S.P. 027-617-028
Minn. Proj. STPX 2711(251)
CSAH 17 ; C.P. 1101
June 13, 2011

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DIVISION S

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SPECIAL PROVISIONS

DIVISION "S"

SPECIAL REQUIREMENTS

S-1 CONTACT INFORMATION

Questions regarding this project prior to bidding shall be directed to Jerry Mortenson at 612-596-0371 or email at jerry.mortenson@co.hennepin.mn.us.

S-2 INSURANCE

S-2.1 In order to protect itself and those listed in the indemnification provision in 1714 Responsibility for Damage Claims hereof, the Contractor hereby agrees that before commencing said work, it shall present, in a form acceptable to the County as fully evidenced by a fully executed Certification (and at the option of the County at any time, a certified copy of the insurance policies and all endorsements) evidencing the maintenance of the following minimum insurance coverages, requirements and endorsements during the performance of any work including Extra Work, Change Orders and Supplemental Agreements:

S-2.2 Commercial General Liability on an occurrence basis with Contractual Liability and Explosion, Collapse, and Underground Property Damage (XCU) Liability coverage:

General Aggregate:	$2,000,000
Products – Completed Operations Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence – Combined Bodily Injury and Property Damage	$1,000,000

S-2.3 Commercial Automobile Liability:

Combined single limit each occurrence coverage or the equivalent covering owned, non-owned, and hired automobiles.	$1,000,000

S-2.4 Workers' Compensation and Employer's Liability:

A. Workers' Compensation	Statutory
Employer's Liability (Including stop gap coverage in monopolistic states)	$1,000,000

If the Contractor is based outside the State of Minnesota, coverage must apply to Minnesota laws.

B. Employer's Liability. Bodily injury by:

Each Accident	$1,000,000
Disease – Policy Limit	$1,000,000
Disease – Each Employee	$1,000,000

S-2.5 Contractor's Pollution Liability

The Contractor shall provide insurance coverage when exposure exists and Professional Errors and Omissions does not cover.

Per Occurrence and Aggregate $2,000,000

S-2.6 An Umbrella Liability policy over primary liability insurance coverages is an acceptable method to provide the required insurance limits. In addition, the following umbrella liability coverage is required over the commercial general liability, automobile liability, and employer's liability policies.

Policy Limits – Per Occurrence and Aggregate $5,000,000

S-2.7 An "All Risk" Builders' Risk Policy for physical loss or damage to the project while performing work under the Contract including materials and equipment on and off site and in transit if intended to become a part of the work. The policy shall cover "ensuing loss" from any design defect. The policy shall name the County as an additional insured.

Policy Limits: (Amount of Project)

S-2.8 The above subparagraphs establish minimum insurance requirements. It is the sole responsibility of the Contractor to determine the need for and to procure additional insurance which may be needed in connection with this Contract. Copies of insurance policies shall be submitted to the County upon written request. County reserves the right to require Contractor to obtain additional insurance coverage and endorsements at County's sole discretion and expense, according to the nature and location of work to be performed by Contractor.

In the event any work to be performed under this Contract is further sublet, Contractor will require the same insurance coverage, additional insured endorsements (ISO CG 20 10 07 04 and ISO CG 20 37 07 04, or equivalents) and limits from its subcontractors, and will require said subcontractors to certify insurance coverage to the County (including at any time certified copies of all insurance policies and endorsements), prior to the commencement of any work.

Notwithstanding any other provision of this Agreement to the contrary, no officer, employee or agent of the County is authorized to cause, suffer, or permit the Contractor or any of its employees, guests, agents,

subcontractors, or suppliers to commence or perform any work or otherwise enter upon the project site unless and until all of the conditions of this Article have been conformed to and performed.

If Contractor shall fail to certify required insurance coverage to the County as set forth above, before commencing work hereunder, the County may, at its option and without waiving any rights under this Contract, place insurance of the character, nature and limits described above to cover the operations of the Contractor, paying the premiums for the same and charging same to the Contractor.

The County by requiring the foregoing minimum insurance coverages will not be deemed to limit any of the other obligations or liabilities of the Contractor. Contractor shall be responsible to pay the full amount of any deductibles or self insured portions of any coverage.

Contractor shall submit to County, within three (3) days, copies of all reports arising out of any injuries to its employees or those of any firm or individual to whom it may have sublet work, or any property damages arising or alleged to have arisen on account of any work done by Contractor under the Contract Documents.

S-2.9 The Contractor shall maintain insurance with these provisions:

1. Except as to Workers' Compensation, Employers' Liability and Professional Errors & Omissions insurance, County shall be named as additional insured under ISO form CG 20 10 07 04 and CG 20 37 07 04, or the equivalents as approved by County. The County as an additional insured shall have all the rights, coverages, and limits afforded the Contractor under the policies. In the event that any insurer issues a reservation of rights for County as an additional insured, County shall be entitled to employ independent counsel at Contractor's expense.

2. For all insurance policies required or referenced in this agreement, Contractor agrees to waive and shall require all Contractors of every tier to waive all subrogation rights on behalf of itself and it's insurers (or in the alternative to secure the waiver of subrogation from its insurers) against County and all of County's employees and agents.

3. That Contractor's insurance is primary and any insurance maintained by County is considered excess and non-contributory.

4. Cross liability or severability of interest clause (liability policies only).

5. Liability insurance policies (except for professional errors and omissions) must be an occurrence policy form, and not a claims-made type of policy.

6. County must approve the insurance companies and all insurance companies shall maintain at all times a rating of A- or higher by A.M. Best. It shall be considered a material breach of this contract if at any time before, during or after completion of the project as required in this agreement for Contractor or any of its subcontractor's insurance to be cancelled, non-renewed, reduced in coverage below that required in this agreement, or an insurance carrier rating is reduced below an A- as rated by A.M. Best (and Contractor has not obtained qualifying alternative insurance from an approved carrier).

S-2.10 The Contractor shall not commence work until it has obtained required insurance and filed with the County a properly executed Certificate of Insurance which clearly evidences the required insurance coverages. The certificate shall name Hennepin County as the certificate holder, and shall also name Hennepin County and the Cities of Edina and Bloomington as additional insured(s) for the Commercial General Liability coverage with respect to operations covered under the Contract. The certificate should also show that Hennepin County will receive 30 days prior written notice in the event of cancellation, non-renewal, or material change in any described policies.

The Contractor shall furnish to the County updated certificates during the term of the Contract as insurance policies expire. If the Contractor fails to furnish proof of insurance coverage, the County may withhold payments and/or pursue any other right or remedy allowed under the Contract, law, equity, and/or statute.

S-2.11 REMOVAL OF LIENS

Any liens filed on a project which are not promptly removed constitute a default. To remove a lien the Contractor is required to post a bond, deposit money, or meet any other statutory requirement.

S-2.12 PARTIAL OCCUPATION BY OWNER

Whenever it may be useful or necessary, Contractor or County shall be permitted to occupy and use any portion of the work which has been either partially or fully completed by Contractor before final inspection and acceptance there by County, but such use or occupation shall not relieve Contractor of its guarantee of said work and materials nor of its obligation to make good at its own expense any defect in materials and workmanship which may occur or develop prior to Contractor's release from responsibility to the County.

S-2.13 RIGHT TO AUDIT

As to all work which the Contractor may perform on a reimbursable basis or for which Contractor makes a claim for additional compensation or for which a claim is asserted by any third party or injured person County will have the right at all reasonable times and places, to inspect, copy and audit any of Contractor's books, accounts, time cards, records of transactions, estimates, schedules, correspondence or any other records or documents which may have a possible bearing on the performance of such work of claim.

Further right of examination for all of Contractor's work will include inspection at all reasonable times of the Contractor's plant, or such parts thereof as may be engaged in the performance of the contract. All accounts, documents and records relevant to this contract will be retained by the Contractor for three years after completion of the work, unless a longer period is required by law.

S-2.14 PRESERVATION OF EVIDENCE

Contractor should be required to give County notice as soon as any type of accident, incident, or claim is asserted against Contractor or Owner and to preserve all evidence and to allow County the opportunity to fully investigate all incidents prior to any evidence being moved, altered, covered up or destroyed in any manner.

S-2.15 CONTRACT OBLICATIONS TO SURVIVE PERFORMANCE

Obligations, including but not limited to, construction defect claims, personal injury claims, warranty claims and maintaining insurance, of the Contractor shall continue in place and shall survive as long as any contractual obligation exists.

S-3 USE OF ADHESIVE ANCHORS

The use of adhesive anchors in sustained tension is prohibited. Other applications utilizing adhesive anchors, such as metal rail attachment, in a non direct tensile application is permitted.

S-4 EMERALD ASH BORER COMPLIANCE

This project is located, all or in part, in a county that the Minnesota Department of Agriculture has placed under an Emerald Ash Borer Quarantine. Any work for this Contract is subject to the following:

S-4.1 No part of Ash (Fraxinus spp) tree from a quarantined area can be marketed to wood-using industries or individuals without an Emerald Ash

Borer compliance agreement with the Minnesota Department of Agriculture.

The Contractor shall not make ash or any non-coniferous (hardwood) species with bark attached available to the public for use as firewood from the quarantined area. The Contractor shall not transport entire ash trees, limbs, branches, logs, chips, ash lumber with bark, stumps and roots outside of a quarantined county without fulfilling the requirements of an Emerald Ash Borer Compliance Agreement with the Minnesota Department of Agriculture. Contact the Minnesota Department of Agriculture at (651) 201-6684 or 1-888-545-6684 or visit the Emerald Ash Borer website at http://www.mda.state.mn.us/plants/pestmanagement/eab.htm to find out which counties are quarantined.

S-4.2 If the ash material is going to be shipped out of Minnesota, the Contractor shall contact john.o.haanstad@aphis.usda.gov for United States Department of Agriculture joint Emerald Ash Borer Compliance Agreement approval with the Minnesota Department of Agriculture.

S-4.3 The Contractor shall dispose of ash trees:

(1) In accordance with the Emerald Ash Borer Compliance Agreement, and

(2) By utilizing the ash wood chips within the construction limits for erosion control, construction exit pads or landscaping purposes.

S-4.4 No direct compensation will be made for compliance with these requirements.

S-5 (1103) DEFINITIONS

The provisions of Mn/DOT 1103 are supplemented and/or modified with the following:

S-5.1 INCIDENTAL COST OR EXPENSE

The cost of work included in the awarded contract price and for which no direct compensation shall be made. When such term is stated in any part of the Contract documents it shall be deemed to mean: at no additional cost to the County.

S-6 (1205) EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The provisions of Mn/DOT 1205 are hereby supplemented by the following:

S-6.1 No subsurface exploration on the Project shall be performed by prospective bidders until a permit therefore has been obtained from the County. Permits may be obtained at the County offices, 1600 Prairie Drive, Medina, Minnesota.

S-6.2 No subsurface exploration within the MN/DOT right of way portion of the Project shall be performed by prospective bidders until a permit therefore has been obtained from MN/DOT. Permits may be obtained at the MN/DOT offices at 1500 West County Road B2, Roseville, Minnesota.

S-6.3 Bidders shall be responsible for all costs involved in obtaining this these permits.

S-7 (1206) PREPARATION OF PROPOSAL

The provisions of Mn/DOT 1206 are supplemented and/or modified with the following:

S-7.1 The first paragraph of Mn/DOT 1206.2 is hereby changed to read:

The bidder's attention is directed to MN Statute § 161.32 subd. 1c, which provides among other things, that a bid will be rejected if it contains any alterations or erasures that are not corrected as follows:

S-8 (1207) IRREGULAR PROPOSALS

The provisions of Mn/DOT 1207 are hereby modified as follows:

Subparagraph (4) is hereby deleted and replaced with:

(4) If the Proposal does not contain a unit price for each pay item listed, including all alternate bid pay items.

S-9 (1208) PROPOSAL GUARANTY

The last sentence of Mn/DOT1208 is hereby revised to read as follows:

Bonds shall be conditions on the execution of the Contract, Performance Bond, Payment Bond, and prescribed Non-collusion Affidavit and on the submittal and approval of an Affirmative Action Plan; when the submittal of one is required. The penal sum of a bid bond shall be expressed either as a lump sum or as a percentage of the total amount of the bid.

S-10 (1210) WITHDRAWAL OR REVISION OF PROPOSALS

The provisions of Mn/DOT 1210 are hereby deleted and replaced with the following:

Any bidder may withdraw or revise its Proposal after it has been deposited with the Contracting Authority, provided the request for withdrawal or revision is received in writing before the time set for opening proposals.

The Department reserves the right to revise the Plans, Specifications, Special Provisions, and Proposal form for any Project at any time prior to the date set for opening the Proposals. Revisions will be made by Addendum, duly numbered and dated, subject to the following provisions:

(1) Each Addendum will be delivered by certified mail, courier service, fax, or other electronic transmission to each prospective bidder who has received a Proposal form prior to the date of Addendum. The Addendum will be included with all Proposal forms issued to bidders after the date of the Addendum.

(2) If revisions made by an Addendum require considerable change or reconsideration on the part of the bidder, the date set for opening the Proposals may be postponed, in which case the Addendum will include an announcement of the new date set for opening Proposals.

(3) Each bidder shall acknowledge receipt of each Addendum, either in the space provided on the Proposal form or by submitting a letter prior to the time set for opening Proposals.

S-11 (1212) PUBLIC OPENING OF PROPOSALS

The provisions of Mn/DOT 1210 are hereby deleted and replaced with the following:

Proposals will be opened at the time indicated in the Advertisement for Bids.

S-12 (1302) AWARD OF CONTRACT

The award of this Contract will be in accordance with the provisions of Mn/DOT 1302, and the following modifications:

The first sentence of the first paragraph is hereby deleted and the following substituted therefor:

The Award of Contract, if it be awarded, will be made within 60 calendar days after the opening of proposals to the lowest responsible bidder who complies with all prescribed requirements.

S-13 (1305) REQUIREMENT OF CONTRACT BOND

The provisions of Mn/DOT 1305 are hereby deleted and replaced with the following:

At the time of the execution of the Contract, the successful bidder shall furnish both a performance bond and a payment bond. Each bond shall list the address of the successful bidder and of the surety, shall be written for the full amount of the contract price as required by Minnesota Statutes, Section 574.26, and shall be written on a form prepared and required by Hennepin County. The sureties on the bonds shall be acceptable to Hennepin County.

The contracting authority shall require for all contracts less than or equal to five million dollars ($5,000,000.00), that the aggregate liability of the payment and performance bonds shall be twice the amount of the contract. All contracts in excess of five million dollars ($5,000,000.00), shall have an aggregate liability equal to the amount of the contract.

S-14 (1306) EXECUTION AND APPROVAL OF CONTRACT

The provisions of Mn/DOT 1306 are hereby amended as follows:

In the first, second and third paragraphs, substitute "performance and payment bonds" for "Contract Bond" and "Bond"; and

Add the following as a new paragraph:

Before beginning work on the contract, the successful bidder must file both bonds with the treasurer of Hennepin County.

S-15 (1307) FAILURE TO EXECUTE CONTRACT

The provisions of Mn/DOT 1307 are hereby modified by substituting the words, "acceptable performance and payment bonds" for the words "an acceptable bond".

S-16 (1404) MAINTENANCE OF TRAFFIC

Traffic shall be maintained in accordance with the provisions of Mn/DOT 1404, as directed by the Engineer and the following:

S-16.1 All traffic control devices shall conform to and be installed in accordance with the “Minnesota Manual On Uniform Traffic Control Devices” (MN MUTCD) and Part 6, “Field Manual for Temporary Traffic Control Zone Layouts”, the Minnesota Flagging Handbook, the Minnesota Standard Signs Manuals, the Traffic Engineering Manual, and the provisions of Mn/DOT 1404 and Mn/DOT 1710, and the modifications thereto contained in these Special Provisions.

The Contractor shall furnish, install, maintain and remove all traffic control devices required to provide safe movement of vehicular and pedestrian traffic through the Project for the life of the Contract from the

start of Contract operations to the final completion thereof, including any times of suspension, or until approved by the Engineer, whichever is longer. The Engineer shall have the right to modify the requirements for traffic control as deemed necessary due to existing field conditions. The highways shall be kept open to traffic at all times, except as modified below.

Traffic control devices include, but are not limited to, barricades, warning signs, trailers, flashers, cones, drums, pavement markings and flaggers as required and sufficient barricade weights to maintain barricade stability.

The Contractor is advised of the changes to the Prevailing Wage Coverage as noted in the Notice to Bidders – Traffic Control Prevailing Wage Coverage contained in the front of this Proposal.

S-16.2 Special Project Requirements

Maintenance and Staging of Traffic Control:

1. Before any traffic restrictions will be permitted, the Contractor's plan for traffic control and methods must be approved by the Engineer.

2. The Contractor shall start the project repairs on the right most northbound lane (NBL) at American Boulevard, i.e. working on the right through lane only and adjacent right turn lanes. When either 50% of the NBL repairs are underway or one week after start of the NBL repairs, repairs on the right most southbound lane (SBL) can begin. After work is completed on at least six continuous blocks of the NBL or SBL right most lanes, work on the center and/or left most lanes can begin. The center and left most lanes between TH 62 bridge and Hazelton Road can be closed for ten (10) working days each (i.e. 10 working days for NB, 10 working days for SB) for a total of 15 working days. From TH 62 to 65th Street, only one lane at a time maybe closed with approval of Engineer to complete all concrete repairs. During this time, all left turn movements in this area shall be fully maintained by either using the in-place left turn lanes or substituting the center lane as a turn lane while repairs are made on the turn lane, all as approved by the Engineer. During this time, the dual SB left turn lane into the Southdale Shopping Center shall remain completely open, with repairs being made one half at a time during the right most SBL repair work. One of the dual left turn lanes SB at American Boulevard shall remain open during these repairs at all times. All concrete work on the turn lane at American Boulevard to be completed in five (5) working days.

3. Temporary lane closures or other restrictions by the Contractor, during work hours and consistent with the time restrictions herein,

will be permitted during those hours and at those locations approved by the Engineer. Requests for temporary lane closures and other traffic flow restrictions or modifications, including any affecting any signal system, shall be made at least 24 hours prior to the anticipated time of such closures or modifications.

4. Unless otherwise permitted herein or expressly approved by the Engineer, all traffic on all roadways shall be maintained at all times on a minimum traveled width of one lane in each direction where the roadway contains three or less through lanes, and with a minimum of two traveled lanes in one direction on those portions where more than three lanes in one direction exist.

5. The Contractor will be permitted to keep no more than one lane, either the rightmost or leftmost, in each direction closed on a long term basis (not subject to the time restrictions in No. 6 herein), except where necessary for curing full depth pavement repairs, and then only when expressly authorized by the Engineer. Use of long-term lane closures in more than one lane in each direction shall be restricted to those times when repairs are actually being performed or pavement patches are curing.

   The phrase "long term lane closure" used in these Special Provisions shall be interpreted to mean lane closures that comply with the Intermediate Term/Night Layouts in the Field Manual of the MN MUTCD and additional requirements as specified herein.

6. No center lane closures will be permitted except as approved by the Engineer. Only double lane closures as shown in the Field Manual of the MN MUTCD will be allowed. Double lane closures will be permitted on a daily basis, except between the hours of 4:00 pm to 7:00 pm on any weekday (Monday through Friday) excluding legal holidays. Double lane closures, consistent with the aforesaid times, will only be permitted when repair identification, patching, concrete curing, or resealing activities are actually occurring.

   The Engineer will have the right to lengthen, shorten, or otherwise modify the foregoing periods of restrictions as actual traffic conditions may warrant. If the Contractor is negligent in adhering to the established time schedules, he shall be subject to the hourly charge as set forth in Section 1807 (Failure to Complete the Work on Time) of these Special Provisions.

7. Lane closures which cause traffic to be diverted onto any portion of the roadway which is normally used by traffic going the opposite direction will not be permitted.

8. Concrete patching operations shall be conducted in a manner which will keep all turn lanes, including those on cross streets, open and functioning as turn lanes for the maximum amount of time possible. This may include multiple traffic control setups in either the actual turn lanes or within intersections as authorized by the Engineer and as may be necessary to keep all turning movements available to vehicular traffic at all times.

9. All cross traffic shall be maintained at all times with a maximum reduction of one lane less in each direction than that which is normally provided on the cross street for through traffic. All cross street lane closures must be kept to an absolute minimum time duration and must have prior approval of the Engineer.

10. The Contractor shall provide one vehicle or trailer mounted flashing arrow board for each lane of each work area, including side streets, where traffic is restricted. The board shall meet the requirements of the MN MUTCD and shall be equipped with a light that is visible to personnel in the work area to indicate that the unit is in operation. The flashing arrow board shall be an incidental cost for which no direct compensation will be made.

    It is imperative that the Contractor continually operate each flashing arrow board at maximum legibility. Many factors, such as mechanical problems, insufficient charging, incorrect intensity settings or other factors can degrade performance.

11. Any lane closure extending to or beyond 500 feet shall have a minimum of one Type III barricade placed in the closed lane for every 500 feet of extension.

12. The Contractor shall maintain, at all times, the existing traffic movements at all intersections.

13. Access to existing entrances shall be maintained at all times except as follows:

    Where there is more than one entrance to a single property, one entrance may be temporarily closed for a period not exceeding five working days. It shall be the Contractor's responsibility to notify the affected property owner in advance of any such closure.

    Where there is only one entrance to a property, the Contractor shall conduct his work to provide for vehicular ingress and egress to the property at all times.

14. The Contractor shall conduct all construction activities within driveways and entrance aprons, in a timely manner so as to

minimally disrupt the daily operations of the affected adjacent property owners.

15. All signs installed on roads open to traffic that are not consistent with traffic operations during construction shall be covered as directed by the Engineer.

16. Pedestrian traffic shall be maintained and guided through the Project at all times.

17. Temporary lane closures will not be permitted during inclement weather, nor any other time when, in the opinion of the Engineer, the lane closure will be a greater than normal hazard to traffic.

S-16.3 General Requirements

A. The Contractor shall furnish, install and maintain "Road Work Ahead" and "End Construction" signs in advance of and beyond each end of the construction limits as directed by the Engineer. The Contractor shall also furnish, install and maintain "Road Work Ahead" signs in advance of the construction limits and on all intersecting roads and streets if so directed by the Engineer. The signs and posts shall conform to the standards shown in the MN MUTCD. No direct compensation will be made to the Contractor for furnishing and erecting these signs. The signs shall remain the property of the Contractor.

B. The Contractor shall be responsible, on a 24 hour basis, for the maintenance, including but not limited to repair or replacement, of all traffic control devices during the entire life of this Contract including any times of suspension for any reason whatsoever.

C. The Contractor shall keep all traffic control signs and devices in a legible condition. This shall include, but not be limited to, removing any grime deposited on any traffic control devices by traffic, natural causes, or by the nature of the work being performed.

D. In addition to general maintenance requirements throughout the day, the Contractor shall relocate to proper location and realign all traffic control devices as necessary on a daily basis, including traffic control devices misplaced by subcontractor operations.

E. Placement of all signs and barricades shall proceed in the direction of flow of traffic. Removal of all signs and barricades shall start at the end of the construction areas and proceed toward oncoming traffic whenever possible. The Contractor shall be required to cover or remove all traffic control devices which may be inconsistent with traffic patterns during all phase changes.

F. In the event of severe weather conditions the Contractor shall provide additional personnel and equipment to maintain all traffic control devices.

G. The Contractor shall have at least ten extra Type I barricades with flashers, five extra Type III barricades, and ten extra plastic drums stored at a convenient location within the project limits for use in an emergency. The storage and use of said extra barricades, barrels and flashers shall be incidental to the lump sum traffic control pay items, not as Additional Traffic Control Devices.

H. The Contractor shall furnish names, addresses, and phone numbers of at least three (3) individuals responsible for the placement and maintenance of traffic control devices. These individuals shall be "on call" 24 hours per day, seven days per week, during the times any traffic control devices, furnished and installed by the Contractor, are in place. The required information shall be submitted to the Engineer at the Pre-Construction Conference.

The Contractor shall also furnish the names, addresses and phone numbers of those individuals to the following:

1.	Edina Public Works Department	(952) 826-0443
2.	Edina Police Department	(952) 826-0491
3.	Edina Fire Department	(952) 826-0303
4.	Edina City Clerk	(952) 826-0408
5.	Bloomington Public Works Depart	(952) 563-4868
6.	Bloomington Police Department	(952) 563-4900
7.	Bloomington Fire Department	(952) 563-4800
8.	Bloomington City Clerk	(952) 563-4925

I. The Contractor shall be required to respond to any call from the Engineer or his designated representative concerning any request for improving or correcting traffic control devices. If the Contractor is negligent in correcting the deficiency within one (1) hour from the time of notification by the Engineer, the Contractor shall be subject to the hourly charge as set forth in 1807 (Failure to Complete the Work on Time) of these Special Provisions.

J. The Contractor shall inspect, on a daily basis, all traffic control devices, which the Contractor has furnished and installed, and verify that the devices are placed in accordance with the traffic control and detour plan, these Special Provisions and the MN MUTCD. Any discrepancy between the actual placement of the devices in use and the required placement of the devices shall be immediately corrected.

The person performing this inspection shall be required to make a daily log. This log shall also include the date and time any changes in the stages, phases, or portions thereof go into effect. The log shall identify the location and verify that the devices are placed as directed or corrected in accordance with the plan. All entries in the log shall include the date and time of the entry and be signed by the person making the inspection. The Engineer reserves the right to request copies of the logs, as he deems necessary.

K. The Contractor shall furnish qualified flag persons as required to adequately control traffic and as may be directed by the Engineer. Qualified flag persons shall conform to the requirements set forth in the MN MUTCD. All costs incurred to provide flag persons as required or directed shall be incidental to the traffic control pay items included in the contract.

L. Sandbags will be the only acceptable weight to stabilize traffic control devices. During freezing conditions the sand for bags and impact barrels shall be mixed with a de-icer to prevent the sand from freezing. The sandbags shall be placed and maintained at the base of the traffic control devices, to the satisfaction of the Engineer.

M. The Contractor shall provide protective devices necessary to protect traffic from excavations, drop-offs, falling objects, splatter or other hazards that may exist during construction. This work shall be an incidental cost to the Contract.

N. No vehicles or equipment, including but not limited to those of the Contractor, any subcontractors, or any workers, or construction equipment shall be parked so as to obstruct any traffic control device.

O. During the time of any traffic restrictions, the Contractor's equipment shall "follow in line" and shall use the roadway in a manner similar to all other traffic, unless otherwise authorized by the Engineer.

P. All personnel working on or near the traveled roadway shall wear reflectorized safety vests.

S-16.4 Measurement and Payment

A. Traffic control will be paid for as follows:

No measurement will be made of the various items that constitute Traffic Control. All such work and devices required in this Contract shall be included in each of the lump sum Traffic Control pay item No. 2563.601. The lump sum payment shall be compensation in full for all costs of furnishing, installing, maintaining, relocating and

removing any and all individual traffic control devices, pavement markings, etc. required to complete the work on the project included in this Contract.

The lump sum pay item shall also include, but are not limited to, extra signing needed for transitioning traffic from one stage to another, cross street closures, devices necessary to keep vehicles off shoulders, and signing for roadway closures, including advance notice signs.

B. Partial payments for the pay item "Traffic Control" in the Contract will be made as percentages of the Contract lump sum amount according to the following schedule based on work completed on the project:

	Cumulative % of Lump Sum Traffic Control Item to be Paid
Initial Traffic Control installation completed	50
100% of Work Completed	100

S-16.5 Separate Traffic Control Devices

In addition to the traffic control devices and flagging, etc., required for the work, the following traffic control items are being paid separately.

A. General Requirements:

The Contractor shall furnish the separate traffic control devices as ordered by the Engineer.

The devices shall be installed and maintained in a functional and/or legible condition, at all times, to the satisfaction of the Engineer.

B. Measurement:

Portable changeable message signs will be measured by the number of individual units furnished and installed complete in place, multiplied by the number of Calendar Days each unit is in service.

S-16.6 Construction sign special will measured by the area in square meters (**square feet**) of special construction signs constructed as specified.

A. Payment:

Payment for portable changeable message signs at the Contract Unit Price per Unit Day shall be compensation in full for all costs incidental thereto, including but not limited to furnishing and

installing the signs with appropriate messages, operating and maintaining the signs, revising the messages as directed by the Engineer, and removing the signs when no longer required as approved by the Engineer.

S-16.7 Payment for construction sign special at the Contract bid price per square foot, which shall be compensation in full for all costs incidental thereto, including but not limited to furnishing and installing the signs, mounting hardware and posts, maintaining the signs, and removing the signs upon direction of the Engineer.

S-17 (1407) FINAL CLEANUP

The provisions of Mn/DOT 1407 are supplemented as follows:

During the progress of the work, the area affected shall be kept clean and free of all rubbish and surplus materials. All unneeded construction equipment shall be removed from the site and all damage repaired so that the public and adjacent property owners are inconvenienced as little as possible.

Where materials or debris have washed or flowed into or have been placed in water courses, ditches, gutters, drains, catch basins, or elsewhere as a result of the Contractor's operations, such material or debris shall be removed and satisfactorily disposed of during progress of work. All ditches, channels, drains, etc., shall be kept in a clean and neat condition.

On or before the completion of work, the Contractor shall, unless otherwise directed in writing, remove all temporary works, tools and machinery or other construction equipment. All rubbish shall be removed from any grounds occupied by the Contractor. The Contractor shall leave all of the premises and adjacent property affected by the operation in a neat and restored condition satisfactory to the Engineer.

S-18 (1505) COOPERATION BY CONTRACTOR

S-18.1 Hennepin County may install pavement markings as required. The Contractor shall cooperate fully with the County forces in the completion of these work items to ensure a safe roadway for the traveling public. The County forces may mobilize to the Project to perform this work as the areas of need arise based on the Contractor’s schedule.

S-18.2 The Contractor shall also cooperate with personnel from Hennepin County and State of Minnesota that may be on the project as necessary to inspect and/or repair damaged traffic signal and/or ramp meter loop detectors. In the event a loop detector needs to be replaced the Contractor shall provide ample time for its installation.

S-18.3 Utilities owned by the Cities of Edina and Bloomington may be affected by the work on this Contract. The Cities may have utility division representatives on the project when utilities are affected by the construction activities. The Contractor shall cooperate with the municipal utility personnel, as required by the Engineer, when municipal utility facilities are being adjusted.

S-19 (1506) SUPERVISION BY CONTRACTOR

Supervision by the Contractor shall be in accordance with the provisions of Mn/DOT 1506 and the following:

S-19.1 At the Preconstruction Conference the Contractor shall designate in writing who the competent superintendent and competent individual (if different) will be for this Project. These persons can only be changed throughout the duration of the Project by submission of written authorization to the Engineer by the Contractor. The submittal of these persons shall be done before any work is performed on this Project.

The Contractor shall be subject to an hourly charge for failure to comply with the requirements of Mn/DOT 1506. Non-Compliance charges, for each incident, will be **assessed at a rate of $100 per hour**, for each hour or portion thereof, during which the Engineer determines that the Contractor has not complied. No charge will be made if the deficiency is corrected within one (1) hour of notification.

An incident of Non-Compliance will be defined as the receipt of a written work order by the Contractor with instructions to correct a deficiency.

S-20 (1507) UTILITY PROPERTY SERVICE

Construction operations in the proximity of utility properties shall be performed in accordance with the provisions of Mn/DOT 1507 and the following:

S-20.1 It will be the Contractor's responsibility to contact the owners of all utilities in any area prior to the construction in the area so that the Contractor can be informed of the exact locations of all the utilities in the area, including any that are not shown in the plans, prior to performing any excavations. It will also be the Contractor's responsibility to: (1) report any existing damage or faulty condition (i.e. sand in manholes, damaged valve boxes, etc.) to the owners prior to construction, as once excavation has commenced it will be assumed that all damage to underground installations has been caused by the Contractor's operations and it will be its responsibility to make the necessary repairs; and (2) upon completion of the project, contact all utility owners and make arrangements for a field inspection trip by a representative of the

Contractor and representatives of the utility owners to confirm that all damages caused by the Contractor's operations have been repaired to the satisfaction of the owners.

S-21 **(1513) RESTRICTIONS ON MOVEMENT AND STORAGE OF HEAVY LOADS AND EQUIPMENT**

The provisions of Mn/DOT 1513 are hereby deleted and replaced with the following:

The hauling or storage of materials and/or the movement and storage of equipment to and from the Project and over completed structures, base courses, and pavements within the Project that are open for use by traffic and are to remain a part of the permanent improvement, shall comply with the regulations governing the operation of vehicles on the highways of Minnesota, as prescribed in the Highway Traffic Regulation Act.

The Contractor shall comply with legal load restrictions, and with any special restrictions imposed by the Contract, in hauling or storing materials, moving or storing equipment on structures, completed subgrades, base courses, and pavements within the Project that are under construction, or have been completed but have not been accepted and opened for use by traffic.

The Contractor shall have a completed Weight Information Card in each vehicle used for hauling bituminous mixture, aggregate, batch concrete, and grading material (including borrow and excess) prior to starting work. This card shall identify the truck or tractor and trailer by Minnesota or prorated license number and shall contain the tare, maximum allowable legal gross mass, supporting information, and the signature of the owner. The card shall be available to the Engineer upon request. All Contractor-related costs in providing, verifying, and spot checking the cab card information (including weighing trucks on certified commercial scales, both empty and loaded) will be incidental, and no compensation other than for Plan pay items will be made.

Equipment mounted on crawler tracks or steel-tired wheels shall not be operated on or across concrete or bituminous surfaces without specific authorization from the Engineer. Special restrictions may be imposed by the Contract with respect to speed, load distribution, surface protection, and other precautions considered necessary.

Should construction operations necessitate the crossing of an existing pavement, bridges or completed portions of the pavement structure with equipment or loads that would otherwise be prohibited, approved methods of load distribution or bridging shall be provided by the Contractor at no expense to the Department.

Neither by issuance of a special permit, nor by adherence to any other restrictions imposed, shall the Contractor be relieved of liability for damages resulting from the operation and movement of construction equipment.

Unless specifically allowed in the Contract, or approved by the Engineer, all construction material and/or equipment which might be temporarily stored or parked on a bridge deck while the bridge is under construction will be limited by this specification. These requirements are intended to limit construction loads to levels commensurate with the typical design live load. The storage of materials and equipment as a whole will be limited to all of the following:

(A) Stockpiles of material are limited to a maximum weight of 31,702 kg/100 m² (65,000 lbs./1000 ft²).

(B) Individual material stockpiles (including but not limited to pallets of products, reinforcing bar bundles, aggregate piles) are limited to a maximum weight of 12,200 kg/10 m² (25,000 lbs./100 ft²).

(C) Combinations of vehicles, materials, and other equipment are limited to a maximum weight of 90,700 kb (200,000 lbs.) per span providing span lengths are over 40 feet long.

The Contractor may submit alternate loadings to the Project Engineer 30 Calendar days prior to placement. Any submittals will require the calculations be certified by a Professional Engineer.

S-22 (1517) CLAIMS FOR COMPENSATION ADJUSTMENT

Claims for compensation adjustments shall be submitted and processed in accordance with the provisions of Mn/DOT 1517 and the following:

In Item No. 18 of Section C Review of Claims, the word “be” is hereby corrected to “by”.

S-23 (1601) SOURCE OF SUPPLY AND QUALITY

The provisions of Mn/DOT 1601 are supplemented as follows:

S-23.1 The Contractor will furnish and use only steel and iron materials that have been melted and manufactured in the United States in executing the work under this Contract, in conformance with the provision of the U.S. Code of Federal Regulations 23CFR635.410. Domestic products taken out of the United States for any process (e.g. change of chemical content, permanent shape or size, or final finish of product) shall be considered foreign source materials.

All bids must be based on furnishing domestic iron and steel, which includes the application of the coating, except where the cost of iron and steel materials incorporated in the work does not exceed one-tenth of one percent of the total contract cost or $2,500.00, whichever is greater. The state may provide the use of foreign iron and steel materials for particular Contract items, provided the bidder submits, a stipulation identifying the foreign source iron and/or steel product(s) and the estimated invoice cost of the product(s), for one or more of the Contract bid items. Each stipulation shall be made on the "Stipulation for Foreign Iron or Steel Materials" form which shall be submitted with the Contractor's proposal. **If the Contractor chooses to use ANY non-domestic iron or steel, the Contractor must submit a stipulation with the proposal.**

Prior to completing work the Contractor shall submit to the Engineer a certification stating that all iron and steel items supplied are of domestic origin, except for non-domestic iron and steel specifically stipulated and permitted in accordance with the paragraph above.

S-23.2 Source of Supply and Quality

Mn/DOT 1604 is supplemented as follows: All costs of shop inspection at plants outside the United States shall be borne by the Contractor. Such costs shall be deducted from monies due or to become due the Contractor.

S-23.3 Partial Payment

All provisions for partial payments shall apply to domestic materials only. No payments shall be made to the Contractor for materials manufactured outside of the United States until such materials have been delivered to the job site.

S-24 (1701) LAWS TO BE OBSERVED

The provisions of Mn/DOT 1701 are hereby supplemented with the following:

S-24.1 Bidders are advised that all data created, collected, received, maintained, or disseminated by the Contractor and any subcontractors in performing the work contained in this Contract are subject to the requirements of MN Statute Chapter 13, the Minnesota Government Data Practices Act (MGDPA). The Contractor shall comply with the requirements of the MGDPA in the same manner as the Department. The Contractor does not have a duty to provide access to public data to the public if the public data is available from the Department, except as required by the terms of the Contract.

S-24.2 Nothing in the Contract documents shall be construed to allow the Contractor to circumvent existing local ordinances that have an impact on its construction operations. The Contractor is hereby advised that it shall

conduct its construction operations including, but not limited to, excavation, and hauling in accordance with all local ordinances. The Contractor shall become knowledgeable with all pertinent local ordinances and conduct its operations accordingly.

S-25 (1702) PERMITS, LICENSES, AND TAXES

Permits and licenses shall be procured and taxes paid in conformance with Mn/DOT 1702 and the following:

S-25.1 The Contractor shall amend or obtain applicable permits for any construction method it proposes to use not covered by the approved permits on file.

S-26 (1706) EMPLOYEE HEALTH AND WELFARE

The provisions of Mn/DOT 1706 are supplemented with the following:

S-26.1 All construction operations shall be conducted in compliance with applicable laws, regulations and industry standards as described in Mn/DOT 1706. The contractor shall be considered to be **fully responsible** for the development, implementation and enforcement of all safety requirements on the project, notwithstanding any actions Hennepin County may take to help ensure compliance with those requirements.

The Contractor shall complete a written project safety & environment checklist/plan (Checklist) addressing identified regulated materials and potential hazards at the job site. This Checklist shall contain name(s) of person(s) responsible for all safety requirements and this Contractor's Designee(s) shall be available at all times that work is being performed. The Contractor's designee(s) shall be responsible for correcting violations on the Project as observed by the Engineer or his/her representative.

The Checklist shall indicate that means and methods have been developed by the contractor to eliminate or control the identified hazard or material, that contractor employees have been appropriately trained to address the identified hazard/material, and that tools, equipment and personal protective equipment are in good condition and adequate to control the hazard. The Checklist shall be submitted at or prior to the Project's pre-construction meeting, but not less than 14 calendar days prior to the start of contracted site work. In the event site work begins less than 14 calendar days from the date of execution of the contract, the Checklist shall be submitted at least 24 hours prior to the start of site work. Should the Contractor expect to and/or fail to submit the Checklist any later than commencement of site work, the Contractor will notify the County's Project Manager in writing within 24 hours of the start of work.

Submittal of the Checklist shall not relieve the Contractor of any obligation under a governing rule, standard, state or federal statute or regulation, municipal ordinance, County policy, or of any provision in the project contract documents.

S-26.2 The Contractor shall not use any motor vehicle equipment on this project having an obstructed view to the rear unless:

The vehicle has a reverse signal alarm which is audible above the surrounding noise level; or

The vehicle is backed up only when an observer signals that it is safe to do so.

S-26.3 The Contractor is hereby advised that any work performed under the terms of this contract which in the opinion of the Engineer can not be adequately and safely inspected by County personnel due to the lack of OSHA or ANSI required safety measures (i.e. Trenches, fall protection, confined space or other hazards) be deemed Unauthorized Work in accordance with Mn/DOT 1512 and will not be paid for. A $500.00 **monetary deduction (per incident) will be assessed by County for violations of safety standards and requirements that have the potential for loss of life and/or limb of Project personnel or the public.** The areas of special concern include, but are not limited to excavation stability protection, fall protection, protection from overhead hazards, vehicle backup protection (See S-28.2), confined space safety, blasting operations, and personal safety devices.

S-26.4 None of the monetary deductions listed above shall be considered by the Contractor as allowance of noncompliance incidents of these safety requirements on this Project.

S-26.5 Bidders are hereby advised that Hennepin County has determined that all existing manholes, catch basins, and similar type enclosed structures on storm sewer systems, water distribution systems, and sanitary sewer systems contained within the right of way of all county roadways and within the construction limits of this Project are confined spaces and access into them shall be in accordance with the MINN.RULE 5207.0300-0304 unless more applicable regulations apply. All new structures of the same type and function of the aforesaid which are to be constructed as a part of this project shall also be considered confined spaces and access into them shall be in accordance with the aforecited OSHA Regulation.

It shall be the sole responsibility of the successful bidder (Contractor) on this Project to have a confined entry program which complies with OSHA. The Contractor's program shall address, but need not be limited to, access into manholes, catch basins, and similar type enclosed structures on storm

sewers, water distribution systems, and sanitary sewer systems that are to be constructed, reconstructed, adjusted, repaired, or otherwise modified as part of this Project. The Contractor's program shall establish acceptable entry conditions for the various classifications of confined spaces in accordance with the MINN.RULE 5207.0300-0304 unless more applicable regulations apply. The Contractor shall have an adequately trained individual who shall be responsible for classifying each confined space in accordance with the Contractor's confined space entry program, and ensuring compliance with same by all of the Contractor's employees and all other individuals within the Contractor's control entering confined spaces on this Project. The Contractor shall develop and implement site-specific procedures to coordinate entry operations when employees of more than one employer are or will be working simultaneously in a confined space.

The Contractor's confined entry program shall clearly address its applicability to all subcontractors and their employees that will be utilized for this Project. It shall be the Contractor's responsibility to ensure compliance with OSHA by all subcontractors and their employees on this Project either through the Contractor's own program or through separate programs established by the subcontractors working on this Project.

S-26.6 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions required in connection with their work on this Project, including Regulations of the Occupational Safety and Health Administration (OSHA) and other regulatory and governing agencies.

S-26.7 Hennepin County assumes no responsibility or liability for the Contractor's compliance with applicable federal and state regulations and safe work practices. The Contractor shall remain at all times solely responsible for the sufficiency of its safety program and its compliance with applicable federal and state regulations.

S-26.8 The Contractor shall submit his work plan, at the preconstruction conference, for providing all OSHA required safety equipment (safety nets, static lines, etc.) for all work areas whose working surface is 6 feet or more above the ground, water, or other surfaces. Submittal of this plan will in no way relieve the Contractor of his responsibility for providing a safe working area. The fall protection system shall be furnished, installed, and maintained in accordance with all applicable OSHA Regulation (Standards-29 CFR) including but not limited to “Duty to have fall protection - 1926.501” and “Fall protection Systems criteria and practices – 1926.502”, ANSI/ASSE A10.32-2004 ‘Fall Protection Systems’ for construction and demolition operation, and ANSI/ASSE Z359.2-2007 “Minimum Requirements for a Comprehensive Fall Protection Program”.

All safety equipment, in accordance with the Contractor's plan, must be inplace and operable in adequate time to allow County personnel to perform their required inspection duties at the appropriate time. No cement shall be placed in any areas affected by such required inspection until the inspection has been completed.

S-27 (1707) PUBLIC CONVENIENCE AND SAFETY

The provisions of Mn/DOT 1707 are supplemented with the following:

S-27.1 Metro Transit has bus service in the area that will be affected by this project. The Contractor shall notify Metro Transit five (5) days prior to the date of any traffic changes that may affect Metro Transit bus service, and ten (10) days prior to the date of requiring the relocation of any Metro Transit facility, as follows: Jay Russell, Manager of Street Operations. Telephone (612) 349-7310, or jay.russell@metc.state.mn.us .

S-28 (1710) TRAFFIC CONTROL DEVICES

All traffic control devices and methods shall conform to the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD); Minnesota Standard Signs Manual Parts; Traffic Engineering Manual, and the provisions of Mn/DOT 1710, and the following:

S-28.1 The first paragraph of Mn/DOT 1710.2, is revised to read as follows:

The Contractor shall provide, install, maintain and remove all traffic control devices as deemed necessary by the Department in accordance with the Contract, and the MN MUTCD; this includes, but is not limited to, the following:

S-28.2 The provisions of Mn/DOT 1710.3, 1710.4 and 1710.5 are hereby deleted from the Contract.

S-28.3 On any roadway having a 45 mph or higher speed limit prior to construction, all Category I and II temporary traffic control devices used after July 1, 2006 shall meet NCHRP 350 crash testing criteria. This includes all new and used Category I and Category II devices. Category I devices include tube markers, plastic drums and cones, etc. Category II devices include portable sign supports. Type I, II and III barricades, etc.

The Contractor is hereby advised that the MN MUTCD requires that all signs shall meet the NCHRP 350 Crash testing criteria.

The Contractor shall provide the Project Engineer a Letter of Compliance stating that all of the Contractors Category I and II Devices are NCHRP 350 approved as of July 1, 2006. The Letter of Compliance must also

include approved drawings of the different signs and devices and shall be provided to the Project Engineer at the Pre-construction meeting.

S-28.4 During the tenure of the contract, the Engineer may require the Contractor to replace the reflective material (on both new and/or used traffic control devices) whose effectiveness, in the Engineer's opinion has been substantially reduced from traffic or other causes.

S-28.5 Bidders are advised that used traffic control devices conforming to the referenced requirements may be furnished in lieu of all new devices, provided they are in near new condition. All devices and the reflectorized sheeting thereon shall be in a condition acceptable to the Engineer prior to their installation on the Project.

S-28.6 Portable changeable message signs shall comply with the requirements of Appendix 8-8.04 to Chapter 8 of the Mn/DOT Traffic Engineering Manual and the following:

(PCMS) Type C Trailer Mounted Message Signs will be permitted. It is imperative that the Contractor continually operate each PCMS at maximum legibility. Many factors, such as mechanical problems, insufficient charging, incorrect intensity settings, or other factors can degrade performance. If at any time the Contractor fails to operate a Portable Changeable Message Sign at maximum legibility, as determined by the Engineer, no payment will be made for each day that the Message Sign is deemed inadequate.

The changeable message signs shall be in operation within 24 hours after notification by the Engineer and removed within 24 hours after notification by the Engineer. Multiple mobilizations of the changeable message signs will be required and shall be incidental to providing the signs. The changeable message signs shall be subject to approval of the Engineer. All maintenance and repair as required will be considered incidental to the Contract price for the respective item.

Except as authorized by the Engineer, the message sign shall be stored off the shoulder when not in use. In the event the Engineer allows the message board to remain on the shoulder the message sign shall be delineated with a minimum of three (3) retro reflective drums or weighted channelizers at no expense to the County.

S-29 (1712) PROTECTION AND RESTORATION OF PROPERTY

Property and landscape shall be protected in accordance with the provisions of Mn/DOT 1712 and the following:

The Contractor shall exercise extreme care in preventing damage to any areas where turf has been previously established. Parking by Contractor's

personnel and equipment on non-surfaced areas will be restricted to specific areas approved by the Engineer. All areas disturbed by the Contractor's operation shall be restored to the satisfaction of the Engineer prior to acceptance of the Project. All costs involved in restoration shall be incidental.

The Contractor will be required to take special precautions or perform special construction procedures to preclude damage to existing trees that are to remain in place as determined by the Engineer. All such special precautions or construction procedures including, but not limited to, materials required shall be considered incidental work for which no direct compensation will be made.

S-29.1 The Contractor shall provide traffic control devices as necessary to deter traffic from driving on bituminous shoulders adjacent to the patching work areas. The Contractor shall be responsible for the repair of all damage to bituminous shoulders resulting from traffic use if, in the opinion of the Engineer, the Contractor has not provided adequate traffic control devices to stop traffic from driving on the shoulders.

S-29.2 The Contractor is advised that work on this contract will be required in the vicinity of existing traffic signal and/or highway meter loop detectors. Care shall be exercised when milling in the vicinity of any signal loop detector, especially near the edge of the concrete gutter where the loop lead-in cable enters a metal conduit that extends under the curb and gutter. Loop detectors are generally installed in pavements at a minimum depth of 2 inches.

The Contractor is hereby advised that the traffic signal and/or highway meter loop detectors on the various roadways included in this Contract are owned and maintained by Hennepin County, OR the Minnesota Department of Transportation. The procedures for field locations and replacements, if necessary, are different depending on who maintains the loop detectors. The various procedures in regards to loop detectors for this Contract are as follows:

The loop detectors for the highway meter signals located in the vicinity of TH 62/CSAH 17 and I-494/CSAH 17 are owned and maintained by the Minnesota Department of Transportation (Mn/DOT).

The Contractor shall notify the Electrical Service Unit (ESU) either telephone no. 651-366-5750 and make all the necessary arrangements for field locations prior to milling.

In the event any Mn/DOT loop detectors are damaged or there is reason to believe damage has occurred due to the Contractor's operations, the Contractor shall again contact the above listed Mn/DOT personnel to

inspect the loop detector. If required, a replacement loop detector will be installed by the Contractor at no expense to the County or Mn/DOT.

All traffic signal loop detectors on CSAH 17 and adjacent cross streets included in this Contract are maintained by Hennepin County.

When working in the vicinity of signal loop detectors maintained by Hennepin County the Contractor shall notify the Hennepin County Signal Shop Supervisor at telephone no. (612) 596-0309 prior to performing any contract work. Hennepin County Traffic personnel will then field locate the existing working loop detectors. In the event any loop detectors are damaged or there is reason to believe damage has occurred due to the Contractor's operations, the Contractor shall contact the Hennepin County Signal Shop Supervisor to inspect the loop detector.

S-29.3 The Contractor shall perform concrete joint repair in the vicinity of working loop detectors with caution and in a manner necessary to ensure the continued operation of the loop detector. Unless otherwise agreed by the Engineer, the Contractor shall be responsible for the replacement, at no cost to the County, of all loop detectors damaged as a result of the Contractors operations. All replacement loop detectors, if necessary, shall be installed as directed by the Engineer.

S-29.4 The following is added to the provisions of Mn/DOT 1712:

1712.5 TRAFFIC SIGNS

Any traffic signs or street signs not removed or relocated by the City or the County prior to or during construction shall remain in place and be protected by the Contractor for the duration of the work, except as otherwise authorized by the Engineer. Should any sign interfere with construction, it may be adjusted or removed and reset at a temporary location when so authorized by the Engineer, provided that location is not critical and the Contractor resets the signs at their permanent locations as soon as construction operations permit. In no case shall a traffic sign or street sign be removed or disturbed by the Contractor without prior notification being given to the Engineer, and then only after satisfactory arrangements have been made for a temporary installation or its disposition. Street identification signage shall be maintained at all times due to its importance to the '911' emergency response system. No additional compensation will be made to the Contractor for any expenses incurred in removing, protecting and replacing traffic signs or street signs as provided for herein, nor for any delays, inconvenience, or damage sustained by him due to any special construction required in prosecuting his work in the presence of traffic signs and/or street signs.

S-30 (1714) RESPONSIBILITY FOR DAMAGE CLAIMS

Responsibility for damage claims shall be in accordance with the

provisions of Mn/DOT 1714, except that the first paragraph is hereby deleted and replaced with the following:

The Contractor agrees to defend, indemnify, and hold harmless the County of Hennepin, the Cities of Edina and Bloomington, and the State of Minnesota, their or its, officials, officers, agents, volunteers, and employees from any liability, claims, causes of action, judgments, damages, losses, costs, or expenses, including reasonable attorneys' fees, resulting directly or indirectly from any act or omission of the Contractor, a subcontractor, anyone directly or indirectly employed by them, and/or anyone for whose acts and/or omissions they may be liable in the performance of the services required by this Contract, and against all loss by reason of injuries or damages received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any environmental damage or hazardous material damage caused by or resulting from the Contractor's activities; or because of any act or omission, neglect, or misconduct of the Contractor; or because of any claims arising or amounts recovered from infringements of patent, trademark, or copyright; or because of any claims arising or amounts recovered under the Worker's Compensation Act; or under any other law, ordinance, order, or decree or due to the failure of the Contractor to perform fully, in any respect, all obligations under this Contract.

S-31 (1717) AIR, LAND AND WATER POLLUTION

Pollution of natural resources of air, land and water by operations under this Contract shall be prevented, controlled, and abated in accordance with the rules, regulations, and standards adopted and established by the Minnesota Pollution Control Agency (M.P.C.A.), and in accordance with the provisions of Mn/DOT 1717, 2573, 2575 and the following:

S-31.1 The Contractor shall furnish material, labor and equipment for temporary control measures as shown in the Plans or ordered by the Engineer and shall provide for the acceptable maintenance thereof during the life of the Contract, to effectively prevent water pollution through the use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods. Surface cover materials shall be anchored to reasonably prevent their entering waters of the State by erosion or rising water levels.

Temporary pollution control measures shall be included for all construction activity associated with the project where such work is necessary for example: borrow pit operations, haul roads, equipment storage, and plant or waste disposal sites.

The temporary pollution control provisions contained herein shall be coordinated with any permanent erosion control features specified elsewhere in the contract to the extent practicable to assure economical, effective, and continuous erosion control throughout the construction and post-construction period.

At the preconstruction conference, or prior to the start of the applicable construction, the Contractor shall submit for acceptance his proposed schedules for accomplishment of temporary and permanent pollution and erosion control work, as are applicable for clearing and grubbing; grading; construction of bridges and other structures at watercourses; paving; and miscellaneous construction. The Contractor shall also submit for acceptance his proposed method of erosion control on haul roads and at borrow pits and his plans for disposal of waste material. No work shall be started until the applicable erosion control schedules and methods of operation have been accepted by the Engineer.

S-31.2 All temporary and permanent erosion and pollution control measures necessitated by the Contractor's operations outside the greater of either the construction limits or the right of way shall be performed as required by all applicable laws, rules, regulations or permits at the Contractor's own expense. All temporary erosion and pollution control measures necessitated by the Contractor's negligence, carelessness, or failure to properly coordinate the installation of permanent controls as part of the work scheduled within the greater of either the construction limits or the right of way, shall be performed as ordered by the Engineer and in accordance with all applicable laws, rules, regulations or permits, at the Contractor's own expense.

Failure by the Contractor to control erosion, pollution, and siltation as required could result in penalties as provided for in applicable laws, rules, regulations, permits and the provisions herein. The County reserves the right to employ outside assistance or to use its own forces to provide the necessary corrective measures in the event the invoking of the afore referenced penalties do not produce the necessary corrections. All expenses so incurred by the County, including its engineering costs, that are chargeable to the Contractor as its obligation and expense, will be deducted from any monies due or coming due the Contractor. In addition to the expenses incurred by the County for the completion of the afore referenced corrective measures, the County shall also deduct from any monies due or coming due the Contractor non-compliance charges, as provided within this Contract, for that amount of time from when the Contractor was first notified of the need for corrective measures until the satisfactory completion of the corrective measures.

Where the Engineer orders installation of either temporary or additional permanent erosion or pollution control measures, in the absence of any

negligence, carelessness, or failure on the Contractor's part to properly schedule and carry out the measures provided for in the Contract, and except for such work which is necessitated by the Contractor's operations outside the greater of either the construction limits or the right of way, the work shall be performed at the Department's expense and payment will be made therefore at appropriate Contract bid prices for like work, or as Extra Work if there is no comparable item of work in the Contract.

S-31.3 In the event of conflict between these requirements and any applicable pollution control laws, rules, regulations, or permits of other Federal and State or local agencies, the more stringent requirements shall apply.

S-32 (1801) SUBLETTING OF CONTRACT

The provisions of Mn/DOT1801 are hereby modified in accordance with the following:

S-32.1 The following is hereby added to the standard provisions of Mn/DOT 1801:

Minnesota law requires prime contractors to pay any subcontractor within ten days of the prime contractor's receipt of payment from the County for undisputed services provided by the subcontractor. This law also requires the prime contractor to pay interest of 1½ percent per month on any undisputed amount not paid on time to the subcontractor.

S-33 IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

By signing this bid, the bidder will be deemed to have stipulated as follows:

A. That any facility to be utilized in the performance of this Contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et. seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et. seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR, Part 15), is not listed on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

B. That the County and the State Transportation Department shall be promptly notified prior to contract award of the receipt by the bidder of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

S-34 (1802) QUALIFICATION OF WORKERS

The provisions of Mn/DOT 1802 are hereby supplemented with the following:

It is crucial that quality workmanship be performed on Concrete Rehabilitation Pavement Projects. Therefore, all contractors, supervisors, foremen, sub foremen and other key personnel such as operators, finishers, steel setters, sandblasters, joint sealers, etc., involved in the field supervision and/or actual rehabilitation operations, exclusive of delivery work, such as required to attend, within five working days of being employed on the Project, a Concrete Pavement Rehabilitation Session. These sessions, consisting of a short slide/tape presentation, will be made available for viewing prior to the start of work on the Project at the Contractors local field office and/or through the Project Engineer. Verification of attendance at one of these sessions shall satisfy this requirement for all subsequent projects in this calendar year.

The Engineer may waive this requirement in the event the Contractor can produce and certify acceptable documentation showing that all of the Contractors' employees working on the Project have attended a Mn/DOT Concrete Pavement Rehabilitation Session earlier in this calendar year.

S-35 (1803) PROSECUTION OF WORK

The actual repair quantities and repair locations to be performed under this Contract are dependent on the County's budget for the contract and the conditions of the various roadway pavements. There are no guarantees, implied or otherwise represented, that all the work awarded under this Contract will be completed. Therefore, the Contractor shall conduct all construction activities and keep the Engineer informed of the project constructions schedule in accordance with the provisions of Mn/DOT 1803 and the following:

S-35.1 Construction activities on each of the various sections included in this Contract must be performed in accordance with the following sequence:

CSAH 17	Northbound lanes – right most w/ right turn lanes
CSAH 17	Southbound lanes – right most w/right turn lanes
CSAH 17	Center and left lanes

S-35.2 The Engineer will analyze the budget when approximately 75% of the repairs are identified on each of the afore-defined work sites and determine if the next section in the sequence is to be repaired. Mobilization to subsequent projects shall not be considered authorized

until the Engineer has expressly notified the Contractor to proceed to the next project.

S-35.3 The Engineer may eliminate one or more projects from the Contract entirely and direct the Contractor to mobilize to subsequently listed projects in the sequence. This would be done to maximize remaining budgeted project funds.

S-35.4 In the event the Engineer determines that any of the listed sections are not to be repaired under this Contract, the Engineer shall so notify the Contractor.

S-35.5 Compensation for eliminated work shall be in accordance with Mn/DOT 1905 as modified in these Special Provisions.

S-36 (1805) METHODS AND EQUIPMENT

The Contractor shall provide and use construction methods and equipment in accordance with Mn/DOT 1805 and the following:

The third and fourth paragraphs are hereby effectively modified to include the following:

Methods and equipment which cause debris and particles of any nature to become airborne in such a manner to cause adverse impacts, including but not limited to safety hazards and nuisances, to adjacent property, property owners or the general public traveling through the project will not be permitted on this project.

S-37 (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME

The determination and extension of the Contract time shall be in accordance with the provisions of Mn/DOT 1806, and the following:

S-37.1 The second and third paragraphs of Mn/DOT 1806.1 are hereby deleted and replaced with the following:

Assessment of working day charges will begin on the Contract Starting Date, as hereinafter defined, and cease when all work has been completed, except for maintenance and final cleanup operations, unless otherwise specified. Should the Contractor elect to commence work prior to the latest date set forth herein for the start of construction operations, the Contract Starting Date shall be the first day on which work is performed; assessment of working day charges will commence on that day.

S-37.2 The Contract Start Date for the commencement of construction operations shall be August 22, 2011 or within ten (10) days from the date of final approval of the Construction Contract by the County, whichever date is later.

S-37.3 All work required by the Contract and authorized by the Engineer, including final cleanup, shall be completed on a working day basis.

S-37.4 The Working Days allowed for the completion of all work on this Contract shall be dependent on the actual locations where concrete rehabilitation operations are performed. Allowable Working Days for each roadway within this Contract shall be as follows:

Roadways	Allowable Working Days
1. CSAH 17-Northbound lanes-right most w/right turn	10
2. CSAH 17-Southbound lanes-right most w/right turn	10
3. CSAH 17-Center and left lanes	
Northbound – 10 working days	
Southbound – 10 working days	
Total	15

All work, including final cleanup, required by the Contract on each of the above listed roadways which have been authorized by the Engineer shall be completed within the respective above defined Allowable Working Days; computed from the date traffic within the respective roadway limits is first affected by this Contract.

S-38 (1807) FAILURE TO COMPLETE THE WORK ON TIME

Liquidated damages for failure to complete the work on time will be assessed in accordance with the provisions of Mn/DOT 1807, as modified herein, and the amount(s) deducted from any monies due or coming due to the Contractor in an amount(s) equal to the following:

S-38.1 The second paragraph is hereby replaced with the following:

In any suit involving assessment or recovery of liquidated damages, the reasonableness of daily and/or hourly charges shall be presumed and the amount assessed will be in addition to every other remedy now or hereinafter enforceable at law, in equity, by statute, or under the Contract.

S-38.2 Liquidated damages will be assessed on a calendar day on this Contract. The Contractor will be assessed liquidated damages in the respective amounts set forth in the following table per calendar day for failure to complete all work required on each respective section, including final cleanup, within the Allowable Working Days specified for that section in S-37.4 of these Special Provisions.

Roadway	Liquidated Damages Amount per Calendar Day
CSAH 17 Northbound lanes-right most w/right turn	$600
CSAH 17-Southbound lanes-right most w/right turn	$600
CSAH 17-Center and left lanes Plus an additional $250 per quarter hour for any traffic backing onto mainline TH 62 and I 494	$600

S-38.3 The Contractor will be subject to an hourly charge for failure to maintain the traffic control devices as set forth in Section 1404 (MAINTENANCE OF TRAFFIC) of these Special Provisions. Non-compliance charges, for each incident, will be assessed at a rate of $250.00 per hour for each hour or any portion thereof with which the Engineer determines that the Contractor has not complied. Plus an additional $250 per quarter hour for any traffic backup on to mainline TH62 and I 494.

S-38.4 The Contractor will be subject to an hourly charge for failure to remove temporary lane restrictions within the permitted hours as set forth in the provisions of Mn/DOT 1404 of these Special Provisions unless otherwise authorized by the Engineer. Non-compliance charges, for each incident, will be assessed at a rate of $500.00 per hour for each hour or any portion thereof which the Engineer determines that the Contractor has not complied.

S-38.5 Assessment of all the aforestated liquidated damages shall be applied separately or in any concurrent combination deemed appropriate by the Engineer.

S-39 (1809) EMERGENCY CANCELLATION OF CONTRACT

The last paragraph of Mn/DOT 1809 is hereby corrected to read:

Termination of the Contract or any portion thereof shall not relieve the Contractor of responsibility for the completed work, nor shall it relieve the Contractor's Sureties of their obligation for and concerning any just claims arising out of the work performed.

S-40 (1903) COMPENSATION FOR INCREASED OR DECREASED QUANTITIES

The provisions of Mn/DOT 1903 shall not apply to this Contract.

S-41 **(1904) EXTRA AND FORCE ACCOUNT WORK**

The provisions of Mn/DOT 1904 are supplemented and/or modified with the following:

S-41.1 The Contractor is required to submit Force Account Work itemized statements of cost in accordance with Mn/DOT 1904 to the Engineer on Mn/DOT form TP-21659 (Summary of Daily Force Account). Copies of this form can be obtained from the Engineer. The form can also be obtained from the Mn/DOT web site http://www.dot.state.mn.us/const/tools/forceaccount.html .

S-41.2 The following sentence shall be added to the second paragraph of Mn/DOT 1904.

Under no circumstance will the negotiated unit price for Extra Work which is performed by a subcontractor include a Prime Contractor allowance which exceeds that provided for in Mn/DOT 1904 (4), Paragraph 3, as modified herein.

S-42 **(1905) ELIMINATION OF WORK**

Elimination of work shall be in accordance with the provisions of Mn/DOT 1905, except as modified as follows:

S-42.1 As previously specified in S-35, the Engineer shall retain the right to eliminate portions of the work provided for in the Contract. Work may be eliminated by selectively reducing the types of patching, joints repairs, joint sealing or curb and gutter operations to be accomplished on the project.

S-42.2 Paragraphs (2) and (4) of Mn/DOT 1905 are hereby deleted.

S-43 **(1906) PARTIAL PAYMENTS**

Partial payments shall be made as provided for in Mn/DOT 1906 and in accordance with the following:

S-43.1 Substitute the following two paragraphs for the fourth paragraph:

From the total of the amounts ascertained as payable, an amount equivalent to not less than 5 percent of the whole will be deducted and retained by the Department in protection of its interests until released as hereinafter provided. The balance less all previous payments will be certified for payment.

When the work under contract has been completed to the extent that not more than 5 percent of the contract value remains to be completed, the

Department will release to the Contractor such portions of the retained funds as it considers to be in excess of the amount adequate for protection of its interests. Before any reductions are made in the amounts retained, the Contractor may be required to furnish an affidavit of consent from his sureties.

S-43.2 The following is hereby added to the end of Mn/DOT 1906:

Out of State Contractors

A. In accordance with Minnesota Law, if an out of state contractor is awarded the Contract under these specifications and the Contract exceeds or can reasonably be expected to exceed $100,000, the County, to ensure the Contractor's payment of certain Minnesota taxes, shall deduct eight percent (8%) of every payment to the Contractor unless a waiver is obtained from the Minnesota Department of Revenue. The monies deducted shall be retained until the Department of Revenue determines the Contractor's tax liability. Any said amount shall be in addition to any other amount deducted or withheld from Contractor's payments under these specifications.

B. If the Contractor desires an exemption:

1. The Contractor may either apply directly to the Minnesota Department of Revenue for the exemption or may complete form SD-E furnished by the County. If the form is furnished by the County, then upon the Contractor's completion and return of the form to the County, the County will forward the completed form to the Minnesota Department of Revenue for certification.

2. Unless the out of state contractor can receive an exemption because of its recent construction work in Minnesota and its full compliance with pertinent Minnesota tax laws, it must file either a cash or surety bond with the Minnesota Department of Revenue. The Contractor is advised, however, that it is intended that the Contract bond furnished in accordance with Section 1305, as modified herein, will satisfy any bond requirement needed to receive an exemption except that the Contract bond initially furnished to the County under these specifications shall be not less than 108% of the Contract amount.

3. To expedite the County's final approval of the Contract, the out of state contractor should act promptly to return Form SD-E to the County.

Additionally, to further ensure payment of said taxes, all contractors shall be responsible for deducting, when required, sufficient monies from payments to their out of state subcontractors who perform work in Minnesota under subcontracts in excess of $100,000 and also for otherwise complying in all respects with the law relating to such retaining.

S-44 (1908) FINAL PAYMENT

Final payment shall be made as provided for in Mn/DOT 1908 and in accordance with the following:

S-44.1 Final payment for all work included in the Contract will be made to the Contractor within 35 calendar days after all of the following conditions have been satisfied:

1. The Certificate of Final Acceptance has been executed by the County and the Contractor.

2. A written release approving final payment has been received by the County from the Contractor's Sureties.

3. Proof supplied by the Contractor that he has complied with the provisions of M.S. 290.92 regarding withholding of State income taxes.

4. An affidavit has been received by the County from the Contractor showing that all claims against him by reason of the Contract have either been paid or satisfactorily secured.

5. All requirements of the Equal Employment Opportunity Plan have been completed.

S-44.2 If this Contract contains a "Minority Business Enterprise" goal, the following requirement shall apply:

Before final payment is made, the Contractor shall also complete an affidavit showing the total dollar amounts of work performed by disadvantaged business enterprise (DBE) and women business enterprise (WBE).

S-45 (1910) FUEL COST ESCALATION CLAUSE

The provisions of Mn/DOT 1910 are hereby deleted and replaced with the attached Fuel Escalation Clause:

The provisions set forth in the attachments are modified as follows:

S-45.1 The Contractor shall be required to file a written claim presenting all required data to determine if a reimbursement should be allowed.

S-45.2 The Contractor will provide the calculations and Contract items that he wishes to be considered for the fuel cost adjustment. The Engineer will verify the items and calculations to determine the amount that will be paid.

S-46 (2021) MOBILIZATION

The provisions of Mn/DOT 2021 are hereby deleted and replaced with the following:

2021.1 DESCRIPTION

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the Project site; for the establishment of all Contractor's offices and buildings or other facilities necessary for work on the Project. Mobilization may include bonding, permit, and demobilization costs. When the proposal does not have a lump sum item for Mobilization, all costs incurred by the Contractor for Mobilization shall be incidental to other work.

2021.5 BASIS OF PAYMENT

Based on the lump sum Contract price for mobilization, partial payments will be made as follows:

Mobilization Partial Payments		
% of Original ontract Amount Completed[1]	Pay Lesser of the Two	
	Mobilization	of Original tract Amount
5	50	3
15	75	5
25	100	5
95	100	N/A

e Percent of Original Contract Amount Completed = the amount earned by the Contractor, excluding money earned for mobilization and material on hand, divided by the total value of the original contract (all bid items).

The total sum of all payments shall not exceed the original Contract amount bid for the mobilization item, regardless of the fact that the Contractor may have, for any reason, shut down work on the Project or moved equipment away from the Project and then back again.

Nothing herein shall be construed to limit or preclude partial payments otherwise provided by the Contract.

Item No.		Item Unit
2021.501	Mobilization	Lump Sum

S-47 (2104) REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

Pavement, abandoned and miscellaneous structures and other obstructions shall be removed from the Right of Way and disposed of in accordance with the provisions of Mn/DOT 2104 and the following:

S-47.1 Debris resulting from the concrete sidewalk removal, curb removal, crack and joint repair procedures, pipe removal, catch basin and manhole repair and/or construction, etc., shall be disposed of by the contractor outside of the right of way as set forth in Mn/DOT 2104.3C3 as incidental work for which no direct compensation will be made.

S-47.2 Any damage to any inplace pavement, roadway structure or appurtenance, including but not limited to loop detectors, traffic control signal systems, lighting cable, etc., caused by the Contractor's actions or failure to act shall be repaired by the Contractor as directed by the Engineer at no cost to the County. Final acceptance of the project will not occur until all such damage has been repaired by the Contractor to the satisfaction of the Engineer.

S-47.3 All removal and disposal operations shall be incidental work and no direct compensation will be made therefore. The removal of any unforeseen obstruction requiring in the opinion of the Engineer equipment or handling substantially different from that employed in excavation operations, will be paid for as Extra Work as provided in Mn/DOT 1403.

S-48 (2301) CONCRETE PAVEMENT REHABILITATION (CPR)

This work shall consist of performing concrete pavement repairs and joint/crack sealing in accordance with the applicable provisions of Mn/DOT 2301, the Plan, Concrete Pavement Rehabilitation (CPR) Standard Details and Construction Notes, and the following:

S-48.1 All repair details included in the Plans show Metric bar markings for reinforcing steel (deformed) instead of English bar markings. All dowel bars (smooth) continue to use English dimensions. The Concrete Reinforcing and Steel Institute (CRSI) manufactures all deformed reinforcing steel with Metric markings.

S-48.2 General Requirements

The Contractor shall:

(A) establish traffic control 1-day in advance of the beginning of the rehab operation for rehab surveys and locations.

(B) replace bituminous shoulder pavement, as directed by the Engineer,

as an incidental cost to performing adjacent concrete repairs.

(C) as directed by the Engineer, repair any damage to any in-place pavement, roadway structure, or appurtenance caused by the Contractor's operations prior to final acceptance at no cost to the County.

(D) saw full-depth relief cuts and remove a transverse section 4 inches wide by full-width of the slab as the Contractor determines necessary to protect the existing concrete pavement. If the Contractor chooses not to saw a relief cut and damage is caused to the existing concrete pavement, the Contractor shall make repairs as directed by the Engineer, at no cost to the County. Prior to opening to traffic, the Contractor shall backfill the void formed after concrete removal with Class 5 or other material as approved by the Engineer. The Contractor shall maintain the backfill material flush +/- 1/2 inch with adjacent concrete.

(E) use concrete placing and finishing procedures that do not result in rounding of the surface at any joints or headers.

(F) not place any concrete mixture after October 1st.

(G) provide a repaired surface tolerance that does not vary by more than 1/8 inch from the existing pavement surface as measured with a straight edge placed over the joint. The Contractor shall replace or grind the repair as necessary to correct deficiencies.

(H) provide a power pick-up broom to sweep the portion of the closed traffic lane prior to opening.

(I) equip milling machines used for concrete removal with a device for stopping at preset depths to prevent damage to the dowel bars.

(J) re-establish longitudinal and transverse cracks and joints according to the appropriate repair detail for the situation encountered.

(K) restore contraction and longitudinal joints by green sawing Type C repairs to a depth of 1/3 of the pavement thickness.

(L) edge adjacent to all inserts in fresh concrete.

(M) fill overlaps in saw cuts from removal operations with an approved silicone or hot pour joint sealant.

(N) assure that concrete repairs do not protrude beyond the original cross-section of the pavement by more than 3/8 inch by forming or

sawing the edges.

(O) provide surface texturing for all repairs consisting of brooming in the long dimension of the repair in lieu of the requirements of Mn/DOT 2301.3L Surface Finishing.

(P) insulate patches in cool weather, (below 60°F) or when in-place pavement temperatures are below 50°F. When texture planing is required and the temperatures are below 60°F (night or day), the Contractor shall apply a blanket cure for a minimum of 48 hours after placement and prior to texture planing. The Contractor shall cast beams or cylinders (cured and tested by the County) if earlier opening times are required.

(Q) repair any areas of failure that appear within one (1) month of the original construction or subsequent repair at no cost to the County. Failures include (but are not limited to) the loss of bonding to the inplace concrete or crack apparent in the repair other than the desired crack in the newly constructed joint or re-established crack.

S-48.3 Type 'A' Repairs

This work shall consist of cleaning and sawing transverse joints, longitudinal joints or cracks to the specified width, as detailed in the Plan, in preparations for resealing. The Contractor shall use the type of joint sealant and method of construction shown in the Mn/DOT CPR Standard Detail. The Contractor shall use only approved silicone and hot pour sealants as listed on the Concrete Engineering Unit Website.

The Contractor shall:

(1) clean, saw, and reseal joints and cracks in texture planed areas only after the concrete texture planning operations are completed.

(2) as approved by the Engineer, clean and remove waste material produced from cleaning, sawing, routing, planing or other operations from the adjacent pavement and remove from the County Right-of-Way to avoid unsightly buildup of waste or future maintenance problems such as but not limited to waste impairing drainage systems.

(3) remove all of the existing joint seal material from the joints insofar as it is possible with ripping teeth, wire brush, sawing or other reasonable equipment to the satisfaction of the Engineer. However, the Contractor shall not use equipment that will cause spalling of the pavement surface beyond the limits of the proposed sawed section.

(4) widen the existing joint or crack by sawing to a width ±1/16 inch of that shown in the Plan and to a depth of ±1/8 inch of that shown in the Plan. The Engineer will designate the widening dimensions.

(5) thoroughly clean all joints and cracks by water flushing immediately after sawing.

(6) not place joint sealant when the air temperature is below 40°F, nor when the joint faces show signs of frost.

(7) assure that the joints or cracks are clean, dry, and free of all incompressible material before sealant is applied. The Contractor shall apply joint sealants in accordance with the Manufacturer's recommendations. The Contractor shall use talc as necessary. The Engineer may direct the Contractor to use a heat lance to dry joints and cracks prior to placing the joint sealant. The Contractor shall sandblast the joint faces after using the heat lance.

(8) shall place approved closed cell backer rod when necessary.

(9) use hot pour concrete joint and crack sealer for sealing longitudinal joints

(10) fill joints or cracks to 1/8 inches below the pavement surface plus or minus 1/16 inch. Any overfilling will require removal and replacement by the Contractor at no cost to the County.

HOT POUR SEAL CHART – English

Joint Width (inches)	Sealant Bead Thickness (inches)	Backer Rod Diameter * (inches)	Minimum Joint Depth (inches)	Estimated Quantity (ft/gal)**	Estimated Quantity (ft/gal)**
a	b	c	d		
1/4	1/4	3/8	11/16	268	0.035
3/8	3/8	1/2	15/16	119	0.079
1/2	1/2	5/8	1-3/16	67	0.140
5/8	5/8	3/4	1-7/16	43	0.219
3/4	3/4	7/8	1-11/16	30	0.316
7/8	7/8	1	1-15/16	22	0.430
1	1	1-1/8	2-3/16	17	0.562
1-1/8	1-1/8	1-1/4	2-7/16	13	0.711
1-1/4	1-1/4	1-3/8	2-11/16	11	0.877
1-3/8	1-3/8	1-1/2	2-15/16	9	1.062
1-1/2	1-1/2	1-5/8	3-3/16	7	1.264

1-5/8	1-5/8	1-3/4	3-7/16	6	1.483
1-3/4	1-3/4	1-7/8	3-11/16	5	1.720
1-7/8	1-7/8	2	3-15/16	5	1.974

* Minimum backer rod diameter

** Volumes will vary depending on joint design and joint irregularities.
Sealing of joints wider than 1-1/4" is not recommended. The appropriate Type "B" or "C" repair should be performed.

S-48.4 Type 'B' Repairs

This work shall consist of removing deteriorated concrete at designated Type B repair areas, furnishing, placing, and curing 3U18 concrete to the original slope and grade and reestablishing joints or cracks.

The Contractor shall:

A. not place concrete for Type B partial depth repairs at air temperatures below 40°F.

B. not use "Jackhammers" for partial depth removals. Removal hammers are limited to a maximum rated weight of 35 lb.

C. remove the concrete surface in the designated repair areas to a minimum depth of 2 inches and all deteriorated concrete removed to a maximum depth of one-half the pavement thickness.

D. remove the concrete surface in the designated repair area by either milling transversely or longitudinally or by delineating the repair area by saw cuts and chipping back the saw cuts to a 30 - 60° angle. The Contractor shall chip-out secondary spalling resulting from milling at no cost to the County, otherwise, chipping of the milled edges is not required. The Contractor shall not damage the dowel bars during the removal process. Any damage is the responsibility of the Contractor.

E. address corroded and misaligned dowel bars. If dowel bar cross-section loss due to corrosion is slight, the Contractor shall use MC-250 coating or a bridging material approved by the Engineer. If the dowel bars are misaligned or exhibit corrosion to a greater degree, the Contractor shall cut or burn-off the bar. If this involves more than three adjacent dowels, the Contractor shall remove and replace the dowels using the appropriate repair detail. The placement of compression relief material is required to re-establish the joint.

F. provide a compression relief saw cut or install compression relief material at the time of placement of the concrete to re-establish joints and cracks at their original locations.

G. provide and place a bonding grout to the prepared concrete repair surface consisting of 2 parts portland cement and 1 part sand, mixed with sufficient water to form a slurry with the consistency of thick cream. The Contractor shall mix the grout by mechanical means and apply by brushing or scrubbing (with a stiff bristle broom) onto the in place concrete surface and then immediately placing concrete after grouting. If the grout whitens, the Contractor shall sand blast and regrout. The life of the grout shall not exceed hour.

H. furnish, place, finish and cure Grade 3U18 as replacement concrete for all Type B repairs in accordance with the provisions in this Plan and Proposal.

I. make sure all Type B-2 repair procedures conform to the procedures for Type B-1 or Type B-3 repair procedures when appropriate.

J. saw and seal joints and cracks involving Type B repairs in accordance with the appropriate Type A repair.

Note to Engineer: The practice of using sand to prevent locking the joints together due to concrete infiltration when placing repairs will likely result in a reduced repair life as compared to repairing a joint where the dowels are not exposed and a tight joint exists. Therefore, an early determination is necessary to quantify the extent of this fix to determine if it is a cost effective alternative as compared to a longer lasting full-depth repair. (Contact the Concrete Engineering Unit for advice).

S-48.5 Type 'C' Repairs

This work shall consist of full-depth concrete removal, installing reinforcing and/or load transfer, furnishing and placing, finishing and curing concrete.

The Contractor shall:

A. drill smooth 18 x 1 inch diameter dowel bars or No. 25 reinforcement bars with an approved drill assembly and grouted 9 inches into the face of the inplace concrete slab as shown in the Plans. The Contractor shall install individual dowel bars parallel to the inplace grade and the inplace roadway centerline within a tolerance of 1/8 inch and to all other dowel bars in the assembly within a tolerance of 1/16 inch.

B. use either non-shrink grout or an epoxy anchorages for bonding reinforcing tie bars and dowel bars to in-place concrete (For an approved products list, see www.dot.state.mn.us/products/) The Contractor shall clean and dry the drilled holes and place bonding agent into the drilled hole in a manner that will completely fill the

void, then push the bar into the hole. The Contractor shall fill any voids with grout and finish smooth and check to assure that the bars are fully set prior to placement of concrete.

C. not remove any inserts used in the reestablishment of joints in Type C repairs before 24 hours, except by sawing or as approved by the Engineer.

D. saw and seal joints and cracks involving Type C repairs in accordance with the appropriate Type A repair.

S-48.6 Type D Repairs

This work shall consist of sawing and removing inplace concrete; restoration of subgrade; furnishing and installation of dowel bars and reinforcing tie bars; furnishing, placing, finishing and curing concrete; and restoration of joints.

The Contractor shall:

A. construct L2KT longitudinal joints unless otherwise directed by the Engineer.

B. when placing concrete adjacent to inplace concrete pavement joints, protect all ends of transverse joints to the satisfaction of the Engineer to prevent concrete mortar from infiltrating into the existing joints and causing compression spalls.

C. Saw and seal joints and cracks involving Type D repairs in Accordance with the appropriate Type A repair.

S-48.7 Concrete Mixture Requirements

Incorporate concrete into the work for concrete rehabilitation repair areas as indicated in the Plans and at other locations deemed necessary, all in accordance with the applicable provisions of Mn/DOT 2301, Mn/DOT 2461, and the following.

The Contractor shall:

A. provide all grades of concrete with an air content of 6.5% plus or minus 1.5%. The Contractor shall not use accelerators when the ambient air temperature exceeds 80°F without the approval of the Engineer. (Use accelerators with caution, contact the Concrete Engineering Unit).

B. proportion the Grade 3U18 concrete mix by weight and mix at the job site in a paddle type mixer; or proportion and mix at the job site by a continuous batching mixing machine designed for this purpose. The Contractor shall include the required admixtures in the concrete mixtures as noted in the Plan.

C. incorporate concrete mix designs 3A32HE, 3U27 or 3U28 into the work as indicated in the Plans for all full depth concrete pavement and at other locations deemed necessary by the Engineer.

D. when required, provide concrete Mix Grades 3U27 and 3U28 using water-reducing accelerator (Type E) as a slump increaser. The mix design shall include the water reducing accelerator solution as part of the total recommended mixing water.

E. when no early opening time is required, use standard concrete mixes of 3U18 for Type B repairs, and 3A32 or 3A41 for all Type C repairs.

F. when early opening times are required, refer to Table 1. Incorporate concrete mix designs 3A32HE, 3U27 or 3U28 into the work for all full depth concrete pavement and at other locations as indicated in the Plans as deemed necessary by the Engineer.

G. note that concrete mixes are considered incidental to the work in which they are incorporated.

H. note that the Concrete Engineer may approve substitute mixes to the above concrete mix types.

TABLE 1
Concrete Mixes for Early Opening Times

Repair Type	Concrete Mix Grade	Minimum Time to Opening (hours) [1]	Admixture Dosage [2] & Type/Curing Requirement
B	3U18	24	Maximum Type A
B	3U18	12	40% of Maximum Type E
C	3A32HE	24	Maximum Type A
C	3U27, 3U28	12	40% of Maximum Type E [3]
C	3A32HE	12	40% of Maximum Type E [3] / Use curing blankets and insulation [4]

[1] Providing that ambient and concrete temperatures exceed 60ºF.
[2] Recommended dosage is from the manufacturer of the admixture.
[3] Shall be added as a slump increaser.
[4] Materials must meet Mn/DOT 3756 and 3760.

S-48.8 Membrane Curing Compound

The following is hereby added to Mn/DOT 3754:

Immediately after final finishing, all concrete shall be cured in accordance with Mn/DOT 2531.3G2. Either Membrane Curing Compound meeting Mn/DOT 3754 AMS or Extreme Service Membrane Curing Compound meeting Mn/DOT 3755 shall be used. Only one type of curing compound shall be used on the entire Project. Hudson sprayers may be used if the coverage rate is doubled and the curing material is from an agitated source.

S-48-9 Measurement

Measurement of quantities is made by the Engineer:

The Engineer will:

A. measure pavement joint and crack repairs separately by length for each type of repair performed as specified.

B. measure pavement surface repairs and spot full depth joint repairs separately by the area of each specific type of repairs performed as specified.

C. measure and pay Type B repairs by the square foot to the nearest square foot.

D. reserve the right to direct the Contractor to construct a joint repair Type B-3 centered on the longitudinal or transverse joints or on one or both sides of the longitudinal or transverse joint to provide for the situation where there are many spalled joints where the removal area is greater than 10 inches wide. (For instance: If the joints had extensive spalling that was 20 inches wide and 12 feet long, payment is for 24 feet of B-3 rather than 12 feet of B-3 and the rest under B-2A Spot Surface Repair).

E. provide measurement for payment for overlapping Type B-1, Type B-2C, and Type B-3 repairs for the most expensive repair only. Measure for separate payment any Type B-2A or B-2B repairs (square foot) adjacent to other Type B repairs (lineal foot) outside the limits of those Type B repairs.

F. pay the Contractor at a measured quantity of 40% of the Type B item plus the full cost for the Type C repair, if after removal, the Engineer changes a Type B repair to a Type C repair.

G. pay Type C full-depth joint repair listed as a linear foot pay item. The Engineer will pay for any repair from 0 to 9.5 feet outside of the 3'-6" minimum width as Item 2301.501 (Concrete Pavement Repair Type CX) paid by the square yard. Type CX shall include all costs involving removal and replacement, including the cost of the

structural concrete and structural steel. If the total length of the repair, including the 3'-6" minimum is greater than 13 feet, the first 3'-6" is paid as Type C linear foot and the remainder as Pavement Replacement Type D.

H. measure and pay the restoration of cracks and joints through Type B, C or D repairs under the pay item for the appropriate Type A repair in addition to payment for the Type B, C, or D repair.

S-48-10 Payment

Payment for the various type of pavement crack, joint and surface repairs is made in accordance with the schedule set forth below at the appropriate Contract unit bid price for each separate item of work, which is, in each instance, compensation in full for costs of all materials, equipment, and labor required to complete the work as specified, to the satisfaction of the Engineer.

The provisions of Mn/DOT 1907 are hereby modified to the extent that when the actual usage of joint sealer material is less than specified, the surplus material shall remain the property of the Contractor. The Contractor is paid 15% of the material cost in lieu of handling and transportation costs, unless otherwise directed by the Engineer.

The provisions of Mn/DOT 1903 will not apply. The Engineer will pay any under runs or overruns in quantities at the Contract bid price without adjustments.

Item No.	Description	Unit
2301.529	Reinforcement Tie Bars (Epoxy Coated)	pound
2301.538	Dowel Bar	each
2301.603	Joint Repair (Type A-1H) ¾"	linear foot
2301.603	Joint Repair (Type A-1H) ¾" > ⅞"+	linear foot
2301.603	Crack Repair (Type A-3H) < ½"	linear foot
2301.603	Crack Repair (Type A-4H) > ½"	linear foot
2301.603	Longitudinal Joint Repair (Type A-5H)	linear foot
2301.603	Crack Repair (Type B-1)	linear foot
2301.603	Edge Repair (Type B-2C)	linear foot
2301.603	Joint Repair (Type B-3)	linear foot
2301.603	Contraction Joint Repair (Type C-3D)	linear foot
2301.604	Concrete Pavement (Type CX)	square yard
2301.608	Seal Concrete Pavement Joints (Hot Pour)	pound
2301.618	Spot Full-Depth Repair (Type C-1)	square foot
2301.618	Repair Special (Type B-2E)	square foot
2301.618	Spot Surface Repair (Type B-2A)	square foot

S-49 (2461) STRUCTURAL CONCRETE

The provisions of Mn/DOT 2461 are modified in accordance with the following:

S-49.1 Mn/DOT 2461.3B shall be deleted and replaced with the following:

B Classification of Concrete

The Department will classify concrete by type, grade, consistency, and aggregate size. Refer to the mix number and Table 2461-2 to determine the mix requirements for each item of work.

Table 2461-2
Mix Number Identification

First Digit	Second Digit	Third Digit	Fourth Digit	Additional Digits
Type	Grade	Slump range	Coarse aggregate gradation range	Class A coarse aggregate when required, modified mix designation, or both

Refer to individual contract items in the Standard Specification for Mix Numbers. Deviations from the specified Mix Numbers require coordination with the Concrete Engineer.

If the contract does not show a concrete mix number, provide Type 3, Grade Y concrete with a slump and aggregate gradation according to the Engineer.

The Department will designate grout by type and grade followed by the word "GROUT." Do not provide grout containing coarse aggregate. If the plans do not show a type or grade for grout, provide 3A GROUT.

B1 Type Designation

Provide Type 1 or Type 3 concrete in accordance with Table 2461-3:

Table 2461-3
Concrete Type Designation

Concrete Type	Target Air Content*, %	Maximum Water/Cement Ratio ‖
1	2.0	≤ 0.53 for 1A43 ≤ 0.68 for 1C62 ≤ 0.64 for 1C Grout
3	6.5 †	≤ 0.45†

* For concrete mix design purposes only
‖ The water/cement ratio is defined as the ratio of the total water weight to the total cementitious weight.
† Unless otherwise required by 2301 or elsewhere in the contract.

S-49.2 Mn/DOT 2461.3E shall be deleted and replaced with the following:

E Concrete Admixtures.....3113

The Contractor may use the following approved admixtures listed on the Approved Products list:

(1) Type A, "Water Reducing Admixtures,"

(2) Type B, "Admixtures Identified as Hydration Stabilizers," or

(3) Type S, "Viscosity Modifying Admixtures."

Do not use admixtures other than cementitious materials, aggregates, water, air-entraining admixtures, and other admixtures referenced in (1), (2), and (3) above in the concrete unless otherwise required by or allowed in the contract.

Use admixture dosage rates recommended by the manufacturer.

The Contractor may use calcium chloride in concrete as approved by the Engineer, in conjunction with the Concrete Engineer. Do not use calcium chloride in units containing prestressing steel or in bridge superstructure concrete.

E1 Use of Additional Admixtures

On a case by case basis, the Engineer will consider the use of additional admixtures provided the Contractor conforms with the following:

(1) Provides a QC Plan for using additional admixtures.

(2) Performs trial batches of the concrete including plastic and hardened concrete testing as directed by the Engineer.

(3) Uses the same equipment, batch size, and materials proposed for the trial batches as proposed for the work. Incorporate the trial batches into the work with the approval of the Engineer.

(4) The Contractor must demonstrate to the Engineer the ability to properly mix, control and place the concrete.

The Concrete Engineer, in coordination with the Engineer, will review the trial batch results and all related concrete testing for compliance with the QC Plan and the Contract.

Upon acceptance of the QC Plan, the Contractor will design the mix in accordance with 2461.2.F.2.

S-49.3 Mn/DOT 2461.3F shall be deleted.

S-49.4 Mn/DOT 2461.3G, 2461.3H, and 2461.3J shall be deleted and replaced with the following:

G Job Mix Proportions

G1 Department Designed

The Department will provide the estimated composition of concrete mixes unless otherwise required by the contract.

The Department may adjust the mix composition of the concrete without adjusting the contract unit price for any items of work.

G1a Concrete Yield

The Department defines concrete yield as the ratio of the volume of mixed concrete, less accountable waste, to the planned volume of the work constructed. The Department will not assume responsibility for the yield from a given volume of mixed concrete.

G1b High-Early Strength Concrete

When the Engineer requires high-early strength concrete, the concrete is designed in accordance with the following:

- Increasing the cement content of the concrete up to 30 percent and/or using an approved accelerator as allowed by the Engineer, in conjunction with the Concrete Engineer
- Using 100 percent portland cement unless allowed by the contract or the Engineer
- A maximum cement content for a cubic yard [cubic meter] of concrete not to exceed 900 lb [**535 kg**].
- A w/c ratio not to exceed 0.38 unless specified elsewhere in the Contract.

G2 Contractor Designed

Design the concrete mix based on an absolute volume of 27.00 cu. ft ± 0.10 cu. ft [**1.000 cu. m ± 0.003 cu. m**] for the following:

(1) Concrete paving mixes in accordance with 2301,

(2) Concrete mixes with an anticipated or required 28-day compressive strengths of at least 5,000 psi [**34 Mpa**],

(3) Precast concrete in accordance with 2405, 2412, 3236, 3238, 3621, 3622, 3630, 3661, and 3667

(4) Colored concrete

(5) Stamped concrete

(6) Cellular Concrete Grout – Controlled Low Strength Material (CLSM)

(7) Concrete as otherwise required by the contract.

Submit the concrete mixes utilizing the Mn/DOT Contractor Mix Design Submittal Package available on the Department's website at least 21 calendar days before initial placement of the concrete mix. The Concrete Engineer will provide specific gravity and absorption data for mix design calculations.

The Concrete Engineer will review the mix design submittal and approve the materials and mix design for compliance with the contract.

The Contractor assumes full responsibility for the mix design and performance of the concrete.

The Engineer determines final approval for payment based on satisfactory field placement and performance.

S-49.5 Mn/DOT 2461.4A4a shall be deleted and replaced with the following:

A4a Consistency

The Engineer will test the concrete for consistency using the slump test during the progress of the work. The Department may reject concrete batches with consistencies outside of the slump range in accordance with Table 2461-10. If any test shows the slump in excess of the upper limit of the slump range, the Engineer will reject the concrete represented by that test unless the Contractor makes adjustments to the concrete before use.

Adjust the slump within the allowable range to optimize both placement and finishing.

If not using a Department approved Type A water reducer at the manufacturer's recommended dosage rates listed on the Approved Products list, meet the slump values for the slump range without water reducer in accordance with Table 2461-10.

If using a Department approved Type A water reducer at the manufacturer's recommended dosage rates listed on the Approved Products list, meet the slump values for the slump range with water reducer in accordance with Table 2461-10.

Table 2461-10 Slump Range Designation		
Slump Designation	**Slump Range without Water Reducer, *in [mm]***	**Slump Range with Water Reducer, *in [mm]***
1	½ – 1 [**12 – 25**]	½ – 1 [**12 – 25**]
2	1 – 2 [**25 – 50**]	1 – 3 [**25 – 75**]
3	1 – 3 [**25 – 75**]	1 – 4 [**25 – 100**]
4	2 – 4 [**50 – 100**]	2 – 5 [**50 – 125**]
5	2 – 5 [**50 – 125**]	2 – 6 [**50 – 150**]
6	3 – 6 [**75 – 150**]	3 – 7 [**75 – 175**]

Contact the Engineer if encountering unusual placement conditions that render the specified slump range unsuitable. The Department will provide mix composition modifications to provide the desired change in consistency while maintaining the other specified properties of the concrete mix. Do not add water solely to temporarily facilitate the placement of concrete.

A4a(1) Concrete Placed by the Slip-Form Method

Place concrete that does not slough and is adequately consolidated at a slump value that optimizes placement for the designated mixture.

A4a(2) Non-Conforming Material

Only place concrete meeting the slump requirements in the work. If the Contractor places concrete not meeting the slump requirements into the work, the Engineer will not accept nonconforming concrete at the contract unit price.

For concrete not meeting the required slump, the Engineer will make determinations regarding the disposition, payment, or removal. The Department will adjust the contract unit price for the contract pay item of the concrete in accordance with Table 2461-11A, 2461-11B, 2461-11C and 2461-11D. When there is not a separate Structural Concrete bid price for an item of work or the concrete is a minor component of the unit bid price, the Department will reduce payment based on a concrete price of $100.00 per cu. yd [$130.00 per cu. m] unless an invoice amount for the concrete in question is provided, whichever is greater.

Table 2461-11A General Concrete*	
Outside of Slump Range	**Adjusted Contract Unit Price**
Below slump range*	The Department will pay 95 percent of the relevant contract unit price for materials placed as approved by the Engineer.
≤ 1½ in [**40 mm**] above slump range	The Department will pay 75 percent of the relevant contract unit price for materials placed as approved by the Engineer.
1¾ in [**45 mm**] – 2¼ in [**55 mm**] above slump range	The Department will pay 50 percent of the relevant contract unit price for materials placed as approved by the Engineer.
> 2¼ in [**55 mm**] above slump range	The Department will pay 25 percent of the relevant contract unit price for materials placed as approved by the Engineer
* If the Contractor places piling or footing concrete below the slump range, the Department will deduct $100 per cu. yd [**$130 per cu. m**] to the relevant contract unit price of the concrete represented by the slump test. The Department will not reduce contract unit price for low slump concrete placed with the slip-form method as approved by the Engineer.	

Table 2461-11B Bridge Deck Concrete	
Outside of Slump Range	**Adjusted Contract Unit Price**
Below slump range	The Department will pay 95 percent of the relevant contract unit price for materials placed as approved by the Engineer.
≤ 1½ in [**40 mm**] above slump range	The Department will pay 75 percent of the relevant contract unit price for materials placed as approved by the Engineer.
> 1½ in [**40 mm**] above slump range	The Department will pay 25 percent of the relevant contract unit price for materials placed as approved by the Engineer.

Table 2461-11C Low Slump Bridge Deck Concrete From ½ in [12 mm] to 1 in [25 mm]	
Outside of Slump Range	**Adjusted Contract Unit Price**
Below slump range	No deduction for materials placed as approved by the Engineer
≤ ½ in [**12 mm**] above slump range	The Department will pay 50 percent of the relevant contract unit price for materials placed as approved by the Engineer.
> ½ in [**12 mm**] – ¾ in [**20 mm**] above slump range	The Department will not pay for concrete placed but will allow the concrete to remain in place as approved by the Engineer.
> ¾ in [**20 mm**] above slump range	The Department will not pay for concrete. Provide additional testing as directed by the Engineer to determine if the concrete can remain or place or is subject to removal and replacement.

Table 2461-11D Low Slump Concrete — Patching From ½ in [12 mm] to 1 in [25 mm]	
Outside of Slump Range	**Adjusted Contract Unit Price**
Below slump range	No deduction for materials placed as approved by the Engineer
≤ ½ in [12 mm] above slump range	The Department will pay 75 percent of the relevant contract unit price for materials placed as approved by the Engineer.
≥ ¾ in [20 mm] above slump range	The Department will pay 25 percent of the relevant contract unit price for materials placed as approved by the Engineer.

S-49.6 Mn/DOT 2461.4A4b shall be deleted and replaced with the following:

A4b Air Content

Maintain the air content of Type 3 general concrete at the specified target of 6.5.percent ±1.5 percent of the measured volume of the plastic concrete in accordance 1503.

Make any adjustments immediately to maintain the desired air content.

Measure the air content at the point of placement but before consolidation.

A4b(1)Non-Conforming Material

Only place Type 3 concrete meeting the air content requirements in the work. If the Contractor places Type 3 concrete not meeting the air content requirements into the work, the Engineer will not accept nonconforming concrete at the contract unit price.

For concrete not meeting the required air content, the Engineer will make determinations regarding the disposition, payment, or removal. The Department will adjust the contract unit price for the contract pay item of the concrete in accordance with Table 2461-17. When there is not a separate Structural Concrete bid price for an item of work or the concrete is a minor component of the unit bid price, the Department will reduce payment based on a concrete price of $100.00 per cu. yd [**$130.00 per cu. m**] unless an invoice amount for the concrete in question is provided, whichever is greater.

General Concrete (Target Air Content 6.5%)	
Air Content, %	**Adjusted Contract Unit Price**
> 10.0	The Department will pay 75 percent of the contract unit price for the concrete represented for material placed as approved by the Engineer.
>8.0 – 10.0	The Department will pay 95 percent of the contract unit price for the concrete represented for material placed as approved by the Engineer.
5.0 – 8.0	The Department will pay 100 percent of the contract unit price for the concrete represented, for material placed as approved by the Engineer.
>4.0 – <5.0	The Department will pay 75 percent of the contract unit price for the concrete represented for material placed as approved by the Engineer.
>3.5 – 4.0	The Department will pay 25 percent of the contract unit price for the concrete represented and placed as approved by the Engineer. If the Engineer, in conjunction with the Concrete Engineer, determines the surface is exposed to freeze-thaw cycling, coat the concrete with an approved epoxy penetrant sealer from the Mn/DOT Approved Products list.
≤ 3.5	Remove and replace concrete in accordance with 1503, "Conformity with Plans and Specifications" and 1512, "Unacceptable and Unauthorized Work" as directed by the Engineer. If the Engineer, in conjunction with the Concrete Engineer, determines the concrete can remain place, the Engineer will not pay for the concrete and if the Engineer determines the surface is exposed to salt-brine freeze-thaw cycling, coat with an approved epoxy penetrant sealer from the Mn/DOT Approved Products list.

S-49.7 Mn/DOT 2461.4A5 shall be deleted and replaced with the following:

A5 Test Methods and Specimens

Use the Department-provided molds for the test specimens in accordance with the following:

(1) Use 4 in × 8 in [**100 mm × 200 mm**] cylinder molds,

(2) Use 6 in × 12 in [**150 in × 300 mm**] cylinder molds for maximum aggregate sizes greater than 1¼ in [**31.5 mm**],

(3) Use 6 in × 6 in × 20 in [**150 in × 150 in × 500 mm**] beam molds, use other beam mold sizes as approved by the Engineer.

Provide curing tanks of adequate size and number for curing all of the concrete test specimens in accordance with 2031.3.C. Supply the curing tanks with heaters to maintain a water temperature of 73° F ± 3° F [**23° C ± 2° C**].

Together with the Department, perform the following:

(1) Determine the required testing rates in accordance with the Schedule of Materials Control,

(2) Take samples after the first ¼ cu yd [cu. m] and before discharging the last ¼ cu. yd [**cu. m**] of the batch,

(3) Perform concrete sampling and testing meeting the requirements of the Mn/DOT Concrete Manual,

(4) Measure slump and air content, and make strength specimens when placing the concrete,

(5) Record field measurements, including strength specimen identifications on Mn/DOT Form 2448, *Weekly Concrete Report*, to provide to the Concrete Engineer.

The Engineer will transport the cylinders to the Agency laboratory for testing.

A5a Standard Strength Cylinders

The Department will perform the following for standard strength cylinders:

(1) Cast cylinders for testing at 28 days,

(2) Mark cylinders for identification of the represented unit or section of concrete,

(3) Cure the cylinders meeting the requirements of the Mn/DOT Concrete Manual, and

(4) Submit cylinders and a completed cylinder identification card to the Agency laboratory.

The Producer of precast units is responsible for casting standard strength cylinders.

A5b Control Strength Cylinders

The Engineer will use control cylinders to determine when the sequence of construction operations is dependent upon the rate of concrete strength development. At the request of the Contractor, the Engineer will cast enough control cylinders to determine when the concrete attains the required strength for all desired control limitations.

The Department will perform the following for control strength cylinders:

(1) Cast control cylinders in sets of 3,

(2) Mark control cylinders for identification of the represented the unit or section of concrete,

(3) Cure the cylinders in the same location and under the same conditions as the concrete structure or unit involved meeting the requirements of the Mn/DOT Concrete Manual, and

(4) Submit cylinders and a completed cylinder identification card to the Agency laboratory.

In lieu of transporting the cylinders to the laboratory, the Contractor may perform the testing on the control cylinders on a portable mechanical or hydraulic testing machine checked and calibrated with a standard proving ring as approved by the Engineer and in the presence of the Engineer.

The Producer of precast units is responsible for casting control strength cylinders.

A5c Strength Specimens for Concrete Paving

Use flexural beams to determine strength or provide cylinders as allowed by the contract or approved by the Engineer.

Cast standard beams or cylinders for testing at 28 days.

Cast a sufficient number of control beams or cylinders to determine when the concrete attains the required strength for all desired control limitations.

Cure the standard beams or cylinders meeting the requirements of the Mn/DOT Concrete Manual.

Cure the control beams or cylinders in the same location and under the same conditions as the concrete structure or unit involved meeting the requirements of the Mn/DOT Concrete Manual.

The Engineer will test the flexural beams and record the results on Mn/DOT Form 2162, "*Concrete Test Beam Data*."

If using cylinders, the Engineer will submit cylinders and a completed identification card to the Agency laboratory.

S-49.8 Mn/DOT 2461.4D1 shall be deleted and replaced with the following:

D Certified Ready-Mix Concrete

D1 Definition

The Department defines ready-mix concrete as one of the following:

(1) Central-mixed concrete proportioned and mixed in a stationary plant and hauled to the point of placement in revolving drum agitator trucks or a truck mixer, or

(2) Truck-mixed concrete proportioned in a stationary plant and fully mixed in truck mixers.

Commonly uses certified ready-mix terms are defined in the following:

Certified Ready-Mix Terminology	
Term	Definition
Mix design water	The maximum allowable water content for 1 cu. yd [**1 cu. m**] of concrete in accordance with Mn/DOT Form TP 02406, *Estimated Composition of Concrete Mixes*.
Total moisture factor	Factor used to determine total amount of water carried by a given wet aggregate.
Absorption factor	Factor used to determine the water contained within the pores of the aggregate and is held within the particles by capillary force.
Free moisture	The water that is carried on the surface of the aggregate that becomes part of the total water.
Batch water	Water actually batched into the truck by the batcher.
Total water	Batch water added to free moisture. Total water may also include the water used in diluting admixture solutions.
Temper water	Water added in mixer to adjust slump.
Total actual water	The water in the concrete mixture at the time of placement from any source other than the amount absorbed by the aggregate. It includes all batch water placed in the mixer, free moisture on the aggregate and any water added to the ready mix truck prior to placement.
Ready-Mix Producer or "Producer"	Party that is producing the concrete for the Contract. It is understood that the Ready-Mix Producer is the agent of the Contractor.

S-49.9 Mn/DOT 2461.4D2 shall be deleted and replaced with the following:

D2 General Requirements

Supply all ready-mix concrete from Mn/DOT Certified Concrete Plants in accordance with 2461.4D7.

The Engineer will reject ready-mix concrete delivered to the work site not meeting the specified requirements for delivery time, consistency, quality, air content, or other properties as unacceptable work in accordance with 1512, "Unacceptable and Unauthorized Work."

Provide batches for a delivered load of concrete in sizes of at least 1 cu. yd [**1 cu. m**].

Handle washout water in accordance with 1717.

S-49.10 The first two paragraphs of Mn/DOT 2461.4D5c shall be deleted and replaced with the following:

D5c Mixing In Truck Mixer

Charge the materials into the truck mixer drum by introducing sufficient water before adding solid materials. Perform charging operations without losing materials.

Leave the truck mixer at the plant site for a minimum of 5 minutes or 50 revolutions during the mixing period. Transport the concrete at agitating speed to the point of placement.

S-49.11 Mn/DOT 2461.4D6 shall be deleted and replaced with the following:

D6 Delivery Requirements

Place concrete into the work in accordance with the following:

(1) Type 1 Concrete –within 90 minutes of batching, and

(2) Type 3 Concrete –within 60 minutes of batching when adding the air entraining agent at the plant. If adding the entire dosage of air entraining agent at the jobsite, place concrete within 90 minutes of batching. Do not add additional mixing water once the concrete is 60 minutes old.

The Contractor may transport Type 3 concrete in non-agitating equipment if the concrete is discharged within 45 minutes of batching.

Batch time starts when the batch plant or the transit mix truck adds the cement to the other batch materials.

D6a Field Adjustments

The Engineer will test the concrete for compliance with 2461.4A4a and 2461.4A4b according to the following:

(1) If the first test taken by the Engineer passes, the Engineer will resume verification testing according to the Schedule of Materials Control.

(2) If the first test taken by the Engineer fails, make adjustments and perform any quality control testing prior to the Engineer performing a final test. Acceptance or rejection of the truck is based on the Engineer's final test result.

(3) The Engineer will test up to 2 additional trucks according to 2461.4D6a(1) and 2461.4D6a(2).

(4) If the concrete is not within specification after the first 3 trucks, the Engineer will reduce their verification testing rate to once per truck for acceptance.

(5) Once the Engineer returns to normal verification testing according to the Schedule of Materials Control and a failing test occurs, the Engineer will repeat 2461.4D6a(2), 2461.4D6a(3) and 2461.4D6a(4).

S-49.12 Mn/DOT 2461.4D7 shall be deleted and replaced with the following:

D7 Certified Ready-Mix Plant Program

Provide ready-mix concrete produced by a certified ready-mix plant. Perform quality control of concrete production under a certification program for ready-mix concrete plants.

D7a Plant Certification

Before concrete production each season, ensure the producer performs the following:

(1) Performs an on-site inspection at the concrete plant with the Engineer who completes a Mn/DOT Form 2163, *Concrete Plant Contact Report*.

(2) Signs the report certifying compliance with the Certified Ready-Mix requirements and continual maintenance of the plant. The Engineer will also sign Mn/DOT Form 2163, *Concrete Plant Contact Report*.

(3) Provides a copy of the current Mn/DOT Concrete Manual and retain on-site.

(4) Equips the Certified Ready-Mix Plant with a working facsimile machine or an email address.

(5) Keeps plant reports, charts, and supporting documentation on file at the plant site for 5 calendar years.

D7b Sampling and Testing

Provide a Mn/DOT Certified Concrete Plant Level 2 Technician to oversee testing and plant operations and to remain on-site during concrete production or have cellular phone capability.

Provide facilities in accordance with 1604 for the use of the plant technician in performing tests.

Ensure the producer provides technicians with certification at least meeting Mn/DOT Concrete Plant Level 1 to perform all of the duties in accordance with the Mn/DOT Concrete Manual. The Engineer will provide technicians with certification at least meeting Mn/DOT Concrete Plant Level 1 to perform all of the duties in accordance with the Mn/DOT Concrete Manual.

Ensure the producer performs testing in accordance with the Mn/DOT Concrete Manual and determines testing rates meeting the requirements of the Schedule of Materials Control. The Engineer performs testing in accordance with the Mn/DOT Concrete Manual and determines testing rates meeting the requirements of the Schedule of Materials Control.

Take samples randomly using ASTM D 3665, Section 5.

Perform testing at the certified ready-mix plant site. Perform additional testing as directed by the Engineer. The Engineer may oversee the quality control sampling process.

Provide equipment and perform calibrations meeting the requirements of the following:

(1) AASHTO T 27, "Sieve Analysis of Fine and Coarse Aggregates,"

(2) AASHTO T 255, "Total Moisture Content of Aggregate by Drying,"

(3) AASHTO M 92, "Wire-cloth Sieves for Testing Purpose," and

(4) AASHTO M 231, "Weighing Devices Used in the Testing of Materials."

D7c Gradations

Determine the gradation of the fine aggregates and the coarse aggregates as required by the contract. Use mechanical shakers for sieve analysis of fine and coarse aggregates.

Identify quality control companion samples with the following information:

(1) Date,

(2) Test number,

(3) Time,

(4) Type of material,

(5) Plant, and

(6) Sampling location.

Document gradation results on Mn/DOT Form 2449, *Weekly Concrete Aggregate Report*.

Chart the results of all producer and Department gradation results of the coarse aggregate and the No. 8 [**2.36 mm**], No. 30 [**600 µm**], and No. 50 [**300 µm**] sieves of the fine aggregate.

The producer may request a reduction in testing rates as approved by the Engineer, in conjunction with the Concrete Engineer.

If the gradation tests on split samples from quality control or verification samples result in a variation between the producer and the Department greater than that set forth the table below, the producer and Engineer will cooperatively take and split a new sample. The producer tests samples in the presence of the Engineer to serve as a check on the process to correct deviations from the standard testing procedure. If this problem continues, the Engineer, in conjunction with the Concrete Engineer, will perform a total review of the plant.

Allowable Variations on Percent Passing Sieves	
Sieve Size	**Allowed Percentage**
2 in [**50 mm**] – ⅜ in [**9.5 mm**]	± 6
No. 4 [**4.75 mm**] – No. 30 [**600 µm**]	± 4
No. 50 [**300 µm**]	± 3
No. 100 [**150 µm**]	± 2
No. 200 [**75 µm**]	± 0.6

D7c(1) Non-conforming Material

Only place concrete meeting the gradation requirements in the work. If the Contractor places concrete not meeting the gradation requirements into the work, the Engineer will not accept nonconforming concrete at the contract unit price.

For concrete not meeting the required gradation, the Engineer will make determinations regarding the disposition, payment, or removal. The Department will adjust the contract unit price for the contract pay item of the concrete in accordance with Table 2461-9 and 2461-10. When there is

not a separate Structural Concrete bid price for an item of work or the concrete is a minor component of the unit bid price, the Department will reduce payment based on a concrete price of $100.00 per cu. yd [**$130.00 per cu. m**] unless an invoice amount for the concrete in question is provided, whichever is greater.

Table 2461-7A
General Concrete for Individual Aggregate Fractions
Fine and Coarse Aggregate Specification Sieves other than Fine Aggregate No. 200 [75 µm]

Outside of Specification, %	Adjusted Contract Unit Price
≤ 3	The Department will pay 98 percent of the relevant contract unit price for concrete placed as approved by the Engineer.
4 to 6	The Department will pay 95 percent of the relevant contract unit price for concrete placed as approved by the Engineer.
7 to 10	The Department will pay 90 percent of the relevant contract unit price for concrete placed as approved by the Engineer.
> 10	The Department will pay 75 percent of the relevant contract unit price for concrete placed as approved by the Engineer.

Table 2461-7B
General Concrete for No. 200 [75 µm] Sieve of Fine Aggregate

Outside of Specification, %	Adjusted Contract Unit Price
≤ 0.3	The Department will pay 98 percent of the relevant contract unit price for concrete placed as approved by the Engineer.
0.4 to 0.6	The Department will pay 95 percent of the relevant contract unit price for concrete placed as approved by the Engineer.
0.7 to 1.0	The Department will pay 90 percent of the relevant contract unit price for concrete placed as approved by the Engineer.
> 1.0	The Department will pay for 75 percent of the relevant contract unit price for concrete placed as approved by the Engineer.

If a failure occurs on the fine aggregate No. 200 [**75 µm**] sieve and on other sieves concurrently, the Department will only reduce the price based on the larger percentage deduction. The Engineer, in conjunction with the Concrete Engineer, will determine adjusted contract unit prices for coarse aggregate quality failures.

If the results still do not agree, the Department will resolve the dispute through Third Party Resolution in accordance with the Mn/DOT Contract Administration Manual

D7d Moisture Content

Ensure the producer performs the following:

(1) Determine the moisture content using the oven dry method in all fractions of the aggregate.

(2) Document moisture tests on Mn/DOT Form 2152, *Concrete Batching Report*.

(3) Chart the moisture content of each aggregate.

In addition to the oven dry moisture test, the producer may obtain the moisture content in the fine aggregate using a moisture probe. To obtain approval for the use of a moisture probe, calibrate the moisture probe before each construction season meeting the requirements of the Mn/DOT Concrete Manual. Verify and chart both the probe moisture content and the oven-dry verification moisture test each week.

D7e Plant Diaries

Provide daily plant diaries in accordance with the Mn/DOT Concrete Manual using an approved form from the Department's website.

D7f Batch Weight Verification

The Engineer will observe the batching process to verify weights shown on the Certificate of Compliance.

The Engineer will observe the actual water batched during each collection of verification gradations in accordance with the following:

(1) Watching the ready-mix truck reverse the drum after washing,

(2) Verifying use of the current moisture test,

(3) Verifying that any additional water added to adjust the slump is recorded, and

(4) Validating water weights on the load batched and comparing the total water with the design water

The Engineer will document the actual water batched on Mn/DOT Form 24143, *Weekly Certified Ready-Mix Plant Report* and submit a copy to the Engineer to provide to the Concrete Engineer.

The Engineer will provide plant diaries in accordance with the Mn/DOT Concrete Manual.

D7g Certificate of Compliance

Provide a computerized Certificate of Compliance with each truckload of ready-mixed concrete at the time of delivery. The Department defines

computerized to mean a document that records mix design quantities from load cells and meters.

If the computer that generates the Certificate of Compliance malfunctions, the Engineer may allow the Contractor to finish any pours in progress if the producer issues a handwritten Mn/DOT Form 0042, *Certificate of Compliance* with each load. Do not allow the producer to begin new pours without a working computerized Certificate of Compliance.

Provide a computerized Certificate of Compliance from the producer for each item of information, including the following:

(1) Name of the ready-mix concrete plant,

(2) Name of the Contractor,

(3) Date,

(4) State Project Number (SP) or (SAP),

(5) Bridge Number (when applicable),

(6) Time concrete was batched,

(7) Truck number,

(8) Quantity of concrete in this load,

(9) Running total of each type of concrete, each day for each project,

(10) Type of concrete (Mn/DOT Mix Designation Number),

(11) Cementitious materials using Mn/DOT Standard Abbreviations,

(12) Admixtures using Mn/DOT Standard Abbreviations

(13) Aggregate sources using 5 digit State Pit Numbers, and

(14) Admixture quantity fl. oz. per 100 pounds of cementitious [**mL per kg**] or oz per cu. yd [**mL per cu. m**]

(15) Batch information for materials using Mn/DOT standardized labels to represent each column shown in Table 2461-7C. Present the information in the order listed across the page (a through k) or print the information using two lines provided that the materials are identified in each line of information.

Table 2461-7C
Standardized Certificate of Compliance Labels

Category		Formula	Standard Label
a)	Ingredients (aggregate, cementitious, water, admixtures)	—	Ingredient
b)	Product Source (Mn/DOT Standard Abbreviation)	—	Source
c)	Total Moisture Factor (in decimals to 3 places)	—	MCFac
d)	Absorption Factor (in decimals to 3 places)	—	AbsFac
e)	Mn/DOT mix design oven dry (OD) weights, *lb/cu. yd* ***[kg/cu. m]***	—	OD
f)	Absorbed moisture in the aggregates, *lb/cu. yd* ***[kg/cu. m]***	(e × d)	Abs
g)	Saturated surface dry (SSD) weights for aggregates, *lb/cu. yd* ***[kg/cu. m]***)	(e + f)	SSD
h)	Free moisture, *lb/cu. yd* ***[kg/cu. m]***	(c - d) × e	Free Mst
i)	Target weights for one cubic yard of concrete, *lb/cu. yd* ***[kg/cu. m]***	(g + h)	CY Targ [**CM Targ**]
j)	Target batch weights, *lb* ***[kg]***	(cu. yd × i) [**cu. m x i**]	Target
k)	Actual batch weights, *lb* ***[kg]***	—	Actual

NOTE: Actual cubic yards [**cubic meters**] batched may vary due to differences in air content, weight tolerances, specific gravities of aggregates, and other variables.

(16) Total Water (Batch Water + Free Moisture) in pounds [kilograms]

(17) Water available to add [(Mix Design Water) × (Target CY (CM)) – Total water] in gallons [liters]

(18) Space to note the water adjustment information, including:

(18.1) Water in gallons [**liters**] added to truck at plant filled in by producer, enter zero (0) if no water is added.
(18.2) Water in gallons [**liters**] added to truck at the jobsite filled in by producer or engineer, enter zero (0) if no water is added.
(18.3) Total actual water in pounds [**kilogram**] (Total Water from Certificate of Compliance plus any additions).

(19) The following information printed with enough room beside each item to allow the Engineer to record the test results:

(19.1) Air content,
(19.2) Air temperature,
(19.3) Concrete temperature,

(19.4) Slump,
(19.5) Cylinder number,
(19.6) Location or part of structure,
(19.7) Time discharged, and
(19.8) Signature of Inspector.

(20) Location for the signature of the Mn/DOT Certified Plant 1 Technician representing the Producer. The technician will review the first Certificate of Compliance for each mix type, each day, for accuracy and hand sign the Certificate of Compliance at a location designated for signature signifying agreement to the terms of this policy and to certify that the materials itemized in the shipment comply with the specifications and plans.

D7h Decertification

If the Contractor provides concrete from a plant that cannot produce concrete that fails to perform testing, report accurate results, or complete required documentation, the Engineer may reject the concrete as unacceptable in accordance with 1503, "Conformity with Plans and Specifications" and 1512, "Unacceptable and Unauthorized Work.".

The Concrete Engineer, with coordination from the Engineer, may decertify the plant and halt production of concrete if the producer performs the following:

(1) Procedural changes made after the completion of the Concrete Plant Contact Report and after starting the work that cause non-compliance with the program,

(2) Continually produces concrete in non-compliance with this section,

(3) Completely disregards the requirements of this section, and

(4) Submits fraudulent test reports

If decertifying the plant, the Concrete Engineer may perform the following:

(5) Revoke plant certification.

(6) Revoke technician certification for individuals involved,

(7) Revoke bidding privileges as determined by the Construction Engineer, and

(8) Criminal prosecution for fraud as determined by the Attorney General.

S-50 (2504) ADJUST GATE VALVES OR CURB BOXES

S-50.1 The Contractor shall be required to adjust all gate valves and curb boxes directed by the Engineer. The unit price bid for the adjustment of each gate valve or curb box shall be considered compensation in full for all equipment, materials, and labor including, but not limited to bituminous patching mixture, to setting the valve box or curb box as directed by the Engineer.

S-50.2 All valves within the roadway shall be set to ¼-inch below the elevation of the finished pavement surface.

S-51 (2506) INSTALL METAL ADJUSTING RINGS

S-51.1 Payment for adjusting in-place structure castings at the Contract unit price per each under item 2506.522 Adjust Frame and Ring Casting shall be compensation in full for all costs of furnishing and installing the cast iron adjusting ring on the roadway or completing minor adjustments in height (less than that which rings are available for) by using the existing materials, all to adjust the existing casting or valve box to a height flush with, or slightly below, the top of the pavement, as directed by the Engineer.

The Contractor will be required to furnish any adjustment components as part of his work.

S-52 (2531) CONCRETE CURBING

The concrete curb and gutter shall be constructed in accordance with the provisions of Mn/DOT 2531, except as modified below:

S-52.1 In those locations where curbs and gutter are replaced, all areas behind the curb disturbed by the construction shall be backfilled and patched with materials matching those inplace before the curb and gutter was removed. All backfilling and patching shall be as directed by the Engineer and shall be incidental to placing the new curb and gutter.

S-53 (2563) PORTABLE CHANGEABLE MESSAGE SIGN

The Contractor shall furnish, install, maintain and remove Portable Changeable Message Signs in accordance with Contract provisions, as directed by the Engineer and the following:

S-53.1 The Portable Changeable Message Signs shall be trailer mounted three line, DOT signs with eight characters per line with a character height of 18 inches as approved by the Engineer.

S-53.2 (PCMS) Type C Trailer Mounted Message Signs will be permitted and shall be on the qualified products list for portable changeable message

signs as found at: http://www.dot.state.mn.us/products/ . It is imperative that the Contractor continually operate each PCMS at maximum legibility. Many factors, such as mechanical problems, insufficient charging, incorrect intensity settings, or other factors can degrade performance. If at any time the Contractor fails to operate a Portable Changeable Message Sign at maximum legibility, as determined by the Engineer, no payment will be made for each day that the Message Sign is deemed inadequate.

S-53.3 The changeable message signs shall be in operation within 24 hours after notification by the Engineer and removed within 24 hours after notification by the Engineer. Multiple mobilizations of the changeable message signs will be required and shall be incidental to providing the signs. The changeable message signs shall be subject to approval of the Engineer. All maintenance and repair as required will be considered incidental to the Contract price for the respective item.

S-53.4 Except as authorized by the Engineer, the message sign shall be stored off the shoulder when not in use. In the event the Engineer allows the message board to remain on the shoulder the message sign shall be delineated according to Layout 4 (Partial Shoulder Closure) in the field manual, or as determined by the Engineer.

S-53.5 Measurement will be made by the number of Portable Changeable Message Signs furnished and installed per day of service (Unit Day) as specified.

S-53.6 Payment for Portable Changeable Message Signs furnished and installed, as directed by the Engineer, will be made under Item 2563.613 (Portable Changeable Message Sign) at the Contract bid price per Unit Day, which shall be compensation in full for all costs incidental thereto, including but not limited to furnishing and installing the signs with appropriate message, maintaining the signs, revising the message as directed by the Engineer, and removing the signs at the direction of the Engineer. The Portable Changeable Message Signs shall remain the property of the Contractor.

S-54 (2564) CONSTRUCTION SIGN – SPECIAL

This work shall consist of furnishing, installing, maintaining, and removing construction signs with special messages in accordance with the provisions of Mn/DOT 2564, other Contract provisions, as directed by the Engineer, and the following:

S-54.1 All materials required to furnish and install the special construction signs shall remain the property of the Contractor.

S-54.2 Measurement will be made by the area in square meters (**square feet**) of special construction signs constructed as specified.

S-54.3 Payment will be made under Item 2564.618 (Construction Sign – Special) at the Contract bid price per square foot, which shall be compensation in full for all costs incidental thereto, including but not limited to furnishing and installing the signs, mounting hardware and posts, maintaining the signs, and removing the signs upon direction of the Engineer.

S-55 (2573) STORM WATER MANAGEMENT

The provisions of Mn/DOT 2573 are supplemented and/or modified with the following:

S-55.1 2573.1 DESCRIPTION is hereby modified as follows:

This work shall include furnishing, installing, maintaining and removing erosion or sediment control devices directed by the Engineer.

S-55.2 Mn/DOT 2573.5 Basis of Payment, is revised to read as follows:

Payment for storm water management and sediment control items will be compensation in full for all labor, materials, equipment, and other incidentals necessary to complete the work as directed by the Engineer, including the costs of maintenance and removal as required by the Engineer. The Contractor will receive compensation, in the absence of a Contract bid price, according to the following unit prices, as Extra Work.

S-55.3 Mn/DOT 2573.5 E, Unit Prices, is revised to read as follows:

The County will pay the following unit prices for temporary sediment control items, as may be directed by the Engineer, in the absence of a Contract bid price:

(1) Bale Barrier ..... $13.45/m (**$4.10 per linear foot)**
(2) Silt Fence, Heavy Duty ..... $10/m (**$3.00 per linear foot**)
(3) Flotation Silt Curtain, Type: Still Water, 1.2 m (**4 foot**) depth ..... $54.10/m (**$16.50 per linear foot**)
(4) Sediment Trap Excavation ..... $7.20/$m^3$ (**$5.50 per cubic yard**)
(5) Bituminous Lined Flume ..... $6.00/$m^2$ (**$5.00 per square yard**)
(6) Silt Fence, Type Machine Sliced ..... $6.50/m ($**2.00 per linear foot**)
(7) Sediment Removal, Backhoe ..... $175 per hour
(8) Filter Log, Type Straw Bioroll $1.00/m (**$3.00/foot**)
(9) Filter Log, Type Rock Log $16.50/m (**$5.00/foot**)
(10) Flocculant Sock ..... $300 each

S-56 (3101) PORTLAND CEMENT

Mn/DOT 3101 is hereby deleted and replaced with the following:

Cement shall be from certified sources only. Portland cement furnished under this Specification shall conform to AASHTO M 85 for the type specified except as herein modified:

1) Fineness shall be measured by the Air permeability test.

Fineness, specific surface
Air permeability test
(all cement types except Type III):

	Square Meter per Kilogram
Average value, min	360.0
Min. value, any one sample	340.0
Average value, max	420.0
Max. value, any one sample	440.0

The average value shall be determined on the last five samples from a source.

2) When the specifications require that low alkali cement be used, the total alkalis in the Portland cement ($Na_20 + 0.658\ K_20$) shall not exceed 0.60 percent. The total alkalis in the cementitious material shall not exceed 3.0 kg/m³ [**5.0 pounds per cubic yard**].

3) A maximum of 5.0% limestone by mass (**weight**) may be interground with the cement provided that the chemical and physical requirements are met. Only intergrind limestone that is naturally occurring, consisting of at least 70% by mass of one or more of the mineral forms of calcium carbonate. Calculate and report the limestone content in Portland cement on the Test Mill Report as described in ASTM C 150, Annex A1. Include the CO_2 content of the Portland cement on the Test Mill Report. Determine the CO_2 content in accordance with ASTM C 114. When any quantity of limestone is added, report the C_3S as calculated in ASTMA C150, Annex A1, using the actual CO_2 value.

4) All delivery invoices shall include a standardized Cement Certification Statement which is as follows: **(insert company name) certifies that the cement produced at (insert plant and location) conforms to AASHTO and Mn/DOT Specifications for Type (insert Type) cement.** The change of source or color, or both, of cement on a Project shall not be permitted without the written approval of the Concrete Engineer.

S-57 (3103) PORTLAND-POZZOLAN CEMENT

Mn/DOT 3103 is hereby deleted and replaced with the following:

Portland-Pozzolan cement shall be from certified sources only. Portland-Pozzolan cement furnished under this Specification shall conform to AASHTO M 240, Type IS, Type I(SM), Type IP, Type I(PM), Type IP-A or any other portland-pozzolan cement as approved by the Concrete

Engineer, except as modified by the following:

a) The fly ash constituent of the interground cement shall not exceed 20 percent.

b) The fly ash constituent of blended cement shall not exceed 15 percent.

c) The ground granulated blast furnace slag constituent of the interground cement shall not exceed 35 percent.

d) The ground granulated blast furnace slag constituent of blended cement shall not exceed 35 percent.

All delivery invoices shall include a standardized Cement Certification Statement which is as follows: (insert company name) certifies that the cement produced at (insert plant and location) conforms to AASHTO and Mn/DOT Specifications for Type (insert Type) cement. The change of source or color, or both, of cement on a Project will not be permitted without the written approval of the Concrete Engineer.

S-58 (3137) COARSE AGGREGATE FOR PORTLAND CEMENT CONCRETE

Mn/DOT 3137 shall be deleted and replaced with the following:

3137.1 SCOPE

Provide coarse aggregate for use in portland cement concrete.

3137.2 REQUIREMENTS

A General

Provide coarse aggregate consisting of clean, sound, durable particles, uniform in quality, and free from wood, bark, roots, and other deleterious material.

The Engineer, in conjunction with the Concrete Engineer, may consider the following as the basis for acceptance of coarse aggregate for portland cement concrete:

(1) Results of laboratory tests,

(2) Behavior under natural exposure conditions,

(3) Behavior of other portland cement concrete with aggregate from the same or similar geological formations or deposits, and

(4) Any other tests or criteria as deemed appropriate by the Engineer, in conjunction with the Concrete Engineer.

B Classification

Provide coarse aggregate meeting the requirements of one of the following classifications:

(1) Class A: Crushed quarry rock including quartzite, gneiss, and granite, or mine trap rock including basalt, diabase, gabbro, and other igneous rock types. Class A aggregate may contain no greater than 4.0 percent non-Class A aggregate. The Department will not allow the intentional blending or adding of non-Class A aggregate.

(2) Class B: All other crushed quarry or mine rock types including carbonates, rhyolite, and schist.

(3) Class C: Natural or partly crushed gravel obtained from a natural gravel deposit.

(4) Class D: Mixture of at least two classes of coarse aggregate. The Engineer, in conjunction with the Concrete Engineer, will determine the suitability of the Class D aggregate for the proposed use including proportioning.

(5) Class R: Aggregate obtained from recycling concrete. The Engineer, in conjunction with the Concrete Engineer, will determine the suitability of the Class R aggregate for the proposed use including proportioning.

C Washing

Wash Class B, Class C, Class D, and Class R coarse aggregate. Wash Class A aggregate as needed to comply with the requirements of Table 3137-1.

D Quality

Quality requirements are based on each individual aggregate fraction unless otherwise allowed by the Engineer, in conjunction with the Concrete Engineer with the exception of the following:

(1) When 100 percent of the fractions from a single source pass the 1 in [25 mm] sieve, quality requirements are based on the composite value of the combined aggregates.

(2) When less than 100 percent of the fractions from a single source pass the 1 inch [25 mm] sieve:

(3) Those fractions passing the 1 inch [**25 mm**] sieve are combined and based on the composite value;

(4) The fractions greater than or equal to 1 inch [**25 mm**] are based on each individual aggregate fraction.

D1 Coarse Aggregate for General Use

Provide coarse aggregate for general use concrete in accordance with Table 3137-1.

Table 3137-1
Coarse Aggregate for General Use

	Quality Test	Maximum Percent by Weight
(a)	Shale:	
	Fraction retained on the ½ in [**12.5 mm**] sieve	0.4
	Fraction retained on the No. 4 [**4.75 mm**] sieve, as a percentage of the total material	0.7
(b)	Soft iron oxide particles (paint rock and ochre)	0.3
(c)	Total spall materials*:	
	Fraction retained on the ½ in [12.5 mm] sieve	1.0
	Fraction retained on the No. 4 [4.75 mm] sieve, as a percentage of the total material	1.5
(d)	Soft particles‖	2.5
(e)	Clay balls and lumps	0.3
(f)	Sum of (c) total spall materials, (d) soft particles, and (e) clay balls and lumps†	3.5
(g)	Slate	3.0
(h)	Flat or elongated pieces‡	15.0
(i)	Quantity of material passing No. 200 [75 µm] sieve:	
	Class A and Class B aggregates#	1.5
	Class C and Class D aggregates§	1.0
(j)	Los Angeles Rattler, loss on total sample	40.0
(k)	Soundness of magnesium sulfate**	15.0

*	Includes the percentages retained by shale and soft iron oxide particles, plus other iron oxide particles, unsound cherts, pyrite, and other materials with similar characteristics.
‖	Exclusive of shale, soft iron oxide particles, and total spall materials.
†	Sum of the total spall materials, soft particles, and clay balls and lumps. For total spall materials, use the percent in the total sample retained on the No. 4 [**4.75 mm**] sieve.
‡	Thickness less than 25 percent of the maximum width. Length greater than 3 times the maximum width.
#	Each individual fraction at the point of placement consists of dust from the fracture and free of clay or shale.
§	For each individual fraction at the point of placement.
**	Loss at 5 cycles for any fraction of the coarse aggregate. Do not blend materials from multiple sources to obtain a fraction meeting the sulfate soundness requirement.

D2 Coarse Aggregate for Bridge Superstructure

Provide coarse aggregate in accordance with 3137.2D1 except as modified by Table 3137-2 for use in the following:

(1) Bridge superstructure (deck, railing, posts, curbs, sidewalks, and median strips);

(2) Approach panels; and

(3) Precast concrete panel facings for Mechanically Stabilized Earth walls.

Table 3137-2
Coarse Aggregate for Bridge Superstructure

	Quality Test	**Maximum Percent by Weight**
(a)	Shale:	
	Fraction retained on the ½ in [**12.5 mm**] sieve	0.2
	Fraction retained on the No. 4 [**4.75 mm**] sieve as a percentage of the total material	0.3
(b)	Soft iron oxide particles (paint rock and ochre)	0.2
(c)	Total spall materials*:	
	Fraction retained on the No. 4 [**4.75 mm**] sieve as a percentage of the total material	0.5
(d)	Soft particles‖	2.5
(e)	Clay balls and lumps	0.3
(f)	Sum of (c) total spall materials, (d) soft particles, and (e) clay balls and lumps, use the percent in the total sample retained on the No. 4 [**4.75 mm**] sieve	3.0

(g)	Absorption for Class B aggregate	1.75
(h)	Carbonate in Class C and Class D aggregates by weight	30.0

Includes the percentages retained by shale and soft iron oxide particles, plus other iron oxide particles, unsound cherts, pyrite, and other materials with similar characteristics. Exclusive of shale, soft iron oxide particles, and total spall materials.
Sum of the total spall materials, soft particles, and clay balls and lumps. For total spall materials, use the percent in the total sample retained on the No. 4 [**4.75 mm**] sieve.

D3 Coarse Aggregate for Concrete Pavement

Provide coarse aggregate in accordance with 3137.2D1, except as modified by Table 3137-3, for use in the following:

(1) Concrete pavement, and

(2) Concrete pavement rehabilitation.

Table 3137-3
Coarse Aggregate for Concrete Pavement

	Quality Test	Maximum Percent by Weight
(a)	Absorption for Class B aggregate	1.75
(b)	Carbonate in Class C aggregate by weight	30.0

E Gradation

Provide coarse aggregate in accordance with Table 3137-4 including all sizes within the specified limits. The Department defines coarse aggregate as the uniform product of the producing plant, unless some sizes are removed to meet the gradation requirements. Do not use broken or non continuous gradations.

If the coarse aggregate has less than 100 percent passing the 1 in [25 mm] sieve, proportion the coarse aggregate using at least two fractions. Gradation requirements are based on the composite value of the combined coarse aggregates.

Table 3137-4
Coarse Aggregate Designation for Concrete,
percent by weight passing square opening sieves

Aggregate	2 in [50 mm]	1½ in [37.5 mm]	1¼ in [31.5 mm]	1 in [25.0 mm]	¾ in [19.0 mm]	⅝ in [16.0 mm]	½ in [12.5 mm]	⅜ in [9.5 mm]	No.4 [4.75 mm]
CA-00	—	—	—	100	95 – 100	—	—	—	0 – 10
CA-15	100	95 – 100	—	—	35 – 65	—	—	5 – 25	0 – 7
CA-25	100	95 – 100	—	—	50 – 80	—	—	20 – 40	0 – 7
CA-35	—	100	95 – 100	—	55 –85	—	—	20 – 45	0 – 7
CA-45	—	—	100	95 – 100	65 – 95	—	—	25 – 55	0 – 7
CA-50	—	—	—	100	85 – 100	—	—	30 – 60	0 – 12
CA-60	—	—	—	—	100	85 – 100	—	40 – 70	0 – 12
CA-70	—	—	—	—	—	100	85 – 100	50 – 100	0 – 25
CA-80*	—	—	—	—	—	—	—	100	55 – 95

* Do not allow greater than 5 percent to pass the No. 50 [300 µm] sieve.

If producing Class R aggregate, remove reinforcing steel from the concrete and any concrete material passing the No 4 [**4.75 mm**] sieve.

3137.3 SAMPLING AND TESTING

Sample and test coarse aggregate fractions separately in accordance with Table 3137-5.

Table 3137-5
Preliminary Coarse Aggregate Testing

Aggregate	Notification and Testing Requirement
New source	Notify the Engineer at least 1 month before use. Perform new source concrete aggregate testing in accordance with the procedure on the Department's website.
Previously tested aggregate	Notify the Engineer at least 2 weeks before use. Perform additional testing as directed by the Engineer, in conjunction with the Concrete Engineer.

Sample and test coarse aggregate in accordance with Table 3137-6.

Table 3137-6 Coarse Aggregate Test Methods	
Test	**Testing Method**
Sampling	Mn/DOT Concrete Manual
Sieve analysis	Mn/DOT Concrete Manual
Shale test	Mn/DOT Laboratory Manual 1207
Quantity of material passing the No. 200 [**75 µm**] sieve	Mn/DOT Concrete Manual
Specific gravity and absorption	Mn/DOT Laboratory Manual 1204
Density	AASHTO T 19 or Mn/DOT Laboratory Manual 1211
Los Angeles Rattler loss	AASHTO T 96
Void content	AASHTO T 19* or Mn/DOT Laboratory Manual 1211
Deleterious materials	Mn/DOT Laboratory Manual 1209
Soundness; magnesium sulfate	Mn/DOT Laboratory Manual 1219
Soft particles	Mn/DOT Laboratory Manual 1218
Flat or elongated pieces	ASTM D 4791
Clay balls or lumps	Mn/DOT Concrete Manual

* Base the void content on an oven-dry and compacted-by-rodding condition of the aggregate and a value of 62.4 lb per cu. ft [**1,000 kg per cu. m**] for water.

S-59 **UTILITY AGREEMENTS, PERMITS AND ORDERS**

Bidders are advised that for informational purposes, Agreements, Permits and Orders with utility companies covering the relocation of their facilities may be on file at the Hennepin County Transportation Department Offices, 1600 Prairie Drive, Medina, Minnesota, OR Minnesota Department of Transportation Offices, 1500 West County Road B2, Roseville, Minnesota all of which and may be examined by prospective bidders upon request.

It is expressly understood that the foregoing reference to said Agreements, Permits and Orders does not make them a part of this Contract.

Furthermore, the County and the City and the State make no warranty, express or implied, that the utility companies will relocate their facilities in accordance with the terms of said Agreements, Permits or Orders.

The Contractor may be required to work in and around utility properties and has considered this fact in preparing its proposal.

The above shall not be construed as being a modification of any of the Provisions of 1507.