of the front screed for the entire width of pavement being placed and except when making an expansion joint, do not operate the machine beyond that point where the roll of concrete can be maintained. Use equipment to produce a surface requiring minimum cutting during the floating and final finishing as specified in Subsection 409.03.10.

Submit a written proposal for approval, detailing the equipment, materials and procedures to use concrete for widths less than one traffic lane.

Where hand compaction is performed, construct the tamper of heavy plank which length exceeds the width of pavement by a minimum of 250 mm (10 in.); shoe with a heavy strip of metal for a tamping surface; and stiffen adequately to maintain the required shape.

(b) Slip-Form Construction. References at reasonable intervals on both sides of the roadway, for line and grade control of the placing operations will be established. Furnish, place, maintain, remove, and dispose of such supports, wire devices, and materials as may be required to provide continuous line and grade reference controls to the placing machine or paver. Equip the slip-form paver with a control system which will automatically sense and simultaneously control the laying and trimming of the materials to the specified longitudinal and lateral grade, from both sides of the roadway. Automatically actuate the control systems from independent line and grade control references through a system of mechanical sensors or sensor directed devices which will maintain the equipment at the proper transverse slope and at the proper elevation to obtain the required thickness and surface.

Spread, consolidate, screed, and float-finish the freshly placed concrete with slip-form paving equipment in such a manner that a minimum of finishing with a hand float, will be required.

Distribute the concrete uniformly into final position by the slip-form paver without delay.

Effectively consolidate the concrete, for the full paving width, by internal vibration with transverse vibrating units or a series of equally spaced longitudinal vibrating units. If a series of longitudinal vibrating units are used, equally space them at intervals not to exceed 0.75 m, (2.5 ft) measured center to center. Vibrate at a rate of not less than 3,500 vibrations per minute for surface vibrators and 5,000 vibrations per minute for internal vibrators. Operate the amplitude of vibration to be perceptible on the surface of the concrete more than 300 mm (12 in.) from the vibrating element.

The term "internal vibration" used above shall mean vibration by means of vibrating units located within the specified thickness of pavement section and a minimum distance ahead of the screed equal to the pavement thickness.

At locations inaccessible to slip-form paving equipment, place concrete pavement by methods and equipment conforming to the requirements for placing concrete in widths less than a traffic lane, as specified in Subsection 409.03.08 (a). At such locations, use stationary side forms conforming to Subsection 409.03.02 (f) 1. Finish locations inaccessible to the slip-form paving equipment by the hand float method and equipment specified in Subsection 409.03.10 (c).

**409.03.09 Joints.**

(a) General. Joints in pavement will be designated as longitudinal and transverse contact joints, transverse expansion joints, and longitudinal and transverse weakened plane joints.

Construct transverse joints at the angle to the centerline of the pavement shown on the plans. Construct faces of both transverse and longitudinal joints normal to the surface of the pavement.

Keep sawed joints clean and free of all foreign material after completion of shoulder work and before acceptance of the contract.

Use tie bars for all longitudinal contact joints and longitudinal weakened plane joints. Place straight tie bars mechanically by an approved method. Use tie bars conforming to AASHTO M31 Grade 300 or Grade 420 steel and epoxy coat as specified in Section 505.

Tie bars may be bent at right angles against the form of the first lane constructed and straightened into final position before the concrete of the adjacent lane is placed. If an "S" shaped bend is formed in straightening the bar, do not allow the offset from a straight line to be more than 30 mm (1.2 in.). In lieu of bent tie bars, approved 2 piece connectors may be used.

Dowel bars are required for all transverse weakened plane joints and transverse contact joints as shown on the plans.

Place the dowel bars within 25 mm (1 in.) of the planned transverse and depth location and within 50 mm (2 in.) of the planned longitudinal location. Place the dowel bars parallel to the pavement surface and centerline within a tolerance of 10 mm in 450 mm (0.4 in. in 18 in.).

Do not interrupt the forward movement of the finishing beam or screed by the inserting of the dowel bars.

Provide an approved method of marking the locations of the transverse joints.

Dowel bars shall be plain, round, smooth, coated bars, free from burrs or other deformations detrimental to free movement of the bars in the concrete. Provide dowel bars of the size and length shown on the plans and with at least one end sawed. Dowel bars shall be Corrosion Resistant Dowel Bars meeting the requirements of AASHTO M254, Type B, except the core material shall be of steel meeting the requirements of AASHTO M31, grade 300 or 420, or the equivalent, except that the bend test will not be required. The coating material shall meet the coating material requirements of AASHTO M284. Coat the cut ends of the dowel bars, except in Clark County. Uniformly apply an approved bond breaker to the coated bar before insertion in the concrete. Use the type of bond breaker as recommended by the coating manufacturer. Submit certified test results showing compliance with all requirements of AASHTO M254 for approval. In particular, see the Pull-Out Test requirement of M254. Perform this test on bars to which the proposed bond breaker has been applied, The test report shall identify the type of bond breaker used.

Place dowel bars by one of the following methods:

1. Automatic Dowel Bar Inserter Method. The automatic dowel bar inserter shall have a successful performance history. Submit documentation regarding performance history of the dowel bar inserter for approval.

   Place and consolidate the pavement to full depth before insertion of the dowel bars.

   Insert the dowel bars into the concrete ahead of the finishing beam or screed.

2. Wire Basket Method. Use wire basket type supports specifically manufactured for this purpose. Determine the type of dowel supporting baskets as well as the method of anchoring. Anchor the dowel baskets, as a minimum, at all four corners and at the loose end of each dowel bar. Submit the proposed method of using wire basket supports, including shop drawings of the proposed dowel baskets and proposed method of anchoring the dowel baskets for approval. Dowel bars may be tack welded at alternating ends, to the basket assemblies, to prevent slippage. No portion of the dowel support assembly shall cross the transverse joint. Cut all tie wires or shipping support wires prior to concrete placement that would interfere with verification testing using Magnetic Tomography (MIT).
Securely anchor and construct dowel bar assemblies to firmly hold all the dowel bars at the specified depth and alignment. Remove spacer wires after the assemblies are staked in position.

Do not start paving until the approved assemblies are in place at least 60 m (200 ft) in advance of the paving. Stop paving at any time that approved assemblies are not in place at least 60 m (200 ft) in advance of the concrete placement operation. This requirement may be waived by the Engineer upon written request by the Contractor and approval by the Department, in areas where access is restricted, or other construction limitations are encountered.

Approval of the initial placement of basket assemblies shall not constitute acceptance of the final position of the dowel bars.

Consolidate the concrete around the dowel bars such that no voids exist. Do not supplement consolidation by the use of hand held vibrators.

Dowel bar location and verification for acceptance shall be determined by using Magnetic Tomography (MIT) on all dowel bars placed. Provide an MIT scanner and perform MIT scanning per the manufacturer's procedures.

Submit the data from the MIT scanner immediately thereafter for evaluation. The Department shall evaluate the MIT data, and if necessary, determine the appropriate liquidated damage and corrective action to be taken. The following Joint Scoring system will be used separately for both horizontal and vertical rotational misalignments:

$s = (n*w)+1$; If $n=0$, do not include in Total Joint Score (S)

$S = \sum s$

Where:

S = Total Joint Score
s = Joint score for each misalignment category
n = Number of bars in each misalignment category;
w = Weight Factor in each misalignment category

| Range of Misalignment, mm (in.) | Weight Factor |
|---|---|
| d = 0.0 – 10.0 (0.00 – 0.40) | 0 |
| d = 10.1 – 15.0 (0.41 – 0.60) | 1 |
| d = 15.1 – 20.0 (0.61 – 0.80) | 2 |
| d = 20.1 – 25.0 (0.81 – 1.00) | 4 |
| d = 25.1 – 38.0 (1.01 – 1.50) | 5 |
| d = 38.1 or greater (1.51 or greater) | 10 |

d = Deviation of Dowel Bar, mm (in.)

Joints having a score specified herein will result in a liquidated damage and a corrective action according to the following table. The greater of the two joint scores between the horizontal and vertical rotational misalignment shall govern.

| Joint Score | Liquidated Damages[1] | Corrective Action[2] |
|---|---|---|
| S = 5 or less | $0 | No action |
| S = 6 – 10 | $1000 | Cut non-conforming bar(s)[3] |
| S is greater than 10 | $2000 | Remove and replace joint[4] |

1 – The liquidated damage applies to each affected joint.
2 – The corrective action applies to each affected joint.
3 – Cutting of non-conforming bars will be at no cost to the Department.
4 – The removal and replacement of the joint will be by an approved method at no cost to the Department.

In addition, the removal and replacement of any joint will be required when there are fewer than two bars within a wheel path that meet the tolerances specified herein. A wheel path is defined as the first four feet from the edge of a lane line. The removal and replacement of the joint will be by an approved method at no cost to the Department. If there are a minimum of two bars within the wheel path that meet the tolerances specified herein, cut all remaining bars within the wheel path that do not meet the tolerances specified herein. The cutting of the non-conforming bars will be at no cost to the Department.

Unless otherwise specified, cut bars at any joint not meeting the tolerances specified herein. The cutting of the non-conforming bars will be at no cost to the Department.

If there is a dispute with the results provided by MIT scanning, perform coring at the location(s) of the bar(s) in question. The results obtained from the coring operation will supersede any results provided by MIT scanning.

Cores shall be a nominal 100 mm (4 in.) in diameter and one core shall be taken at each end of the dowel bar. Once measurements are complete, fill all core holes with an approved patching material.

Control the positioning of dowels in a manner such that dowels meet the specified tolerances. If at any time dowels are found to be installed improperly, the paving operations will be suspended and operations shall not begin until the Contractor has demonstrated to the Engineer that the problem which caused the improper dowel positioning has been corrected.

(b) Contact Joints. Contact joints are those made by placing fresh concrete against hardened concrete at planned locations.

Connect concrete on both sides of longitudinal contact joints with tie bars as shown on the plans.

Connect concrete on both sides of the transverse contact joints with dowel bars as shown on the plans.

When the plans require the construction of keyways, construct the grooved portion of the keyway as part of the pavement width being placed.

(c) Weakened Plane Joints. Space transverse weakened plane joints 4.5 m (15 ft) on center and perpendicular to centerline. Saw transverse weakened plane joints by cutting the pavement with a power driven saw.

Use early entry saws to cut all joints. Cut joints within 6 hours of concrete placement and without raveling, tearing, spalling, or any other damage to the newly placed concrete pavement. Determine the exact time to saw joints. Saw the transverse and longitudinal weakened plane joints to a width of 3 mm (1/8 inch) and to a depth of 1/5 of the planned pavement thickness. After the joint is sawed, clean the saw cut and adjacent concrete surface with a dry vacuum. Sealing of the transverse weakened plane joints constructed by the early entry sawing operation shall not be required.

Immediately revise any procedure used to saw joints which results in premature uncontrolled cracking. Repair damaged areas or random cracks as specified herein and as directed. Repair any spalled or chipped concrete along the joints as approved.

For plain jointed (non-doweled) concrete pavements do not saw where volunteer transverse cracks exist. If a volunteer transverse crack falls within 1.5 m (5 ft) of the location of a proposed sawed joint, omit the sawed joint. Joints sawed in violation of the provisions in this paragraph will not be paid for.

Repair portions of curing seal which are disturbed by sawing operations by spraying the areas with additional curing seal.

Keep a standby power saw on the project at all times when concrete paving operations are under way.

For plain jointed (non-doweled) concrete pavements, at approach slabs with skews of 20□ or less, place a transverse weakened plane joint 3.6-4.6 m (12-15 ft) from and parallel to the end of the approach slab. From this joint warp the subsequent transverse weakened plane joints to the angle shown in the plans. When warping joints, locate each joint not less than 3.6 m (12 ft) nor more than 4.6 m (15 ft) from the adjacent joints. Once the transverse weakened plane joints are warped to the angle shown in the plans, begin saw cutting them at the intervals shown in the plans.

For plain jointed (non-doweled) concrete pavements, approach slab skews greater than 20 degrees, make the transverse weakened plane joint saw cuts normal to the roadway alignment control line from the corner of each step and at 3.6 m (12 ft) increments as needed. Beyond the approach slabs, make 1 transverse weakened plane joint saw cut 3.6-4.6 m (12-15 ft) from the extreme end of the approach slab and normal to the roadway alignment control line. From this joint warp subsequent transverse weakened plane joints to the angle shown in the plans. When warping the transverse weakened plane joints, locate no joint less than 3.6 m (12 ft) nor more than 4.6 m (15 ft) from the adjacent joints. Once transverse weakened plane joints are warped to the angle shown in the plans, begin saw cutting them at the intervals shown in the plans.

(d) Repair Cracks, Spalls, Raveling, and Tearing as described below.

Repair plastic shrinkage cracks as hereinafter specified unless the cracking exceeds 60LnFt in any one slab, in which case remove and replace the slab. Repair all cracks by sealing/filling with a high molecular weight methacrylate or other approved crack sealant. Should the lineal footage of cracks fall between 12 m (40LnFt.) and 18 m (60LnFt), flood the entire affected slab/s.

Repair all spalls caused by the Contractors actions on new and existing concrete pavement. Submit repair products and procedures for approval.

Remove and replace all slabs that exhibit random cracking.

Remove and replace all slabs with raveling or tearing at the joints. Raveling or tearing is defined as dislodgement of cement paste and aggregate at the sawed joint.

**409.03.10 Finishing.**

(a) General. Texture the concrete pavement surface using a mechanical steel tine device as specified herein when pay item for "Grooving" is not included in the Contract.

Provide adequate lighting facilities if required for finishing operations.

At the start of each day's work, mark the edge of the new pavement, nearest the outside shoulder, at 15 m (50 ft) from the beginning joint, with an approved stamp. The stamp shall contain the Contractor's name, the month, day, and year the section is placed, and the Engineer's station at the beginning joint. Make the stamp approximately 300 mm x 600 mm (12 in. x 24 in.) in size.

In case fine cracks or hair checks appear in newly placed concrete before it is thoroughly set, apply water to the concrete surfacing, in the form of a fine fog mist until the finishing operations are completed and the curing is applied.

Apply the fog mist to the area between the finishing machine and the tining machine. If the combination of fogging and curing compound application are not, or will not be effective in preventing plastic shrinkage cracking, stop paving operations until environmental conditions improve substantially or until other preventative measures are approved in writing.

In lieu of the fogging machine, evaporation retarders listed in the QPL may be used. Apply retarder uniformly on the full width of pavement immediately after the oscillating screed. The material shall form a monomolecular film on the surface of the fresh plastic concrete to retard moisture evaporation. Apply retarder according to the manufacturer's recommendations. Under no circumstance shall evaporation retarders be used as an aid to finishing the surface of the concrete. Once the retarder has been applied, no further finishing of the concrete will be allowed.

In advance of curing operations, first texture the concrete pavement with a drag strip of burlap and then use a mechanical steel tine device to form grooves parallel to the centerline. Do not perform grooving too early, where by the grooves may close up. Make tines of rectangular cross section and of sufficient thickness and resilience to result in grooves spaced 19 mm (3/4 in.) on center, 2 mm to 3 mm (3/32 in. to 1/8 in.) wide and 3 mm to 5 mm (1/8 in. to 3/16 in.) deep in the finished concrete pavement.

Operate the tine machine at a speed that keeps up with the paving machine.

Leave a 25 mm (1 in.) gap between each tine strip to prevent overlapping of the tined surface which results in a weakened surface area.

Tine the pavement within 75 mm ( 3 in.), but no closer than 50 mm (2 in.) of the pavement edges.

Do not tine the surface adjacent to longitudinal weakened plane joints. The un-tined area no closer than 19 mm (3/4 in.) nor more than 50 mm (2 in.) from the centerline of the longitudinal weakened plane joint. Omit tining at this location for a total width of 38 mm (1 ½ in.) and no more than 100 mm (4 in.) uniformly throughout the Contract.

Maintain the tining device clean and free of encrusted mortar and debris to ensure uniform groove dimensions.

Do not tine pavement which has set, whereas the operation is lifting aggregate out of, or tearing, or causing excessive roughness to the pavement surface. In such case, groove the pavement, as directed, at own expense.

(b) Oscillating Screed Method. Provide free floating oscillating screed device attached to the slipform paver, behind the conforming pan, which is capable of performing final finishing on the concrete surface.

The machine shall have a lightweight aluminum float 300 mm (12 in.) wide and a minimum of 3.6 m (12 ft) long, which oscillates fore and aft in the direction of traffic. Provide float able to traverse the entire concrete slab from edge to edge.

Connect the float in such a way that it is driven (oscillated), yet it is free floating on the surface of the concrete.

Adjust and set the movements of the float according to concrete surface conditions and forward speed of the paver.

Hand finishing can only be allowed when mechanical finishing equipment breaks down (only for that concrete already deposited on the grade), and also for narrow or irregular areas or where use of mechanical equipment would be impractical. Insure that all floats are in good working condition. Discontinue use of any equipment that leaves ridges, indentations, or other objectionable marks in the surface. Additional water or evaporative aid on the pavement to aid in finishing is not permitted. Operate the floats to smooth and fill in the open textured surface areas (keep hand finishing to the minimum). Care must be taken not to overwork the concrete as this could result in a less durable surface.

(c) Final Finish. After the preliminary finishing has been completed, round the edges of an initial pavement lane to a 13 mm (1/2 in.) radius. Round transverse contact joints, expansion joints, and joints adjacent to an existing pavement to a 6 mm (1/4 in.) radius.

In advance of the curing operations, or as directed, texture the pavement with a drag strip of burlap or other device which will produce scoring parallel to the centerline. The burlap drag shall consist of one or more pieces of burlap fastened to a cross member riding on the subgrade or side forms by means of wheels or skids to form a continuous strip of burlap the full width of the pavement. Keep drags clean and free from encrusted mortar. Discard drags that cannot be cleaned and substitute new drags. Grind or score completed concrete pavement, which does not have a satisfactory skid resistant surface texture, by abrasive means to provide a satisfactory surface texture.

(d) Rumble Strips. Mill or grind the rumble strips to the dimensions shown in the plans. Use a milling or grinding machine that produces a reasonably smooth cut surface with 2 mm (1/16 in.) maximum differentials between peaks and valleys.

The alignment of the edge of the ground pattern will be randomly checked. Locate the inside edge of rumble strips 100 mm ± 50 mm (4 in. ± 2 in.) from the edge of shoulder striping. Re-cut any rumble strip which is misaligned.

Some of the shoulders designated for receiving the rumble strips may have widths of approximately 1.2 meters (4 ft) from the shoulder stripe to a vertical obstruction of concrete barrier rail or guardrail. There will be no additional compensation for any additional special milling or grinding machine necessary to install rumble strips at these locations.

Demonstrate on an initial 150 m (500 ft) test section that the equipment and method will provide the desired ground rumble strip and surface inside each depression without cracking or spalling the remaining concrete pavement. If the desired results are not being provided, provide new equipment, new method, or make necessary adjustments to provide the desired results. If the initial 150 m (500 ft) test section is unacceptable, repair the surface as directed, make necessary adjustments and retest.

Use a power broom or sweeper/vacuum to remove waste material resulting from the operation each day. Recover waste material and dispose according to Subsection 107.14.

Protect any adjacent permanent striping from damage. Replace any permanent striping damaged by the milling or brooming operations.

**409.03.11 Grooving.** Perform longitudinal grooving of the concrete pavement surface when payment item "Grooving" is included in the Contract.

Begin and end grooved areas at lines parallel to the pavement centerline and center the grooving within the lane width. If new concrete pavement is grooved, cover the full lane width in any lane with grooving. Begin the longitudinal grooving 50 mm (2 in.) from pavement edges, longitudinal weakened plane joints, and contact joints.

The grooving blade shall provide a groove 3.2 mm (1/8 in.) wide and be spaced 19 mm (3/4 in.) on centers. Groove the concrete pavement to a depth of 3.2 mm (1/8 in.).

If during the course of work a single grooving blade on any individual grooving machine becomes incapable of cutting a groove, work will be permitted to continue for the remainder of the work shift, and it will not be required to otherwise cut the groove omitted because of the failed blade. After the shift, repair or change the affected blade before continuing with the grooving.

Should 2 or more grooving blades on any individual grooving machine become incapable of cutting grooves, discontinue work with the affected grooving machine immediately. Repair or change the affected blades before continuing with the grooving work.

Be responsible for all damage to the new concrete pavement due to grooving equipment or operations. Repair or replace all damaged concrete pavement as directed.

Furnish a grooving plan describing the procedure to be used on maintaining grooving parallel to the centerline. Grooving patterns that wave back and forth will not be acceptable.

Recover residue from grooving operations by means of a vacuum attachment to the grooving machine. Do not allow residue to flow across the pavement nor be left on the surface of the pavement. Dispose of the grooving residue according to Subsection 107.14.

The main grooving blade mandrels must be a minimum length of 915 mm (3 feet). The only exception for smaller mandrels is for edge finishing and uneven pavements.

In the event, pavement is uneven and does not receive grooving, make a second pass with groover using a smaller mandrel.

**409.03.12 Riding Tolerances.** Produce finished pavement surfacing which conforms to the following surface tolerance requirements:

(a) Straightedge Measurement. The Engineer will perform this measurement. When a straightedge 3.6 m (12 ft) long is laid on the finished surface and parallel with the centerline of the highway, the surface shall not vary more than 3 mm (0.01 ft) from the lower edge of the straightedge. When a straightedge 3.6 m (12 ft) long is laid on the finished surface and at right angles with the centerline and extending from edge to edge of traffic lane, the surface shall not vary more than 3 mm (0.01 ft) from the lower edge of the straightedge. Use abrasive means to remove any points that are high in excess of the straightedge tolerances.

(b) Profilograph Measurement. Furnish and operate a profilograph, as specified in Subsection 402.03.03, at the time and date ordered.

Measure two profiles in each lane at 1 m (3 ft) from and parallel to the traffic lane lines.

Measure profiles for the entire length of each traffic lane. The average of the two profiles per lane will be used to calculate the profile index.

Pavement within 10 m (30 ft) of a bridge deck or approach slab shall meet the profile requirements set forth in Subsection 502.03.16.

Complete initial runs of the profilograph before opening the new pavement to public traffic whenever practical. Submit the profile graphs immediately thereafter for evaluation. A profile index will be calculated for each 0.1 km (0.1 mi) of traffic lane measured according to Test Method No. Nev. T446. Only flagging costs for traffic control required for the initial running of the profilograph will be paid for according to Section 624.

The finished surface shall have a profile index of 80 mm/km (5 in./mi) or less, and not more than 8 mm/0.1 km (0.5 in./0.1 mi), as measured and calculated according to Test Method No. Nev. T446. Should the profile index exceed the allowable indexes, discontinue the paving operations until other means and equipment are proposed for trial and are approved.

Grind areas exceeding the profile index requirements and areas representing high points on the profiles having deviations in excess of 7.5 mm (0.3 in.) as measured according to Test Method No. Nev. T446. Re-measure ground areas for conformance with the profile index and for high points in excess of 7.5 mm (0.3 in.).

Perform additional grinding as necessary to extend the ground area laterally to the nearest lane line or edge of pavement and longitudinally to lines normal to the pavement centerline.

Use grinding machines that are power driven, self-propelled and specifically designed to remove, profile, smooth, and texture concrete pavement. The grinding machine shall have a wheel base of, at least, 3.6 m (12 ft.), equipped with a rotating powered mandrel drum with diamond grinding blades of the appropriate bond hardness and a cutting head of, at least, 0.9 m (3 ft.) wide. The grinding machine shall provide a surface with a parallel corduroy-type texture consisting of grooves between 2.3 mm (0.10 in.) and 3.3 mm (0.13 in.) wide. The land area shall be 2.0 mm (0.08 in.) wide and 1.5 mm (0.06 in.) higher than the bottoms of the grooves. There shall be between 170 and 190 grooves per meter (52 and 62 grooves per foot). Equip the grinding machine with an effective means of controlling dust and other particulate matter.

Do not cause strain or damage to the underlying surface of the pavement with the grinding machine. Do not use grinding and texturing equipment that causes ravels, aggregate fractures, spalls, or disturbance of joints.

Perform grinding in a longitudinal direction. Satisfactorily grind to produce a uniform textured surface over the surface areas designated for grinding.

Re-groove any ground areas as directed to meet the requirements of Subsection 409.03.11.

Pick up and dispose of materials produced from grinding and grooving, including water used for their operations, outside the right of way according to Subsection 107.14.

**409.03.13 Curing.**

(a) General. Cure Portland cement concrete pavement for 72 hours by either method specified in this Subsection, subject to the conditions set forth in Subsection 501.03.09 (a). In case of low temperatures, increase the curing period according to the provisions of Subsection 501.03.10 (b).

(b) Curing Compound Method. Except as modified herein, cure by use of curing compound as listed in the Qualified Products List (QPL) 702.03.01d. Do not apply the curing compound until all patching and surface finishing, except grinding, has been completed. When directed during periods of hot weather, continue fogging of the concrete with water after curing compound is applied until it is no longer required. Such fogging after the application of the curing compound will be paid for as extra work as provided in Subsection 104.03.

Cure Portland cement concrete pavement with a white pigmented curing compound applied in 2 approximately equal applications. Apply the second application in the opposite longitudinal direction as the first and within 30 minutes after the first application. Uniformly spray surfaces of the concrete pavement which are exposed to the air so as to obtain total coverage of the concrete surfaces. The rate of each application of white pigmented curing compound-wax base at any point, shall be 0.30 ± 0.10 L/m$^2$ (1 gal/150 ft$^2$ ± 50 ft$^2$), and the average rate of each application shall be 0.30 ± 0.05 L/m$^2$ (1 gal/150 ft$^2$ ± 25 ft$^2$). Equip power operated spraying equipment for application of curing compound with an operational pressure gage and means of controlling the pressure.

Apply the compound immediately after the moisture sheen begins to disappear from the surface, but before any drying shrinkage or craze cracks begin to appear. In the event of any delay in the application of curing compound, immediately apply an evaporation retarder as listed on the QPL section 409.03.10 or continuously fog with an atomizing nozzle as specified in Subsection 501.03.09 (b), and continue until the application of the compound. Immediately repair any damaged portions of the compound film with additional compound before the expiration of 72 hours after the concrete is placed.

After the completion of the curing period, remove the wax-based curing compound from the pavement surface by sand blasting in those areas intended to receive permanent pavement marking.

(c) Waterproof Membrane Method. Cure by use of waterproof membrane material as specified in Subsection 501.03.09 (d).

**409.03.14 Protection of Pavement.** Do not place concrete on frozen ground, or when snow or ponded water is on the surface. Do not mix or place concrete while the atmospheric temperature is below 2° C (35° F), unless adequate means are employed to heat the aggregates and water, and satisfactory provisions made for protecting the work.

Stop placing concrete before the quantity of rainfall is sufficient to cause a flow or wash the surface or as directed by the Engineer.

Replace concrete which has been damaged, upon written notice from the Engineer.

Protect concrete from freezing or frost for a period of 5 days after placing. Do not allow the temperature of the surface of the concrete to drop below 4 °C (40 °F) for this period of 5 days.

Unless directed do not permit traffic or equipment on the pavement before a period of 10 days after the concrete has been placed, nor before the concrete has developed a modulus of rupture of at least 4.48 MPa (650 psi), as determined by Test Method No. Nev. T442.

Motor graders used to shape the shoulder material adjacent to the new pavement may be permitted to ride upon 1 edge of the previously placed concrete at the end of 72 hours, provided that no damage is done on the pavement edge by reason of such operation. Repair any damage to the pavement resulting from such operations.

Request in writing to place the tracks of the paving equipment on the pavement after a period of 3 days after the concrete was placed, and the concrete has developed a modulus of rupture of at least 3.4 MPa (490 psi). Do not locate any part of the track closer than 300 mm (12 in.) from the edge of

pavement. Do not exert more than 138 kPa (20 psi) pressure on the pavement by the paver track. In case of visible cracking of, or other damage to the pavement, immediately discontinue operation of the paving equipment on the pavement and repair or replace any damaged pavement at the discretion of the Engineer.

**409.03.15 Fast Track Paving.** A high early concrete mix design may be submitted for approval. The use of special high early mixes or accelerating admixtures will be considered for approval in selected areas or throughout the project only with prior approval of the Department. A written request must accompany the mix design showing the selection of the Fast Track Paving option that must include the areas and limits of intended use. All material, construction, and test requirements of this Section remain effective.

If the Fast Track Paving option is approved by the Department, the sixth paragraph of Subsection 409.03.13 shall not apply. However do not permit traffic or equipment, except for motor graders and paving equipment as allowed by Subsection 409.03.13, on the pavement until the following minimum compressive strength conditions are met:

**P.C.C.P. LOADING**

| Concrete Depth mm (in.) | Light Duty Equipment MPa (psi) | Public Traffic MPa (psi) |
|---|---|---|
| 200 (8) | 24 (3,500)* | 28 (4,000)* & 4.5 (650)** |
| 225 (9) | 21 (3,000)* | 24 (3,500)* & 4.5 (650)** |
| 250 (10) | 17 (2,500)* | 21 (3,000)* & 4.5 (650)** |
| 275 (11) | 14 (2,000)* | 17 (2,500)* |
| 300 (12) | 10 (1,500)* | 14 (2,000)* |
| 325 (13)+ | 10 (1,500)* | 14 (2,000)* |

* compressive strength determined by ASTM C39 (field cured sample)

** modulus of rupture determined by Test Method No. Nev. T442

Light Duty Equipment is defined as vehicles with a Gross Vehicle Weight Rating (GVWR) of 11,800 kg (26,000 lb) or less and tire pressure not to exceed 590 kPa (85 psi). Concrete, gravel, or borrow hauling operations are not permitted under this category.

Public Traffic is defined as public traffic or construction equipment up to the legal highway load limit. Construction loads exceeding the legal highway limit are not permitted to travel or cross without permission.

Repair any damage caused to the concrete by the equipment, such as chipping, cracking, or corner breaking.

METHOD OF MEASUREMENT

**409.04.01 MEASUREMENT**

Measurement for payment of Portland Cement Concrete Pavement (11-inches) will be the number of square yards complete and in place.

No measurement or separate payment will be made for performed joint filler, joint sealer, dowel bars, tie bars and saw cuts.

**409.04.02 Pavement Thickness**

Construct concrete pavement according to the thickness requirements of the plans and specifications. Do not construe the tolerances allowed for subgrade construction and other specification provisions which may affect thickness to modify such thickness requirements.

The thickness of the pavement will be determined according to ASTM C174.

The primary unit of pavement will be the area of pavement placed in each day's paving operations. Within each primary unit of pavement, there may be an area or areas which have been determined to be a secondary unit or units of pavement, as provided in Subsection 409.04.02 (b). In such case, the primary unit area will be reduced by the secondary unit area included therein.

After requirements of Subsection 409.03.14 have been met, thickness measurements will be made in each primary unit of pavement at the rate of not less than one measurement for each 300 m (1,000 ft), or fraction thereof, of pavement placed in each traffic lane, auxiliary lane or shoulder. The exact location and number of thickness measurements within each primary unit, both longitudinally and transversely, will be determined. Thickness measurements will be made at approximately uniform intervals throughout each primary unit of pavement.

If required, secondary thickness measurements will be made as provided in Subsection 409.04.02 (b).

Pavement thickness variation, if any, from the thickness requirements of the plans and specifications will be determined. Such variation will be determined as either excess or deficient thickness.

(a) Thickness Deficiency of Not More Than 15 mm (0.6 in.). If the thickness measurements in a primary unit are deficient in thickness by not more than 15 mm (0.6 in.), thickness variations in such unit will be averaged, algebraically, to determine the average thickness deficiency, if any, in said primary unit. For the purpose of determining the average thickness deficiency, an excess thickness variation of more than 5 mm (0.2 in.) greater than the thickness specified will be considered to be 5 mm (0.2 in.) greater than the specified thickness.

For each primary unit of pavement which is deficient in average thickness, pay to the Department as liquidated damages, or at the Department's option, have deducted from any money due, or to become due from the Department, an amount set forth in the following schedule:

| Average Thickness Deficiency mm (in.) | Liquidated Damages % of bid price |
|---|---|
| 0.0-5.0 (0.0-0.20) | 0 |
| 5.1-7.5 (0.21-0.30) | 10 |
| 7.6-10.0 (0.31-0.40) | 15 |
| 10.1-12.5 (0.41-0.50) | 25 |
| 12.6-15.0 (0.51-0.60) | 30 |

(b) Thickness Deficiency of More Than 15 mm (0.6 in.). If the thickness measurement made in a primary unit is deficient in thickness by more than 15 mm (0.6 in.), secondary thickness measurements and dimensions of the secondary unit area where the apparent thickness deficiency is more than 15 mm (0.6 in.) will be determined. The determination of the limits of said secondary unit area will be made by making secondary thickness measurements in each panel of pavement adjacent to the panel in which the original measurement in the primary unit was made. This procedure will continue, regardless of unit

boundaries, until such secondary unit area is bounded by panels in which the secondary measurement is deficient in thickness by 15 mm (0.6 in.) or less.

Panels are the areas bounded by longitudinal and transverse joints and pavement edges.

After eliminating the secondary unit area, or areas, and the thickness measurements therein from consideration, the average thickness deficiency, if any, of the remainder of primary unit areas will be determined as provided in Subsection 409.04.02 (a). Secondary thickness measurements made outside of a secondary unit area may be used to determine average thickness deficiency, if any, in the remaining primary unit area in which they are taken.

Each panel in which secondary thickness measurements are made will be deemed to be of the thickness shown by such measurement.

After determining the limits of the secondary unit area, determination will be made of which panels, within such area, if any, will be required to be removed and replaced according to procedure 1, below, and the panels, if any, which will remain in place according to procedure 2, below.

1. Remove and replace the concrete pavement in such panels with concrete pavement meeting the thickness and all other requirements of the contract documents. If the area to be removed is not bounded by longitudinal or transverse joints, saw and seal weakened plane joints at the designated locations. Lower subgrade as necessary to meet the full thickness requirements.

2. Leave such panels of pavement in place without payment.

The cost of secondary thickness measurements made by the provisions in this Subsection, including filling of any necessary holes with concrete, will be deducted from any money due, or that may become due, under the contract.

No additional compensation or extension of time will be granted due to any of the provisions in this Subsection.

No additional compensation will be allowed for any pavement constructed in excess of the thickness requirements of the contract documents.

Additional thickness measurements may be requested in secondary unit areas if the numbers are insufficient to fairly indicate the actual thickness of pavement placed. Such additional measurements will be used in determining the average thickness variation. The location of all such additional thickness measurements will be as determined. The cost of all such additional measurements made, including filling of any necessary holes with concrete, will be deducted from any money due, or that may become due, under the contract.

**409.04.03 Compressive Strength**

If concrete placed is shown by test to be below the specified 28 day compressive strength, a determination will be made as to whether the concrete shall be removed and replaced or allowed to remain in place. If after review, the concrete is allowed to remain in place, liquidated damages will be determined according to Subsection 502.04.01.

Price adjustments for strength and thickness will be determined separately.

## BASIS OF PAYMENT

### 409.05.01 PAYMENT

The accepted quantities of Portland Cement Concrete Pavement (11-inches) will be paid for at the contract unit price bid per square yard. This price shall be full compensation for furnishing all materials including Portland Cement and water, mixing, hauling, placing, finishing, forming, saw cutting, joint filler, joint sealer, tie bars, dowel bars, curing materials and for all labor, tools, equipment and incidentals required to complete the work as shown on the drawing, as specified herein, and as required by the engineer.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Portland Cement Concrete Pavement (11-inches) | Square Yard |

**SECTION 496 POLYMER CONCRETE**
Add the following to the header (top left corner) of the specification pages 496-1 through 496-4.

SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS-496

**SECTION 497 THIN BONDED MULTILAYER OVERLAY**
SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS-497

Add the following to the header (top left corner) of the specification pages 497-1 through 497-2

**SECTION 503 PRECAST PRESTRESSED CONCRETE MEMBERS**

Add the following to the header (top left corner) of the specification pages 503-1 through 503-10:

SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS – 503

**SECTION 701 PORTLAND CEMENT**

Add the following to the header (top left corner) of the specification pages 701-1 through 702-2:

SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS – 701

**SECTION 702 CONCRETE CURING MATERIALS AND ADMIXTURES**

Add the following to the header (top left corner) of the specification pages 702-1 through 702-2:

SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS – 702

**SECTION 706 AGGREGATE**

Add the following to the header (top left corner) of the specification pages 706-4 through 706-4:

SUPPLEMENT TO THE NDOT STANDARD SPECIFICATIONS - 706

**DRAWINGS**

**The following drawings have been modified.**

Drawing Q-1 Estimate of Quantities

Add following to the ESTIMATE OF QUANTITIES

| ITEM NUMBER | TOTAL QUANTITY | UNIT | DESCRIPTION |
|---|---|---|---|
| 104.00 | 1 | LS | CC215 Median Crossover Pavement |

Drawing B-102 General Notes and Quantities

Revise following to the ESTIMATED BRIDGE QUANTITIES

| SPECIFICATION | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| 502 | CLASS B CONCRETE, (MODIFIED) (MAJOR), f'c = 4,500 psi | CY | 1,220 |
| 502 | CLASS E CONCRETE, (MODIFIED) (MAJOR), f'c = 4,500 psi | CY | 1,220 |

Except as modified herein all other bid specifications, terms, conditions and special provisions shall remain the same.

ISSUED BY:

THOMAS BOLDT, C.P.M.
Senior Purchasing Analyst

Attachment(s): Revised Bid Form, pages 4-2 through 4-5
Exhibits 1, 2 and 3

Cc: Ray Kilmer Jr., P.E., Public Works
Joe Yatson, P.E., Public Works
Mike Mamer, Public Works
Cindy Beauchamp, Public Works
Kaushal Shah, P.E., S.E., Louis Berger Group, Inc.
Syndi J. Dudley, PhD, P.E., Louis Berger Group, Inc.

# CLARK COUNTY, NEVADA

# BID FORM

**BID NO. 603188-13**
**CC-215, FORT APACHE ROAD BRIDGE/DURANGO DRIVE BRIDGE**
**PWP NUMBER: CL-2014-107**
**REVISED PER ADDENDUM NO. 4**

_____
(NAME)

_____
(ADDRESS)

**I, THE UNDERSIGNED BIDDER:**

1. Agree, if awarded this Contract, I will complete all work for which a Contract may be awarded and to furnish any and all labor, equipment, materials, transportation, and other facilities required for the services as set forth in the Bidding and Contract Documents.

2. Have examined the Contract Documents and the site(s) for the proposed work and satisfied themselves as to the character, quality of work to be performed, materials to be furnished and as to the requirements of the specifications.

3. Have completed all information in the blanks provided and have submitted the following within this Bid:

   a) Have listed the name of each Subcontractor which will be paid an amount exceeding five percent (5%) of the Total Base Bid amount.

   b) Attached a bid security (in the form of, at my option, a Cashiers Check, Certified Check, Money Order, or Bid Bond in favor of the Owner in the amount of five percent (5%) of the Total Base Bid amount.

4. I acknowledge that if I am one of the three apparent low bidders at the bid opening, and if I have listed Subcontractor(s) pursuant to NRS 338.141, I must submit Bid Attachment 2 within two-hours after completion of the bid opening pursuant to the Instructions to Bidders, forms must be submitted via hand delivery or email to COUNTYPURCHASING@CLARKCOUNTYNV.GOV and I understand that hand delivery is recommended, and Owner shall not be responsible for lists received after the two-hour time limit, regardless of the reason. I understand that submission after the two-hour time limit is not allowed and will be returned to me and the bid will be deemed non-responsive. I acknowledge that for:

   a) Projects **EXCEEDING** $5,000,000

      I need to list only Subcontractors that will provide labor/improvements exceeding one percent (1%) of the Prime Contractor's total base bid amount, or $50,000.00, whichever is greater.

5. I acknowledge that if I am one of the three apparent low bidders at bid opening, and if I have submitted a valid Certificate of Eligibility as described in 3.d above, I must submit Bid Attachment 3, Affidavit pertaining to preference eligibility, within two-hours after completion of the bid opening pursuant to the General Conditions. The forms must be submitted via hand delivery or email to COUNTYPURCHASING@CLARKCOUNTYNV.GOV and I understand hand delivery is recommended. Owner shall not be responsible for lists received after the two-hour time limit, regardless of the reason. I understand that submission after the two-hour time limit is not allowed and will be returned to me and the bid will be deemed non-responsive.

6. I acknowledge that if notified that I am the low bidder, I must submit the Disclosure of Ownership/Principals form within 24-hours of request.

7. I acknowledge that my bid is based on the current State of Nevada prevailing wages.

8. I acknowledge that I have not breached a public work contract for which the cost exceeds $25,000,000, within the preceding year, for failing to comply with NRS 338.147 and the requirements of a contract in which I have submitted within 2 hours of the bid opening an Affidavit pertaining to preference eligibility.

9. Upon faxed or mailed receipt of a Notice of Intent to Award the Contract, I will provide the following submittals within seven business days from receipt of the Notice:

   a) Performance Bond, Labor and Material Payment Bond and a Guaranty Bond, for 100% of the Contract amount as required.

b) Certificates of insurance for Commercial General Liability in the amount of $1,000,000, Automobile Liability in the amount of $1,000,000, and Workers' Compensation insurance issued by an insurer qualified to underwrite Workers' Compensation insurance in the State of Nevada, as required by law.

10. I acknowledge that if I do not provide the above submittals on or before the seventh business day after receipt of the Notice of Intent to Award; or do not keep the bonds or insurance policies in effect, or allow them to lapse during the performance of the Contract; I will pay over to the Owner the amount of **$2,000** per day as liquidated damages.

11. I confirm this bid is genuine and is not a sham or collusive, or made in the interest of, or on behalf of any person not herein named, nor that the Bidder in any manner sought to secure for themselves an advantage over any bidders.

12. I further propose and agree that if my bid is accepted, I will commence to perform the work called for by the contract documents on the date specified in the Notice to Proceed and I will complete all work within the calendar days **specified in the General Conditions.**

13. I further propose and agree that I will accept as full compensation for the work to be performed the price written in the Bid Schedule below.

14. I have carefully checked the figures below and the Owner will not be responsible for any error or omissions in the preparation or submission of this Bid.

15. I agree no verbal agreement or conversation with an officer, agent or employee of the owner, either before or after the execution of the contract, shall affect or modify any of the terms or obligations of this Bid.

16. I am responsible to ascertain the number of addenda issued, and I hereby acknowledge receipt of the following addenda:

Addendum No. _____ dated, _____ Addendum No. _____ dated, _____

Addendum No. _____ dated, _____ Addendum No. _____ dated, _____

Addendum No. _____ dated, _____ Addendum No. _____ dated, _____

17. I agree to perform all work described in the drawings, specifications, and other documents for the amounts quoted below:

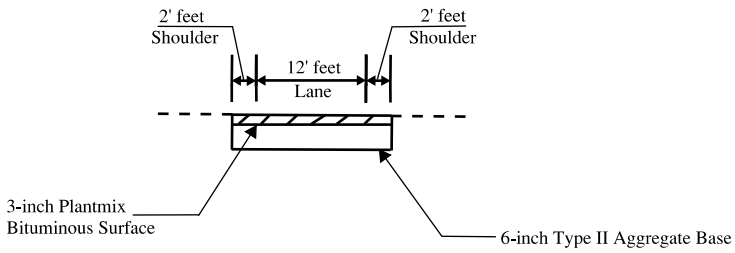
| BID SCHEDULE | | | | |
|---|---|---|---|---|
| **ITEM NUMBER** | **ITEM DESCRIPTION** | **APPROX. QUANTITY** | **UNIT** | **TOTAL** |
| **104.00** | **CC-215 MEDIAN CROSSOVER PAVEMENT** | **1** | **LS** | |
| 107.00 | TRAFFIC CONTROL (F) | 365 | Calendar Days (F) | $ |
| 109.01 | CONSTRUCTION CONFLICTS AND ADDITIONAL WORK | 1 | LS | $200,000.00 |
| 109.02 | HISTORICAL OWNER CAUSED DELAY ALLOWANCE | 15 | Day | $7,500.00 |
| 109.03 | ADDITIONAL AMOUNT OVER $500/DAY AS DETERMINED BY BIDDER | 15 | Day | $ |
| 109.00 | TRAINING | 6000 | HOUR | $8,400.00 |
| 200.01 | MOBILIZATION | 1 | LS | $ |
| 201.01 | CLEARING AND GRUBBING | 3 | AC | $ |
| 202.01 | 1-INCH COLD PLANING | 4143 | SY | $ |
| 202.02 | REMOVE CONCRETE CURB AND GUTTER | 87 | LF | $ |

| BID SCHEDULE | | | | |
|---|---|---|---|---|
| ITEM NUMBER | ITEM DESCRIPTION | APPROX. QUANTITY | UNIT | TOTAL |
| 202.03 | REMOVE CONCRETE CURB | 431 | LF | $ |
| 202.04 | REMOVE CONCRETE SIDEWALK | 119 | SF | $ |
| 202.05 | REMOVE CHAIN-LINK FENCE | **1443** | LF | $ |
| 202.06 | REMOVE BITUMINOUS PAVEMENT | 66 | CY | $ |
| 202.07 | REMOVE CONCRETE MEDIAN BARRIER RAIL | 51 | LF | $ |
| 202.08 | REMOVE COMPOSITE SURFACE | 26 | CY | $ |
| 202.09 | REMOVE AND SALVAGE LIGHT POLE | 1 | EA | $ |
| 202.10 | REMOVE PAVEMENT MARKINGS | 932 | SF | $ |
| 202.11 | REMOVE MEDIAN ISLAND | 1936 | SF | $ |
| 203.01 | ROADWAY EXCAVATION | **15171** | CY | $ |
| 203.03 | SELECT BORROW EMBANKMENT | 3476 | CY | $ |
| 211.01 | GRAVEL MULCH (6-INCH) | **9640** | SY | $ |
| 211.02 | ROCK MULCH (4-INCH) | 703 | SY | $ |
| 212.01 | LANDSCAPE RESTORATION | 1 | LS | $ |
| 213.01 | 6-INCH PVC PIPE (IRRIGATION SLEEVE) | 220 | LF | $ |
| 302.01 | TYPE II AGGREGATE BASE | 4227 | CY | $ |
| 402.01 | PLANTMIX BITUMINOUS SURFACE | 1644 | CY | $ |
| 409.01 | PORTLAND CEMENT CONCRETE PAVEMENT (11-INCHES) | 8471 | SY | $ |
| 413.01 | UTACS BONDED WITH A PMM (1-INCH) | 12206 | SY | $ |
| 502.01 | CONCRETE BARRIER RAIL (TYPE A) | 2125 | LF | $ |
| 502.02 | CONCRETE BARRIER RAIL (TYPE B) | 178 | LF | $ |
| 502.03 | PORTABLE PRECAST CONCRETE BARRIER RAIL | 250 | LF | $ |
| 502.04 | NO. H-2483 (NORTH FORT APACHE ROAD BRIDGE) | 1 | LS | $ |
| 502.05 | NO. I-2484S (CC215 OVER DURANGO DRIVE) | 1 | LS | $ |
| 502.06 | BRIDGE PIER BARRIER RAIL TAPER (DURANGO DRIVE) | 2 | EA | $ |
| 502.07 | CONCRETE APRON | 2 | EA | $ |
| 502.08 | CONCRETE ISLAND PAVING (4-INCH) | 46 | SY | $ |
| 502.09 | CONCRETE RETAINING WALL | 268 | SF | $ |
| 502.10 | SPECIAL SIDEWALK 1 | 44 | LF | $ |
| 502.11 | SPECIAL SIDEWALK 2 | 19 | LF | $ |
| 506.01 | PEDESTRIAN RAIL (TYPE R) | 19 | LF | $ |
| 603.01 | 18-INCH REINFORCED CONCRETE PIPE (CLASS III) | 75 | LF | $ |
| 603.02 | 24-INCH REINFORCED CONCRETE PIPE (CLASS III) | 65 | LF | $ |
| 604.01 | 12-INCH CORRUGATED METAL SLOTTED PIPE | 40 | LF | $ |
| 604.02 | 18-INCH METAL END SECTION | 1 | EA | $ |
| 604.03 | 24-INCH METAL END SECTION | 1 | EA | $ |
| 608.01 | 18-INCH DOWNDRAIN PIPE | 33 | LF | $ |
| 608.02 | ANCHOR ASSEMBLY | 7 | EA | $ |
| 608.03 | 24-INCH DOWN DRAIN PIPE | 56 | LF | $ |

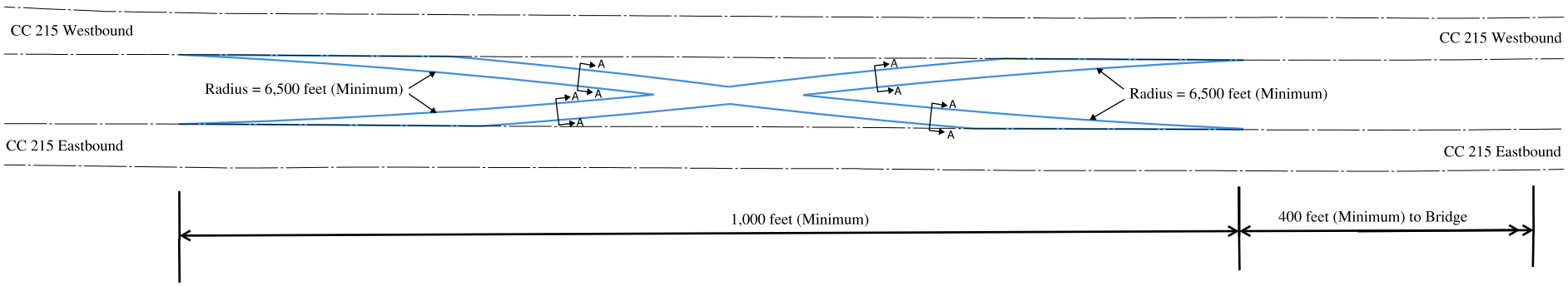
| BID SCHEDULE | | | | |
|---|---|---|---|---|
| ITEM NUMBER | ITEM DESCRIPTION | APPROX. QUANTITY | UNIT | TOTAL |
| 609.01 | ADJUST MANHOLE GRADE RING | 5 | EA | $ |
| 609.02 | TYPE "DM" DROP INLET (L=12.5 FEET) | 1 | EA | $ |
| 609.03 | NDOT TYPE 2 DROP INLET | 3 | EA | $ |
| 609.04 | NDOT TYPE 2A DROP INLET | 1 | EA | $ |
| 610.01 | RIPRAP, CLASS 150 | 6 | CY | $ |
| 613.01 | TYPE L CURB AND GUTTER | 1350 | LF | $ |
| 613.02 | CONCRETE SIDEWALK (4-INCH) | 6383 | SF | $ |
| 613.03 | COMMERCIAL DRIVEWAY (OPTION A) | 150 | SF | $ |
| 613.04 | TACK ON MEDIAN ISLAND | 302 | SF | $ |
| 613.05 | TYPE A CURB | 846 | LF | $ |
| 613.06 | CAST-IN-PLACE DETECTABLE WARNING PANEL | 10 | SF | $ |
| 613.07 | CONCRETE GLUE DOWN CURB (NDOT TYPE B) | 142 | LF | $ |
| 613.08 | NDOT TYPE 3 CURB | 146 | LF | $ |
| 613.09 | CONCRETE SIDEWALK (6-INCH) | 2011 | SF | $ |
| 616.01 | 72-INCH CHAIN-LINK FENCE | 2104 | LF | $ |
| 616.02 | 24 FEET WIDE DOUBLE SWING CHAIN-LINK GATE | 2 | EA | $ |
| 618.01 | GALVANIZED GUARDRAIL (TRIPLE CORRUGATION) | 63 | LF | $ |
| 618.02 | GUARDRAIL-BARRIER RAIL CONNECTION | 2 | EA | $ |
| 618.03 | GUARDRAIL TERMINAL (TANGENTIAL) | 2 | EA | $ |
| 619.01 | MARKER POSTS (K-71) | 1 | EA | $ |
| 623.01 | 200 AMP SERVICE PEDESTAL | 1 | EA | $ |
| 623.02 | MODIFY SERVICE PEDESTAL | **2** | EA | $ |
| 623.03 | 250-WATT HPS STREET LIGHT ASSEMBLY | **5** | EA | $ |
| 623.04 | 160-WATT LED STREET LIGHT ASSEMBLY (TOWN CENTER STANDARD) | **5** | EA | $ |
| 623.05 | 250-WATT HPS STREET LIGHT ASSEMBLY (BRIDGE MOUNTED) | 6 | EA | $ |
| 623.06 | 70-WATT UNDERPASS LIGHT ASSEMBLY | 18 | EA | $ |
| 623.07 | P30 PULL BOX (ITS) | 9 | EA | $ |
| 623.08 | 3-INCH CONDUIT (ITS) | 1400 | LF | $ |
| 623.09 | 4-INCH CONDUIT (ITS) | 2550 | LF | $ |
| 623.10 | 6 PAIR PE-39 #22 AWG INTERCONNECT CABLE | 3950 | LF | $ |
| 623.11 | PULLBOX (TYPE 200) | 4 | EA | $ |
| 623.12 | 3-INCH PVC (DB100) CONDUIT | 900 | LF | $ |
| 623.13 | 4-INCH PVC (DB100) CONDUIT | 1800 | LF | $ |
| 627.01 | REMOVE AND SALVAGE TRAFFIC SIGN, PANEL ONLY | 4 | EA | $ |
| 627.02 | REMOVE AND SALVAGE SIGN AND POST | 24 | EA | $ |
| 627.03 | PERMANENT SIGNS (GROUND MOUNTED)(METAL SUPPORTS) | 89 | SF | $ |
| 627.04 | PERMANENT SIGN PANELS (PANELS ONLY) | 91 | SF | $ |
| 627.05 | PERMANENT SIGNS (GROUND MOUNTED)(BARRICADES) | 4 | EA | $ |
| 628.01 | REFLECTIVE PAINT, ISLANDS AND CURBS | 692 | SF | $ |

| BID SCHEDULE | | | | |
|---|---|---|---|---|
| ITEM NUMBER | ITEM DESCRIPTION | APPROX. QUANTITY | UNIT | TOTAL |
| 628.02 | TYPE 2 PAVEMENT MARKINGS (CROSSWALKS AND STOP BARS) | 336 | SF | $ |
| 628.03 | TYPE 2 PAVEMENT MARKINGS (ARROW) | 9 | EA | $ |
| 628.04 | TYPE 2 PAVEMENT MARKINGS (ONLY) | 1 | EA | $ |
| 628.05 | TYPE 2 PAVEMENT MARKINGS (BUSES) | 1 | EA | $ |
| 628.06 | TYPE 2 PAVEMENT MARKINGS (BIKE LANE MARKINGS) | 5 | EA | $ |
| 628.07 | TYPE 1 PAVEMENT MARKINGS (6-INCH SOLID WHITE) (POLYUREA) | 5673 | LF | $ |
| 629.01 | ADJUST WATER VALVE BOX | 6 | EA | $ |
| 629.02 | ADJUST TEST STATION | 1 | EA | $ |
| 629.03 | ADJUST WATER MANHOLE COVER | 1 | EA | $ |
| 629.04 | ADJUST 6" MANUAL BLOW-OFF ASSEMBLY | 1 | EA | $ |
| 629.05 | ADJUST MANUAL AIR RELEASE ASSEMBLY | 1 | EA | $ |
| 629.06 | ADJUST AVAR ASSEMBLY | 1 | EA | $ |
| 631.01 | STREET NAME SIGN | 8 | EA | $ |
| 633.01 | NON-REFLECTIVE PAVEMENT MARKERS | 1174 | EA | $ |
| 633.02 | REFLECTIVE PAVEMENT MARKERS | 451 | EA | $ |
| 637.01 | DUST CONTROL (F) | **365** | Calendar Days (F) | $ |
| 637.02 | STORM WATER POLLUTION CONTROL (F) | **365** | Calendar Days (F) | $ |
| 637.03 | PRE-EMERGENT HERBICIDE | **2.64** | ACRE | $ |
| 637.04 | DUST PALLIATIVE | **2.42** | ACRE | $ |
| 641.01 | IMPACT ATTENUATOR (50 MPH) | 2 | EA | $ |
| 641.02 | IMPACT ATTENUATOR (70 MPH) | 1 | EA | $ |
| | | | **TOTAL BASE BID** | $ |

CC 215 Bruce Woodbury Beltway
N Fort Apache Bridge and N Durango Bridge Project




**SECTION A-A**
**N.T.S**



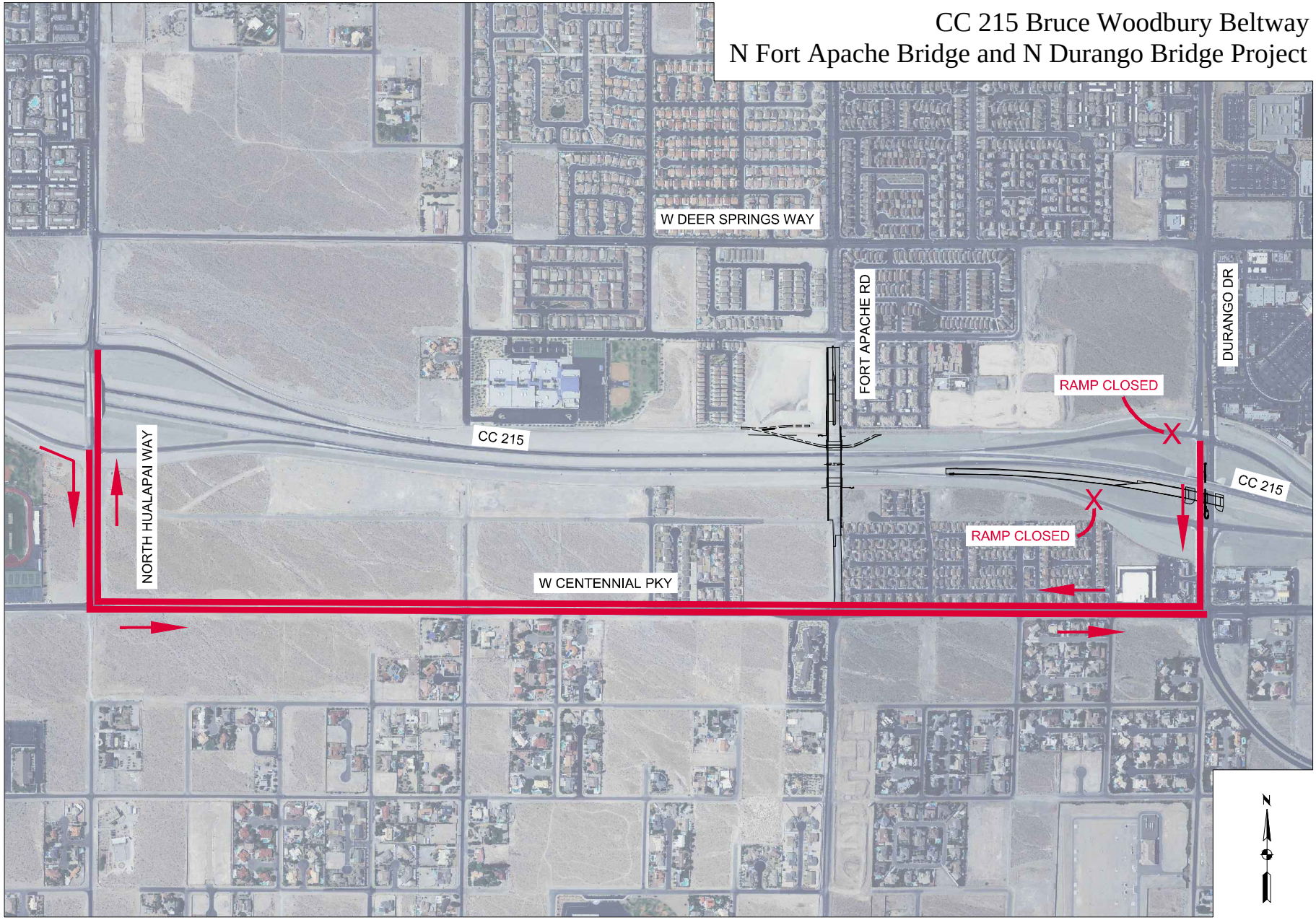

# EXHIBIT - 1

## Median Crossover - Schematic Layout

(For Information Purpose Only)

02-10-2014

CC 215 Bruce Woodbury Beltway
N Fort Apache Bridge and N Durango Bridge Project




# EXHIBIT - 2

CC-215 Detour - Schematic Layout

(For Information Purpose Only)

02/10/14

PLOT DATE: Monday, February 10, 2014 4:37:52 PM Bush, Adam
FILE NAME: P:\CPM\CS\1066-APACHE-DURANGO\DRAWINGS\EXHIBITS\2014\0210-DETOUR\DS\1066_DETOUR PLAN-EXHIBIT 02.DWG

# CC 215 Bruce Woodbury Beltway
## N Fort Apache Bridge and N Durango Bridge Project

# EXHIBIT - 3

Durango Drive Detour - Schematic Layout

(For Information Purpose Only)

02/10/14

PLOT DATE: Monday, February 10, 2014 4:44:15 PM Bush, Adam
FILE NAME: P:\CCPW\CS\1666-APACHE-DURANGO\EXHIBITS\20140210-DETOUR\1666_DETOUR PLAN-EXHIBIT 03.DWG