RESOLUTION REJECTING BIDS FOR VARIOUS CONCRETE PANEL REPAIRS, PROJECT C-77 (18-14)
FOR THE PUBLIC WORKS DEPARTMENT

WHEREAS, pursuant to Neb. Rev. Stat. §23-104(6), the County has the power to do all acts in relation to the concerns of the County necessary to the exercise of its corporate powers; and,

WHEREAS, pursuant to Neb. Rev. Stat.§23-103, the powers of the County as a body are exercised by the County Board; and,

WHEREAS, bids for the Various Concrete Panel Repairs, Project C-77 (18-14) have been solicited, made, opened and reviewed pursuant to applicable Nebraska State Statutes; and,

WHEREAS, based on those proceedings, this Board has duly deliberated and considered the bid received; and,

NOW, THEREFORE, BE IT RESOLVED pursuant to Neb. Rev. Stat. §23-108 and Neb. Rev. Stat. §39-810 that the Sarpy County Board of Commissioners hereby finds and determines that the bid for the purpose set forth above be and hereby are, rejected. The Clerk of the County is hereby directed to notify the bidder of this Board’s action, to return the bid bonds posted herein, if necessary, and to take such other steps as may be necessary to effectuate the rejection of the offered bid.

The above Resolution was approved by a vote of the Sarpy County Board of Commissioners at a public meeting duly held in accordance with applicable law on the ___10th___ day of July, 2018.

[Signature]
Sarpy County Board Chairman

[Signature]
County Clerk

Attest
MEMO

To: Sarpy County Board of Commissioners

From: Beth Garber

Re: Various Concrete Panel Repair – Bid Rejection

On June 20, 2018, one (1) bid was opened for the Various Concrete Panel Repairs, Project C-77 (18-14) for the Public Works Department. The bid was from Tab Construction Co. for $530,045.60, which was higher than the Engineer’s Estimate of $472,880. After review, it is recommended that the bid for the project be rejected and rebid in fall 2018 for 2019 spring/summer work.

Please contact me with any questions at bgarber@sarpy.com.

July 3, 2018

cc: Dan Hoins
    Scott Bovick
    Brian Hanson
    Deb Houghtaling
    Denny Wilson, P.E., Ph.D.
MEMORANDUM

To: Sarpy County Board of Commissioners

From: Dennis L. Wilson, P.E., Ph.D., Sarpy County Engineer

Date: June 28, 2018

Subject: Award Recommendation for Project C-77(18-14): Various Concrete Panel Repairs

On June 20, 2018, one (1) bid was opened by the Sarpy County purchasing department for the above mentioned project. The bid was from TAB Construction Company with a total bid of $530,045.60. This bid is 10.8% higher than the base bid Engineer’s Estimate of $472,880. Do to the fact that this bid has come in higher than the engineers estimate. Sarpy County would like to reject this bid from TAB Construction Company and recommends that the County rebid this project in the near future.
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**Supplier Notes:**

**Manufacturer Notes:**

**Manuf Num:**

**CONCRETE PAVEMENT REPAIR, FULL DEPTH 47B-3500**

**CONCRETE PAVEMENT REPAIR, FULL DEPTH 47B-HE-3500**

**FOUNDATION COURSE REPLACEMENT**

**5” WHITE PERMANENT PAVEMENT MARKING, PAINT AND BEADS**

**5” YELLOW PERMANENT PAVEMENT MARKING, PAINT AND BEADS**

**TEMPORARY PAVEMENT MARKING PAINT & REMOVAL**

2018-0120 - Page 2
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SPECIFICATIONS
Various Concrete Panel Repairs, Project C-77 (18-14)

1. Cornhusker Road West of Eagle Hills Drive (West Bound Lanes)
2. Cornhusker Road West of Fall Creek Road (West Bound Lanes)
3. Cornhusker Road West of North 48th Street (West Bound Lanes)
4. Chandler Road East of 139th Street (East and West Bound Lanes)
5. LaPlatte Road West of 10th Street (East and West Bound Lanes)
6. LaPlatte Road East of Crystal Drive (East and West Bound Lanes)
7. Platteview Road West of Dyson Hollow Road (East and West Bound Lanes)
8. Chandler Road North on Kearney Ave. (North and South Bound Lanes)

For the
Public Works Department
SARPY COUNTY, NEBRASKA

PROPOSALS DUE: June 20, 2018
2:00 p.m.
Notice to Contractors

Sarpy County is seeking proposals for Various Concrete Panel Repairs for the Sarpy County Public Works Department. The successful Contractor will enter into a Contract for the specified services. Areas include:

1. Cornhusker Road West of Eagle Hills Drive (West Bound Lanes)
2. Cornhusker Road West of Fall Creek Road (West Bound Lanes)
3. Cornhusker Road West of North 48th Street (West Bound Lanes)
4. Chandler Road East of 139th Street (East and West Bound Lanes)
5. LaPlatte Road West of 10th Street (East and West Bound Lanes)
6. LaPlatte Road East of Crystal Drive (East and West Bound Lanes)
7. Platteview Road West of Dyson Hollow Road (East and West Bound Lanes)
8. Chandler Road North on Kearney Ave. (North and South Bound Lanes)

Official bidding criteria must be obtained through the online procurement system. Vendors that obtain specifications from any other internet site are responsible for obtaining any addenda that may be added at a later time.

Bids received after the above stated time and date will not be considered.

Bid opening will be a public opening to be held in the Sarpy County Courthouse at the time and date listed in the Bid Information.

All bids submitted shall be valid for a period of ninety (90) days following the final date for submission of bids.

Sarpy County will not be liable for costs incurred by Vendors for proposal preparation, printing, demonstration, or any other costs associated with or incurred in reliance on proposal creation. All such costs shall be the responsibility of the Vendor.

The bids shall include all charges and applicable taxes, F.O.B. Destination, freight prepaid, Sarpy County, Nebraska. The Vendor need not include sales tax in the bid. Sarpy County will, upon request, furnish the successful Vendor with required State of Nebraska Tax Exempt Forms at the request of the vendor.

The Sarpy County Board of Commissioners reserves the right to reject any or all bids and to waive minor informalities.

In the event of conflict between unit price and extended price, unit price shall prevail.

Procedures for Evaluation and Awarding of Bid

Evaluation will be done by Beth Garber, Sarpy County Purchaser, along with personnel from other departments. After evaluation the Purchaser will make a recommendation to the County Board of Commissioners for award. This recommendation and pending award will be made at a public meeting of the Board of Commissioners. Agendas are available each Friday afternoon on our internet site www.sarpy.com. The Commissioners award the bid by majority vote.
The following factors will be used to consider the award of the bid, where applicable:

a) Compliance with all requirements.
b) Price.
c) The ability, capability, and skills of the Vendor to perform.
d) The character, integrity, reputation, judgment, experience, and efficiency of the Vendor.
e) The quality of previous performance.
f) Whether the Vendor can perform within the time specified.
g) The previous and existing compliance of the supplier with laws.
h) The life-cost of the personal property or services in relation to the purchase price and specified use.
i) The performance of the personal property or service taking into consideration any commonly accepted tests and standards of product, service, usability and user requirements.
j) The energy efficiency ratio as stated by the supplier.
k) The life-cycle costs between alternatives for all classes of equipment, the evidence of expected life, the repair and maintenance costs, and the energy consumption on a per year basis.
l) Such other information as may be secured having a bearing on the decision.

Terms and Conditions

1. Bid Bond

Each bid must be accompanied in a SEPARATE SEALED ENVELOPE by a cashier’s check on a bank whose deposits are insured by the Federal Deposit Insurance Corporation or a bid bond in the amount of five percent (5%) of the bid price and must be payable without condition to the Sarpy County Treasurer, to protect Sarpy County against failure to deliver materials as bid. The selected Vendor’s security will be retained until satisfactory delivery of performance bond and all contract documents are signed and received. All other Vendor’s security will be retained for 30 days after bid award. If cashier’s check or bid bond as herein set forth is not received with the proposal, the proposal may not be considered.

2. Performance Bond

The successful Vendor shall be required to furnish a performance bond, and said bond shall be in the amount of 100% of the total amount of the bid, written by a surety licensed to do business in the State of Nebraska. Said performance bond shall be provided to the Sarpy County Clerk within ten (10) days after execution of the contract documents and bid award. Bond may be secured through the Vendor’s usual sources.

3. Information, Discussion and Disclosures

Any information provided by Sarpy County to any Vendor prior to the release of this Request for Proposal (“RFP”), verbally or in writing, is considered preliminary and is not binding on Sarpy County.

The Vendor must not make available nor discuss any cost information contained in the sealed copy of the proposal to or with any employee of Sarpy County from the date of issuance of this RFP until the contract award has been announced, unless allowed by the Sarpy County Purchasing Department in writing for the purpose of clarification or evaluation.

No interpretation of the meaning of the specifications, or other bidding documents, or correction of any ambiguity, inconsistency, or error therein will be made orally to any Vendor.

Every request for such interpretation or correction should be in writing through the online bid system or by email to Beth Garber, bgarber@sarpy.com. Sarpy County prefers all questions be submitted through the
electronic bidding program. Requests must be received by date and time listed in the bid information in order for Sarpy County to have time to issue an addendum. Requests received after deadline may not be considered. In case Sarpy County finds it expedient to supplement, modify, or interpret any portion of the bidding documents prior to the proposed bid date, such procedure will be accomplished by the issuance of written addenda to the RFP which will be mailed or delivered to all prospective Vendors at the respective addresses furnished for such purpose.

4. **Addenda**

All addenda will become part of this RFP and must be responded to by each Vendor.

All addenda must be acknowledged in writing in the bid submitted by the Vendor.

This RFP, any subsequent addenda, and any written responses to questions take precedence over any information previously provided.

5. **Confidentiality of Documents**

Sarpy County considers all information, documentation and other materials requested to be submitted in response to this proposal to be of a non-confidential and/or non-proprietary nature and therefore shall be subject to public disclosure under Neb. Rev. Stat. § 84-712.05(3).

Vendors are hereby notified that Sarpy County strictly adheres to all statutes, court decisions, and opinions of the Nebraska Attorney General with respect to disclosure of RFP information.

Any “proprietary, trade secret, or confidential commercial or financial” information must be clearly identified at the time of bid/proposal submission. **Pricing information is not considered financial information and therefore is not considered Confidential.** Please note: even if Vendor believes pricing information is confidential and includes it as such, this information will be read aloud and entered into record during the public bid opening. For all other appropriately identified proprietary, trade secret, or confidential commercial or financial information, the Vendor will be required to fully defend, in all forums, Sarpy County’s refusal to produce such information; otherwise, Sarpy County will make such information public, upon request.

6. **Non-Discrimination Clause**

Pursuant to Neb. Rev. Stat. §73-102, Vendor declares, promises, and warrants it has and will continue to comply fully with Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C.A. §1985, et seq.), and the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. §48-1101, et seq., in that there shall be no discrimination against any employee who is employed in the performance of this Contract, or against any applicant for such employment, because of age, color, national origin, race, religion, creed, disability or sex.

7. **Conflict of Interest Clause**

Pursuant to Neb Rev. Stat. §23-3113, the parties hereto declare and affirm that no officer, member, or employee of the County, and no member of its governing body, and no other public official of the County who exercises any functions or responsibilities in the review or approval of the undertaking described in this Contract, or the performing of services pursuant to this Contract, shall participate in any decision relating to this Contract which affects his or her personal interest, or any corporation, partnership, or association in which he or she is directly or indirectly interested; nor shall any employee of the County, nor any member of its governing body, have any interest, direct or indirect, in this Contract or the proceeds thereof.
8. Payment Terms

The successful Contractor shall submit an itemized invoice for payment. Sarpy County will make payment to the successful Contractor within thirty (30) days after receipt of invoice and satisfactory services in accordance with the Contract and Special Provisions.

9. Supplemental Terms and Conditions/Modifications

Any supplemental terms, conditions, modifications, or waiver of these terms and conditions must be in writing and signed by the Sarpy County Board Chairman and the Vendor.

10. Term

The Contract will be for the period identified within the bid information. The cost for the option years will be provided in writing to the County sixty (60) days prior to the expiration date of the current contract year. Any cost changes for the option years is the responsibility of the Vendor. If Sarpy County does not receive any notification of price changes, the prices are to remain the same.

11. Renewal

The Contract shall automatically renew for each option year unless the County notifies Vendor in writing thirty (30) days prior to expiration of current contract period of the intent not to renew.

12. Termination

Either party may terminate the Contract with ninety (90) days' written notice to the other.

13. Residency Verification

The Vendor agrees to comply with the residency verification requirements of Neb. Rev. Stat. §4-108 through §4-114. The Vendor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Vendor is an individual or sole proprietorship, the following applies:

The Vendor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at www.das.state.ne.us.

a) If the Vendor indicates on such attestation form that he or she is a qualified alien, the Vendor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Vendor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

b) The Vendor understands and agrees that lawful presence in the United States is required and the Vendor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. Sect. 4-108.
14. Breach

Should Vendor breach, violate, or abrogate any term, condition, clause or provision of this agreement, the County shall notify Vendor in writing that such an action has occurred. If satisfactory provision does not occur within ten (10) days from such written notice the County may, at its option, terminate this agreement and obtain an alternate provider to provide all required materials. This provision shall not preclude the pursuit of other remedies for breach of contract as allowed by law.

15. Assignment

The Vendor may not assign this Contract without the prior written consent of the County.

16. Subcontracting

Vendor may not subcontract the work to be performed, without prior written consent of the County. If such consent is granted, Vendor will retain responsibility for all work associated with the Contract. The Vendor must identify any subcontractors it intends to use in the execution of this Contract. The Vendor must identify subcontractors in writing within the proposal.

17. Independent Contractor

The Vendor shall in the performance of the Contract at all times be an independent contractor and not an employee or agent of the County. The Vendor, its officers, employees and agents shall at no time represent the Vendor to be other than an independent contractor or represent themselves to be other than employees of the Vendor.

18. Indemnity

The Vendor shall indemnify and save harmless Sarpy County, its officers, employees and agents from all loss, claims, suits or actions of every kind and character made upon or brought against Sarpy County, its officers, employees, or agents, for or sustained by any party or parties as a result of any act, error, omission or negligence of said Vendor or its servants, agents, and subcontractors; and also from all claims of damage in fulfilling this Contract.

19. Deviations

Once the bid has been accepted by Sarpy County, no deviations from the specifications will be accepted without prior written approval of Sarpy County.

20. Insurance

The Contractor shall comply with the indemnification and save harmless provisions of the Contract.

21. Guarantee

   a. Terms

The Contractor hereby expressly guarantees the work and materials described herein for the full period of two (2) years from the date of approval and acceptance by the County, and said Contractor binds itself and heirs and assigns for the entire expense of maintaining same in good condition (except normal wear and tear not occasioned by improper methods/materials); and for all repairs or reconstruction
which may, from any imperfection in the said work or materials become necessary within the terms of this guarantee. To the extent Contractor was originally responsible for the work or materials (including Supervision) under the Contract documents, the Contractor further agrees to correct and repair promptly during that time all failures of any description and all settlements and shall deliver the work or materials in all respects in good condition and repair.

b. Failure to Make Repairs

If at any time within the period of guarantee after the completion and acceptance of the work herein contracted for, the work shall, in the judgment of the County, require such repairs or reconstruction as above set out, County shall notify the Contractor. Should the Contractor refuse or neglect to begin to make such repairs within five (5) days from the date of serving such notice, the County shall have the right to cause such repairs or reconstruction to be made in such a manner as County shall deem best, and the cost thereof shall be paid by the Contractor and Contractor’s sureties or deducted from the reserve fund.

c. Expiration of Guarantee Period

It shall be the duty of the Contractor to notify the County, in writing, within thirty (30) days prior to the expiration of the guarantee period to inspect the work, and unless the Contractor shall furnish such notice, the obligation to maintain the said improvement in proper condition shall continue in force until thirty (30) days after such notice is sent by the Contractor to the County.

d. Compliance with Laws

The Contractor shall comply with all Federal and State Laws and County ordinances applicable to work.

e. Onsite Storage:

Sarpy County will not pay the Contractor for stored material(s) on the job site. It will be the responsibility of the Contractor to store materials for the contracted job elsewhere. If the Contractor chooses to store the material(s) on the job site it will be done at their own expense.
SPECIAL PROVISIONS

1. Description of Work
   The work contemplated in the Proposal consists of concrete panel repairs as shown on individual plans, and reinstallation of pavement markings per existing conditions.

2. County Board
   The County Board of Sarpy County, Nebraska shall, in conjunction with the Engineer, be the final arbiter in all controversies concerning the fulfillment of this Contract. No changes in any of the details of the Plans and Specifications shall be made without approval of the Board. The Board shall approve final acceptance of the work and payment of the Contractor.

3. Retained Percentage
   Sarpy County shall retain five percent (5%) of estimated amounts earned for partial payments. Upon final payment of the project, all retained monies shall be paid in full.

4. Provisions and Technical Specifications
   All materials and all work shall conform to the current Nebraska Department of Transportation “Standard Specifications for Highway Construction”, 2017 Edition and any revisions or amendments thereto, which will be referenced as “NDOT Standard Specifications”. The project specifications shall govern where any conflict occurs with the Standard Specifications.

5. Preconstruction Meeting
   Contractor shall schedule and run a preconstruction meeting at least 48 hours prior to beginning construction. Representatives from Sarpy County Public Works, the Contractor, and any Subcontractors, shall be invited to discuss upcoming construction activities. Contact information for all representatives is provided in this document. The meeting shall take place at the Sarpy County Public Works building.

Sarpy County Public Works – Gregg Nisotis, 402-537-6913, Nisotisg@sarpy.com


7. Period of Performance and Working Days
   Sarpy County and the Contractor shall agree on an expected start date. The estimated contract period of performance is Thirty (30) Working Days.

   Working days shall refer to all days when the temperature is above forty (40) degrees and rising and which are suitable for the construction of this project, except Sundays and Holidays. Working days shall start the next working day after the Contractor’s Notice to Proceed.

8. Taxes
   Sarpy County will, upon request, furnish the successful Contractor with a completed State of Nebraska Tax Exempt Form 13 upon acceptance of the successful Contractor’s proposal.

9. Liquidated Damages
   The time of completion is of the essence of the Contract since the County will be subject to additional financing and administrative expense if the work is not completed within the time period specified in the Agreement.
Therefore the Contractor shall reimburse the County at the rate of $2000 per day for each additional working day required to complete the work. The time allowed for completion of this Contract shall not be extended except upon written application, by the Contractor, requesting such extensions and explaining fully the necessity for such extension. Such extension will be considered only because of strikes, unavailability of properly ordered materials, or other causes beyond the Contractor’s control.

Company warrants that pursuant to Neb Rev. Stat. 48-2101, et seq. (1994 Cum. Supp.) it has registered as a Contractor with the State of Nebraska, and that it and any and all subcontractors have obtained any and all necessary licenses and permits required by federal law, state law and/or county ordinances for the work described herein.

10. Road Restrictions or Closures
The Contractor must notify Sarpy County personnel 48 hours prior to any lane closures:
Bill Herr:
Phone: 402-537-6906
Email: herrb@sarpy.com

11. Deviations
Once the bid has been accepted by Sarpy County, no deviations from the specifications will be accepted without prior written approval of Sarpy County.

12. Exceptions
These specifications are minimum acceptable specifications. You may bid other than what is specified if it is of higher specification than what is requested. Contractor must list any exceptions to the bid specifications on the exceptions/clarifications/comments page provided.

13. Company Information:
Contractor will provide the following company information on the bid form:

a. Years in business;
b. Number of employees; and,
c. Total sales for last three (3) years.

14. References:
Each Contractor must include with their proposal a list of no less than three (3) references that have purchased the specified product or service within the last two (2) years. The list must include the name of the company, and the name and phone number of a contact person for each company.

15. Equipment/Safety
The Contractor shall be responsible for providing and for all equipment required to protect its employees, the public, surrounding areas, equipment and vehicles including but not limited to the placement of barricades, tarps, plastic flag tape and other safety/traffic control. The cost of such equipment is considered incidental to the project and will not be paid for as a separate bid item.

16. Cleaning
The Contractor shall keep the premises clean of all rubbish and debris generated by the work involved and shall leave the premises neat and clean.

17. Maintenance of Traffic/Barricading
All signing, pavement marking, barricading and traffic control devices shall conform to the State of Nebraska Supplement to the Manual on Uniform Traffic Control Devices, 2011 and the Manual on...
Uniform Traffic Control Devices, current edition. No lane closures will be allowed without prior authorization from the Engineer.

When performing concrete pavement repairs on 2-lane roadways, the Contractor shall have one lane open to traffic at all times. The Contractor will maintain two way traffic flow by use of proper signage, temporary traffic lights and or flagging crews. The traffic control sheets provided in the plan set are to be considered a guide for the contractor. The Contractor will provide the County complete traffic control plans for our review before any work is to begin.

When performing concrete pavement repairs on multi-lane highways, the Contractor may have only one lane closed while performing the repair work. Roadways shall remain open to traffic during all concrete repair operations. No lane closures will be allowed without prior authorization from the Engineer. The traffic control sheets provided in the plan set are to be considered a guide for the contractor. The Contractor will provide the County complete traffic control plans for our review before any work is to begin.

Control of traffic and protection of the pavement is the responsibility of the Contractor until such time as the work is formally accepted by the County. Any damage to the pavement prior to such acceptance shall be remedied by the Contractor at Contractor’s expense.

All pavement markings removed during repair operations shall be replaced within 24 hours of panel repair completion. Pavement marking layout shall be consistent with existing markings.

18. **Traffic Control**

   The Contractor shall conduct his operations in such a manner as to provide access to all adjacent properties at all times. The Contractor shall place and maintain proper barricades, lights, signs and other required safeguards around obstructions in or adjacent to existing streets and as necessary to provide advance warning. All barricades, lights, and warning signs shall conform to the State of Nebraska Supplement to the Manual on Uniform Traffic Control Devices, 2011 and the current "Manual on Uniform Traffic Control Devices."

19. **Damage to Mailboxes and other Personal Property:**

   If any damage occurs to mailboxes or other personal property belonging to citizens during the performance of the contract, it shall be the responsibility of the contractor to make repairs and/or replacements.

20. **Required Submittals:**

   Submittals for this project shall include but not be limited to the following:

   - TRAFFIC CONTROL PLANS
   - AGGREGATE MATERIAL GRADATION
   - PORTLAND CEMENT CONCRETE MIX DESIGN
   - CONCRETE DELIVERY TRUCK WASH-OUT METHOD AND PROPOSED LOCATION
   - CURB INLET LID
Technical Specifications

Revisions to NDOT Section 605 – CONCRETE PAVEMENT REPAIR

1. In Subsection 605.01, Paragraph 1: Shall be deleted in its entirety and replace with the following: “This work shall consist of repairing Portland cement concrete pavement at the locations shown in the contract or as designated by the Engineer. The work shall include saw cutting and removing deteriorated concrete, disposing of the old concrete, preparation of the subgrade repair area, and furnishing, placing, finishing, and curing the concrete, cutting and sealing joints.”

2. In Subsection 605.01, Paragraph 2: Delete all references noting a pavement failure extending across more than one lane of traffic being counted as a separate repair. All contiguous pavement failures will be counted as one repair.

3. In Subsection 605.01, Paragraph 2: No differentiation will be made between repair groups for this project. Delete any references to repair groups.

4. In Subsection 605.01, Paragraph 6 a: Shall be deleted in its entirety and replace with the following: “When performing concrete pavement repairs on 2-lane roadways, the Contractor shall have one lane open to traffic at all times. The Contractor will maintain two way traffic flow by use of proper signage, temporary portable traffic signals and/or flagging crews. Before any work is to begin the Contractor will provide the County complete traffic control plans for review.”

5. In Subsection 605.01, Paragraph 6 b: Shall be deleted in its entirety and replace with the following: “When performing concrete pavement repairs on multi-lane highways, the Contractor may have only one lane closed while performing the repair work. Roadways shall remain open to traffic during all concrete repair operations. No lane closures will be allowed without prior authorization from the Engineer. Before any work is to begin the Contractor will provide the County complete traffic control plans for review.”

6. In Subsection 605.04, Paragraph 1 a: Add new sentences “Replacement of Integral Curb will not be considered a separate pay item. This is subsidiary to Concrete Pavement Repair.”

7. In Subsection 605.04, Paragraph 1 d: Add new sentences “Connecting edges of existing pavement repairs shall be saw cut to full depth. Direct payment for the work of cutting and removing existing pavement will not be made, but it shall be considered that the cost of the work, which includes loading, hauling and disposing of the pieces of broken concrete. This is, subsidiary to Concrete Pavement Repair.”

8. In Subsection 605.04, Paragraph 2 a(7): Remove the word “form” and replace with “metal form”

9. In Subsection 605.04, Paragraph 4 a: Add new sentence “The Contractor shall cut joints to match the existing pavement joints. Transverse joints shall be established by sawing to a
minimum of one-third (1/3) the actual thickness of the slab.”

10. In Subsection 605.05, Paragraph 1 a: References to “cubic yards” shall be replaced with “square yards”

11. In Subsection 605.05, Paragraph 1 c: Shall be deleted in its entirety and replaced with the following: “Sealing of joints will be considered subsidiary to Concrete Pavement Repair.”

12. In Subsection 605.06, Paragraph 1: Add Pay Item with Pay Unit

Concrete Pavement Repair, Full Depth Square Yard (SY)

RECONSTRUCT CURB INLET

1. This work shall consist of removing the top of the existing curb inlet at the location shown in the plans and replacing it with a new top of similar design as the one removed.

2. The work will be measured as a single unit and shall be paid for at the contract unit price per each for the item “Reconstruct Curb Inlet”. This price shall be considered full compensation for all excavation, removal of existing materials, concrete, reinforcing steel, labor, equipment, tools and incidentals necessary to complete the work. Structural Steel Face Armor and the Cast iron cover and frame shall be subsidiary to the Pay Item “RECONSTRUCT CURB INLET” with a Pay Unit of Each (EA).

Revisions to NDOT Section 612 – SEALING JOINTS

1. In Subsection 612.01, Paragraph 1: Shall be deleted in its entirety and replace with the following: “This work shall consist of the preparation and sealing of transverse and longitudinal joints and joints around existing concrete repairs in the concrete roadway and is subsidiary to Concrete Pavement Repair.”

No Revisions to NDOT Section 423 – PERMANENT PAVEMENT MARKING

Revisions to NDOT Section 424 – TEMPORARY PAVEMENT MARKING

1. In Subsection 424.06, Paragraph 1: Add Pay Item and Pay Unit

Temporary Pavement Marking Paint & Removal Linear Foot (L.F.)

Revisions to NDOT Section 422 – TEMPORARY TRAFFIC CONTROL SIGNS AND DEVICES

1. In Subsection 422.05 Paragraph 1: Add Pay Item and Pay Unit

Traffic Control Lump Sum (LS.)

2. In Subsection 422.05, Paragraph 2a: shall be deleted in its entirety and replace with the following: “When Traffic Control, Lump Sum is used in the plans or specifications, no specific unit of measurement will apply, but measurement will be for the lump sum total of all items needed
for traffic control that are not on the bid form. The Contractor shall submit a detailed traffic control plan for County review. The Contractor shall be required to maintain all signing, pavement marking, barricading and traffic control devices shall conform to the State of Nebraska Supplement to the Manual on Uniform Traffic Control Devices, 2011 and the Manual on Uniform Traffic Control Devices, current edition."
KNOW ALL MEN BY THESE PRESENTS, THAT WE

_______________________________________________                _____________________

_____________________________________________________________________________________

As principal, and ______________________________________________________________

_____________________________________________________________________________

as Surety, are held and firmly bound to the County of Sarpy, Nebraska, in the penal sum of

____________________________________________________________________________

Dated this ______ day of____________, 2018

The conditions of this obligation are such that:

WHEREAS, by even date herewith, the said principal has entered into a Contract with the said County of Sarpy, Nebraska to perform the labor and furnish the material for

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

NOW THEREFORE, the conditions of this obligation are such that if the said principal shall duly perform and observe all of the stipulations and agreements in said Contract on his part to be performed and observed, then and in that event, this obligation shall be void and of no effect, but otherwise shall be and remain in full force and effect. It is expressly agreed that any alterations which may be made therein by agreement between the said principal and the said County of Sarpy, Nebraska in the terms of said Contract, or the nature of the work to be done thereunder, or the giving of any extension of time for performing the said Contract, or of any of the stipulations therein contained, and on the part of the said principal to be performed, or any other forbearance, shall not in any way release the said surety from this liability under the above written bond.

It is further expressly agreed and understood that this bond shall stand as surety for the payment of all accounts and claims that may be due by reason of laborers or mechanics wages for labor that shall be performed, and for all material which is actually used in performing said Contract.

It is further expressly agreed and understand that this bond shall stand as maintenance surety for the period of two (2) years on faulty materials and workmanship only. Nothing herein shall be construed to cover wear and tear occasioned by action of the elements; excepting insofar as such wear and tear discloses the use of improper materials or construction methods.
In testimony whereof, the said parties hereto have hereunto set their hands this ____ day of ______________________, 2018, and said Surety has caused these presents to be sealed with its Corporate Seal, and duly attested by the signature of its attorney-in-fact, and their authority is attached hereto and made a part thereof.

____________________________________
Principal

____________________________________
President

Witness

____________________________________
Surety

By:

____________________________________
Attorney-In-Fact
Various Concrete Panel Repairs to include the following:

1. Cornhusker Road West of Eagle Hills Drive (West Bound Lanes)
2. Cornhusker Road West of Fall Creek Road (West Bound Lanes)
3. Cornhusker Road West of North 48th Street (West Bound Lanes)
4. Chandler Road East of 139th Street (East and West Bound Lanes)
5. LaPlatte Road West of 10th Street (East and West Bound Lanes)
6. LaPlatte Road East of Crystal Drive (East and West Bound Lanes)
7. Platteview Road West of Dyson Hollow Road (East and West Bound Lanes)
8. Chandler Road North on Kearney Ave. (North and South Bound Lanes)

The undersigned, having carefully examined the Plans and Specifications, and having examined the site, hereby submit our proposal.

Attached hereto is a Bid Bond in the amount of 5% of the amount bid made payable to the Sarpy County Treasurer, which is agreed shall be forfeited should the undersigned fail to perform or fail to furnish bond and securities in accordance with the proposal.

The Grand Total Base bid includes Project Areas 1-8. The Alternate Bid item can be substituted for a item in the Base Bid.

For furnishing all materials, labor, equipment, tools, together with appurtenances and accessories required to prepare, construct, erect and install the proposed improvements, complete and ready for operation, our bid as follows:

<table>
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<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
<th>UNIT PRICE</th>
<th>EXTENDED PRICE</th>
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<td>FOUNDATION COURSE REPLACEMENT</td>
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<td>5” WHITE PERMANENT PAVEMENT MARKING, PAINT AND BEADS</td>
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</table>

**TOTAL BASE BID** $  

**ALTERNATE BID ITEM**  

CONCRETE PAVEMENT REPAIR, FULL DEPTH PR1-3500 | SY | 1 | $ | $  

*Prices are to be F.O.B. - Sarpy County, Nebraska*

**CONTRACTOR START DATE:**

If notified of acceptance of this proposal and Contract award within sixty (60) days after date stated for receipt of bids, the undersigned agrees to execute a Contract, provide insurance certificates and performance bonds for the above named work and the above stated consideration in the form required within ten (10) days of such proposal acceptance notification; to commence the work within five (5) days of the Contractor’s Notice to Proceed. **Final Completion shall be complete within Thirty (30) working days from Contractors Notice to Proceed.**

Total base bid shall be the basis for establishing the amount of the Performance Bond in this Contract. The Total Base Bid is based on the quantities shown in the Proposal Form and on the dimensions shown in the Plans where specific quantities are not itemized, and is subject to additions or reductions according to the actual construction quantities as determined by the Engineer. Any such change orders shall be made by and become a part of the Engineers Certified Progress Statement(s) of work in progress as well as final completed construction (Project Completion Report(s)).

The undersigned has carefully checked the bid blank quantities against the Plans and Specifications before preparing this Proposal and accepts the said quantities and amounts, as correctly listing the complete work to be done in accordance with the Plans and Specifications.
The County Board reserves the right to waive informalities and irregularities and to award bids which furnish the material and construction that, in their opinion, will serve in the best interest of the County or to reject any/or all bids.

The undersigned also agrees that the time of commencement, rate of progress and time of completion of the work of the Contract are ESSENTIAL CONDITIONS of the Contract and that the Owner may retain a sum of two thousand dollars ($2000.00) per working day from the sum due under the Contract for each working day beyond the period of performance that the Contract remains uncompleted.

**Company Information:**

- Years in business: _____________________________
- # of employees: _____________________________
- Total sales last 3 years: _____________________________

**References:**

- Company Name: _____________________________
  Address: _____________________________
  Contact Name: _____________________________ Phone Number: _____________________________
  Fax Number: _____________________________ Date of Purchase: _____________________________

- Company Name: _____________________________
  Address: _____________________________
  Contact Name: _____________________________ Phone Number: _____________________________
  Fax Number: _____________________________ Date of Purchase: _____________________________

- Company Name: _____________________________
  Address: _____________________________
  Contact Name: _____________________________ Phone Number: _____________________________
  Fax Number: _____________________________ Date of Purchase: _____________________________
I certify that this bid is submitted in accordance with the specifications issued by Sarpy County. I affirm that the original Specifications have not been altered in any way. Any alteration of the original Specifications, outside of an alternate bid, may be considered grounds for refusal of the bid.

The undersigned acknowledged receipt of the following addenda (if applicable):

Addendum #1  ___________________
Addendum #2  ___________________

Company Name  Company Representative (Please print)
Authorized Signature  Telephone Number
Address  Fax Number
City, State & Zip  E-Mail Address

*NOTE: Sarpy County is tax exempt and will provide the proper form upon request
EXHIBIT A
CONTRACT AGREEMENT

THIS CONTRACT is made and entered into by and between Sarpy County, Nebraska hereinafter called County, and ________________ hereinafter called Contractor.

In consideration of the following mutual agreements and covenants, it is understood and agreed by the parties hereto that:

The Contractor does hereby agree to undertake and construct Sarpy County Project C-77 (18-14) Various Concrete Panel Repairs to include the following areas:
1. Cornhusker Road West of Eagle Hills Drive (West Bound Lanes)
2. Cornhusker Road West of Fall Creek Road (West Bound Lanes)
3. Cornhusker Road West of North 48th Street (West Bound Lanes)
4. Chandler Road East of 139th Street (East and West Bound Lanes)
5. LaPlatte Road West of 10th Street (East and West Bound Lanes)
6. LaPlatte Road East of Crystal Drive (East and West Bound Lanes)
7. Platteview Road West of Dyson Hollow Road (East and West Bound Lanes)
8. Chandler Road North on Kearney Ave. (North and South Bound Lanes)

Also referred to hereinafter as work, in accordance with terms and provisions hereof and subject to the quality provisions in the accepted Proposal of Contractor for the sum of

$______________________________

(written) under penalty of Performance, Payment and Guarantee Bond.

2. The Contractor shall conform with the applicable plans and specifications, applicable Special Provisions and any applicable change order or addenda pertaining thereto or to this Contract, all of which by reference thereto are made a part hereof. Applicable notice to bidders, Instruction to bidders, Bid Proposal of Contractor, Resolution awarding this Contract, the Performance, Payment and Guarantee Bond and all proceedings by the governing body of the County relating to the aforesaid work are made a part hereto by reference thereto.

3. The County agrees to pay the Contractor in accordance with the provisions of the specifications, the accepted Proposal of the Contractor and the provisions of this Contract.

4. All provisions of each document and item referred to in Paragraph 2 above shall be strictly complied with the same as if rewritten herein, and in the event of conflict among the provisions of said documents, the provisions most favorable to the County shall govern, and substitution or change shall be made except upon written direction, the form of which shall be written “Change Order” of the County; and substitution or change shall in no manner be construed to release either party from any specified or implied obligation of this Contract except as specifically provided for in the Change Order.

5. The Contractor warrants that it has neither employed nor retained any company or person, other
than bona fide employee working for Contractor to solicit or secure this Contract, and that Contractor has not paid or agreed to pay any company or person, other than a bona fide employee, any fee, commission percentage, brokerage fee, gift or any other consideration, contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, County shall have the right to annul this Contract without liability, or in its discretion, to deduct from the Contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

6. County and Contractor promise and agree to comply with all Federal and State laws and County ordinances, and such other rules and regulations as may apply to this Contract, including but not limited to: the Americans with Disabilities Act of 1990 (29 U.S.C.A. 12101, et seq.); the Rehabilitation Act of 1973 (29 U.S.C.A. 701, et seq.); and the Drug Free Workplace Act of 1988 (41 U.S.C.A. 701, et seq.). Furthermore, pursuant to Neb. Rev. Stat. 73-102 Reissue 1990), County and Contractor declare, promise, and warrant that they have and will continue to comply fully with the Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C.A. 1985, et seq.); and the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. 48-1101, et seq., (Reissue 1993), in that there shall be no discrimination against any person who is employed in the performance of this Contract, or against any applicant for such employment, because of age, color, national origin, race, religion, creed, disability or sex.

7. The Contractor shall indemnify and save harmless Sarpy County, its officers, employees, agents and representatives from all claims, suits or actions of every kind and character made upon or brought against the said Sarpy County, its officers, employees, agents and representatives for on or account of any injuries or damages received or sustained by any party or parties by or from the acts or omissions of the said Contractor or its servants, agents, representatives and subcontractors, in doing the work herein contracted for or by or in consequence of any negligence in guarding the same or any improper material used in its construction or by or on account of any act or omission of said Contractor or its servants, agents, representatives and subcontractor or its servants, agents, representatives and subcontractors arising out of any manner connected with the performance of this Contract, and also from all claims or damage for infringement of any patent in fulfilling this Contract.

8. The Contractor agrees to comply with the residency verification requirements of Neb. Rev. Stat. §4-108 through §4-114. The Contractor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Contractor is an individual or sole proprietorship, the following applies:

1. The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at www.das.state.ne.us.
2. If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Contractor’s lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

3. The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. Sect. 4-108.

9. **Insurance Requirements**

The Contractor shall not begin work under this Agreement until all insurance certificates have been filed with the Sarpy County Clerk.

The following insurance coverages shall be kept in force during the life of the Agreement and shall be primary with respect to any insurance or self-insurance programs covering the County, its commissioners/supervisors, officials, agents, representatives and employees. These insurance coverages shall specifically state, or be endorsed to state, that thirty (30) days notice shall be given to the County in the event of cancellation of, or material change in, any of the coverages.

a. **Worker’s Compensation and Employers Liability Insurance**

   The minimal acceptable limits shall be the statutory limits as required by the State of Nebraska for Coverage A, Workers’ Compensation and $500,000 each accident for Coverage B, Employers Liability.

b. **Commercial General Liability Insurance**

   Coverage should include broad form coverage written on a commercial general liability form and written on an occurrence basis. The coverage must protect against claims for damages resulting from bodily injury, including death, personal injury and property damage.

   The minimum acceptable limits of liability shall be $1,000,000 each occurrence. If the coverage contains a general aggregate, such limit shall not be less than $2,000,000. The products/completed operations limit shall not be less than $2,000,000. The County shall be named as an additional insured on the insurance coverage required under this section.

c. **Automobile Liability Insurance**

   Coverage shall be against claims for damages resulting from bodily injury, including death and property damage, which may arise from the operations of any owned, hired or non-owned automobile. The minimum acceptable limit of liability shall be $1,000,000 Combined Single Limit for each accident. The County is to be named as an additional insured on the insurance coverage required under this section.
d. Certificate of Insurance

The Contractor shall furnish the County with a certificate(s) of insurance evidencing the coverage required in this section. If the certificate(s) is shown to expire prior to completion of all the terms of this Agreement, the Contractor shall furnish a certificate(s) of insurance evidencing renewal of its coverage to the County. The County is to be included as an additional insured on the insurance coverage required under this section.

The Contractor shall require each and every Subcontractor performing work under this Agreement to maintain the same coverages required of the Contractor in this Section, and upon the request of the County, shall furnish the County with a certificate(s) of insurance evidencing the Subcontractor’s insurance coverages required in this section.

e. Property Insurance

During the term of the Contract all responsibility for maintenance of property insurance on the work remains solely with the Contractor, who shall, as a minimum requirement, obtain a builder’s “all risk” or equivalent policy form with sufficient limits to cover the total value of the Project, including all the cost of the material, equipment and/or machinery involved under this Contract. This property insurance shall cover portions of the work and materials stored off-site, on-site and in transit.

f. Insurance Company

All insurance coverages herein required of the Contractor shall be written by an insurance company or companies transacting business as an admitted insurer in the State of Nebraska or under the Nebraska Surplus Lines Insurance Act. All insurance companies must possess a minimum A.M. Best Insurance Company rating of A-. Upon request by the County, the Contractor shall furnish evidence that the insurance company or companies being used by the Contractor meet the minimum requirements listed in this section.

Upon request by the County, the Contractor shall furnish the County with complete and accurate copies of the insurance policies required within this section. If at any time during the life of this Contract, the Contractor’s insurance coverages and limits do not meet or exceed the minimum insurance requirements presented in this section, the Contractor is required to notify the County of any deviations from the minimum requirements presented in this section.

10. The Contractor shall pay to the Unemployment Compensation Fund of the State of Nebraska unemployment contributions and interest due under the laws of the State of Nebraska on wages paid to individuals employed in the performance of this Contract, and shall submit to Sarpy County written clearance from the Commissioner of Labor of the State of Nebraska certifying that all payments due of contributions and interest which may have arisen under this Contract have been paid by the Contractor or his subcontractor, to the State of Nebraska Unemployment Compensation Fund. Payment of the final five percent (5%) of the total amount of the Contract shall be withheld until this provision have been complied with as required by Section 48-657.
11. The Contractor shall not, in performance of this Agreement, discriminate or permit discrimination against any person because of race, sex, age or political or religious options or affiliations in violation of federal or state laws or local ordinances and further the Contractor shall comply with Sarpy County ordinances pertaining to civil rights and human relations.

12. The Contractor shall procure a policy or policies of insurance which shall guarantee payment of compensation according to the Workmen’s Compensation Laws of Nebraska for all workmen injured in the scope of employment; and further agrees to keep said policy or policies in full force by the Contractor throughout the term of this Contract. Certificates of insurance or copies of policies if required by any department of the County, shall be filed by the Contractor with Sarpy County.

13. Except as may otherwise be required by applicable law payment of any balance due to the Contractor under this Contract shall be made by the County to the Contractor upon completion of the Contractor’s work and obligations in accordance with the Contract, upon acceptance thereof by the County, and upon submission of certificate by the Contractor in accordance to above. No payment by the County shall in any way constitute any waiver of any rights of Sarpy County.

14. Pursuant to Neb. Rev. Stat. 23-3113, the Parties hereto declare and affirm that no officer, member, or other employee of the County, and no member of its governing body, and no other public official of the County who exercises any functions or responsibilities in the review or approval of the undertaking described in this Contract, or the performing of services pursuant to this Contract shall participate in any decision relating to this contract which effects his or her personal interest, or any corporation, partnership, or association in which he or she is directly or indirectly interested; nor shall any employee of the County, nor any member of its governing body, have any interest, direct or indirect, in this Contract or the proceeds thereof.

15. Neither County nor Contractor shall engage the services of any person or persons presently in the employ of the other for work covered by this Contract without the express written consent of the employer of such person or persons.

16. Each party declares, represents, warrants and acknowledges that it is not an agent for the other now, nor will it be in the future. Each party is an independent Contractor, and neither party is or will become the employee of the other as a result of the relationship created by this Contract.

17. It is understood and agreed by the parties hereto that is any part, term, condition or provision of this Contract is held to be illegal or in conflict with any law of this State or of the United States, the validity of the remaining parts, terms, conditions, or provisions shall not be affected, and the rights and obligations of the Parties shall be construed and enforced as if the Contract did not contain the particular part, term, condition, or provisions held to be invalid.

18. This Contract and documents incorporated herein by reference contain the entire Contract between the Parties, and there are no other written or oral promises, agreement or warrants which may affect it.

R.R.S. 1943, as amended.
19. The Contractor acknowledges that it is, and will, remain fully obligated under the provisions of this Contract, regardless of any delegation of duties or assignment or benefits hereunder. Contractor further acknowledges and promises that the provisions of this Contract shall be made binding on any Subcontractor(s) it may retain. Contractor shall require that all Subcontractors hold County harmless from any and all claims and causes of action resulting from actions or activities of Subcontractor. Contractor shall require that all Subcontractors comply with any and all applicable State and Federal laws and that Subcontractor(s) obtain any and all necessary permits or licenses necessary to conduct work under this Contract.

20. Contractor **may not** subcontract or assign any portion of Contract without prior written approval from the County.

21. Contractor expressly guarantees all work and materials as described herein.

This Contract cannot be amended except by written agreement of both parties. Notice to the Parties shall be given in writing to the agents of each party named below:

County:  
Deb Houghtaling  
Sarpy County Clerk’s Office  
1210 Golden Gate Dr., Suite 1250  
Papillion, NE 68046

Contractor:  
________________________
________________________
________________________
________________________
IN WITNESS WHEREOF, the parties hereto have caused these instruments to be executed in THREE original counterparts, this as of this ___ day of ____________, 2018.

County of Sarpy, Nebraska
A Body Politic and Corporate

CHAIRMAN: ________________________________

ATTEST: ________________________________

CLERK: ________________________________

APPROVED AS TO FORM:

______________________________
COUNTY ATTORNEY/DEPUTY

CONTRACTOR: ________________________________

ATTEST:

______________________________
SECRETARY/WITNESS

PRESIDENT: ________________________________
SECTION 1002 -- PORTLAND CEMENT CONCRETE

1002.01 -- Description

1. Concrete shall consist of aggregate, Portland cement, water, approved air-entraining and other admixtures, and pozzolans as required or allowed by these Specifications.

2. All pay items that include the class of concrete will have the appropriate designation added to the pay item to show the 28-day compressive strength. For example: 47B concrete with a 28-day compressive strength requirement of 3500 psi (25 Mpa) shall be identified as Class 47B-3500 (47B-25). The 7-day compressive strength should be 70% of the 28-day compressive strength.

1002.02 -- Material Characteristics

1. All materials shall conform to the requirements in Table 1002.01.

<table>
<thead>
<tr>
<th>Material Requirements</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>1004</td>
</tr>
<tr>
<td>Water for Concrete</td>
<td>1005</td>
</tr>
<tr>
<td>Concrete Aggregate</td>
<td>1033</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>1008</td>
</tr>
<tr>
<td>Admixtures</td>
<td>1007</td>
</tr>
<tr>
<td>Silica Fume</td>
<td>1009</td>
</tr>
</tbody>
</table>

2. The Contractor may elect to substitute an acceptable class of concrete shown in Table 1002.03 at no additional cost to the Department. The Engineer shall be notified of any substitutions before batching the concrete.

3. Type IP, IS and IT Interground/Blended cement shall be used for all classes of concrete except for pavement repair. Type IP, IS and IT Interground/Blended cement shall meet all requirements of ASTM C 595. Pavement repair shall include Type I/II Portland cement for Class PR1 concrete and Type III Portland cement shall be used in Class PR3 concrete.

4. Temperature Requirements:
   a. The temperature of the mixed concrete shall be not less than 50°F (10°C) immediately after being placed.
   b. When the air temperature in the shade and away from artificial heat is less than 35°F (2°C), the Engineer may require the water and/or aggregates to be heated to not less than 70°F (21°C) nor more than 150°F (65°C), such that the temperature of the mixed concrete shall not be less than 50°F (10°C) at the time of placement.
   c. Stockpiled aggregates may be heated by the use of dry heat or steam. Aggregates shall not be heated directly by gas or oil flame or on sheet metal over fire. Aggregates may be heated in bins with a steam-coil or water-coil system or by other methods which are not detrimental to the aggregates.
d. Heating equipment or methods which alter or prevent the entrainment of the required amount of air in the concrete shall not be used. The apparatus used shall heat the aggregate uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the aggregates.

e. Steam may be used to heat aggregates. When live steam is used in stockpiles, it shall be used in such a manner as to preclude excessive moisture variations within the material. Material containing frost or frozen material shall not be used in the mix.

**ENGLISH**

Table 1002.02

<table>
<thead>
<tr>
<th>Class of Concrete (1)</th>
<th>Base Cement Type</th>
<th>Total Cementitious Materials Min. lb/cy</th>
<th>Total Aggregate</th>
<th>Total Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min. lb/cy</td>
<td>Max. lb/cy</td>
</tr>
<tr>
<td>47B**</td>
<td>IP/IT*</td>
<td>564</td>
<td>2850</td>
<td>3150</td>
</tr>
<tr>
<td>47B***</td>
<td></td>
<td>564</td>
<td>2850</td>
<td>3150</td>
</tr>
<tr>
<td>47BD</td>
<td></td>
<td>658</td>
<td>2500</td>
<td>3000</td>
</tr>
<tr>
<td>47B-HE</td>
<td></td>
<td>752</td>
<td>2500</td>
<td>3000</td>
</tr>
<tr>
<td>BX(4)</td>
<td></td>
<td>564</td>
<td>2850</td>
<td>3150</td>
</tr>
<tr>
<td>47B-OL****</td>
<td></td>
<td>564</td>
<td>2850</td>
<td>3200</td>
</tr>
<tr>
<td>PR1</td>
<td>I/II</td>
<td>752</td>
<td>2500</td>
<td>2950</td>
</tr>
<tr>
<td>PR3</td>
<td>III</td>
<td>799</td>
<td>2500</td>
<td>2950</td>
</tr>
<tr>
<td>SF(5)</td>
<td>I/II</td>
<td>589</td>
<td>2850</td>
<td>3200</td>
</tr>
</tbody>
</table>

Table 1002.02 (Continued)

<table>
<thead>
<tr>
<th>Class of Concrete (1)</th>
<th>Air Content % Min.-Max. (2)</th>
<th>Ledge Rock (%)</th>
<th>Water/Cement Ratio Max. (3)</th>
<th>Required Strength Min. psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>47B**</td>
<td>6.5 - 9.0</td>
<td>-</td>
<td>0.45</td>
<td>3500</td>
</tr>
<tr>
<td>47B***</td>
<td>6.0 - 8.5</td>
<td>-</td>
<td>0.45</td>
<td>3500</td>
</tr>
<tr>
<td>47BD</td>
<td>6.0 - 8.5</td>
<td>30±3</td>
<td>0.42</td>
<td>4000</td>
</tr>
<tr>
<td>47B-HE</td>
<td>6.0 - 8.5</td>
<td>30±3</td>
<td>0.40</td>
<td>3500</td>
</tr>
<tr>
<td>BX(4)</td>
<td>6.0 - 8.5</td>
<td>-</td>
<td>0.45</td>
<td>3500</td>
</tr>
<tr>
<td>47B-OL****</td>
<td>5.0-7.0</td>
<td>30±3</td>
<td>0.36</td>
<td>4000</td>
</tr>
<tr>
<td>PR1</td>
<td>6.0 - 8.5</td>
<td>30±3</td>
<td>0.36</td>
<td>3500</td>
</tr>
<tr>
<td>PR3</td>
<td>6.0 - 8.5</td>
<td>30±3</td>
<td>0.45</td>
<td>3500</td>
</tr>
<tr>
<td>SF(5)</td>
<td>6.0 - 8.5</td>
<td>50±3</td>
<td>0.36</td>
<td>4000</td>
</tr>
</tbody>
</table>
(1) Each class of concrete shall identify the minimum strength requirement, per the contract. For example, where the last four digits indicate the psi. In the table above, strength of 3,500 psi is indicated for 47B-3500; however, other strengths may be authorized elsewhere in the contract. The classes shown in the chart are typical examples.

All classes of concrete shall be air-entrained and a water-reducing admixture shall be used per manufacturer’s recommendations.

- Class R Combined Aggregate shall use a mid-range water reducer admixture. The dosage shall be at the manufacturer’s recommendation and the Engineer may approve a low-range water reducer admixture.

(2) As determined by ASTM C 138 or ASTM C 231.

*FOR INFORMATION ONLY.* The Contractor may develop a Quality Control Program to check the quantity of air content on any given project; such as, checking the air content behind the paver.

(3) The Contractor is responsible to adjust the water/cement ratio so that the concrete supplied achieves the required compressive strength without exceeding the maximum water/cement ratio. The minimum water/cement ratio for any slip form concrete pavement is 0.38, unless the Contractor requests approval from the Engineer in writing to change the minimum water/cement ratio to 0.36.

(4) For temporary surfacing, Type I/II cement is allowed.

(5) Minimum Portland Cement shall be 564 lbs/cyds and the total Silica Fume added shall be 25 lbs/cyds.

(*) Refer to Subsection 1004.02 for material characteristics.

**Lithium Nitrate** may be used in place of Supplemental Cementitious Materials (SCMs), see Section 1007 of the Standard Specifications.

(**) For slip form applications.

(*** For hand-pours and substructures applications.

(****) When IP using Class N pozzolan, the maximum water/cement ratio is 0.41.

<table>
<thead>
<tr>
<th>Table 1002.03</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table of Acceptable Concrete Class Substitutions</strong></td>
</tr>
<tr>
<td><strong>Class Specified</strong></td>
</tr>
<tr>
<td>BX</td>
</tr>
<tr>
<td>47B</td>
</tr>
</tbody>
</table>

5. Class PR1 and PR3 Concrete:
   a. The calcium chloride for use in PR concrete shall be either:
      (1) A commercially prepared solution with a concentration of approximately 32% by weight.
      (2) A Contractor prepared solution made by dissolving 4.5 pounds (0.54 Kg) of Grade 2 or 6.2 pounds (0.74 Kg) of Grade 1 calcium chloride per gallon (liter) of water to provide a solution of approximately 32% by weight.
b. The 7.4 pounds (10.89 Kg) of water in each gallon (liter) of solution shall be considered part of the total water per batch of concrete.

c. The calcium chloride solution shall be added, just prior to placement, at a rate of 0.375 gallons/100 pounds of cement (1.4 lb. calcium chloride per 100 lb. cement) [3.13 L/100 Kg of cement (1.4 Kg calcium chloride per 100 Kg cement)].

d. Class A, Flaked or Pellet Calcium Chloride shall be added at a rate not to exceed 2.0% of the weight of the cement for Grade 1, or 1.6% of the weight of the cement for Grade 2. Grade 1 Calcium Chloride purity is between 70 and 90% and Grade 2 Calcium Chloride is between 91 and 100%.

e. Where mixing trucks are used:

   (1) For Class PR3 concrete, calcium chloride shall be thoroughly mixed into the concrete before placement. The minimum mixing time is 2 minutes.

   (2) For Class PR1 concrete, calcium chloride shall be added first and then the concrete mixed at least 2 minutes or as required by manufacture. Next, the Type F high range water-reducer admixture is added and the concrete is mixed an additional 5 minutes.

6. Class High Early (HE) Concrete

   a. High Early (HE) strength concrete shall be cured as described in Subsection 603.03, Paragraph 7. The contractor shall take necessary curing measures so the required strength is achieved.

   b. High early concrete shall achieve a compressive strength of 3,500 psi (25 MPa) at 48 hours after placement.

   c. The 48-hour compressive strengths shall be used to determine pay factor deductions for high early concrete in accordance with Table 603.03.

   d. A non-calcium chloride accelerator shall be used when the ambient temperature at the time of the placement of concrete is 70°F or less.

   e. When requested by the Contractor, the maturity method, as provided in NDOT C 1074, may be used in lieu of the requirements of Subsection 603.03, Paragraph 11.c. and d. to determine the strength of concrete pavement for the purpose of early opening to traffic and acceptance. Requests by the Contractor for use of the maturity method shall be on a project basis and shall be made in writing to the Engineer.

7. The yield of the concrete proportions shall be determined by the Producer.

8. All Classes of Concrete with the exception of PR1 and PR3 shall have a Durability Factor not less than 70 and a mass loss not greater than 5% after 300 freeze/thaw cycles when tested in accordance with ASTM C 666. The freeze/thaw testing shall be conducted according to Procedure A.

1002.03-- Procedures

1. The Contractor shall identify the plant that will supply the concrete 14 days before use and be entirely responsible for its calibration, batching of
concrete, aggregate and sampling of cement per Department’s Sampling Guide.

a. The Contractor shall be responsible for the following:

(1) Batching concrete.

(2) Contractor shall sample aggregate from the conveyor belt or stockpile. Gradations from a split sample shall be tested in accordance to Section 1033 and reported to the Engineer at the frequency required by the Department’s Materials Sampling Guide.

   (i) Contractor shall retain possession of the split samples on-site at the Contractor’s facility until such a time disposal is approved by the Engineer.

   (a) At the pre-construction meeting:

      i. Contractor shall determine the location of testing and report the names of the technician performing the sampling and testing.

      ii. Engineer will notify the Contractor of the retrieval of the split samples.

   (ii) The Contractor shall split the sample, place the Department’s split sample into a cloth bag and immediately seal the split sample with the provided security seal. The cloth sample bag shall be supplied by the Department.

   (iii) The sampling splitting and placement of the security seal of aggregate samples shall be witnessed by certified Department personnel.

   (iv) Contractor shall secure the split sample using a consecutively numbered security seal of 75 pounds breaking strength provided by the Department. The Contractor shall use the consecutively numbered security seals to identify and track each Aggregate Class. Samples that are not consecutively numbered will be investigated for custody of the sample and the Engineer may cease production until it is determined what action will be required.

   (a) The Contractor shall report the security seal tracking number with the split sample gradation.

   (b) The following training shall be required for personnel who oversee the batching of the concrete:

      i. Concrete Technician Personnel

      [1] Concrete Plant Technician

      ii. Portland Cement Sampler

      [1] NDOT Portland Cement Sampler

2. Portland cement concrete shall be supplied by certified Ready Mix Plants that are in compliance with the requirements in the Quality Control Manual, Section 3, -- Certification of Ready Mixed Concrete Production Facilities published by the National Ready Mixed Concrete Association. Refer to the Department’s Material Sampling Guide for the policy on stationary and portable plants.
3. When the pavement is constructed under a Quality Control/Quality Assurance specification, the Contractor shall have a furnished testing laboratory on the project site. In the event the concrete is obtained from a commercial supplier, the supplier shall have a furnished testing laboratory at the site where the concrete is produced.

4. a. Mix times shall meet the requirements of ASTM C 94. Mixing time tests shall be repeated whenever the concrete appearance indicates that mixing was inadequate.

   b. Batch plants that are transporting the concrete in non-agitating trucks, the mixing time will not be less than 60 seconds, and for agitating trucks, the mixing time will not be less than 45 seconds.

   c. The Certification of stationary and portable ready mix plants will conform to the tests that are required in the Department’s Materials Sampling Guide.

5. The Contractor shall furnish the Engineer a weekly concrete placement schedule that is updated as necessary. The Engineer may observe any or all of the procedures and shall have access to all reported data during production and placement. Any inconsistencies shall be reported to the job superintendent and noted in the Engineer's diary.

6. Batch tickets shall be prepared as described in the National Ready Mixed Concrete Association’s Quality Control Manual. The Contractor shall keep all gradations and batch tickets until final acceptance by the Department. Projects that have less than 200 cubic yards of concrete placed will be allowed to have hand written tickets. For projects greater than 200 cubic yards, hand written tickets will be at the Engineer’s discretion. The concrete batch tickets shall show batch weights, aggregate moisture (shall be tested daily and moisture probes are allowed), admixtures used, water, and mix design calculations. A copy of the batch ticket shall be given to the Engineer upon delivery of concrete.

7. Aggregates from different sources shall be stockpiled separately. Aggregates produced by pumping from different pits in the Platte River Valley shall be considered to be from the same source. Aggregate production and quality of concrete are subject to the approval of the Department.
8. Coarse aggregate and aggregate from a dry pit shall be uniformly saturated with water before it is used. The wetting shall begin 24 hours before concrete mixing to allow complete saturation.

9. Cementitious Materials:
   a. Cementitious materials shall be stored separately according to material type, class, and source. Similar materials from different sources shall not be mixed or stored together or used alternately in the same concrete placement without permission of the engineer.

   b. When the same scale is used to weigh more than one cementitious material, the weight of the Portland cement shall be determined first.

   c. Cementitious materials shall be stored in watertight bins.

10. Concrete mixers shall have a 1/4 inch (6 mm) diameter drilled hole at the midpoint of each blade located at the point(s) recommended by the manufacturer.

11. Concrete transported in truck mixers or agitators shall be discharged within 90 minutes after the introduction of the cement to the aggregate. In hot weather, or under other conditions contributing to stiffening of the concrete, a shorter time may be specified by the Engineer.

12. Concrete transported in non-agitating trucks (i.e., dump trucks) shall be discharged within 30 minutes after the introduction of the cement to the aggregate. In hot weather, or under other conditions contributing to stiffening of the concrete, a shorter time may be specified by the Engineer.

13. Water:
   a. The quantity of water shall be determined by the Contractor. The minimum quantity of water should be used which will produce the required workability. Any additional water used to rinse the charging hopper and fins after the batching of concrete is allowed. This water must be estimated and recorded on the batch ticket.

   b. If the water/cement ratio is varied by more than 1%, an air test shall be performed and cylinders made to determine if the concrete is acceptable.

   c. Water added to any mix must pass through an approved and adjustable water-measuring device.

14. Additional Water:
   a. If additional mixing water is added, a minimum of 20 revolutions of the truck mixer drum at mixing speed shall be required.

   b. In no case shall the total amount of water in the batch exceed that allowed in Table 1002.02.

   c. No water may be added after discharge has begun.

15. Mobile mixers:
   a. Mobile mixers shall be self-contained and continuously mix the concrete.

   b. The mixer shall be self-propelled and shall be capable of carrying unmixed, dry bulk cement, aggregate, and water.
c. The mixer shall measure the volume of cement added to the mix. A recording meter visible at all times and equipped with a ticket printout shall indicate this quantity.

d. Water flow into the mixing chamber shall be automatically controlled. Water flow shall be indicated by flow meter and shall be readily adjustable to provide for minor variations in aggregate moisture.

e. The Contractor shall calibrate the aggregate gates once each year. However, the cement meter must be calibrated at each project site. The Engineer shall be given advance notice of the calibration tests so they can be observed.

16. Hand mixing will be allowed only on small jobs or in the case of an emergency. When hand mixing is allowed, it shall be done on a watertight platform.

1002.04-- Acceptance Requirements

1. Class 47B Concrete Mix Design Submittal:

a. The Contractor shall submit the Concrete Mix Design Worksheet consisting of design mix proportions, testing of mix design from a minimum of 4 cubic yards and aggregate data for 47B class of concrete being placed on the project.

   (1) All testing must be performed by a qualified laboratory found on the Department’s Material and Research website, under the Nebraska Qualified Consultant & LPA Laboratories and submitted to the Engineer.

   (2) The Concrete Mix Design shall be submitted to the Engineer 4 weeks prior to any concrete being placed on the project.

   (3) The Concrete Mix Design shall not be paid for directly by the Department and shall be subsidiary to items which direct payment is made.

   (4) Concrete shall not be placed on the project before the Concrete Mix Design Worksheet has been reviewed and approved by the Engineer.

b. The Contractor shall submit the Concrete Mix Design Worksheet to the Engineer. Email submissions are preferred but will be accepted by fax or postal mail.

   (1) Contractor’s Mix Design Worksheet can be found on the Materials and Research website. The submitted Mix Design Worksheet shall include the following:

   • Contractor Name
   • Project Number
   • Date
   • Location of ready mix or central mix plant
   • Date submitted
   • Signature of Contractor representative

   (2) Material Source Information.
1. Cement Manufacturer
   - Type of Interground/Blended Cement
   - Type of Admixtures
   - Aggregate Pit and Quarry location

(3) Specific Gravity of each individual aggregate source.

(4) Sand Equivalent for dry pit sand-gravel aggregate.

(5) Combined Aggregate percent passing as described on Table 1033.03C.

(6) Contractor’s Target combined aggregate gradation percent passing.
   - The Contractor’s required worksheet can be found on the Materials and Research website.

7. Testing of Mix Design:
   - The mix design shall show the weights of all ingredients including Interground/Blended cements, aggregates, water, admixtures types and water cement ratio.
     - Temperature of concrete at time of sampling, ASTM C 1064.
     - The air content of plastic concrete, ASTM C 231.
     - Weight per cubic foot, Yield, ASTM C 138. The relative Yield shall be a minimum of 97%.
     - Compressive strength shall be performed with a minimum of three averaged specimens at 7-day and 28-day, ASTM C 39. The minimum 28-day compressive strength shall be 3500 psi.

8. Traditional 47B Mix Design is defined as an IP(25) cement, 70% Class B Aggregate and 30% Class E Aggregate may be exempt from the concrete testing described in Paragraph 1.(b)(7). All other requirements shall be included in the Concrete Mix Design Report.

   c. The PCC Engineer will notify the Contractor of the mix design approval for Class 47B Concrete. Approval of the mix design does not alleviate the Contractor of the responsibility of the in-place concrete. The Contractor may adjust admixtures, water cement ratio, vibrator frequency, etc., as needed in accordance to the specifications.

   d. The Contractor shall submit a new concrete mix design worksheet meeting the above requirements when a change occurs in the source, type, or proportions of cements or aggregates; unless otherwise approved by the Engineer.

2. The quantity of water to be used shall be determined by the Contractor. It shall not be varied without the Engineer's consent.

3. If the concrete mixture is excessively wet causing segregation, excessive bleeding, excessively dry or any other undesirable condition, the concrete shall be rejected. At the option of the Engineer, slump tests may be performed to determine the consistency.
4. Concrete which has developed initial set before it is consolidated and finished shall be rejected.

5. a. If false set is encountered, the batching operation shall be stopped until the problem is resolved.
   
   b. Each batch must be mixed or agitated for at least 3 additional minutes after observing the false set and the concrete must be of satisfactory consistency.

6. Compressive strength tests shall be made in accordance with ASTM C 39.

7. Concrete shall be sampled as described in the Department’s Materials Sampling Guide. Samples shall be taken at the point of placement, never before the discharge from the last conveyance.

8. Aggregate Acceptance, Verification, Sampling and Testing:
   
   a. The aggregate will be accepted based on the Contractor’s testing results except as noted below.

   b. The aggregate verification sampling and testing by the Department will be randomly selected and tested according to sublot sizes in Table 1002.05.

<table>
<thead>
<tr>
<th>Aggregate Class</th>
<th>Lot</th>
<th>Sublot</th>
</tr>
</thead>
<tbody>
<tr>
<td>E and F</td>
<td>3000 tons</td>
<td>1000 tons</td>
</tr>
<tr>
<td>A, B and C</td>
<td>6000 tons</td>
<td>2000 tons</td>
</tr>
<tr>
<td>R</td>
<td>6000 tons</td>
<td>2000 tons</td>
</tr>
</tbody>
</table>

   c. The results of Contractor split sample will be verified by the Department’s verification tests. Any samples outside of the tolerances as specified according to the Materials Sampling Guide, Section 28 under the Acceptable Tolerance Limits for Independent Assurance will result in an Independent Assurance (IA) review of testing and may result in the Department test results being applied.

   d. On any given Lot, if the results of the gradation from the verification test are within Department’s specification, the Contractor’s results will be used for the entire lot. On any given Lot, if the gradations results from the verification test are outside Department’s specification, further investigation will be initiated by the Engineer for that sublot. Any or all of the remaining Department sublot samples may be tested and the Department sublot test results may be applied to the respective sublot and the acceptance will apply.

   e. When verification tests are within testing tolerance but results show a consistent pattern of deviation from the split sample results, the Engineer will exercise one or more of the following:

   - Cease production.
   - Request additional verification testing.
   - Initiate a complete IA review.
f. Independent Assurance (IA) Review of Testing:

(1) The Contractor shall allow the Department personnel access to the Contractors’ laboratory to conduct IA review of the technician testing procedures and apparatus. Any deficiencies discovered in the Contractor’s testing procedures will be reported to the Contractor and corrected by the Contractor.

(2) During the IA review, the Department personnel and the Contractor shall split a sample for the purpose of IA testing. The samples selected will be tested in the Department’s Branch Laboratory. Any IA test results found to be outside of defined testing tolerances as stated in Paragraph 8.c. of Subsection 1002.04 will be reported to the Contractor. The Contractor shall immediately correct any deficiencies found during the IA review.

(3) If the project personnel and the Contractor cannot reach agreement on the accuracy of the test results, the Department Central Laboratory will be asked to resolve the dispute, which will be final. All dispute resolutions will be in accordance with the Quality Assurance Program requirements in the Department’s Materials Sampling Guide.
SECTION 1005 -- WATER FOR CONCRETE

1005.01 -- Description
1. Water shall be free from objectionable quantities of oil, acid, alkali, salt, organic matter, or other deleterious materials and shall not be used until the source of supply has been approved.

2. Wash water from the mixer washout may be used only with the Engineer’s approval. Use of wash water will be discontinued if undesirable reaction with admixtures or aggregates occurs.

1005.02 -- Material Characteristics
1. Water which contains more than 0.25% total solids by weight shall not be used.

2. When required by the Engineer, the quality of mixing water shall be determined by NDOT C 114, NDOT T 290, NDOT D 512, NDOT C 1602, ASTM C 31, ASTM C 109, ASTM C 191, and ASTM C 1603.

3. Upon written request by the concrete producer and approval by Engineer, the concrete producer may utilize up to 10% wash water for batching all classes of concrete with the following conditions:
   a. Wash water conforms to requirements in Paragraph 2 of Subsection 1005.02.
   b. Wash water must be clarified wash water that has been passed through a settling pond system.
   c. Wash water must be scalped off of a settling basin that has been undisturbed for a minimum of 12 hours.
   d. Wash water must be metered into each load.
   e. Wash water quantities shall be shown on the batch ticket.
SECTION 1007 -- CHEMICAL ADMIXTURES

1007.01-- Description

1. Admixtures are materials added to Portland cement concrete to change characteristics such as workability, set time, strength, permeability, freezing point, and curing.

2. The Department's concrete admixture types are:
   a. Type A - Water-Reducing Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump.
   b. Type B - Retarding Admixture - An admixture that slows down the setting of concrete.
   c. Type C - Accelerating Admixture - An admixture that speeds up the setting and early strength development of concrete.
   d. Type D - Water-Reducing and Retarding Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump and slows down the setting of concrete.
   e. Type E - Water-Reducing and Accelerating Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump and speeds up the setting and early strength development of concrete.
   f. Type F - Water-Reducing, High Range Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12% or greater.
   g. Type G - Water-Reducing, High Range and Retarding Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12% or greater and slows down the setting of concrete.
   h. Air-Entraining - An admixture that encapsulates air in the concrete.
   i. Lithium Nitrate – An admixture used to control the Alkali-Silica-Reaction (ASR) in concrete.

1007.02-- Material Characteristics

1. Type A through G admixtures shall meet the requirements in ASTM C 494.

2. Air-entraining admixtures shall meet the requirements in ASTM C 260.

3. Use of admixtures other than those cited may be requested by the Contractor.

4. Admixtures shall not contain more than 1% of chlorides calculated as calcium chloride.

5. Admixtures shall be used at the manufacturer's recommended dosage rates.

6. The air-entraining admixture characteristics shall produce concrete with satisfactory workability and a total air content as described in Table 1002.02.
7. a. When using the Lithium Nitrate admixture, the Contractor shall submit to the Engineer:

   (1) A five pound sample of Portland cement that will be used on the project.

   (2) The Manufacturer’s method for determining the recommendation for the required dose rate based on the equivalent alkali content.

   (3) Water content of the Lithium Nitrate admixture solution.

b. The Engineer will report the equivalent alkali content to the Contractor. The Contractor shall use the reported equivalent alkali content to determine the required dose rate based on the manufacturer’s recommendation.

1007.03-- Procedures

1. Field Addition of Admixtures:

   a. The process for adding admixtures to a ready mix truck on the project site involves positioning the load of concrete up to the truck chute, stopping short of discharge.

   b. The admixture is then poured over the surface of the concrete and mixed for at least 5 minutes.

   c. No more than 1.3 gallons (5L) of water shall be used to rinse the admixture from the fins and top chute. This water must be shown on the proportioning report and shall not cause the water cement ratio of the mix to be exceeded.

   d. When Lithium Nitrate is used, the portion of the admixture that is water will be shown on the proportioning report and shall not cause the water cement ratio of the mix to be exceeded.

   e. The Contractor is responsible for the addition of the admixture.

2. Field adjustment of Air Content:

   a. If the air content is less than the minimum specified, addition of air-entraining admixtures is allowed.

   b. The Contractor shall take measures based on manufacturer’s recommendations that are within compliance of Department Specifications, to bring the load of concrete into the Department described limits according to Table 1002.02.

   c. If the air content is then outside the limits in Table 1002.02, the load of concrete shall be rejected.
SECTION 1008 -- FLY ASH

1008.01-- Description

1. Fly ash shall be Class C or F meeting the requirements of ASTM C 618.

1008.02-- Material Characteristics

1. All fly ash will be acceptance tested by the Department. This includes production plant samples and field samples.

2. Fly ash shall conform to the requirements of Class C or Class F pozzolan as defined in ASTM C 618 except that the maximum loss on ignition for Class F pozzolan shall be 3.0%. Either class of fly ash shall not contain more than 1.5% of available alkalis as Na₂O.

3. Fly ash produced in furnace operations utilizing liming materials or soda ash (sodium carbonate) as an additive will not be acceptable.

1008.03-- Procedures

1. Fly ash shall be protected, stored, handled, and sampled in the same manner as specified for Portland cement in Sections 1002 and 1004 and the Department’s Materials Sampling Guide.

2. Each shipment of fly ash sent to the project or ready mix plant shall be accompanied with a certificate of compliance from the supplier. The certificate must include the following information:
   a. Name of the supplier.
   b. Source of the fly ash.
   c. Consignee and destination of the shipment.
   d. Project number to be used on, if available, and dateshipped.
   e. Railroad car number or truck identification number.
   f. Weight of the shipment.
   g. Certified test number representing the material being shipped.
   h. An unrepeated order number or other identification number so that each shipment is separately identified.
   i. The Department’s specifications that the product is in compliance with.

3. The following signed certification statement, or similar wording, must also be included on the form:

   "This is to certify that this shipment of fly ash meets the specification requirements of the Nebraska Department of transportation for Class ______ fly ash."

   Signed ________________________________
   For ________________________________
   (Supplier)

4. Two copies of the certificate of compliance shall be sent with the shipment for the Engineer. The Engineer will retain one copy for his/her file and send the other copy to the Department’s Materials and Research Division to serve as notification of receipt and identification of the fly ash.
5. Fly ash may be used as soon as it is received, provided it is accompanied by the proper certificate of compliance and the results of previous tests indicate a satisfactory product.

1008.04--Acceptance Requirements

1. Approved fly ash will be on the Department’s Approved Products List.

   Fly ash may be added to the Department’s Approved Products List if it is in conformance with the Department’s Acceptance Policy for Fly Ash. This information is available upon request from the Department's Concrete Materials Section.

2. Should any sample indicate noncompliance with the specifications, use of material from that source based on certification only may be withheld. It will be necessary that the fly ash be held in special silos or bins at the generating plant or some facility under control of the company furnishing the fly ash until such time that test results show compliance.

   When it can be shown that continuing production from that generating plant has a high assurance of meeting specifications, material acceptance may once again be based on certification only.

3. If tests made on field samples taken by the Department fail to meet any of the specification requirements, all shipments from the supplier will be held until tests have been completed by the Department’s Materials and Research Division and approval for use is issued.

   This procedure will be continued until it can reasonably be assured that the fly ash from the supplier will again continue to meet contract requirements.
SECTION 1012 -- LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE

1012.01 -- Description

1. Liquid membrane-forming compounds are intended for application to concrete surfaces to reduce the loss of water during the early-hardening period. White-pigmented compounds serve the additional purpose of reducing the temperature rise in concrete exposed to radiation from the sun.

1012.02 -- Material Characteristics

1. Liquid membrane-forming compounds shall conform to the requirements of AASHTO M 148, Type 2.

1012.03 -- Acceptance Requirements

1. All curing compounds to be approved must be manufactured during the current calendar year with no carry-over from the previous years.

2. Approved compounds are on the Department’s Approved Products List.

3. Products not on the Department’s Approved Products List shall be sampled and tested in accordance with requirements of the Department’s Materials Sampling Guide prior to their use.
SECTION 1014 -- JOINT AND CRACK SEALING FILLER

1014.01 -- Description

1. Joint sealing filler shall be either a cold applied silicone product or an asphalt product (hot pour) conforming to the requirements of the contract. The type of joint filler to be used shall be as specified in the contract. If not specified, any of the joint sealing fillers in this Section may be used.

2. Crack sealing filler shall be a hot pour sealer conforming to the requirements of the contract.

1014.02 -- Material Characteristics

1. NE – 3405 and NE-3405LM (hot pour)
   a. NE-3405 joint and crack sealer shall conform to the requirements of ASTM D 6690, Type II. The material shall conform to the requirements of Table 1 with the following exceptions:
      (1) The test of Bond, non-immersed, ASTM D5329, 3 specimens through 3 cycles shall be run at 0°F (-18°C), 100% extension.
   b. NE-3405LM (Low Modulus) joint and crack sealer shall conform to the requirements of ASTM D6690, Type IV. The material shall conform to the requirements of Table 1.
   c. The test of Bond, non-immersed, ASTM D5329, will be tested on concrete blocks which are constructed by the Department’s Concrete Laboratory. The materials used are a common design in Nebraska concrete paving specifications. The design is a 47B concrete mixture as specified in Section 1002 of the Department’s Standard Specifications. The design is amended to not include flyash, but all other specifications for Portland Cement Concrete apply.
   d. Sample conditioning, preparation and heating shall be in accordance with ASTM D5167 with the following exceptions:
      (1) The following sentence of 8.1.2, “Also, if present, remove container liner by cutting it away”, is void and superseded by the following: “Also, if present, as much of the polyethylene bag as possible, shall be removed by cutting it away. Wholly-meltable type container in adhered contact with the sample section is left in place. For wholly-meltable type containers that do not adhere to the sealant material, a pro-rated amount of the meltable type container shall be added to the sample.”
      (2) The last sentence of section 8.1.2 “Solid Materials” is void and superseded by the following: “The entire vertical section which has been cut, shall be placed into the pot for melting.”
      (3) The Section of 8.2.2.1 “Solid Materials” is void.
      (4) The Section of 8.2.3 is void and superseded by the following: “After the solid segment is added to the melter, the material shall be allowed to melt to a uniform viscous state suitable for the installation of the stirrer or paddle. The sample shall then be stirred for one full hour. The oil bath temperature shall be regulated to bring the material to the maximum heating temperature within the one full hour of stirring.”
      (5) The Section of 8.2.4.1 is void and superseded by the following: “During the one full hour of stirring, check the temperature of the material at maximum 15 minute intervals using a Type K thermocouple with
the calibration verified in accordance with Section 6.1.7 to ensure conformance with the specified temperature requirements. Stop the mechanical stirrer when measuring temperatures. If material temperatures ever exceed the maximum heating temperature, or ever drop below the minimum application temperature after the maximum heating temperature was reached, discard the sample and re-do the heating. Maintain appropriate records of times and temperatures to verify conformance with specification requirements.”

(6) The Section of 8.2.4.2 is void.

e. ASTM D5329 test methods shall include the following changes:

(1) Sections 6.4 and 12.4 “Specimen Preparation” shall have the reference of “177 ml (6 oz.)” replaced with “3 oz.”

(2) Section 6 “Cone Penetration, Non-Immersed” shall be superseded with the following exceptions:

(i) Section 6.5 “Procedure” is void and superseded by the following: “Place the specimen in a water bath maintained at 77 +/- 0.2°F (25 +/- 0.1°C) for two hours immediately before testing. Remove the specimen from the bath and dry the surface by shaking gently to remove free water from the surface of the specimen. Using the apparatus described in Section 6.3, make one determination at or near the center of the specimen. Take care to ensure the cone point is placed on a point in the specimen that is representative of the material itself, and is free of dust, water, bubbles, or other foreign material.”

(ii) Section 6.6 “Report” is void and superseded by the following: “Record the value as the penetration of the specimen in dmm units.”

(3) Section 12 “Resilience” shall be superseded with the following exceptions:

(i) Section 12.5 “Procedure”, void the sentence “Make determinations at three points equally spaced from each other and less than 13mm (1/2 inch) from the container rim.” and supersede with the sentence “Make one determination at or near the center of the tin.”

(ii) Section 12.6 “Report” is void.

2. Silicone Joint Sealer (cold applied)

a. Silicone joint sealers may be either self-leveling or non-sag and shall meet the requirements in Table 1014.01.
Table 1014.01

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirement</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>As supplied:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.010-1.515</td>
<td>ASTM D792</td>
</tr>
<tr>
<td>Work Time, minimum</td>
<td>10 minutes</td>
<td></td>
</tr>
<tr>
<td>Tack-Free Time, at 77°F (25°C)</td>
<td>20-360 minutes</td>
<td></td>
</tr>
<tr>
<td>Cure Time, at 77°F (25°C), max.</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td>Full Adhesion, maximum</td>
<td>21 days</td>
<td></td>
</tr>
</tbody>
</table>

As cured, at 73.4 ±/−3.6°F (23+/−2°C) and 50±5% RH:

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirement</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultimate Elongation, minimum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durometer Hardness:</td>
<td>800%</td>
<td>ASTM D412</td>
</tr>
<tr>
<td>Non-Sag, Shore A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Leveling, Shore 00, minimum</td>
<td>10-25</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>Cyclic Joint Movement Capacity</td>
<td>40</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>Tensile Stress, at 150% Elongation</td>
<td>+100% to -50%</td>
<td>ASTM C719</td>
</tr>
<tr>
<td></td>
<td>45 psi</td>
<td>ASTM D412</td>
</tr>
</tbody>
</table>

1014.03-- Packaging

1. NE – 3405 and NE-3405LM
   a. The joint and crack sealer can be packaged in either cardboard box or wholly-meltable type containers.

   (1) Cardboard box containers shall be manufactured from double wall kraft board producing a minimum bursting test certification of 350 PSI (241 N/cm²) and using water-resistant adhesives. The use of metal staples or fasteners of any kind will be prohibited for closing the lids of the boxes. Tape or other like material is acceptable.

   (i) The sealant in the cardboard box shall be packaged in meltable [300°F (149°C)] polyethylene bag(s).

   (2) Wholly-melted type containers, and any of their components, shall be fully meltable and integrational with the sealant by the time the manufacturer’s minimum application temperature is reached.

   (i) The wholly-melted and integrated container must not adversely affect the test specifications of the sealant.

   (3) Each individual container shall include information regarding manufacturer, lot or batch number, type of product, minimum application temperature, and maximum heating temperature. The maximum heating temperature must be at least 20°F (11°C) higher than the minimum application temperature.

2. Silicone Joint Sealer
   a. Each container shall include information regarding manufacturer and product name.

1014.04-- Acceptance Requirements

1. NE – 3405 and NE-3405LM
   a. Acceptance of the manufactured material is based on pre-approval by either on or off-site sampling. Acceptable Hot Pour Sealant lots are listed on the Department’s Approved Products List.
(1) Department on-site field sampling shall be in accordance with the Department’s Materials Sampling Guide.

(2) Off-site (Proxy) sampling shall be in accordance with ASTM D 6690.

(i) Proxy sampling shall be overseen by an outside party approved by the Department, preferably another DOT Agency. Proxy samples shall include a manufacturer’s Certificate of Compliance. Proxy samples shall also include a dated signature of origin by the Representative that is not affiliated with the manufacturer, and can either be on the Certificate of Compliance, or on a separate letter.

(ii) For convenience in both sampling and shipping samples, sample containers smaller than a manufacturer’s usual production containers are allowed, as long as the sample is a minimum of 1500 grams.

(iii) Samples shall be sent to the Department’s Bituminous Laboratory, or alternatively, sent to a Department approved independent laboratory for testing which will be at no cost to the Department. If a Department approved independent laboratory is used, the Department’s Bituminous Laboratory shall be notified so that concrete blocks for Bond testing (1014.02 para. 1.c.) can be sent to it.

2. Silicone Joint Sealer
   a. Acceptance of applied silicone joint sealers shall be in accordance with the Department’s Materials Sampling Guide.

   b. Acceptable silicone joint sealer manufacturer products are listed on the Department’s Approved Products List.

   (1) For products that are not listed, approval may be based upon test results from an independent laboratory submitted to the Department by the manufacturer, and testing by the Department. Approval must be made prior to product use.
SECTION 1018 -- EPOXY COMPOUNDS AND ADHESIVES

1018.01 -- Description

1. This Specification provides requirements for two-component, epoxy-resin bonding systems for use in non-load bearing applications and resin adhesives for application to Portland cement concrete.

1018.02 -- Material Characteristics

1. Epoxy-resin bonding systems shall conform to the requirements of ASTM C 881. Approved systems are shown on the Department’s Approved Products List.

2. The classification of Epoxy-Resin Bonding Systems is as follows:
   a. Type I - For use in non-load bearing applications for bonding hardened concrete and other material to hardened concrete.
      Type II For use in non-load bearing applications for bonding freshly mixed concrete to hardened concrete.
      Type III For use in bonding skid resistant materials to hardened concrete, and as a binder in epoxy mortars or epoxy concretes.
   b. Grade 1 Low viscosity.
      Grade 2 Medium viscosity.
      Grade 3 Non-sagging consistency.
   c. Class A For use below 40°F (4°C); the lowest allowable temperature to be defined by the manufacturer of the product.
      Class B For use between 40°F and 60°F (4°C and 15°C).
      Class C For use above 60°F (15°C); the highest allowable temperature to be defined by the manufacturer of the product.
      Class D For use between 40°F and 65°F (4°C and 18°C).
      Class E For use between 60°F and 80°F (15°C and 26°C).
      Class F For use between 75°F and 90°F (24°C and 32°C).

1018.03 -- Procedures

1. The compounds shall be of the type and grade specified in the contract or as directed by the Engineer.

2. The class of the compounds shall be selected for use according to climatic conditions at the time of application.

3. All bonding surfaces shall be clean and free of all oil, dirt, grease, or any other materials which would prevent bonding.
   and application shall be in strict accordance with the manufacturer's instructions.
1018.04-- Acceptance Requirements

1. Epoxy-resin bonding systems and resin adhesives approved for use are shown on the Department’s Approved Products List.

2. Epoxy compounds that are not on the Department’s Approved Products List may be accepted based on a manufacturer's certificate of compliance.
SECTION 1021 -- EPOXY COATED REINFORCING STEEL

1021.01-- Description

1. Epoxy coated bars for concrete reinforcement shall conform to the requirements of ASTM A 775/A 775 M, Section 1020, and as shown in the contract. The bars shall be free of contaminants such as oil, grease, paint, slivers, or any other imperfections which may be detrimental to the coating process.

2. All reinforcing bars furnished under this item shall be given a protective coating of a fusion bonded epoxy resin.

1021.02-- Material Characteristics

1. The coating shall be applied as an electrostatically charged dry powder sprayed onto a grounded steel bar using an electrostatic spray gun. The powder may be applied to either a hot or cold bar. The coated bar shall be given a thermal treatment specified by the manufacturer of the epoxy resin which will provide a fully cured finished coating.

2. The coating material shall be a powdered epoxy resin prequalified by evaluation as described in ASTM A 775/A 775 M. Tests shall be performed by the National Bureau of Standards (NBS), a qualified independent testing laboratory, or a state laboratory approved by the Department's Materials and Research Division. Approval of material by an independent or state laboratory is subject to the Engineer's review of the test data.

3. The manufacturer of the epoxy resin shall also supply the coating applicator with all other information and recommendations essential to the proper use and performance of the powdered resin as a coating. An authorized representative of the manufacturer shall provide written certification to the applicator that the powdered resin furnished for coatings is the exact formulation that was prequalified by the NBS or other testing agency.

4. At the request of the Engineer, the coating applicator shall provide a representative 7 ounce (200 g) sample of the resin powder used to coat each lot of bars. The sample shall be packaged in an air-tight container with identification by lot number.

5. The approved powdered epoxy resins are on the Department’s Approved Products List.

6. A suitable patching material compatible with the coating and inert in concrete shall be made available to the Contractor by the manufacturer of the epoxy resin for repair of damaged coating areas at the applicator's plant or in the field. The patching or repair shall be performed in accordance with the recommendations of the material manufacturer.

7. A film thickness after curing of 7 to 12 mils (180 to 300 µm) shall be applied in a uniform, smooth coat with no discontinuities, except as provided herein. Thickness of the film shall be measured on a representative number of bars from each production lot by the same method outlined in ASTM G 12 for measurement of film thickness of pipeline coatings on steel.

8. The coating shall be checked after curing for continuity of coating and shall be free from holes, voids, contamination, cracks, or other damaged areas. The average number of holidays per foot (300 mm) shall not exceed
one holiday per foot (300 mm) of coated bar. An in-line 67.5 volt DC powered detection system with an audible or visual signal shall be used in accordance with the manufacturer's instructions to check the coating for holidays and other defects.

9. Flexibility and Adhesion:
   a. The flexibility and adhesion of the coating shall be evaluated on samples of all the bar sizes for each day's production lot.
   b. The coated bars shall be capable of being bent 120 degrees around a mandrel of the size specified in Table 1021.01.
   c. The bend test shall be made at a uniform rate.
   d. The coating on the bars shall show no evidence of cracking or separation from the bar. If a sample's coating shows evidence of cracking or separation, 2 retests shall be conducted on random samples from the same day's production lot.
   e. If the results of both retests meet specified requirements, the coated bars represented by the sample shall be accepted.

Table 1021.01

<table>
<thead>
<tr>
<th>Bar No.</th>
<th>Mandrel Diameter (inches)</th>
<th>Bar Mandrel Diameter (millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>13</td>
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<td>43</td>
</tr>
<tr>
<td>18</td>
<td>23</td>
<td>57</td>
</tr>
</tbody>
</table>

10. The bending test shall be conducted at room temperature after the specimen has been exposed to room temperature for a sufficient time to insure that it has reached thermal equilibrium. A temperature in the range of 68°F to 86°F (20°C to 30°C) shall be considered room temperature.

11. The coating applicator shall ensure that samples for the bend test will not short the bar lengths specified in the contract.

1021.03-- Procedures

1. The surface of the bars to be coated shall be clean and free from rust, scale, oil, grease, and similar contaminants.

2. The surface shall be blast cleaned to a near-white metal in accordance with the Steel Structure Painting Council Surface Preparation Specifications SSPC-SP10.
3. All traces of dust and grit from the blasting shall be removed.

4. The coating shall be applied to the cleaned surface as soon as possible after blasting and before visible oxidation of the surface occurs. However, in no case shall the application of the coating be delayed more than 8 hours after blasting without specific approval of the Engineer.

5. In order to protect the coated reinforcement from damage, the Contractor shall use padded or nonmetallic slings and padded straps. Bundled bars shall be handled in a manner which will prevent excessive sagging of bars which will damage the coating. If circumstances require storing coated steel reinforcing bars outdoors for more than two months, protective storage measures shall be implemented to protect the material from sunlight, salt spray and weather exposure. Coated steel reinforcing bars, whether individual bars or bundles of bars, or both, shall be covered with opaque polyethylene sheeting or other suitable opaque protective material. For stacked bundles, the protective covering shall be draped around the perimeter of the stack. The covering shall be secured adequately, and allow for air circulation around the bars to minimize condensation under the covering. Coated steel reinforcing bars, whether individual bars or bundles of bars, or both, shall be stored off the ground on protective cribbing. The bundled bars shall not be dropped or dragged. If, in the opinion of the Engineer, the coated bars have been extensively damaged, the material will be rejected. The Contractor may propose, for the approval of the Engineer, alternate precautionary measures.

6. The Engineer may defer final inspection and approval of the bar coating integrity and repairs until the bar mat is in place and all handling is completed. A reasonable amount of coating damage due to fabrication and handling may be allowed depending on the number, extent, size, and location of such damaged areas. The Engineer shall be the sole judge of which imperfections in the coating need not be repaired.

7. The bars shall be fabricated and placed as shown in the contract and as specified in Section 707.

8. Epoxy Repairs:

a. Patching materials supplied or recommended by the manufacturer of the powdered resin shall be used to repair the coating and shall be applied to provide a minimum film thickness of 5 mils (125 µm) over the bare area. Areas to be patched shall be clean and free of surface contaminants. They shall be properly treated in accordance with the resin manufacturer's recommendations before detrimental oxidation occurs.

b. Care should be taken during the patching procedure to assure that the coating thickness on the area adjacent to the patched area does not exceed 15 mils (375 µm). Extensive areas of damaged coating, exceeding that which is unavoidable in careful handling and shipping, may be cause for rejection of the damaged bars.

c. In no case, however, shall the total bar surface area covered by patching material exceed 5%. (The 5% total bar surface area is the combined area for repairs done in the fabricator's shop and those done in the field.)

d. Proper repairs shall be the Contractor's responsibility even when the work is done by an applicator, fabricator, or other subcontractors.
9. The identification of all reinforcing bars (manufacturer, heat number, and size) shall be maintained by the fabricator throughout the fabrication and coating process to assure that the coated, fabricated bars are identified with proper tags for final shipment to the job site (tags should show size, heat number, and mark).

10. Certification:

   a. The coating applicator shall furnish with each shipment a written certificate stating that all bars have been coated in accordance with the resin manufacturer's recommendations and these Specifications.

   b. The certification shall include for each bar size the preheat temperatures, cure times, thickness charts, holidays detected, and bend test results.

1021.04-- Acceptance Requirements

1. Plant Approval:

   a. A plant intending to supply epoxy coated reinforcing steel under these Specifications shall be inspected and approved by Department’s representatives before making shipments to job sites. The plant shall notify the Department’s Materials and Research Division 30 days before processing any material. A date and time of inspection will be arranged by the Department’s Materials and Research Division and the plant.

   b. Once a plant is inspected and approved, the applicator may ship the coated bars on the basis of a certificate of compliance which lists the material shipped and states that the material complies with these Specifications.

   c. The inspection and approval of a plant does not constitute a blanket-type approval. The coating applicator's plant will be subject to additional in-plant inspections if, at any time, in the opinion of the Engineer, the quality of the coated bars appears to be below specification requirements.

2. Coated bars will be inspected at the destination before any bars are incorporated in the work.

3. The coated bars will be inspected on the job site for handling defects, coating thickness, and continuity of coating. A 67.5 volt DC holiday detector will be used for determination of continuity of coating.

4. In addition to the testing done at the coating applicator's plant (continuity, flexibility, adhesion, and film thickness), two 6 foot (1.8 m) samples of the coated bar (for tension testing and bend testing) of each size bar and each heat number shall be sent to the Department’s Materials and Research Laboratory, Lincoln, Nebraska. These bars will be properly identified with tags showing the size and heat number.
SECTION 1022 -- DOWEL BARS

1022.01 -- Description

1. Coated dowel bars for use across transverse joints shall conform to the requirements of AASHTO M 254.

2. Coated dowel bars for use across transverse joints shall consist of a steel core with an organic covering and shall comply with the requirements of AASHTO M 254, Corrosion Resistant Coated Dowel Bars except:
   a. The steel cores shall be smooth round bars of the diameters shown in the contract and shall comply with ASTM A 615/A 615M, Grade 40 or 60 (300 or 420). ASTM A 36, Grade 36 steel is an acceptable substitute, provided the steel meets or exceeds the chemical and mechanical requirements of ASTM A 615, Grade 40.
   b. The coating on the lateral surface of the dowel may be eliminated for approximately 2 inches (50 mm) on one end of the dowel for welding purposes. Sheared or cut ends of fabricated dowels may be coated or un-coated, at the discretion of the fabricator or supplier.
   c. Both Type A and Type B coated dowel bars shall be coated with a bond breaker shown on the Department’s Approved Products List, dipped in asphalt or paraffin, or greased in accordance with the specified requirements as shown in the contract.

1022.02 -- Acceptance Requirements

1. A plant supplying coated dowel bars under these Specifications shall meet the Acceptance Requirements as set forth in Section 1021 for Epoxy Coated Reinforcing Steel. A certification by the manufacturer of the coating material and/or the coating applicator is required. The certification shall consist of a statement to the effect that the coating material represented conforms to AASHTO M 254 and the requirements in this Section. The certifications shall be furnished in triplicate and include copies of the test results. The coating applicator shall also furnish 3 copies of the mill test showing physical and chemical test results of the steel used in the fabrication of the coated bars.

2. In addition to these certificates, two 6-foot (1.8 m) samples of the coated bar (for tension testing and bend testing) of each size bar and each heat number shall be sent to the Department’s Materials and Research Laboratory, Lincoln, Nebraska. These bars will be properly identified with tags showing the size and heat number.
1033.01 -- Description

1. Mineral aggregates shall be crushed rock, broken stone, gravel, sand-gravel, coarse sand, fine sand, or a mixture of these materials composed of clean, hard, durable, and uncoated particles. Crushed rock shall be crushed limestone, dolomite, granite, quartzite, or other ledge rock approved for the intended purpose by the Department’s Materials and Research Engineer.

2. This combined aggregate gradation using Class R aggregate is to optimize aggregate blends utilizing more locally available materials.

   a. Achieving a uniform gradation for Class R may require the use of two or more different aggregates. It is the responsibility of the contractor to meet additional material characteristics requirements; such as, but not limited to particle shape, cubicity, angularity, etc., when designing a mix.

1033.02 -- Material Characteristics

1. Sampling and Testing Procedures:

   a. All materials shall be sampled and tested in accordance with Table 1033.01. All material source locations and quarries must be approved by the Department prior to use.

2. General Aggregate Properties:

   a. Aggregates shall be free from injurious quantities of dust, soft or flaky particles, loams, alkali, organic matter, paper, wood, or other deleterious matter as determined by the Engineer.

| Table 1033.01 |
|---|---|
| Sampling and Testing Procedures | Method |
| Sampling | NDOT T 2 |
| Sieve Analysis | NDOT T 27 |
| Clay Lumps, Shale, and Soft Particles | NDOT T 504 |
| Abrasion | NDOT T 103 |
| Freeze and Thaw Soundness | AASHTO T 96 |
| Specific Gravity and Absorption (course aggregate) | AASHTO T 85 |
| Specific Gravity and Absorption (fine aggregate) | AASHTO T 84 |
| Total Evaporable Moisture Content of Aggregates by Drying | AASHTO T 255 |
| Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test | AASHTO T 176 |
| Sodium Sulfate Soundness | AASHTO T 104 |
| Calcium Carbonate | NDOT C 25 |
| Organic Impurities | AASHTO T 21 |
| Mortar-Making Properties= | AASHTO T 71 |
| Reducing Field Samples of Aggregate to Testing Size | AASHTO T 248 |
| Lightweight Pieces in Aggregates | NDOT T 113 |
b. Dolomite as herein defined is a magnesium limestone containing calcium carbonate and magnesium carbonate in approximately a 4 to 3 ratio.

c. The calcium carbonate content of limestone shall be at least 80% (computed as CaCO$_3$ from the value determined for CaO).

d. Fine sand shall have at least 95% of its particles pass the No. 10 (2.0 mm) sieve and no more than 25% pass the No. 200 (75 µm) sieve. This definition applies to the sodium sulfate soundness test.

e. Once an aggregate's soundness and abrasion quality has been determined, additional quality testing for soundness and abrasion loss will be at the Engineer's discretion.

f. All aggregates or combined aggregates that have been washed or coming from a wet pit shall be stockpiled for a minimum of 48 hours before being introduced into concrete.

3. Portland Cement Concrete Aggregate:
   a. Fine Aggregate:
      (1) Aggregate shall be washed and composed of clean, hard, durable and uncoated particles.
      (2) Aggregates produced from wet pits by pumping must be adequately washed by means approved by the Department.
      (3) Aggregates from dry pits shall be adequately washed by means approved by the Department and have a Sand Equivalent value not less than 90 in accordance with AASHTO T 176.
         (i) If the Sand Equivalent is less than 90, the Engineer may elect to stop aggregate production until such a time ASTM C 109 has been completed. The aggregate, when subjected to the test for mortar-making properties, shall produce a mortar having a compressive strength at the age of 7 days equal to or greater than that developed by mortar of the same proportions and consistency made of the same cement and aggregate after the aggregate has been washed to a sand equivalent greater than 90. Materials failing to produce equal or greater strength shall be unacceptable.
      (4) Aggregate for concrete shall have a soundness loss of not more than 10% by weight at the end of 5 cycles using Sodium Sulfate Soundness test AASHTO T 104.
      (5) The weight of the aggregate shall not contain more than 0.5% clay lumps.
      (6) Aggregate subjected to the colorimetric test for organic impurities which produces a color darker than the standard shall be further tested for its mortar-making properties in accordance with AASHTO T 71. The Engineer may elect to stop aggregate production until such a time AASHTO T 71 testing has been completed.
         (i) Aggregate, when subjected to the test for mortar-making properties, shall produce a mortar having a compressive strength at the age of 7 days equal to or greater than that developed by mortar of the same proportions and consistency made of the same cement and aggregate after the aggregate has been treated in a 3% solution of sodium hydroxide. Materials failing to produce equal or greater strength shall be unacceptable,
except when determined to be acceptable under the provisions of Subsection 105.03.

(7) Aggregate shall meet the requirement in Tables 1033.02A, 1033.02B and 1033.03C.

(8) Lightweight pieces (measured by percent by volume values) shall not exceed 3.5%. For Class R aggregate, fine aggregate is defined as any material passing a No. 4 sieve.

<table>
<thead>
<tr>
<th>Table 1033.02A</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGGREGATE SPECIFICATION RANGE</td>
</tr>
<tr>
<td>Percent Passing</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Class A</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Class B</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Class C</td>
</tr>
</tbody>
</table>

Table 1033.02B

<table>
<thead>
<tr>
<th>Aggregate Class</th>
<th>Concrete Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Overlay Concrete SF</td>
</tr>
<tr>
<td>B</td>
<td>47BD, 47B-HE, 47B-OL, PR 1 and PR 3</td>
</tr>
<tr>
<td>C</td>
<td>BX</td>
</tr>
</tbody>
</table>

b. Coarse Aggregate:

(1) Aggregate shall consist of Limestone, Quartzite, Dolomite, Gravel and Granite composed of clean, hard, durable, and uncoated particles.

(2) The percent of clay lumps, shale, or soft particles shall not exceed the following amounts:

<table>
<thead>
<tr>
<th></th>
<th>0.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay Lumps</td>
<td></td>
</tr>
<tr>
<td>Shale</td>
<td>1.0%</td>
</tr>
<tr>
<td>Soft Particles</td>
<td>3.5%</td>
</tr>
<tr>
<td>Lightweight Pieces</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

(3) Any combination of clay lumps, shale and soft particles (all percent by weight values), plus the lightweight pieces (a % by volume value) shall not exceed 3.5%. For Class R aggregate, coarse aggregate is defined as any materials retained on a No. 4 sieve.

(4) Aggregate for concrete shall be free of coatings that will inhibit bond and free of injurious quantities of loam, alkali, organic matter, thin or laminated pieces, chert, or other deleterious substances as determined by the Engineer.
(5) Aggregate for concrete shall not have a soundness loss greater than 8.0% by weight at the completion of 16 cycles of alternate freezing and thawing.

(6) Aggregates for concrete shall have a Los Angeles Abrasion loss percentage of not more than 40.

(7) All fractions passing the No.4 sieve shall meet quality requirement of soundness loss of not more than 10% by weight at the end of 5 cycles using sodium sulfate solution.

(8) The ledge rock shall be tested according to ASTM C1260.

(i) The mortar bars for the ASTM C 1260 shall not exceed 0.10% expansion at 28 days.

(a) If the proposed coarse aggregate exceeds 0.10% expansion at 28 days, the aggregate proportions used on the project shall be tested in accordance to ASTM C 1567.

   i. The ASTM C 1567 mortar bars shall be composed of Interground/blended cement being used on the project.

   ii. If the expansion is greater than 0.10%, the coarse aggregate shall not be used.

(9) Aggregate shall meet the requirements in Tables 1033.03A, B, and C.

<table>
<thead>
<tr>
<th>Aggregate Specification Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percent Passing</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Class E</strong></td>
</tr>
<tr>
<td>Max Min</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td><strong>Class F</strong></td>
</tr>
<tr>
<td>Max Min</td>
</tr>
</tbody>
</table>

*If the No. 200 sieve is less than 1.5% passing, the No.20 sieve could be increased to maximum of 6% passing.

<table>
<thead>
<tr>
<th>Aggregate Classes and Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate Class</td>
</tr>
<tr>
<td>E</td>
</tr>
<tr>
<td>F</td>
</tr>
</tbody>
</table>

c. Combined Aggregates:

(1) The Contractor shall design and meet the specification requirements. It is the Contractor’s responsibility to provide desirable mix properties; such as, but not limited to, workability, resistance to segregation, stable air void system, good finishing properties and good consolidation properties.

(2) The combined blended aggregate shall meet the requirement in Table 1033.03C and 1033.03D.
Table 1033.03C

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>1 ½ inch</th>
<th>1 inch</th>
<th>3/4 inch</th>
<th>No.4</th>
<th>No.10</th>
<th>No.30</th>
<th>No. 50</th>
<th>No. 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max</td>
<td>100</td>
<td>100</td>
<td>98.0</td>
<td>70.0</td>
<td>50.0</td>
<td>30.0</td>
<td>12.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>92.0</td>
<td>85.0</td>
<td>45.0</td>
<td>31.0</td>
<td>8.0</td>
<td>2.0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Refer to Subsection 1002.04, Paragraph 1.b.(8) for the traditional 47B Mix Design

Table 1033.03D

<table>
<thead>
<tr>
<th>Aggregate Class</th>
<th>Concrete Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>47B</td>
</tr>
</tbody>
</table>

d. Aggregate Production and Testing:

(1) Any change greater than 3% in the original verified constituent percentage of the combined aggregates gradation will be considered non-compliant. Any change of the combined gradation targets must remain within the Combined Aggregate Gradation Limits in Table 1033.03C. The Contractor shall resubmit a new mix design if the material is deemed non-compliant in accordance with Subsection 1002.04, Paragraph 1.

(2) The blended gradation tolerance ranges from the approved mix design are established in Table 1033.03E.

(3) Ledge rock and aggregate from a dry pit shall be uniformly saturated with water before it is used. The wetting shall begin 24 hours before concrete mixing to allow complete saturation.

Table 1033.03E

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 4 or greater</td>
<td>+ 5%</td>
</tr>
<tr>
<td>No. 10 to No. 30</td>
<td>+ 4%</td>
</tr>
<tr>
<td>No. 50</td>
<td>+ 3%</td>
</tr>
<tr>
<td>Minus No. 200</td>
<td>+ 1%</td>
</tr>
</tbody>
</table>
4. Bituminous Aggregate:

Table 1033.04A

Asphalt Combined Aggregate Grading Band Tolerance
Band “A” Mix [1/2 inch (12.5 mm)]
[To Be Used When Total Thickness Is 4 Inches (100 mm) OrLess]

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.0 mm)</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>3/4 inch (19.0 mm)</td>
<td>98%</td>
<td>100%</td>
</tr>
<tr>
<td>1/2 inch (12.5 mm)</td>
<td>94%</td>
<td>100%</td>
</tr>
<tr>
<td>3/8 inch (9.50 mm)</td>
<td>80%</td>
<td>98%</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>52%</td>
<td>88%</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>32%</td>
<td>70%</td>
</tr>
<tr>
<td>No. 30 (600 µm)</td>
<td>17%</td>
<td>38%</td>
</tr>
<tr>
<td>No. 50 (300 µm)</td>
<td>10%</td>
<td>24%</td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>3%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Table 1033.04B

Asphalt Combined Aggregate Grading Band Tolerance
Band “B” Mix [3/4 inch (19 mm)]
[To Be Used When Total Thickness Is Greater than 4 Inches (100 mm)]

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.0 mm)</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>3/4 inch (19.0 mm)</td>
<td>98%</td>
<td>100%</td>
</tr>
<tr>
<td>1/2 inch (12.5 mm)</td>
<td>76%</td>
<td>93%</td>
</tr>
<tr>
<td>3/8 inch (9.5 mm)</td>
<td>60%</td>
<td>88%</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>42%</td>
<td>78%</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>27%</td>
<td>60%</td>
</tr>
<tr>
<td>No. 30 (600 µm)</td>
<td>14%</td>
<td>38%</td>
</tr>
<tr>
<td>No. 50 (300 µm)</td>
<td>8%</td>
<td>21%</td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>3%</td>
<td>7%</td>
</tr>
</tbody>
</table>

a. Bituminous aggregate shall have the following characteristics:

(1) Aggregate shall meet the requirements in Tables 1033.04A and B.

(2) The combined aggregate's compliance shall be tested on an individual aggregate basis.

(3) Tests to determine compliance with the quality requirements for gravel shall be performed on the "Pre-Crushed" gradation.

(4) Crushed rock for asphaltic concrete shall not contain deleterious substances in a quantity to exceed the following percentage by weight:

\[
\begin{align*}
\text{Clay Lumps and Shale} & \leq 1.5 \\
\text{Soft Particles} & \leq 3.5
\end{align*}
\]

(5) Any combination of shale, clay, or soft particles shall not exceed 3.5% by weight.
(6) All fractions of a crushed rock gradation shall be produced from the same type of material. The chemical and physical characteristics of the fraction passing the No. 4 (4.75 mm) sieve shall be substantially the same as those of the material which may be produced in the laboratory from the fraction which is retained on the No. 4 (4.75 mm) sieve. Crushed rock for asphaltic concrete shall have a percentage loss of not more than 8.0% by mass at the end of 16 cycles of the freezing and thawing test.

(7) Quality:

(i) When any fraction of a mineral aggregate, except for crushed rock for use in asphaltic concrete, is of a nature adapted for the Los Angeles Abrasion Test, it shall have a loss percentage of not more than 40.

(ii) Mineral aggregates, except for crushed rock for asphaltic concrete, shall have a soundness loss of not more than 12% by weight at the end of 5 cycles using sodium sulfate solution.

(8) Quartzite, granite, and chat used in Asphalt Concrete shall have a soundness loss of not more than 12% by weight at the end of 5 cycles using sodium sulfate solution. The Los Angeles Abrasion Test shall have a loss percentage of not more than 40, and the "D" Grading is void.

(9) Maximum percentages established for limestone exclude recycled materials.

b. Soil type mineral filler, fly-ash mineral filler, or limestone dust which is produced as a by-product of sugar beet refining will not be allowed.

c. Mineral filler shall consist of pulverized crushed rock, broken stone, gravel, sand-gravel, sand, or a mixture of these materials that conforms to the following requirements:

<table>
<thead>
<tr>
<th></th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Percent Passing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the No. 50 (300 μm)</td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td>Total Percent Passing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the No. 200 (75 μm)</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>(75 μm Sieve)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d. At the start of production, one sample of mineral filler will be analyzed for its properties by the Department’s Materials and Research Laboratory. If the sample is approved, no further tests will be required for the project. If the sample fails to meet the requirements, then further tests will be required.

e. When determining the maximum percentage of limestone in the mix, the recycled materials will not be considered.
5. **Bituminous Sand Aggregate:**

   **Table 1033.05**

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 inch (9.50 mm)</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>No. 50 (300 µm)</td>
<td>100</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>33</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

   a. Cold-mixed bituminous mixtures shall consist of approved inert mineral matter.

   b. If soil type filler is approved for use, it shall be pulverized to the extent that 100% will pass the 1/2 inch (12.5 mm) sieve and at least 90% will pass the No. 10 (2.00 mm) sieve before combining with other aggregates.

   c. Aggregate shall meet the requirements in Table 1033.05.

6. **Surfacing Aggregates:**

   a. Gravel aggregate for surfacing shall have a Los Angeles Abrasion loss percentage of not more than 40.

   b. Gravel aggregate for surfacing shall have a soundness loss of not more than 12% by weight at the end of 5 cycles using sodium sulfate solution.

   c. Aggregate shall meet requirements in Table 1033.06 or 1033.07, as applicable.

   **Table 1033.06**

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Target Value</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.0 mm)</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>78</td>
<td>±17</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>16</td>
<td>*</td>
</tr>
<tr>
<td>No. 50 (300 µm)</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>3</td>
<td>±3</td>
</tr>
</tbody>
</table>

   * A deduction from contract bid price will be made as specified in Section 310, Table 310.01.

   d. The gravel aggregates for surfacing shall have a Los Angeles Abrasion loss percentage of not more than 40.

   e. Gravel aggregates for surfacing shall have a soundness loss of not more than 12% by weight at the end of 5 cycles using sodium sulfate solution.
### Table 1033.07

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>Target Value</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.00 mm)</td>
<td>100</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>40</td>
<td>+20</td>
<td></td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>15</td>
<td>+15</td>
<td></td>
</tr>
<tr>
<td>No. 50 (300 µm)</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>5</td>
<td>+5</td>
<td></td>
</tr>
</tbody>
</table>

- **f.** Crushed rock for surfacing shall consist of clean, hard particles of crushed limestone, quartzite, or dolomite.
- **g.** Crushed rock for surfacing shall have a Los Angeles Abrasion loss percentage of not more than 45.
- **h.** Crushed rock for surfacing shall have a percent loss of not more than 30 at the end of 16 cycles of the freezing and thawing test.

### Table 1033.08

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Crushed Rock for Base Course</th>
<th>Crushed Rock Screenings for Base Course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent Passing</td>
<td>Target Value</td>
</tr>
<tr>
<td>1 1/2 inch (37.5 mm)</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>3/4 inch (19.0 mm)</td>
<td>80</td>
<td>+15</td>
</tr>
<tr>
<td>3/8 inch (9.50 mm)</td>
<td>53</td>
<td>+17</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>20</td>
<td>+10</td>
</tr>
<tr>
<td>No. 20 (850 µm)</td>
<td>---</td>
<td>28</td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>5</td>
<td>+5</td>
</tr>
</tbody>
</table>

- **a.** Base Course Aggregate shall be crushed rock or broken stone or a mixture of these materials composed of clean, hard, durable, and uncoated particles.
- **b.** Quality:
  - (1) Crushed rock shall be crushed limestone, dolomite, granite, quartzite, or other ledge rock approved for the intended purpose by the Department’s Materials and Research Engineer.
  - (2) Dolomite as herein defined is a magnesium limestone containing calcium carbonate and magnesium carbonate in approximately a 4 to 3 ratio.
  - (3) All sizes of crushed rock for base course shall be produced from the same type of material. The chemical and physical characteristics of the fraction passing the No. 4 (4.75 mm) sieve shall be substantially the same as those of the material which may be produced in the laboratory from the fraction which is retained on the No. 4 (4.75 mm) sieve.
(4) Crushed rock for base course shall not contain shale, clay lumps, or other deleterious substances in a quantity to exceed a total of 2.5% based on the dry mass of the fraction retained on the No. 4 (4.75 mm) sieve.

(5) Crushed rock for base course shall be free from injurious quantities of dust, soft or flaky particles, loams, alkali, organic matter, paper, wood, or other deleterious material.

(6) The Los Angeles Abrasion loss percentage shall not exceed 45.

(7) Crushed rock for base course shall have a percentage loss of not more than 14 at the end of 16 cycles of the freezing and thawing test.

(8) The absorption of crushed rock for a base course shall not exceed 5.0% by weight.

(9) The product of the plasticity index (using wet preparation AASHTO T 146) of the fraction of the crushed rock for base course passing the No. 40 (425 \( \mu \text{m} \)) sieve and the percent of the crushed rock passing the No. 200 (75 \( \mu \text{m} \)) sieve shall not exceed 48. When the fraction of the crushed rock for a base course passing the No. 200 (75 \( \mu \text{m} \)) sieve does not exceed 4%, the plasticity index will not be determined and the product of the plasticity index and the percent passing the No. 200 (75 \( \mu \text{m} \)) sieve will not be a requirement for such material.

(10) The plasticity index (using dry preparation AASHTO T 87) of the crushed rock screenings passing the No. 40 (425 \( \mu \text{m} \)) sieve shall not exceed 4.

c. Crushed rock shall meet gradation requirements in Table 1033.08.

8. **Foundation Course:**

<table>
<thead>
<tr>
<th>Foundation Course Mixture</th>
<th>Percent Passing</th>
<th>Target Value</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.0 mm)</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>62</td>
<td>+12</td>
<td></td>
</tr>
<tr>
<td>No. 40 (425 ( \mu \text{m} ))</td>
<td>34</td>
<td>+8</td>
<td></td>
</tr>
<tr>
<td>No. 200 (75 ( \mu \text{m} ))</td>
<td>9</td>
<td>+3</td>
<td></td>
</tr>
</tbody>
</table>
Table 1033.10
Crushed Concrete Foundation Course Gradation Requirements

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Target Value (Percent Passing)</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/4 inch (31.5 mm)</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>1 inch (25.0 mm)</td>
<td>95</td>
<td>± 5</td>
</tr>
<tr>
<td>3/4 inch (19.0 mm)</td>
<td>81</td>
<td>±12</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>38</td>
<td>±12</td>
</tr>
<tr>
<td>No. 10 (2.00 mm)</td>
<td>24</td>
<td>±11</td>
</tr>
<tr>
<td>No. 40 (425 µm)</td>
<td>9</td>
<td>± 5</td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>3</td>
<td>± 3</td>
</tr>
</tbody>
</table>

a. Soil binder from local pits shall be pulverized to the extent that at least 90% will pass a 1/2 inch (12.5 mm) sieve and at least 60% will pass a No. 10 (2.00 mm) sieve. The binder shall be pulverized before it is mixed with the other aggregates.

b. Any fraction of a mineral aggregate is of a nature adapted for the Los Angeles Abrasion Test, the loss percentage shall not be more than 40.

c. Mineral aggregates shall have a soundness loss of not more than 12% by weight at the end of 5 cycles using sodium sulfate solution.

d. Foundation course material shall meet the requirements in Table 1033.09 or 1033.10, as applicable.

1033.03-- Procedures

1. Freshly washed or pumped aggregates shall be drained for 12 hours before use.

2. Protection of Material:
   a. It is the Contractor's responsibility to protect materials from harmful contamination, segregation, excessive degradation, or other changes in the physical or chemical state or degree of uniformity.
   b. If any detrimental change has taken place in the materials after the acceptance samples have been taken and tested, the right is reserved to retest and reject that part of the previously accepted material which is found unsatisfactory or require the Contractor to correct the deficiencies by reprocessing or providing other material meeting specification requirements.

3. Handling of Material:
   a. The use of crawler-type equipment will be allowed in the stockpiling of fine aggregate and sand gravel aggregates.
   b. Aggregate shall be removed from stockpiles with cranes, loaders, conveyors, or other approved equipment.
   c. The use of crawler equipped dozers or end loaders will not be allowed in the stockpiling or the removal of crushed rock aggregates if the aggregate is damaged by the equipment.

4. Care shall be exercised to avoid segregation or degradation of aggregates or the inclusion of foreign material in the aggregates while they are being removed from the stockpiles.
5. Storage of Material:
   a. Each aggregate that is to be stockpiled, either at the producer’s plant or at the site of the work, shall be stockpiled separately.
   b. Similar materials from different sources of supply shall not be mixed or stored in the same pile or used alternately in the same class of construction or mix without permission from the Engineer.
   c. Materials which become intermixed (i.e., with other sources or different gradations) or which become contaminated by foreign materials shall not be used.
   d. Aggregates shall not be stockpiled against the supports of proportioning devices or scales.

6. Properly drained aggregates unloaded and handled by conveyor systems may be deposited directly into the batch hoppers provided the equipment and procedures used will furnish aggregate of uniform gradation and moisture content.

7. It shall be the obligation of the contractor or concrete producer to maintain a uniform gradation and moisture content in each aggregate used during the handling and batching operations.

8. Similar materials produced by pumping from different pits in the Platte River Valley shall be considered to be from the same source.

**1033.04—Acceptance Requirements**

1. Aggregates will be accepted based on the requirements of this Section and sampling and testing requirements as described in the Department’s *Materials Sampling Guide*. 
PLANS FOR CONSTRUCTION OF
SARPY COUNTY PROJECT NO. C-77(18-14) — CONCRETE PANEL REPAIRS —

1. Cornhusker Road West of Eagle Hills Drive (West Bound Lanes)
2. Cornhusker Road West of Fall Creek Road (West Bound Lanes)
3. Cornhusker Road West of North 48th Street (West Bound Lanes)
4. Chandler Road East of 139th Street (East and West Bound Lanes)
5. LaPlatte Road West of 10th Street (East and West Bound Lanes)
6. LaPlatte Road East of Crystal Drive (East and West Bound Lanes)
7. Platteview Road West of Dyson Hollow Road (East and West Bound Lanes)
8. Chandler Road North on Kearney Ave. (North and South Bound Lanes)

SARPY COUNTY PUBLIC WORKS DEPARTMENT

UNDERGROUND UTILITY LOCATIONS SHOWN ARE FROM INFORMATION PROVIDED TO US FROM UTILITY COMPANIES. UTILITY COMPANIES MAKE NO WARRANTIES OR GUARANTEES REGARDING THE ACCURACY OF THE INFORMATION CONTAINED IN THEIR DOCUMENTS AND PROVIDES IT ONLY AS GENERAL INFORMATION TO THE RECEIVER.

PLANS PREPARED BY:
SARPY COUNTY PUBLIC WORKS DEPARTMENT

800-331-5666

Know what’s below. Call before you dig.

NEBRASKA 811

PROJECT LOCATION

ALL WORK SHALL BE IN ACCORDANCE WITH THE “STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, NEBRASKA DEPARTMENT OF TRANSPORTATION, 2017 EDITION” AND ANY REVISIIONS OR AMENDMENTS THERETO.
GENERAL NOTES:
1. This work shall consist of repairing Portland cement concrete pavement at the locations shown in the contract or as designated by the Engineer.
2. The work shall include removing deteriorated concrete, preparing the subgrade, pavement repair, and furnishing, placing, finishing, curing and preparing and sealing of transverse and longitudinal joints which shall be subsidiary to Concrete Pavement Repair.
3. The installation of epoxy coated dowel baskets, tie bars and dowels are subsidiary to Concrete Pavement Repair.
4. Full depth pavement repair shall be constructed on a prepared subgrade or foundation course as described in the contract. The thickness of the new concrete pavement will be as shown in the contract, or 2 inches thicker than the adjacent pavement, if not shown in the contract.
5. When the use of flaggers and temporary traffic signals is encouraged. The Contractor shall submit a traffic control plan to the County prior to any work being done.
6. When performing concrete pavement repairs on multi-lane roadways, the Contractor may have one lane closed while performing the repair work. The Contractor shall submit a complete traffic control plan to the County prior to any work being done.
7. Repairs shall be made with Class 47B-3500. If the contract allows for lane closures or detours to accommodate the extended curing period, the use of 47B-HE-3500 or PR-3500 shall be used to accommodate shorter cure times.
8. The existing pavement shall be saw cut (full depth) and removed to the limits shown on the plans or designated by the Engineer.

GENERAL NOTES:
9. In areas where sections of pavement removal and replacement extend across the centerline of the pavement, the Contractor shall maintain one full lane of paved driving surface at all times.
10. After removal of existing pavement, the Contractor shall have a maximum of one (1) calendar day to begin construction of the concrete slab.
11. Flashing Arrow Panels required on all multilane roadways with posted speed limit 45 MPH or higher.
12. One lane, two-way operational yield control roadways will only allow 150' of repair area at one time without the use of temporary traffic signals.
13. Temporary concrete washouts to be provided at no cost to the County.
14. Integral curb, where required, shall be subsidiary to bid item Concrete Pavement Repair.
15. The Contractor will field verify existing depth of concrete for the areas to be repaired before bidding this project.

### Summary of Quantities

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Design Quantity</th>
<th>Construction Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Control</td>
<td>1</td>
<td></td>
<td>LS</td>
</tr>
<tr>
<td>Temporary Portable Traffic Signal</td>
<td>3</td>
<td>EACH</td>
<td></td>
</tr>
<tr>
<td>Flagging</td>
<td>30</td>
<td></td>
<td>DAY</td>
</tr>
<tr>
<td>Reconstruct Curb Inlet</td>
<td>1</td>
<td></td>
<td>EA</td>
</tr>
<tr>
<td>Concrete Pavement Repair, Full Depth 47B-3500</td>
<td>1664</td>
<td></td>
<td>SY</td>
</tr>
<tr>
<td>Concrete Pavement Repair, Full Depth 47B-HE-3500</td>
<td>2838</td>
<td></td>
<td>SY</td>
</tr>
<tr>
<td>Foundation Course Replacement</td>
<td>50</td>
<td></td>
<td>CY</td>
</tr>
<tr>
<td>5&quot; White Permanent Pavement Marking, Paint and Beads</td>
<td>3012</td>
<td></td>
<td>LF</td>
</tr>
<tr>
<td>5&quot; Yellow Permanent Pavement Marking, Paint and Beads</td>
<td>1626</td>
<td></td>
<td>LF</td>
</tr>
<tr>
<td>Temporary Pavement Marking &amp; Removal</td>
<td>1626</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CONSTRUCTION REQUIREMENTS

**Class III (See Specifications)**
- **SOIL TYPE**
  - Silt Clay
  - Silt Clay
  - Clay
  - Clay
  - Sand
  - Clay
  - Clay
  - Sand
  - Clay
- **DEPTH BELOW FINISH SUBGRADE**
  - Upper 3 feet
  - At depths greater than 3 feet
  - All depths
  - All depths
  - All depths
  - All depths
  - All depths
  - All depths
  - All depths
- **PERCENT DENSITY**
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
  - 95 Min.
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. -2%
  - Opt. -2%
  - Opt. -3%
  - Opt. -3%
  - Opt. -3%
  - Opt. -3%
  - Opt. -2%
  - Opt. +2%

**Moisture as necessary to obtain density.**

(A moisture target value at maximum density shall be established in the field by the Contractor during the compaction process. The acceptable moisture content shall be a 2% of the target value.)

**Foundation Course / Subgrade Compaction (Concrete Pavement)**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. -2%
  - Opt. +2%

**Foundation Course / Subgrade Compaction (Flexible Pavement)**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Subgrade Preparation, Shoulder Subgrade Preparation (Concrete Pavement)**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Subgrade Preparation, Shoulder Subgrade Preparation (Flexible Pavement)**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Embankment, Roadway Grading, Including Threeways, to receive flexible pavement**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Embankment, Roadway Grading, Including Threeways, to receive concrete pavement**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Embankment of driveways which are not to be surfaced**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Blown Dust Pavement Patching**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Foundation Course / Subgrade Compaction**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Stabilized Subgrade (ie Lime, Flyash, etc.)**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Trench Widening**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

**Granular Structural Fill (RSE Wells, Gravel Fill for Bridges, Culverts, etc)**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%

** surfacing**
- **MOISTURE REQUIREMENTS**
  - Opt. -3%
  - Opt. +2%
**SPECIFICATIONS, SUBSECTION 603.03.**

**USED ACCORDING TO THE STANDARD PLANS.**

- BASKETS SHALL BE INSTALLED AT 12" CENTERS, AS SHOWN IN REPLACEMENTS, DOWEL BARS SHALL BE INSTALLED AT 1" SIDES, IN THE CASE OF MULTIPLE PANEL (3-DOWEL BARS PER WHEEL PATH.)

- TIE BARS REQUIRED, MINIMUM 2-TIE BARS PER SIDE.

- INSTALL TIE BARS AT NEW TRANSVERSE JOINT NEAREST TO EXISTING TRANSVERSE JOINT.

- DOWEL BARS SHALL BE INSTALLED AT 2" SIDES, IN THE CASE OF PANEL REPLACEMENT, TRANSVERSE JOINT OPPOSITE OF DOWEL BARS.

- INSTALL DOWEL BARS AT NEW TRANSVERSE JOINT NEAREST TO EXISTING TRANSVERSE JOINT.

- WHEN BOTH SIDES OF NEW TRANSVERSE JOINT ARE PLACED AT THE SAME TIME AND FILL WITH CONCRETE IS IN PLASTIC FORM JOINT WHILE REPAIR STAGE AND FILL WITH JOINT SEALANT (HOT POURED) THE SAME TIME.

- MATCH JOINT IN ADJOINING LANE THROUGH INTEGRAL CURB, THE NEW CURB SHALL BE CONSTRUCTED TO THE SAME DIMENSIONS AS THE EXISTING CURB.

- IF PAVEMENT REPAIR SHOULD EXTEND THROUGH INTEGRAL CURB, THE NEW CURB SHALL BE CONSTRUCTED TO THE SAME DIMENSIONS AT THE EXISTING CURB.

- IF THE LENGTH OF REPAIR IS 9'-0" OR LESS AND THE WIDTH OF PANEL ("W") WAS PREVIOUSLY WIDENED, CONSTRUCT A TOOLED LONGITUDINAL JOINT AT THE MIDPOINT OF THE WIDTH OF REPAIR.

- IF THE LENGTH OF REPAIR IS 9'-0" OR LESS AND THE THICKNESS OF CONCRETE IS 6'-0" OR LESS, CONSTRUCT A TOOLED LONGITUDINAL JOINT AT THE MIDPOINT OF THE WIDTH OF REPAIR.

- IF PAVEMENT REPAIR SHOULD EXTEND THROUGH INTEGRAL CURB, THE NEW CURB SHALL BE CONSTRUCTED TO THE SAME DIMENSIONS AT THE EXISTING CURB.

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- IF PAVEMENT REPAIR SHOULD EXTEND THROUGH INTEGRAL CURB, THE NEW CURB SHALL BE CONSTRUCTED TO THE SAME DIMENSIONS AT THE EXISTING CURB.
**TYPICAL CROSS SECTIONS**

**Transverse Joint Details**
- **Dowel Bars**
- **Bond Breakers**
- **Tie Bars**
- **Outer Edge**

**Skewed Transverse Joint Details**
- **Dowel Bars**
- **Bond Breakers**
- **Tie Bars**
- **Outer Edge**

---

**NOTE:** All dowel bars will be epoxy coated.

---

**Detail A**
- **Cut off the bond breaker**
- **Bond Breaker will be installed on the concrete slab adjacent to the new dowelled joint and the existing transverse joint.**

**NOTE:** Drawings 7B, 7D, 7E, 7F, 7G, 7H, 7I, 7J, 7K, and 7L are cross sections of existing pavement structure or extension.

**NOTE:** All tie bars will be epoxy coated.

---

**Detail B**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail C**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail D**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail E**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail F**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail G**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail H**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail I**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail J**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail K**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Detail L**
- **Minimum 2 tie bars**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**TIE BAR SPACING**
- **No tie bars shall be installed more than 3'-0" from the joint nearest to existing transverse joint.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**Dowel Bar**
- **All dowel bars will be epoxy coated.**

**NOTE:** Joint nearest to existing transverse joint. Install 33" centers at the longitudinal joint between the existing joint and the new joint.

---

**NOTE:** All dowel bars will be epoxy coated.
**TYPICAL CROSS SECTIONS**

**PROJECT NO.**

**SHEET NO.**

**ROADWAY DESIGN DIVISION**

**COMPUTER:** D R D E S I G N 147

**DATE:** 09 - MAY - 2017  07 :59

**USER:** do r 1301 7

**FILE:** 38502 e 22 .dgn

**SCALE:** 1 :1 00

---

**LONGITUDINAL JOINT SEALING DETAIL**

**(ASPHALT TO CONCRETE)**

- **WIDTH CENTERED ON JOINT**
- **3" MAXIMUM SQUEEGEE (HOT POURED)**
- **JOINT SEALANT**
- **FILL WITH MIN. CONCRETE**

---

**TRANSVERSE AND LONGITUDINAL JOINT DETAILS**

---

**EARLY-SAW CUT**

---

**TYPICAL TRANSVERSE AND LONGITUDINAL CRACK**

**NOTE:** FOR CRACK SEALING LOCATIONS, SEE SHEET 2-S

---

**CROSS STITCHING EXISTING CONCRETE PAVEMENT**

**FREE SHEET 2-S FOR LOCATIONS**

---

**NO OVERLAY TIES, DOWELS AND SEALING**

---

**EPOXY ADHESIVE FROM EPOXY COATED NO. 5 DEFORMED BAR**

**SEE SHEET 2-S FOR LOCATIONS**

---

**APPROVED PRODUCTS LIST**

---

**DIAMOND BLADE SAWING MIN. 9" TO APPROX. 1"**

---

**NOTE:** DEFORMED BAR SHALL BE 1" BELOW THE SURFACE
General Notes:

1. All site work shall be in accordance with the "Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition" and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation. Use Lane Closure Plan For Multilane Roadways.

6. 9" Existing Pavement.

**Concrete Panel Repairs**

**Striping Quantities**

- 5" White Permanent Pavement Marking Paint = 135 L.F.
- 5" Yellow Permanent Pavement Marking Paint = 30 L.F.
General Notes:

1. All site work shall be in accordance with the “Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition” and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to “Nebraska 2011 Supplement to MUTCD” and/or the “Manual on Uniform Traffic Control Devices 2009”.

5. All Traffic Control Plans shall be reviewed by the County prior to implementation. Use Lane Closure Plan For Multilane Roadways.

6. 9” Existing Pavement.

7. Return Has 2’ Lug Outs.

INTEGRAL CURB = 165 L.F.

CORNHUSKER RD

13’X100’ = 145 S.Y.

26’X45’ = 130 S.Y.

5” White Permanent Pavement Marking Paint = 145 L.F.

5” Yellow Permanent Pavement Marking Paint = 145 L.F.
General Notes:

1. All site work shall be in accordance with the "Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition" and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation. Use Lane Closure Plan For Multilane Roadways.

6. 9" Existing Pavement.

7. Return Has 2' Lug Outs.

CONCRETE PANEL REPAIRS

STRIPING QUANTITIES

5" White Permanent Pavement Marking Paint = 762 L.F.
5" Yellow Permanent Pavement Marking Paint = 381 L.F.
General Notes:

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2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation.

6. 8" Existing Pavement.
General Notes:

1. All site work shall be in accordance with the "Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition" and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation. Use One Lane, Two-Way Operation Plan with Traffic Signals.

6. 7" Existing Pavement

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STRIPING QUANTITIES

5" White Permanent Pavement Marking Paint = 1000 L.F.
5" Yellow Permanent Pavement Marking Paint = 500 L.F.
General Notes:

1. All site work shall be in accordance with the "Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition" and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation. Use One Lane, Two-Way Operation Plan with Traffic Signals.

6. 7" Existing Pavement.
General Notes:

1. All site work shall be in accordance with the "Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition" and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation. Use One Lane, Two-Way Operation Plan with Traffic Signals.

6. 7" Existing Pavement.

STRIPING QUANTITIES

5" White Permanent Pavement Marking Paint = 530 L.F.
5" Yellow Permanent Pavement Marking Paint = 350 L.F.
General Notes:

1. All site work shall be in accordance with the "Standard Specifications for Highway Construction, Nebraska Department of Transportation 2017 Edition" and any revisions or amendments thereto shall apply to this project.

2. The contractor shall notify the office of the Sarpy County engineer 48 hours before work is started in County right-of-way.

3. The contractor is referred to the special conditions of specifications for further information.

4. Barricades shall conform to "Nebraska 2011 Supplement to MUTCD" and/or the "Manual on Uniform Traffic Control Devices 2009".

5. All Traffic Control Plans shall be reviewed by the County prior to implementation.

6. 9" Existing Pavement on Chandler Road. Gravel to Asphalt on Kearney Ave.

CONCRETE PANEL REPAIRS
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### Ad Size | Color
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1 X 40 li | B&W

### WYSIWYG Content

Sarpy County, Nebraska is seeking proposals for Various Concrete Panel Repairs, Project C-77 (18-14) for the Public Works Department. Bids will be accepted Monday through Friday 8:00 a.m. to 4:45 p.m., except holidays, until 2:00 p.m., Wednesday, June 20, 2018. Bids can be submitted online using the Sarpy County Purchasing eBid online portal at https://sarpy.ionwave.net. Bids will be publicly opened and read aloud at 2:00 p.m., Wednesday, June 20, 2018, in the Sarpy County Administration Conference Room, at the above address.

Bidding criteria must be received online or from the Sarpy County Purchasing Department by contacting Beth Garber at bgarber@sarpy.com. The Sarpy County Board of Commissioners reserves the right to reject any or all bids and to waive minor informalities.

Deb Houghtaling
Sarpy County Clerk
2099518; 5/30, 6/06, 6/13

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