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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; Insurance hereof, the Contractor hereby agrees that before commencing said work, it shall present, in a form acceptable to the County as 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 insurance with the minimum limits and coverages in 1714, section B, hereof.

S-2.3 Commercial Automobile Liability insurance with the minimum limits and coverages in 1714, section C, hereof.

S-2.4 Workers' Compensation and Employer's Liability insurance with the limits, coverages, and requirements in 1714, section A, hereof.

S-2.5 Professional Errors and Omissions Liability

Both the Contractor and subcontractor(s) providing professional services shall procure and maintain the insurance continuously from the start of design work and for a period of six (6) years after completion of the project. There shall be no exclusions for delay, products manufactured, designed or provided. Coverage shall include liquidated or other contract imposed damages.

Professional Liability – Each Claim and Aggregate \$2,000,000

S-2.6 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-2.7 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, or additional primary insurance coverage, is required over the commercial general liability, automobile liability, and employer's liability limits in section 1714 hereof.

Policy Limits – Per Occurrence and Aggregate \$4,000,000

S-2.8 All insurance required above shall meet the Additional Conditions of 1714, section D, hereof.

S-2.9 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.

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.

The failure of the County to obtain certificates of insurance for the policies or renewals thereof or failure of the insurance company to notify the County of the cancellation of policies required under this Contract shall not constitute a waiver by the County of the Contractor's requirement to provide such insurance

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-2.10 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 an additional insured on all liability policies. 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 its 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. 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-2.11 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 City of Minneapolis as additional insureds for the required liability insurance coverages, (except for Workers' Compensation, Employers' Liability and Professional Errors & Omissions) 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-2.12 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-2.13 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-2.14 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-2.15 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-2.16 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 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 The definition for **SPECIMEN TREE**, is revised to read as follows:

A notable and valued tree in consideration of species, size condition, age, longevity, durability, crown development, function, visual quality, and public or private prominence or benefit as indicated in the contract documents or as determined by the Engineer.

S-5.2 The following are hereby added to Mn/DOT 1103:

ALTERNATE BID (Alternate)

The monetary amount confirmed or corrected by the Department via an audit of the estimated quantities and unit prices bid, for which the bidder offers to perform the work identified in the Contract documents as Alternate Work.

ALTERNATE WORK

Work represented in the Contract documents that may or may not, at the sole discretion of the County, be awarded. All Alternate Work and associated pay items shall be specifically identified as such in the Contract documents.

BASE BID

The monetary amount, confirmed or corrected by the Department via an audit of the estimated quantities and unit prices bid, for which the bidder offers to perform all work required by the Contract documents except any work identified as Alternate Work.

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

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

No subsurface exploration on the Project shall be performed by prospective bidders until permits therefore have been obtained from the City of Minneapolis. Two separate permits will be required. They may be obtained in accordance with the following:

RIGHT OF WAY PERMIT

From: City Transportation Division
300 Border Avenue North
Minneapolis, MN 55405-1528
Telephone (612) 673-5755
Website: www.minneapolis.mn.roway.net

RIGHT OF WAY EXCAVATION PERMIT

From: City Water Works Division
Public Health Center, Room 222
250 South 4th Street
Minneapolis, MN 55415-1351
Telephone (612) 673-2451
Fax (612) 673-3446
Email: PWUtility.Connections@ci.minneapolis.mn.us

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-7.2 Delete 1206.3 and replace as follows:

1206.3 ALLOWABLE SUBSTITUTIONS

If the proposal permits, in lieu of using the County's Bidlet Schedule of Prices form, the bidder may utilize the County's electronic bidding process on eBidVault (<https://bidvault.mn.uccs.com>) in accordance with Hennepin County Transportation Department's "Guide to Bidding County Road and Bridge Projects" booklet on the County's website under 'Business', 'Contract Opportunities' 'Road and Bridge Project Documentation Access', then 'Hennepin County Guide to Bidding'.

A hard copy of the Proposal and the Bidlet Schedule of Prices is NOT required when submitting a bid utilizing eBidVault. If a hard copy of the Proposal is submitted along with an electronic bid, the HARD COPY WILL GOVERN.

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 (1209) DELIVERY OF PROPOSALS

The provisions of Mn/DOT 1209 are hereby revised as follows:

Delete the second paragraph and replace with the following:

If the County allows for electronic bidding (through eBidVault), the bidder has two (2) bid methods per Division A and Division S of the Special Provisions. In addition to the requirements stated in Division A and Division S for each method, the County will require the following for submitting an electronic bid:

1. Electronic Bidding - Emailed Submittals from *Bid Submittal Documents* file.

Send an email before bid opening to BidVault@co.hennepin.mn.us with the following submittals filled out and signed:

- a) Title sheet of Proposal
- b) Proposal Form (Page 1 of 2 and Page 2 of 2)
- c) Form 21126D (if project is a Federal project)

This form shall be submitted with a “Grand Total” and “Receipt of Addenda” not filled out and will be submitted separately from the other forms to allow the DBE goal to be added just before bid opening. The low (2) bidders will need to submit a completed form within 5 days after the bid opening to the Purchasing office.

- d) Form CM 32-34 (if project is a Federal project)
- e) Non-Collusion Declaration (if project is a Federal project)
- f) Notice to Bidders (signature) page

2. The subject line of the email should state “Required Submittals for CP 1122”.

3. If an electronic bid bond through Surety 2000 is not used, the original bid security (bid bond or certified check) with original signatures must be received in the Purchasing office prior to bid opening in a sealed envelope marked with statement from Division “A” Proposal Section. This applies only to bidders submitting an electronic bid.

S-11

(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 County 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:

Each Addendum will be delivered via the eGram website unless the Contractor notifies the Hennepin County Purchasing office in writing to receive notification by certified mail, email, courier service (using contractor’s account number), or fax. The Addendum will be included with all paper Proposal forms issued to bidders after the date of the Addendum.

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.

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

S-12 **(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-13 **(1301) CONSIDERATION OF PROPOSALS**

The provisions of Mn/DOT 1301 are hereby modified as follows:

The second sentence of the first paragraph is hereby deleted.

S-14 **(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 paragraph is hereby deleted and replaced the following two paragraphs:

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. The determination of the lowest responsible bidder will be made using only the base bids audited by Hennepin County, as set forth in Mn/DOT 1301 hereof. After determination of the lowest responsible bidder Hennepin County shall determine which, if any, alternate bids are to be awarded with the base bid. Alternates may be added in any order or combination at the sole discretion of Hennepin County, considering its Project budget, provided that the total amount of the Contract awarded to the lowest responsible bidder is less than the total amount computed for each of the other bidders when comparing the same combination of base bid and selected alternates.

The successful bidder will be notified by letter of Hennepin County's acceptance of the base bid and the selected alternate bids, subject to execution and approval of the contract as required by law. Said notification letter will be mailed to the address shown on the Proposal of the successful bidder.

S-15 **(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, and shall be written on a form prepared and required by Hennepin County. The sureties on the bonds shall be acceptable to Hennepin County.

S-16 **(1306) EXECUTION AND APPROVAL OF CONTRACT**

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

- (a) In the first and third paragraphs, change "10 days" to "5 days";
- (b) In the first, second and third paragraphs, substitute "performance and payment bonds" for "Contract Bond" and "Bond"; and
- (c) 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-17 **(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-18 **(1401) INTENT OF CONTRACT**

The provisions of Mn/DOT 1401 are hereby modified as follows:

The phrase "for the work awarded" is hereby added to the end of the first sentence of the second paragraph.

S-19 **(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-19.1 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, 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 and around the Project during 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 and drums, as required and sufficient barricade weights to maintain barricade stability.

S-19.2 **Special Project Requirements**

1. All traffic shall be maintained at all times on CSAH 9 and CSAH 52 over a minimum traveled width of one 12 foot wide lane in each direction.
2. The Contractor shall prepare and submit to the Project Engineer traffic control plans and sign layouts no later than 1 week prior to the anticipated starting date of the Contract. No work which restricts traffic will be permitted until the

submitted traffic control plans and sign layouts have been approved by the Engineer.

3. Before any traffic restrictions will be permitted, the Contractor's plan for traffic control and methods must be approved by the Engineer.
4. As a precautionary measure from a soils standpoint, traffic lanes to be used during construction must be delineated to keep vehicles a safe distance away from the adjacent excavation. The delineation should coincide with points established by projecting 1:2 (rise:run) or greater (flatter) slope between the edge of the traffic surface and the bottom of the excavation. In areas of muck excavation, use 1:30 or flatter. Where sheeting is in place 2:1 (rise:run) can be used.
5. 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. The cover shall be a plate of solid opaque material covering the entire legend or all of that part of the legend that is inappropriate. This cover shall be bolted to the sign and plastic washers with a minimum thickness of 1/8 inch shall be installed between the sign face and the cover. See "Typical-Temporary Construction Sign Panel Overlay (Cover)" in Chapter 8 of the Mn/DOT Traffic Engineering Manual for applicable details.
6. 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.
7. The Contractor shall conduct all construction activities within parking lots, driveways, and entrance aprons, in a timely manner so as to minimally disrupt the daily operations of the affected adjacent property owners.
8. The Contractor will be required to furnish and install 4 way stop signs (48 inch) at Washington Avenue N at Dowling Avenue N during signal revision construction. Appropriate advanced warning signs will also be required. One high-intensity flashing red light shall be attached to each stop sign and one high-intensity flashing yellow light shall be attached to each advanced warning sign. All signs and lights shall be placed at times directed by the Engineer. Temporary signs and lights at the intersection may be removed once the traffic signal is fully operational. The contractor shall coordinate all signal revision work with the City of Minneapolis, see Division SS of these special provisions.
9. Pedestrian traffic shall be maintained and guided through the Project at all times.

10. No access to or from any public road or at-grade crossing of any public road will be permitted for the contractor's equipment, material deliveries, the hauling of excavated materials of any kind, or employees' private vehicles, except at in-place public road intersections, or at locations and in such manner as approved by the Engineer.
11. Any construction through the roadways open to traffic shall be accomplished in accordance with the time restrictions set forth in the Temporary Lane Closure Requirements later in this section of these Special Provisions.
12. Pedestrian Ramps shall be constructed/reconstructed within 96 hours from the time that the ramp area is closed to pedestrian traffic. The pedestrian ramp will be required to be open to pedestrian traffic within 96 hours after the closure. Failure to have the ramp open within 96 hours will initiate a monetary deduction of \$250.00 per hour for every hour, or portion thereof, in excess of the 96 hours.

S-19.3 Traffic Control

- a) The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged, moved or destroyed, of all lights that cease to function properly, and of all barricade weights that are damaged, destroyed, or otherwise fail to stabilize the barricades. The Contractor shall further provide sufficient surveillance of all traffic control devices at least once every 24 hours.
- b) 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.
- c) If traffic control layouts are not present in the Plan, or the Contractor modifies the layout or sequence from the Plan, the Contractor shall submit the proposed traffic control layout to the Engineer, for approval, at least fourteen (14) days prior to the start of construction. At least 24 hours prior to placement, all traffic control devices shall be available on the Project for inspection by the Engineer. The Contractor shall modify his/her proposed traffic control layout and/or devices as deemed necessary by the Engineer.
- d) The Contractor shall notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate lane closure or internal traffic control signing.
- e) 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 Layouts, these Special Provisions, and/or the MN MUTCD. Any discrepancy between the placement and the required placement shall be immediately corrected.

The Contractor shall be required to respond immediately 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 hour of notification the Contractor shall be subject to an hourly charge 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.**

- f) The person performing the inspection in paragraph (e) above, 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.

The Contractor shall be required to provide copies of the inspection logs, within the time frame agreed upon, when requested by the Engineer. **If the Contractor is negligent in providing the inspection logs within the time frame agreed upon, the Contractor shall be subject to an hourly charge 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.**

S-19.4 General Requirements

- (A) All portable sign assemblies shall be perpendicular to the ground. No traffic control device (signs, channelizing devices, etc.) shall be weighted so they become hazardous to motorists and workers. The approved ballast system for devices mounted on temporary portable supports is sandbags, unless it is designed, crash tested, and approved for the specific device. During freezing conditions, the sand for bags 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 device to the satisfaction of the Engineer.

When signs will remain in the same location for more than 30 consecutive days the signs shall be post mounted. This would not include portable signs which are set up and taken down at the beginning and end of each work shift. The signs must be post mounted according to the Typical Temporary Sign Framing and Installation Detail Sheet found in the Plan or in these Special Provisions.

- (B) The Contractor shall be required to cover or remove all traffic control devices which may be inconsistent with traffic patterns during all traffic switches. See Maintenance and Staging of Traffic Control.
- (C) The Contractor will not be permitted to park vehicles or construction equipment so as to obstruct any traffic control device. The parking of workers' private vehicles will not be allowed within the Project limits unless so approved by the Engineer.
- (D) At the beginning of the Project, the Contractor shall store at least 10 extra Type III barricades and 20 extra retroreflective drums, at a convenient location within the Project limits, to be used at the discretion of the Engineer.

No direct compensation will be made to the Contractor for furnishing and erecting these traffic control devices.

- (E) All temporary rigid signs shall be fabricated with an approved retroreflective sheeting material of the appropriate color, and be listed on the Qualified Product Listing (QPL) for either "Sheeting for Rigid Signs" or "High Performance Sheeting for Rigid Signs". Signs remaining in place that still apply during temporary operations need no change in sign sheeting.

To visually identify approved retroreflective sign sheeting on temporary rigid signs in the field signs shall have an easily identifiable marking on the face. This marking verifies that the sign sheeting is Approved for Rigid Sign Use as found on the QPL. Although still required to meet sheeting standards, temporary rigid signs 4 sq. feet and under in size and all barricades and route markers will be exempt from this marking. The appropriate marking shall be used for each type of the approved sheeting types. Refer to the instructions for the marking of temporary signs which may be found on the APL or directly at the following link:

<http://www.dot.state.mn.us/products/signing/common/typelabel.pdf>

The retroreflective sheeting types and qualified products used for temporary signs and barricades can be found at:

<http://www.dot.state.mn.us/products/signing/sheeting.html>.

- (F) 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.
- (G) The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged, moved or destroyed, of all lights that cease to function properly, and of all barricade weights that are damaged, destroyed, or otherwise fail to stabilize the barricades during the entire life of this contract including any times of suspension for any reason whatsoever. The Contractor shall further provide sufficient surveillance of all traffic control devices at least once every 24 hours.

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.

- (H) 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.

- (I) 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.
- (J) In the event of severe weather conditions the Contractor shall provide additional personnel and equipment to maintain all traffic control devices.
- (K) 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.
- (L) The Contractor shall be required to respond immediately 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.
- (M) 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. Minneapolis Public Works Department (612) 673-2443
2. Minneapolis Police Department (612) 673-3559
3. Minneapolis Fire Department (612) 673-2536
4. Minneapolis City Clerk (612) 673-3765

- (N) The Contractor shall be required to respond immediately 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.
- (O) 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.

- (P) If hauling operations create hazards for the traveling public, the Contractor will be required to provide additional flaggers, as directed by the Engineer. All costs incurred to provide the additional flaggers shall be incidental to the lump sum traffic control.
- (Q) 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.
- (R) 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.
- (S) Street identification signage shall be maintained at all times. This is necessary to maintain the '911' emergency system.

S-19.5 VEHICLE WARNING LIGHT SPECIFICATION

All Contractors', subcontractors' and suppliers' mobile equipment, operating within the limits of the Project with potential exposure to passing traffic, shall be equipped with operable warning lights which meet the appropriate requirements of the SAE specifications. This would include closed roads that are open to local traffic only. This also includes any vehicle which enters the traveled roadway at any time. The SAE specification requirements are as follows:

360 Degree Rotating Lights - SAE Specification J845

Flashing Lights - SAE Specification J595

Flashing Strobe Lights - SAE Specification J1318

Lights shall be mounted so that at least one light is visible at all times when at eye level from a 18 m [60 foot] radius about the equipment. In order to meet the 360 degree at 18 m [60 foot] radius requirements supplemental lighting may be used in addition to the lights on the Approved Products List. All supplemental lights must be SAE Class 1 certified. This specification is to be used for both day and night time operations. All costs incurred to provide warning lights shall be at no cost to the Department. These warning lights shall also be operating and visible when a vehicle decelerates to enter a construction work zone and again when a vehicle leaves the work zone and enters the traveled traffic lane.

Contractor shall equip their vehicles with lights that are on the Approved Products List which can be found at:

<http://www.dot.state.mn.us/products/workzone/vehiclight.html> .

S-19.6 Flagger Training

Any person acting as a flagger on this Project shall have attended a training session taught by a Contractor's qualified trainer. The Contractor's qualified trainer shall have completed a "Mn/DOT Flagger Train the Trainer Session" in the five years previous to the start date of this Contract and shall be on file as a qualified flagger trainer with the Department. The Flagger Trainer's name and Qualification Number shall be furnished by the Contractor at the pre-construction meeting. The

Contractor shall provide all flaggers with the Mn/DOT Flagger Handbook and shall observe the rules and regulations contained therein. This handbook shall be in the possession of all flaggers while flagging on the Project. The Contractor shall obtain handbooks from the Department. Flaggers shall not be assigned other duties while working as authorized flaggers. The "Checklist for Flagger training" form shall be furnished to the Engineer any time a new flagger reports to work on the Project. The "Checklist for Flagger Training" form can be found at:
<http://www.dot.state.mn.us/const/wzs/documents/flaggertrainingchecklist%20.pdf>.

The Engineer will have the right to waive the above requirements.

S-19.7

TEMPORARY LANE CLOSURE REQUIREMENTS:

- (A) Unless otherwise approved by the Engineer, any temporary lane closure that is adjacent to traffic, and is extending to or beyond 300 m [**1000 feet**] shall have a minimum of one Type III barricade, or 3 drums, placed in the closed lane for every 300 m [**1000 feet**] of extension. Any lane closure that is adjacent to traffic and in place 3 days or more, shall use the Type III barricade only.
- (B) All temporary lane closures shall have Type B Channelizers (drums, Type I or Type II barricades, vertical panel or Direction Indicator Barricades) in the lane closure taper and also in any shifts in traffic alignment.
- (C) Short Term Duration 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.
- (D) Temporary lane closures or other restrictions by the Contractor, during work hours and consistent with the time restrictions, will be permitted during those hours and at those locations approved by the Engineer. Requests for temporary lane closures shall be made at least 24 hours prior to such closures. When a temporary lane closure is used by the Contractor, the closure shall be incidental work and no direct compensation will be made therefore.
- (E) Temporary lane restrictions will not be permitted between the hours of 6:00 A.M. and 9:00 A.M. and between the hours of 3:30 P.M. and 6:00 P.M. **Work which will restrict or interfere with traffic shall not be performed between 12:00 noon on the day preceding and 9:00 A.M. on the day following any consecutive combination of a Saturday, Sunday and legal holiday.** 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 an hourly charge assessed at a rate of \$500.00 per hour for each hour or any portion thereof with which the Engineer determines that the Contractor has not complied.**

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 an hourly charge assessed at a rate of \$500.00 per hour for each hour or any portion thereof with which the Engineer determines that the Contractor has not complied.

- (F) The Contractor shall furnish flag persons as required to adequately control traffic. Flag persons shall conform to the requirements set forth in the MN MUTCD. All costs incurred to provide such flag persons shall be incidental to the lump sum traffic control.

S-19.8 Signal and Lighting Systems:

Except at Washington Avenue N and Dowling Avenue N or unless expressly authorized to the contrary in the Division "SS" Special Provisions included elsewhere in this Proposal, all in-place signal system(s) shall remain in operation.

During the period when any existing signal system is de-energized and the revised signal system is energized, the Contractor shall furnish, erect, and maintain "Stop Ahead" signs and "Stop" signs. The quantity and size of the temporary signs as well as their placement in the field shall be as directed by the Engineer. The Contractor shall furnish and install materials to keep these signs upright and stationary. No direct payment will be made for the use of these signs when required. The Contractor shall furnish, install, maintain, and remove them as an incidental traffic control expense. The signs shall remain the property of the Contractor.

The Contractor shall not interfere with the operation of any traffic signal system, except as required by the Contract. The Contractor shall notify the Engineer at least 24 hours prior to beginning any work that will interfere with any traffic signal system or its detectors.

S-19.9 Measurement and Payment

Traffic Control will be measured and paid for as follows:

Payment for furnishing, installing, maintaining, relocating and subsequently removing traffic control devices (including flag persons) as required will be made as a lump sum under Item 2563.601 (Traffic Control) and according to the following schedule:

- (1) When 5 percent of the Contract amount is earned, 45 percent of the amount bid for **traffic control will be paid.**
- (2) When 10 percent, or more, of the Contract amount is earned, an additional 25 percent of the amount bid for traffic control will be paid.
- (3) When 50 percent, or more, of the Contract amount is earned, an additional 25 percent of the amount bid for traffic control will be paid.
- (4) The remaining 5 percent bid for traffic control will be paid when all work has been completed and accepted.
- (5) In all items above, the original Contract amount shall be the total value of all Contract Items including the traffic control item, but the percentage earned in each case shall be exclusive of the traffic control item.

S-20 (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-21 (1505) COOPERATION BY CONTRACTOR

S-21.1 Utilities owned by the City of Minneapolis are affected by the work on this Contract. The City 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-22 (1506) SUPERVISION BY CONTRACTOR

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

S-22.1 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-23 (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-23.1 All utilities that relate to this Project are classified as "Level D," unless the Plans specifically state otherwise. This utility quality level was determined according to

the guidelines of CI/ASCE 38-02, entitled “Standard Guidelines for the Collection and depiction of existing subsurface utility data.”

- S-23.2 By bidding on this Contract, the bidder agrees that it shall use the Plan to identify the location of the County’s drainage facilities as satisfying the requirements of Minnesota Statutes Ch. 216D and Minnesota Rules 7560.0250 with respect to the County’s storm water drainage facilities.
- S-23.3 The following utility owners have existing facilities that may be affected by the work under this Contract.
- CenterPoint Energy Resources Corp.
- The Contractor shall coordinate its work and cooperate with the aforelisted utility owners, their employees and contractors, in a manner consistent with the provisions of Mn/DOT 1507 and the applicable provisions of Mn/DOT 1505.
- S-23.4 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-23.5 The City of Minneapolis utilities that are affected such as storm sewer, sanitary sewer, and water supply, traffic signals, and lighting have been included in the Plan for adjustment or relocation. The Contractor shall notify City staff in advance of the date he intends to start work and he shall furnish that office with such information as may be necessary to permit the responsible authorities to make suitable arrangements relative thereto.
- S-23.6 The County’s Contractor shall coordinate his/her work and cooperate with the foregoing utility owners and their forces in a manner consistent with the provisions of Mn/DOT 1507 and the applicable provisions of Mn/DOT 1505.
- S-23.7 Existing water and sewer mains, water and sewer services, and other underground utilities are shown on the plans only by general location based on field surveys and available as built information. The County does not guarantee that the utilities are complete or that the locations are as shown on the plans and the Contractor shall be solely responsible for verifying the exact location of each of these utilities.
- As part of all utility construction, the Contractor may be required to excavate and locate existing municipal and private utilities prior to installing new utilities. This work shall be accomplished where directed by the Engineer with the Engineer determining elevations of the existing utility.

Wherever existing utility structures or branch connections leading to mains or other conduits, ducts, pipe or structures present obstructions to the grade and alignment of the pipe which would require a change in plans or a revision to the existing utility, the Engineer will provide new grades for the new utility or a plan for revising the existing utility within 24 hours of the location of the existing utility. If the Contractor elects not to uncover existing utilities and a conflict between utilities occurs, the Contractor shall be required to relay pipe or revise the existing utility, as directed by the Engineer, with no additional compensation allowed therefore.

No deviation from the required line or grade for any utility work due to conflicts with existing utilities shall be made without the written consent of the Engineer.

S-23.8 The removal of portions of abandoned utility lines and pipes when required for the new construction will be considered incidental work and no direct compensation will be made therefor.

S-24 (1508) CONSTRUCTION STAKES, LINES AND GRADES

The provisions of Mn/DOT 1508 are hereby modified and supplemented as follows:

S-24.1 The following is hereby added to the first paragraph of Mn/DOT 1508:

At weekly intervals the Contractor shall provide a written priority list of project segments for construction staking by the Engineer. The Engineer will schedule staking in accordance with the priority list. If any changes in the priority list are requested by the Contractor, at least 24 hours prior notice (excluding non-work days) shall be given to the Engineer for re-mobilization of a survey crew to perform the revised priority staking.

S-24.2 All alignment and elevation control points will be marked by the Engineer with lath furnished by the Engineer. All survey stakes and hubs will be furnished by the Engineer. However, the Contractor shall furnish guard lath for any construction stakes where precautionary visibility is desired. The Engineer will place the Contractor's lath at the time of construction staking.

S-25 (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-26

(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-27 **(1606) STORAGE OF MATERIALS**

The storage of any construction materials shall comply with the provisions of Mn/DOT 1606 and the following:

Any materials stored adjacent to a public roadway shall be securely fenced or barricaded to clearly delineate the construction zone from the adjacent roadway. The temporary fence/barricade will be considered to be incidental expense and no direct compensation will be made therefor.

S-28 **(1701) LAWS TO BE OBSERVED**

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

S-28.1 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-28.2 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-28.3 The Contractor's attention is directed to the following Minneapolis City Ordinance which must be observed and complied with when working within the city limits of Minneapolis. The Construction Activities as contained in Title 3 Air Pollution and Environmental Protection, Chapter 59 of the City of Minneapolis Ordinance shall be enforced. All equipment shall have effective mufflers on engine exhaust systems. Hours of work shall be from 7:00 a.m. to 6:00 p.m. Monday through Friday. No work will be allowed outside of these hours except with permission of the Engineer and after the Contractor has procured the proper work permit from the City of Minneapolis.

Any delays bore by the Contractor due to his inability to obtain such a permit shall not extend the contract completion date. The Contractor is advised to apply for this permit in a timely manner. If the Contractor fails to obtain a noise permit and elects to work outside of these time limits, the Contractor may be subject to legal action for noncompliance. The provisions of Mn/DOT 1717.3 shall apply.

S-29 **(1701) LAWS TO BE OBSERVED (WETLANDS)**

The provisions of Mn/DOT 1701 are modified and/or supplemented with the following:

- S-29.1 If the Contractor operations involve the excavation and/or disposal of material off County Right of Way, the Contractor is advised of the following:
MN Statutes Sections 103G.2212 and 103G.241 stipulate that an agent or employee of another may not:
- 1) drain, excavate, or fill a wetland, wholly or partially; or
 - 2) construct, reconstruct, remove, or make any change in any reservoir, dam, or the course, current, or cross-section of any public water;
unless the agent or employee has obtained a signed statement from the property owner stating that any permit or wetland replacement plan required for the work has been obtained, or that a permit or replacement plan is not required; **AND** this statement is mailed to the appropriate office with jurisdiction over the wetland or public water prior to initiating the work.
The “Landowner Statement and Contractor Responsibility for Work in Wetlands or Public Waters” can be found at:
http://www.bwsr.state.mn.us/wetlands/forms/Contractor_Responsibility.doc .
The Contractor shall provide the Engineer with a copy of the completed “Landowner Statement and Contractor Responsibility for Work in Wetlands or Public Waters” for the excavation and/or disposal site prior to initiating the work.
- S-30 (1702) PERMITS, LICENSES, AND TAXES**
- Permits and licenses shall be procured and taxes paid in conformance with Mn/DOT 1702 and the following:
- S-30.1 Any City licenses and permits required to perform electrical work on this project shall be obtained from the appropriate City of Minneapolis office by the Contractor at its cost. The Contractor shall be responsible for the payment of all inspection fees charged by the City of Minneapolis Inspections Department in association with work performed on this project.
- S-30.2 The successful bidder will be required to obtain a Street Use Permit from the City of Minneapolis Transportation Division prior to commencing work or implementing any traffic restrictions on roadways within the City of Minneapolis. There is a fee for this permit. The amount of the fee is directly dependent on the scope of the actual restrictions to traffic that will occur during the project. The Contractor shall contact either Doug Maday (612-673-5755) or Jim Steffel (612-673-5517) of the City of Minneapolis Traffic Division to obtain this required permit or visit website at www.ci.minneapolis.mn.us.
- S-30.3 The successful bidder will be required to obtain a Construction Permit from the Minneapolis Park & Recreation Board. There is a fee for this permit. The Contractor shall contact Jim Holtzlider (612-230-6462) of Minneapolis Park & Recreation Board to obtain this required permit or visit website at www.minneapolisparcs.org/default.asp?PageID=77.
- S-30.4 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-31 (1706) EMPLOYEE HEALTH AND WELFARE

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

S-31.1 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-31.2 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-31.3 **The Contractor is hereby advised that any work performed under the terms of this contract which in the opinion of the Engineer cannot 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-31.2), confined space safety, blasting operations, and personal safety devices.

- S-31.4 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-31.5 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 aforesaid 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-31.6 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-31.7 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-31.8 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 in place 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-32 (1707) PUBLIC CONVENIENCE AND SAFETY

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

S-32.1 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-33 (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-33.1 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, the traffic control plan provided by the Contractor and the MN MUTCD; this includes, but is not limited to, the following:

S-33.2 The provisions of Mn/DOT 1710.3, 1710.4 and 1710.5 are hereby deleted from the Contract.

S-33.3 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-33.4 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-33.5 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-34 (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-34.1 Tree and shrub loss and damage is a very sensitive issue throughout this project. Whenever possible existing trees and shrubs shall be left in place in an undamaged condition. Care shall be exercised by the Contractor and all subcontractors when working around trees and shrubs which are to remain in place. The Contractor is hereby advised that special precautions or special construction procedures may be required adjacent to trees and shrubs that are not to be removed, as noted on the removal sheets in the plan, and as directed by the Engineer.

Any costs associated with the necessary special precautions or special construction procedures shall be incidental for which no direct compensation will be made therefore.

- S-34.2 The Contractor is advised that work on this contract will be required in the vicinity of existing traffic signal 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 bituminous pavements at a minimum depth of 2 inches.

The Contractor is hereby advised that the traffic signal loop detectors on the various roadways included in this Contract are owned and maintained by Hennepin County and the City of Minneapolis. 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:

- A. Loop detectors on those portions of CSAH 9 and CSAH 152 included in this Contract are owned and maintained by the City of Minneapolis. The City of Minneapolis does not intend to perform any field locations of traffic signal loop detectors prior to pavement milling or other pavement removal work. In the event any loop detectors are damaged, or there is reason to believe damage has occurred, the Contractor shall contact the City of Minneapolis. Minneapolis Traffic personnel will then inspect the loop detector and replace it or direct the Contractor to replace it if necessary. The replacement loop will be installed at the Contractor's expense, unless otherwise agreed by the Engineer.
- B. Loop detectors on CSAH 152 included in this Contract are maintained by Hennepin County.
- C. 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 (612) 596-0309 prior to performing any milling or other pavement removal work. Hennepin County Traffic personnel will then field locate the existing working loop detectors. In the event any of these 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. If required, a replacement loop detector will be installed by the County, at the Contractor's expense, unless otherwise agreed by the Engineer.

S-34.3 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-35

(1714) RESPONSIBILITY FOR DAMAGE CLAIMS

The provisions of MnDOT 1714 are hereby deleted and replaced with the following:

The Contractor shall indemnify, defend, and save harmless the Department, its officers, and its employees from all suits, actions, and claims of any character brought because 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 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 Workers' Compensation Act, or under any other law, ordinance, order, or decree.

The Department may retain for its use money that is due the Contractor under this or any other contract with the Department, as the Department deems necessary to protect its interests with respect to any suits, actions, or claims arising on account of the Contractor's operations or in consequence of any act, neglect, omission, or misconduct of the Contractor; or, in case no money is due, the Contractor's Sureties may be held liable until those suits, actions, or claims have been settled and suitable evidence to that effect has been furnished to the Department.

The Contractor shall identify a contact person for damage complaints from the public, and shall maintain a log of such complaints and any action taken by the Contractor. This log shall be available to the Engineer at his request.

A Workers' Compensation Insurance

Contractor shall provide workers' compensation insurance for all employees and shall require any subcontractors to provide workers' compensation insurance in accordance with the statutory requirements of the State of MN and must include:

- a. Part 2, Employers' Liability including Stop Gap Liability for monopolistic states. Minimum limits:
 - \$100,000 – Bodily Injury by disease per employee
 - \$500,000 – Bodily Injury by disease aggregate
 - \$100,000 – Bodily Injury by accident
- b. Coverage C: All States Coverage
- c. If applicable, USL&H, Maritime, Voluntary and Foreign Coverage
- d. Waiver of subrogation in favor of the Department
- e. If Contractor is self-insured for its obligation under the Workers' Compensation Statutes in the jurisdiction where the project is located, a Certification of the Authority to Self-Insure such obligations shall be provided.

The Contractor must require Subcontractors to file evidence of insurance with the Contractor

B Commercial General Liability Insurance

The Contractor shall maintain insurance to cover liability from operations under the contract, whether such operations are by the Contractor, subcontractor or by anyone directly or indirectly employed under the Contract.

Minimum Limits of Liability

\$2,000,000 – **Per Occurrence**

\$2,000,000 – **Annual Aggregate**

\$2,000,000 - **Annual Aggregate** applying to Products and Completed Operations

\$50,000 – **Fire Damage**

\$5,000 – **Medical Expense** (any one person per occurrence)

Coverages

- Premises and Operations Bodily Injury and Property Damage
- Personal and Advertising Injury
- Products and Completed Operations Liability
- Contractual Liability as provided in ISO form CG 00 01 12 04 or its equivalent
- Pollution exclusion with standard exception as per ISO Commercial General Liability Coverage Form – CG 00 01 12 04 or equivalent
- Explosion, Collapse and Underground (XCU) perils
- Broad Form PD
- Independent Contractors – Let or Sublet work
- Waiver of subrogation in favor of the Department
- Department named as an Additional Insured, by endorsement, ISO Forms CG 2010 and CG 20 37 or their equivalent for claims arising out of the Contractor's negligence or the negligence of those for whom the Contractor is responsible.

C Automobile Liability Insurance

Contractor shall maintain insurance to cover liability arising out of the operations, use, or maintenance of all owned, non-owned, and hired automobiles.

Coverages

- Owned Automobiles
- Non-owned Automobiles
- Hired Automobiles
- Waiver of subrogation in favor of the Department

Minimum Limit of Liability

\$2,000,000 – Per Occurrence Combined Single Limit for Bodily Injury and Property Damage

Umbrella or Excess Liability Insurance

An Umbrella or Excess Liability insurance policy may be used to supplement the Contractor's policy limits to satisfy the full policy limits required by the Contract.

D Additional Conditions

Contractors' policy(ies) shall be primary and non-contributory insurance to any other valid and collectible insurance available to the Department with respect to any claim arising out of the Contract.

Evidence of subcontractor insurance shall be filed with the Contractor.

The Contractor is responsible for payment of Contract related insurance premiums and deductibles.

Insurance companies must have an AM Best rating of A- (minus) and a Financial Size Category of VII or better, and be authorized to do business in the State of Minnesota.

Certificates of Insurance acceptable to the Department shall be submitted prior to commencement of work under the Contract. Such Certificates and the required insurance policies shall contain a provision that coverage afforded under these policies shall not be cancelled without at least thirty (30) days advance written notice to the Department.

E Notice to the Contractor

The failure of the Department to obtain Certificate(s) of Insurance for the policies or renewals thereof or failure of the insurance company to notify the State of the cancellation of policies required under this Contract shall not constitute a waiver by the Department to the Contractor to provide such insurance.

The Department will reserve the right to terminate the Contract in accordance with 1808 if the Contractor is not in compliance with the insurance requirements and the Department retains all rights to pursue any legal remedies against the Contractor. In the event of a claims dispute, all insurance policies must be open to inspection by the Department, and copies of policies must be submitted to Department's authorized agent upon written request.

- S-35.1 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:
- S-35.2 The Contractor agrees to defend, indemnify, and hold harmless the County of Hennepin, the City of Minneapolis and, and the State of Minnesota, their 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-36 **(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 these Special Provisions and the following:

S-36.1 **Extreme Weather Event**

If localized flooding is caused by an extreme weather event and results in discharge into surface water, by deliberate pumping or diverted flow, the Contractor shall provide for end of trench or pipe filtration or treatment systems. The filtration/treatment system shall be capable of preventing visibly turbid discharge from entering surface water. This work shall be completed in accordance with applicable laws pertaining to discharge into surface waters and as directed by the Engineer. The Contractor will receive compensation as Extra Work in accordance with Mn/DOT 1904.

S-36.2 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-36.3 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-36.4 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-36.5 The contractor shall provide an Erosion Control Supervisor for each day that erosion and sediment control devices are in use on the project, in accordance with Contract provisions and as directed by the Engineer.

The Contractor shall, at the pre-construction conference, designate an Erosion Control Supervisor who shall be responsible for and perform the erosion and sediment control management **for overall erosion and sediment control management for the Project**. The Erosion Control Supervisor shall be responsible for the management of the erosion and sediment control operations of the Project, including those of the Contractor, subcontractors, and suppliers. The primary responsibility of the Erosion Control Supervisor shall be the Erosion and Sediment Control Management of this Project.

S-36.6 Emergency Best Management Practices must be enacted to help minimize turbidity of surface waters and relieve runoff from extreme weather events. It is required to notify the MPCA Regional Contact Person within 2 days of an uncontrolled storm water release. The names and phone numbers of the MPCA Regional Contract personnel can be found at: <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html>. The Contractor is reminded that during emergency situations involving uncontrolled storm water releases that the State Duty Officer must be contacted immediately at 1-800-422-0798 or 1-651-649-5451.

S-36.7 The provisions of Mn/DOT 1717 are supplemented and/or modified with the following:

Discovery of Contaminated Materials and Regulated Wastes

If during the course of the Project, the Contractor unexpectedly encounters any of the following conditions indicating the possible presence of contaminated soil, contaminated water, or regulated waste, the Contractor shall immediately stop work in the vicinity, notify the Engineer, and request supervision of work in the vicinity of the discovery area, in accordance with Mn/DOT 1803.4.

A documented inspection and evaluation will be conducted prior to the resumption of work. The Contractor shall not resume work in the suspected area without authorization by the Engineer.

A Indicators of contaminated soil, ground water or surface water include, but are not limited to the following:

- (1) Odor including gasoline, diesel, creosote (odor of railroad ties), mothballs, or other chemical odor.
- (2) Soil stained green or black (but not because of organic content), or with a dark, oily appearance, or any unusual soil color or texture.
- (3) A rainbow color (sheen) on surface water or soil.

B Indicators of regulated wastes include, but are not limited to the following:

- (1) Cans, bottles, glass, scrap metal, wood (indicators of solid waste and a possible dump)
- (2) Concrete and asphalt rubble (indicators of demolition waste).
- (3) Roofing materials, shingles, siding, vermiculite, floor tiles, transite or any fibrous material (indicators of demolition waste that could contain asbestos, lead or other chemicals).

- (4) Culverts or other pipes with tar-like coating, insulation or transite (indicators of asbestos).
- (5) Ash (ash from burning of regulated materials may contain lead, asbestos or other chemicals).
- (6) Sandblast residue (could contain lead).
- (7) Treated wood including, but not limited to products referred to as green treat, brown treat and creosote (treated wood disposal is regulated).
- (8) Chemical containers such as storage tanks, drums, filters and other containers (possible sources of chemical contaminants).
- (9) Old basements with intact floor tiles or insulation (could contain asbestos), sumps (could contain chemical waste), waste traps (could contain oily wastes) and cesspools (could contain chemical or oily wastes).

S-36.8 Mn/DOT 1717.2A2 is hereby deleted and replaced with the following:

A2 During Construction

The Contractor shall implement the Project's Storm Water Pollution Prevention Plan. The Contractor shall schedule and install temporary and permanent sediment and erosion control measures, construct ponds and drainage facilities, furnish earth work operations, place topsoil, establish turn and conduct other Contract work in a timely manner to minimize erosion and sedimentation.

All exposed soil areas with continuous positive slopes that are within 60 m (200 feet) of a public water shall have temporary or permanent erosion protection within 24 hours after the construction activity in that portion of the site has temporarily or permanently ceased and connection is established to the public water. All other positive slopes to constructed surface waters, such as permanent storm water treatment ponds, curb and gutter systems, storm sewer inlets, temporary or permanent drainage ditches, or other storm water conveyance systems, shall have temporary erosion protection or permanent cover for the exposed soil areas as soon as practicable but no later than 14 days after construction activity has temporarily or permanently ceased in that area. For those drainage areas that have a discharge point within 1 mile and flows to an impaired or Special Waters shall have temporary erosion protection or permanent cover for the exposed soil areas as soon as practicable but no later than 7 days after construction activity has temporarily or permanently ceased in that area. Impaired and Special Waters are defined as those listed and referenced in the NPDES Permit.

Positive slopes adjacent to public waters and wetlands will be stabilized at the close of each day when weather forecasts for rain that evening, and/or overnight including weekends. Once work is completed it will be stabilized permanently as soon as practical but no later than seven days.

Exposed soil areas do not include; stockpiles or surcharge areas of sand, gravel, aggregate, concrete, bituminous, or road bed and surfacing material. A perimeter sediment barrier may be necessary to minimize loss when these are within the 60 m (**200 feet**) of existing surface waters or the property edge.

The bottom of temporary or permanent drainage ditches or swales constructed to drain water from a construction site must be stabilized with erosion control

measures for the last 60 m (**200 feet**), or more when conditions warrant, from the property edge or from the point of discharge to any existing surface water. Stabilization shall be completed within 24 hours after the construction activity in that portion of the ditch has temporarily or permanently ceased. Ditch stabilization will continue concurrently with construction activities but no later than 14 days after construction activities have permanently or temporarily ceased. Any, culvert pipe or storm sewer pipe that is within the cumulative distance is not part of this distance. Ditch checks may be provided where necessary to slow water flow and capture sediment.

Temporary or permanent ditches used as treatment systems will not need to be stabilized but must provide the proper Best Management Practices for the treatment system.

Pipe outlets shall be provided with temporary or permanent energy dissipation within 24 hours of connecting the pipe to any constructed or existing surface waters.

The Contractor shall limit the surface area of erodible soil that can be exposed to possible erosion at any one time when the permanent erosion control features are not completed and operative.

All liquid and solid wastes generated by concrete washout operations must be contained and not have the opportunity to come in contact with the surface waters or ground water. This includes the ditches, slopes to ditches, curb and gutter/storm sewer systems, and ponds. Areas where there are sandy soils, karsts, and high ground water the washout facility must have an impermeable liner. Liquid and solid wastes must be disposed of properly. A concrete washout sign must be installed adjacent to each washout facility to notify personnel.

S-36.9 Mn/DOT 1717.2E is hereby deleted and replaced with the following:

E Site Plans

The Engineer may require the Contractor to submit a site plan, in writing, detailing proposed erosion control and sediment control measures and a schedule indicating starting and completion times for construction operations working in water bodies and/or in direct proximity to waters of the state.

Contractor shall not start work in the affected areas until the schedule and site plan have been accepted by the Engineer and all materials and equipment for the activity are on site.

S-37 (1718) FURNISHING RIGHT OF WAY

Right of way shall be furnished in accordance with the provisions of Mn/DOT 1718 and the following:

Permission for work shown outside the right-of-way is to be obtained via right-of-entry by the engineer. If right-of entry is denied, scope of work will be modified in the field by the engineer.

S-38 (1801) SUBLETTING OF CONTRACT

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

- S-38.1 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-38.2 The second paragraph is hereby deleted. This Contract does not contain goals for Disadvantaged Business Enterprise (DBE) or Targeted Group Business (TGB) participation. These are specific State of Minnesota subcontracting programs that are not applicable to this contract.

This Contract does however include a goal for Small Business Enterprise (SBE) participation under Hennepin County's program. See Division "A" Special Provisions contained herein for the requirements of this program. The existence of an SBE goal on this contract does not modify the 40 percent requirement established in the first paragraph of Mn/DOT 1801.
- S-39 (1803) PROSECUTION OF WORK**
- All work performed under this Contract shall be prosecuted in accordance with the provisions of Mn/DOT 1803 and the following:
- S-39.1 The Progress Schedule required as per Mn/DOT 1803.1 shall include and identify separate tasks for temporary and permanent erosion control activities.
- S-39.2 The Contractor shall provide the Engineer with an updated Progress Schedule each week construction activities are being performed. Weekly updates shall show all construction activities to be performed for the next four calendar weeks. Temporary erosion control activities must be identified on all weekly updates in time frames which provide compliance with all applicable permits.

The Engineer shall have the authority to limit the areas of excavation, borrow, embankment, and other construction activities susceptible to erosion which may either be planned or in progress. These limitations shall be commensurate with the Contractor's capability and progress with erosion control measures.

Any temporary bituminous pavement that may be required to comply with the November 15 opening date shall be placed and removed at the Contractor's expense.
- S-39.3 **SPECIAL PROJECT ADA REQUIREMENTS**
- All pedestrian facilities and shared trails on this Project must be constructed according to Public Rights-of-Way Accessibility Guidelines (PROWAG) which can be found at: <http://www.access-board.gov/prowac/draft.htm>. The appropriate pedestrian ramp details for each quadrant are included in the Plan. The Engineer may provide additional details to those provided in the Plan that meet the PROWAG guidelines as the need arises and field conditions dictate.
- (A) The Contractor must designate a responsible person familiar with PROWAG to assess proposed sidewalk layouts at each site before work begins. Any time

work the Contractor is performing concerns pedestrian facilities, the Contractor's representative shall be on site.

- (B) Pedestrian facilities must be constructed to meet the following criteria:
- (1) Pedestrian Access Routes (PAR) must be constructed to meet the following:
 - Minimum 4 feet width.
 - A maximum cross slope of 2.0%.
 - Vertical discontinuities must be less than 0.25 inches.
 - Must provide positive drainage without allowing any ponding.
 - (2) Landings are part of the PAR and must be constructed to meet the following:
 - 4 feet by 4 feet minimum width.
 - Maximum slope of 2.0% in all directions.
 - Required at all locations where the PAR changes directions.
 - Must be connected to the PAR.
 - (3) Ramps are part of the PAR and must be constructed to meet either of the following criteria:
 - Longitudinal slopes less than 5% in the direction of travel requires no landing at the top of the ramp (unless the PAR changes direction).
 - Longitudinal slopes between 5 - 8.3% in the direction of travel require a landing at the top of the ramp.
- (C) If the Contractor constructs any pedestrian or shared-use trail facilities that are not per Plan, do not meet the above requirements, or do not follow the agreed upon resolution, the Contractor shall be responsible for correcting the deficient facilities with no compensation paid for the corrective work. To ensure that the pedestrian facilities are constructed in compliance with PROWAG, the Contractor shall follow the following three steps:
- (1) The Contractor shall use the appropriate ramp details in the Plan and identify the removal limits for the sidewalk and curb and gutter. If Contractor determines the removal limits are not adequate to meet PROWAG, the Contractor shall stop work immediately and consult the Engineer to determine the best solution. Once the Engineer and the Contractor reach agreement on how to proceed, the Contractor may finish the removals.
 - (2) Prior to pouring each curb and gutter segment, the Contractor must verify the zero height curb and curb transitions will be located as shown in the Plans and will provide an adequate detectable edge as described in Section S-2531 (CONCRETE CURB AND GUTTER) of these Special Provisions. The Contractor shall also verify the proposed curb flow lines will provide positive drainage as well as maintain existing gutter inflows/outflows. The curb and gutter shall be constructed as detailed in the Plan with a defined flow line and no vertical discontinuities. The Contractor shall consult with the Engineer to determine a resolution if

any of these conditions cannot be met. Once the Engineer and the Contractor reach agreement on how to proceed, the Contractor may proceed with pouring the curb and gutter.

- (3) After the curb has been correctly poured, the Contractor has set the sidewalk forms, and prior to placing the concrete curb ramps/sidewalks, the Contractor shall verify the requirements in Section S-38.3B will be achieved. If any of these requirements cannot be met the Contractor shall meet with the Engineer to determine the best solution. Once the Engineer and the Contractor reach agreement on how to proceed, the Contractor may proceed with the curb ramp/sidewalk pour.
- (D) It shall be the responsibility of the Contractor, or Contractor's Surveyor if applicable, to layout all proposed work at each intersection in accordance with the Plan and requirements listed in this Special Provision. The Contractor may confer with the Engineer for guidance in laying out the proposed work, but it will be the Contractor's responsibility to ensure the proposed work meets all the requirements of this Special Provision. This layout includes, but is not limited to placement of grade breaks, curb transitions, gutter flow lines, truncated dome placement, crosswalk marking placement, flares, landing limits, and ramp limits. It is important that the Contractor layout this work properly to achieve the construction of a compliant pedestrian facility. This layout work shall be incidental with no extra compensation paid.
- (E) The Contractor shall utilize measures and methods when working near existing buildings that will avoid damaging the building's face or structure. The contractor will be responsible for any damage to the building's face or structure, both below and above ground. Any damage resulting from Contractor operations will be repaired at the Contractor's expense to the satisfaction of the Engineer.
- (F) The Contractor shall round all joints and edges of the walk with a ¼ inch radius edging tool, contraction joints shall extend to at least 30 percent of walk thickness and shall be approximately 1/8 inch wide as per MnDOT 2521. The Contractor shall also have the option of providing saw cuts to construct the sidewalk joints. This work shall be considered incidental and no extra compensation paid.
- (G) All pedestrian signal systems should be installed as shown in the Plan and must be constructed to meet the following criteria. The Contractor shall verify that the proposed push button locations will meet all of the following criteria before proceeding with the installation of the pedestrian push button system:
- Pedestrian push buttons shall be oriented with the button facing towards the intersection and the button face placed parallel to the outside edge of the crosswalk.
 - Pedestrian push buttons shall be a minimum of 4 feet and a maximum of 10 feet from the back of curb/edge of roadway, but may be placed 1.5 feet to 4 feet from the back of curb/edge of roadway if mounted on a signal pole as indicated in the Plan or as approved by the Engineer.
 - Pedestrian push buttons shall be located at the outside crosswalk edge

and shall be no more than 5 feet offset from the projected outside edge of the crosswalk/outside edge of detectable warnings.

- Pedestrian push buttons shall be a minimum of 10 feet apart, except in islands and medians, where the minimum separation is 5 feet.
- Each pedestrian push button shall have a landing immediately adjacent to the push button face with minimum dimensions of 4 feet by 4 feet and a maximum slope of 2.0% in all directions. Center the push button on the landing if possible to do so without violating any of the requirements listed in this Special Provision. The landing must be connected to the Pedestrian Access Route.
- A 6-foot wide clear distance between obstructions shall be maintained wherever it is possible to do so for snow removal purposes.
- The push buttons shall be mounted at a height of 42 inches as indicated in the Plan.
- If it is possible to mount a push button on a signal pole and meet all the criteria listed in this Special Provision, then the push button shall be mounted on signal pole and the unused push button station components shall be considered surplus materials and delivered to MnDOT Electrical Services.
- Crosswalks shall be striped in a straight alignment between the outside edges of the detectable warnings with no kinks unless the crosswalks are shown as kinked in the Plan.
- The Contractor shall maintain all working points marked by the surveyor and use the working points to layout push button locations in accordance with the Plans and Special
- Provisions. The Engineer will verify the proposed push button locations are acceptable prior to construction.

If any of these conditions cannot be met, the Contractor shall consult with the Engineer to determine a resolution. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may proceed. If the Contractor constructs any pedestrian push button systems or pedestrian facilities which do not meet the criteria or the agreed upon resolution, the Contractor will be responsible for correcting the deficiencies with no compensation paid for the corrective work.

To help ensure signal systems are properly constructed the Contractor must adhere to the following practices:

- All push button station bases shall be poured either concurrently with or after the adjacent sidewalk pour.

Signal pole foundations which are being constructed in or adjacent to sidewalk shall be constructed in accordance with the applicable MnDOT Standard Plate 8120 or 8126. If a push button is proposed to be mounted on a signal pole, the Contractor shall determine the finished grade of the top of proposed sidewalk prior to pouring the signal pole foundation. The signal pole foundation shall not be more than 8 inches above the finish grade of the sidewalk and must still meet the vertical clearance requirements of the applicable MnDOT Standard Plates 8120 or 8126. If

this is not possible, the Contractor shall consult with the Engineer to determine the appropriate solution.

S-40 **(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-41 **(1806) DETERMINATION AND EXTENSION OF CONTRACT TIME**

The Contract Time will be determined in accordance with the provisions of Mn/DOT 1806 and the following:

S-41.1 Construction operations shall be started on or before September 4, 2012 or within eight (8) Calendar Days after the date of Notice of Contract Approval, whichever is later. Construction operations shall not commence prior to Contract Approval.

S-41.2 All work required by the Contract and authorized by the Engineer, including final cleanup, shall be completed on a working day basis. The Allowable Contract Time for the contract as a whole shall be set as a single duration of working days computed from the Contract Starting Date. The duration of the Allowable Contract Time is dependent on the inclusion of the various Alternate Bids and shall be determined in accordance with the following:

- A. All work required on the project included in the Base Bid shall be completed within 20 working days.
- B. In the event Alternate No. 1 is awarded the Allowable Contract Time shall include additional 2 working days, subject to the provisions of D. below, for the completion of the work thereby required.
- C. In the event Alternate No. 2 is awarded the Allowable Contract Time shall include an additional 2 working days, subject to the provisions of D. below, for the completion of the work thereby required.
- D. The maximum Allowable Contract Time for this Contract as a whole shall not exceed 26 working days, regardless of the combination of alternates that may be awarded with the base bid.

For Example:

If no Alternates are awarded with the Base Bid the Allowable Contract Time will be 20 working days.

If Alternates No. 1 and No. 2 are awarded with the base bid the Allowable Contract Time will be 24 working days.

If Alternates No. 1, No. 2 and No. 3 are awarded with the Base Bid the Allowable Contract Time will be 26 working days.

- S-41.3 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-41.4 No work which will restrict or interfere with traffic shall be performed between 12:00 noon on the day preceding and 9:00 A.M. on the day following any consecutive combination of a Saturday, Sunday, and legal holiday without written permission from the Engineer.
If the Contractor chooses not to work at all on the day preceding the holiday period, no working day charges will be assessed.
If the Contractor chooses to work prior to 12:00 noon on the day preceding the holiday period or if the Contractor obtains written permission to work after 12:00 noon on the day preceding the holiday period, working day charges will be assessed only for the actual hours worked.
- S-41.5 Add the following at the end of Mn/DOT 1806.1A:
(5) Delays caused by the ineffective, incomplete, or non-placement of erosion control devices.
- S-41.6 When determining Working Day charges in accordance with Mn/DOT 1806.1C, the installation of erosion control devices may be deemed a progress controlling operation by the Engineer.
- S-42 (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-42.1 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-42.2 In addition to the charges shown in the Schedule of Liquidated Damages the County will assess a monetary deduction in an amount equal to \$500.00 per Calendar Day for failure to complete all the work, with the exception of maintenance and Final Cleanup, under the Contract in the time specified therefore, until that work is, in all things, completed to the satisfaction of the Engineer.
- S-42.3 For informational purposes only, bidders are advised that in addition to the requirements of Mn/DOT 1807, other Sections of these Special Provisions, as shown below, contain requirements for assessment of monetary deductions to this Contract:

1404	MAINTENANCE OF TRAFFIC AND (2563) TRAFFIC CONTROL
1506	SUPERVISION BY CONTRACTOR
1706	EMPLOYEE HEALTH AND WELFARE

- S-42.4 The liquidated damages and monetary deductions as set forth above may apply equally, separately, and may be assessed concurrently.
- S-42.5 If, at any time, the Contractor fails to, in a timely manner, properly furnish, install, maintain or remove any of the required traffic control devices as set forth in Section S-1404 (MAINTENANCE OF TRAFFIC) of these Special Provisions, the Department reserves the right to properly correct the deficiency. Each time the Department takes such corrective action, the costs thereof, including mobilization, plus \$5,000 will be deducted from monies due or coming due the Contractor.
- S-42.6 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.
- S-42.7 The Contractor will be subject to an hourly charge for failure to provide copies of the inspection logs, within the time frame agreed upon, when requested by the Engineer as set forth in Section S-1404 (MAINTENANCE OF TRAFFIC CONTROL) 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.
- S-42.8 The Contractor will be subject to a daily charge of \$100 for each day that sign posts and/or stub posts are not removed as set forth in Section S-1404 (MAINTENANCE OF TRAFFIC) of these Special Provisions.
- S-42.9 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-42.10 The Contractor will be subject to an hourly charge for failure to perform roadway sweeping and cleaning activities as set forth elsewhere herein. Non-compliance charges, for each separate incident, will be assessed at a rate of \$50.00 per hour for each hour or any portion thereof in which the Engineer determines that the Contractor has not complied.
- S-42.11 The Contractor will be subject to an hourly charge for failure to (1) install and/or maintain the erosion control devices and (2) correct adverse erosion impacts; all as set forth in the Minnesota Department of Transportation Standard Specifications for Construction, these Special Provisions, appropriate permits incorporated herein by reference and/or attachment, and the direction of the Engineer. Non-compliance charges, for each separate incident, will be assessed at a rate of \$25.00 per hour, for each hour or any portion thereof which the Engineer determines that the Contractor

has not complied.

Assessment of the aforesaid non-compliance charge for failure to install and/or maintain the erosion control devices required is not intended to nor shall it be construed to be in lieu of applicable civil or criminal non-compliance penalties assessed against the Contractor as co-permittee by other governmental or regulatory agencies.

S-42.12 Assessment of all the aforestated liquidated damages shall be applied separately or in any concurrent combination deemed appropriate by the Engineer.

S-43 (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-44 (1903) COMPENSATION FOR INCREASED OR DECREASED QUANTITIES

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

S-45 (1904) EXTRA AND FORCE ACCOUNT WORK

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

S-45.1 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-45.2 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-46 (1905) ELIMINATION OF WORK

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

S-46.1 Paragraphs (2) and (4) of Mn/DOT 1905 are hereby deleted.

S-47 (1906) PARTIAL PAYMENTS

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

S-47.1 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-47.2 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-48 **(1908) FINAL PAYMENT**

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

- S-48.1 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 Affirmative Action Plan have been completed.

S-49 (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-49.1 The Contractor shall be required to file a written claim presenting all required data to determine if a reimbursement should be allowed.
- S-49.2 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-50 (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.

All mobilization costs associated with the work represented by each of the Alternate Bids shall be included as an incidental cost to each respective Alternate Bid.

Compensation for mobilization will be made under the various separate pay items for reach of the various separate projects included in the Contract. The lump sum unit price bid for each of the respective mobilization pay items shall be compensation in full for all costs of mobilization to the specific project, regardless

of where the equipment and forces are mobilized from.

2021.2 BLANK

2021.3 BLANK

2021.4 BLANK

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 Contract Amount Completed ¹	Pay Lesser of the Two	
	% of Mobilization	% of Original Contract Amount
5	50	3
15	75	5
25	100	5
95	100	N/A

¹ The 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.

<u>Item No.</u>	<u>Item Unit</u>
2021.501 Mobilization.....	Lump Sum

S-51 (2051) MAINTENANCE AND RESTORATION OF HAUL ROADS

The provisions of Mn/DOT 2051 are supplemented by the following:

S-51.1 The Contractor shall not use any City Street as a haul road unless approved by the Engineer and City.

S-52 (2102) PAVEMENT MARKING REMOVAL

The provisions of Mn/DOT 2102 are modified and/or supplemented with the following:

S-52.1 In addition to the requirements above, the Contractor is responsible for determining what work areas have lead concentration above OSHA's Permissible Exposure Limit. That information is to be provided to the Project Engineer and Mn/DOT's Inspectors.

(A) Site Access

To ensure that no one is accidentally exposed to lead, people are not permitted into areas of high lead concentration without protection. Signs are used to indicate where unprotected people must not go. The signs shall say:

Warning. Lead Work Area. Poison. No Smoking or Eating.

(B) Protective Clothing

The Contractor must provide protective clothing for County inspectors in any area with lead exposure above $30 \mu\text{g}/\text{m}^3$ or where the lead concentration is unknown. The clothing can be disposable or reusable. It must include coveralls or equivalent, shoe covers, and head covers. The Contractor is responsible for laundering the clothing and for providing clean clothing at least weekly or for daily disposal of the clothing. If the contaminated clothing can be reused, the Contractor is responsible for storing it.

(C) Wash Facilities

The Contractor must provide soap, water, and towels to enable County's inspectors to wash at the site. If showers are provided for the Contractor's employees, they must be available for County's inspectors, also.

The Contractor must provide a means to remove surface contamination from the inspector's clothing. That may be a HEPA vacuum, a downdraft booth (with the exhaust captured and cleaned), or other effective means that do not increase the concentration of airborne lead.

(D) Inspection Delay

The County's inspectors will not enter a blasting containment area until at least fifteen minutes after blasting and other lead dust-producing activities have stopped, to permit the dust to settle. There will be no extra payment or penalty against County for this delay.

S-53 (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-53.1 Unless otherwise provided for under separate Contract Items, the removal of portions of abandoned utility lines and pipes when required for the new construction will be incidental work for which no direct compensation will be made.

S-53.2 No direct compensation will be made for plugging holes in existing drainage structures when removing pipe sewers from structures which are to remain in place. All costs associated with constructing a masonry patch to the satisfaction of the Engineer shall be incidental to the appropriate pipe removal pay item.

- S-53.3 Pavement removal shall be staged as necessary to comply with the requirements of construction staging, traffic control, and Mn/DOT 1404.
- The Engineer shall have the right to require the removal of the existing pavement, curb, curb and gutter, sidewalk (in accordance with other provisions governing sidewalk removal), and other removals as may be required throughout the Project to aid in the installation/relocation activities of the utility companies working within the project limits. Said removals shall be completed within 5 working days of the Engineer's order to do so and shall be completed at the appropriate Contract unit price.
- S-53.4 The fourth paragraph of Mn/DOT 2104.5 is hereby deleted. The removal of all bituminous surfacing, without regard to thickness, shall be paid for under Item 2104.603 Remove And Replace Bituminous Pavement.
- S-53.5 Item 2104.509 Remove Curb Box is for the complete removal of the catch basin casting curb box as shown in the plan and as directed by the Engineer. The Contract unit price per each shall include all costs associated with the complete removal and disposal of the curb box and the furnishing and installation of the metal plate to cover the opening left from the curb box.
- S-53.6 Item 2104.523 Salvage Sign Type C is for salvaging existing signs as indicated in the plans and as directed by the Engineer. The Contract unit price per each shall be compensation in full for all costs associated with salvaging these signs and storing them at the designated location within the project for pickup by Hennepin County.
- Type C signs may be salvaged and stockpiled with the existing posts intact. All posts not salvaged with the sign panels shall be removed and disposed in accordance with Mn/DOT 2104.3C3 by the Contractor as an incidental expense to Item 2104.523 Salvage Sign Type C.
- S-53.7 In those instances where the quantity of materials to be salvaged for reinstallation exceeds the actual quantity to be reinstalled on the Project, the better quality of the salvaged materials shall be retained for reinstallation as directed by the Engineer. All excess salvaged materials shall become the property of the Contractor and removed from the Project.
- S-53.8 On those portions of the project where sidewalks are to be removed and reconstructed on both sides of the street, the sidewalk may be removed from only one side of the street at a time. The sidewalk on the opposite side of the street must be left in place and fully open and available to pedestrian traffic.
- S-53.9 Regardless of the availability of sidewalks on the opposite side of the street, the time between sidewalk removal and construction of the replacement sidewalk shall be minimized as much as possible.
- In all locations where sidewalk removal and construction activities are to occur immediately adjacent to the only entrance to a business or a residence the Engineer hereby reserves the right to restrict sidewalk removals to no more than he anticipates the Contractor will be able to reconstruct in the same day. It shall be the Contractor's responsibility to coordinate the sidewalk removal and reconstruction with the affected businesses and residents and provide temporary hard surfaced access (bituminous, wood, steel plates, etc.) as approved by the Engineer. In the

event adverse weather conditions exist or may be anticipated during any time sidewalks are out of service, the Contractor shall be prepared to immediately install a hard surfaced access as directed by the Engineer. All temporary accesses shall be maintained continuously until such time that the new sidewalk can be placed. Any and all costs of any temporary access measures shall be provided by the Contractor as an incidental expense to the sidewalk items of the Contract.

S-53.10 No portions of existing sidewalks shall be removed until the Engineer has expressly authorized its removal.

No existing hard-surfaced driveways (concrete or bituminous) shall be removed until the Engineer has expressly authorized their respective removal.

S-53.11 When salvaging a sign or sign panel, the Contractor shall remove and salvage all posts, A-frame angle brackets, stringers, as well as the nuts, bolts and washers in such a manner so as not to damage the sign panel. If the Contractor damages any sign panel during the salvage operations, and the Engineer or his representative determines that the damaged sign panel cannot be reused, the Contractor shall dispose of the damaged sign panel and furnish a new replacement sign panel, in accordance with the applicable fabrication specifications contained elsewhere in these Special Provisions, at no cost to the County.

The Contractor shall store all salvaged signs on the job site as directed by the Engineer until installed under Item 2564.537 Install Sign Type C by the each.

S-53.12 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-53.13 Any damage to any in-place 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-54 (2104) REMOVE AND REPLACE BITUMINOUS PAVEMENT

This work shall consist of full depth sawing, removing, and patching the bituminous surface adjacent to the newly constructed curb and gutter in accordance with MnDOT 2104, 2360, other Contract provisions, as directed by the Engineer and the following:

S-54.1 Construction Requirements

The Contractor will have the option to construct one of the two following procedures with approval from the Engineer.

The Contractor shall provide a full depth bituminous sawcut at a line that is offset 2 feet from the proposed gutter face as shown in the Plans. This bituminous saw cut shall be performed radially as needed to follow the proposed curb radius. The

Contractor shall then remove and dispose of all bituminous between the sawcut and existing curb and gutter. The aggregate base shall be compacted to the satisfaction of the Engineer.

Option 1: Once the new curb and gutter has been constructed, the 2 ft. wide void between the new gutter face and the existing roadway shall be filled with bituminous patching mixture of the same thickness as the adjacent pavement and to a level so that once the bituminous material is compacted, the resulting edges/joints between the compacted bituminous and the gutter face/existing bituminous roadway are less than ¼ inch vertically.

Option 2: Once the new curb and gutter has been constructed, the 2 ft. wide void between the new gutter face and the existing roadway shall be filled with Concrete Mix No. 3A32 from the bottom of the adjacent existing pavement, up to a point 2 inches below the finish grade of the roadway. The remaining 2 inches shall be filled with bituminous patching mixture to a level so that once the bituminous material is compacted, the resulting edge/joint between the compacted bituminous and the gutter face/existing bituminous roadway is less than ¼ inch vertically.

Compaction shall be obtained with mechanical tampers in areas not accessible to conventional rolling equipment. Compaction shall be achieved to the satisfaction of the Engineer. Maximum density requirements will not apply.

S-54.2 Method of Measurement

Measurement will be by the linear foot of removed and patched pavement measured at the face of curb.

S-54.3 Basis of Payment

Payment will be made under Item 2104.603 (Remove and Replace Bituminous Pavement) at the Contract bid price per linear foot, which shall be compensation in full for all costs of performing the work as specified, including, but not limited to, traffic safety, cleanup, and disposal operations.

S-55 (2105) EXCAVATION AND EMBANKMENT

Excavation and embankment construction shall be performed in accordance with the provisions of Mn/DOT 2105 and the following:

S-55.1 Material from the top 1 foot of the natural soil shall not be used in the upper 3 feet of the roadbed.

S-55.2 The last paragraph in Mn/DOT 2105.3B Preparation of Embankment Foundation, is revised to read as follows:

Before backfilling depressions within the roadway caused by the removal of foundations, basements, and other structures, the contractor shall enlarge the depressions as directed by the Engineer.

S-55.3 The fourth to last paragraph in Mn/DOT 2105.3D Disposition of Excavated material, which begins with "All combustible debris materials (stumps, roots, logs, brush, etc.) together with all..." is hereby deleted and replaced with the following:

All noncombustible materials other than soils (oversized rock, broken concrete, metals, plastic pipe, etc.) shall be disposed of in accordance with 2104.3C.

- S-55.4 All excavated material that is unsuitable or not required for embankment construction or for topsoil, shall be disposed of by the Contractor at no expense to the County, outside of the right of way, subject to the provisions of Mn/DOT 2104.3C3 and Mn/DOT 2105.3D.
- S-55.5 The Contractor shall salvage, stockpile and reuse any suitable topsoil material as topsoil. An estimated quantity of topsoil borrow has been provided in the Bid Proposal for use on the project in the event the on-site topsoil material salvaged does not provide an adequate amount to meet the project requirements. No topsoil borrow shall be placed on the project until the Engineer has directed the Contractor to do so. The provisions of Mn/DOT 1903 shall not apply to Item 2105.525 Topsoil Borrow (LV).
- S-55.6 Compaction of all embankments construction, including culvert backfills, shall be obtained by the “Quality Compaction” Method described in Mn/DOT 2105.3F.
- S-55.7 Excess soils and rock not used on the Project shall become the property of the Contractor and shall be disposed of outside of the Right of Way. No direct compensation will be paid for the preparation of any acceptable Disposal Plan or for Off-Project disposal of excess materials. Disposal sites shall be left in a well graded condition with all solid wastes and boulders adequately covered.
- S-55.8 No disposal shall occur in those areas defined below as “environmentally sensitive” unless the contractor can document that: 1) non-sensitive areas are not available; or that 2) the material can be used to benefit an “environmentally sensitive” area. All necessary permits for the disposal operations shall be obtained by the contractor and approval from the appropriate State and Federal Agencies shall be included in the Contractor’s Disposal Plan.
- (A) No disposal shall occur in the following “environmentally sensitive” area:
- (1) Wetlands, as described in “Wetlands of the United States”, Circular 39, published by the U.S. Department of Interior, Fish and Wildlife Service;
 - (2) 100-year frequency flood plains;
 - (3) Archaeological or historic sites – See Section 1701 (LAWS TO BE OBSERVED (CULTURAL RESOURCES)) of these Special Provisions for specific requirements;
 - (4) Areas with stability or settlement problems;
 - (5) Areas with artesian conditions;
 - (6) Unique animal or plant communities;
 - (7) Landscapes or geologic formations with exemplary, unique, rare or threatened/endangered characteristics.
- (B) Any environmentally sensitive areas shown in the Plan are approximate only. If it is anticipated that said areas may be affected by disposal site usage and/or any of the Contractor’s operations, the Engineer will determine exact limits on an “as needed basis”.
- (C) Prior to the disposal of any excess grading materials, concrete rubble, bituminous materials, or any other materials requiring disposal, the contractor

shall have on file a written Disposal Plan with written approval by the Engineer. The written Disposal Plan must reflect on only the above requirements, but also the following points:

- (1) That legal permission from the property owner has been obtained;
- (2) That all required local and county disposal permits have been obtained;
- (3) That the MPCA has reviewed and granted permits as necessary for solid waste disposal;
- (4) That the disposal area and Plan meet with requirements of the U.S. Fish and Wildlife Service as noted in Executive Order 11990 and Circular 39, as verified by field review. In this regard, the contractor shall give notice sufficient to permit the Engineer and a representative from the Mn/DOT Office of Environmental Services to conduct a site review; and
- (5) That the limits of the disposal area will be staked by the Contractor so as to accommodate the site review and aid the Contractor in limiting disposal operations so that encroachments do not inadvertently occur.

The Contractor is required to present his/her Disposal Plan in detail at the Pre-Construction Conference.

S-55.9 The following is hereby added to the provisions of Mn/DOT 2105.5:

No payment will be made for grading practices used to minimize or repair erosion nor for excavation to remove sediment deposits resulting from erosion.

S-56 (2123) STREET SWEEPER (WITH PICKUP BROOM)

This work shall consist of removing aggregate and soil sediments from paved portions of the project, or adjacent roadways, open to the traveling public.

Removal shall be accomplished with self-propelled street sweeping equipment. All materials shall be collected and retained within the sweeping equipment as they are swept. Disposal of the swept material shall be in accordance with Mn/DOT 2104.3C.

Sweeping shall be accomplished as directed by the Engineer and in accordance with any applicable permits obtained for the construction of the project. The Contractor shall have the responsibility to inform the project engineer, or designated representative, of any roadways within or adjacent to the project which are experiencing aggregate or soil deposits due to the project construction activities.

S-56.1 The need for roadway sweeping and cleaning is directly related to the construction activities being performed on the project. At times sweeping and cleaning operations may be needed on a daily basis and other times less frequent needs will exist. When appropriate, a sweeping and cleaning schedule may be developed to ensure adequate debris removal from the roadways on a timely basis.

S-56.2 Roadway sweeping and cleaning shall commence at the times agreed to in a sweeping and cleaning schedule, if one is developed, or within two hours of the project engineer's (or designated representative) order to perform sweeping and cleaning activities. Failure to perform sweeping and cleaning activities in accordance with all applicable permits and as directed by the Engineer will result in

the assessment of non-compliance charges. Non-compliance charges, for each separate incident, will be assessed at an hourly rate equal to \$50.00 per hour each hour or any portion thereof which the Engineer determines that the Contractor has not complied.

- S-56.3 The method of measurement and basis of payment for Item 2123.610 Street Sweeper (with Pickup Broom) shall be by the hour for the actual time spent sweeping the project roadways or adjacent streets as directed by the Engineer.
- Payment by the hour, as measured to the nearest one-half hour, shall be compensation in full for all costs incidental thereto, including but not limited to labor, equipment, water and debris disposal. No additional compensation shall be paid for overtime labor which may be required to complete all necessary sweeping.
- The unit price bid for Item 2123.610 Street Sweeper (with Pickup Broom) shall not be subject to any price adjustments as provided in Mn/DOT 1903.
- S-56.4 Payment under Item 2123.610 Street Sweeper (with Pickup Broom) will only be for those hours of sweeping necessary to keep the project roadways and adjacent roadways clean from construction debris as ordered by the Engineer. No payment will be made for sweeping normally required to construct the project as specified; such as between bituminous lifts, prior to bridge deck low slump overlays, prior to curb and gutter construction on bituminous base, prior to placement of traffic markings, etc. No payment will be made under this item for sweeping done by "kickoff brooms".
- S-57 (2211) AGGREGATE BASE**
- Aggregate base courses shall be constructed in accordance with the provisions of Mn/DOT 2211 except as modified below:
- S-57.1 The following is hereby added to the end of the first paragraph of Mn/DOT 2211.3C:
- Blade mixing the material will be required as may be necessary to produce a substantially uniform gradation and moisture content.
- S-57.2 Compaction shall be achieved by the "Quality Compaction Method" described in Mn/DOT 2211.3C.
- S-57.3 The second sentence in Mn/DOT 2211.1 Description, is revised to read as follows:
- The aggregate base shall be produced and placed under the Contractor's quality control program in accordance with the Mn/DOT Grading and Base Manual.
- S-57.4 The second sentence in Mn/DOT 2211.1 Description, is revised to read as follows:
- The aggregate base shall be produced and placed under the Contractor's quality control program in accordance with the Mn/DOT Grading and Base Manual.
- S-57.5 The last paragraph in Mn/DOT 2211.3C2 Quality Compaction Method is revised to read as follows:
- The Engineer may elect to perform density tests as shown in the Mn/DOT Grading and Base Manual, as needed to assist inspection. The actual density obtained by testing the aggregate base must meet or exceed the requirements shown in

2211.3C1 Specified Density or 2211.3C3 Penetration index Method in order to be acceptable.

S-57.6 The first sentence in Mn/DOT 2211.3F1 Gradation Control, is revised to read as follows:

The Contractor and/or aggregate producer shall be responsible for maintaining a gradation control program in accordance with the random sampling acceptance method described in the Mn/DOT Grading and Base Manual.

S-57.7 Mn/DOT 2211.3F2(d) under Acceptance Testing is hereby deleted and replaced with the following:

Samples for gradation testing will be taken randomly by the Engineer prior to compaction, in accordance with the random sampling method described in the Grading and Base Manual. All gradation tests will be reported to the nearest whole number, except the 75 μ [#200] sieve will be reported to the nearest one tenth of one percent (0.1%).

S-57.8 Mn/DOT 2211.3F2(j) under Acceptance Testing, is revised to read as follows:

(j) One gradation sample will be taken from each sub lot and tested. Payment will be based on the average results from the four sub lot samples for each specified sieve.

S-57.9 The third paragraph after Mn/DOT 2211.3F2(k) under Acceptance Testing, is revised to read as follows:

A 5% price reduction will be assessed to both individual or averaged test lots for each test result that fails to meet specified gradations for sieve sizes not listed in Tables 2211-B and 2211-C by more than 2%. These price reductions are cumulative and shall be analyzed both separately and averaged by lot when applicable.

S-57.10 Table 2211-B in Mn/DOT 2211.3F2 Acceptance Testing, is hereby deleted and replaced with the following:

Table 2211-B
AGGREGATE BASE PAYMENT SCHEDULE
(4 Sub-lots/4 Samples)

% Passing Outside Specified Limits*		
4.75 mm (#4) 2.00 mm (#10) And 425 μ m (#40) Sieves	75 μ m (#200) Sieve	Acceptance Schedule (Price Reduction)
1	0.1	5%
---	0.2	6%
---	0.3	9%
---	0.4	11%
---	0.5	14%
2	0.6	15%
>2	>0.6	Corrective Action
* Based on average of 4 tests Price Reductions for more than one failing sieve size shall be cumulative. The		

compensation due to the Contractor for the quantity of material represented by the failing test results shall be reduced by the sum of the respective percentages. The Contractor does not have the option of taking a price reduction in lieu of complying with the Specifications.

S-57.11 The following is added to Table 2211-C in Mn/DOT 2211.3F2 Acceptance Testing:
Substantial compliance will be applied to no more than one test failure. Substantial compliance will be eliminated when two or more test failures occur and test failures meeting substantial compliance will be subject to the next higher price reduction. One sieve failure = one test failure. Test failures for each material type will be treated separately.

S-57.12 The following is added to Table 2211-D in Mn/DOT 2211.3F2 Acceptance Testing:
Substantial compliance will be applied to no more than one test failure. Substantial compliance will be eliminated when two or more test failures occur and test failures meeting substantial compliance will be subject to the next higher price reduction. Test failures for each material type will be treated separately.

S-58 (2301) DRILL AND GROUT REINFORCEMENT BAR (EPOXY COATED)

S-58.1 This work shall consist of drilling, grouting, and inserting No. 13 epoxy coated reinforcement bars in accordance with the provisions of Mn/DOT 2301 and the following:

S-58.2 Measurement will be made by the number of epoxy coated reinforcement bars that are furnished, installed, and grouted in place as specified. Payment will be made under Item 2301.602 Drill and Grout Reinforcement Bar (Epoxy Coated)) at the Contract bid price per each, which shall be payment in full for all costs incidental thereto.

S-59 CERTIFIED READY-MIX CONCRETE PLANTS

Mn/DOT 2461.4D7 is hereby deleted and replaced with the following:

D7 Certified Ready-Mix Plant Program

Mn/DOT requires quality control of concrete production under a Certification program for ready-mix concrete plants. The Prime Contractor is responsible to assure that all ready-mix concrete used on this Contract is produced by a certified ready-mix plant.

To ensure that proper testing procedures and documentation are followed, the Ready-Mix Producer shall obtain and have on site a copy of the current Mn/DOT Concrete Manual. The manual is available via the Mn/DOT Concrete Engineering Unit website.

To facilitate communication between the Producer and the Engineer regarding quality control, the Producer shall equip the Certified Ready-Mix Plant with a working facsimile machine or a working email address.

D7a Certification Documents

The Contractor shall obtain all of the ready-mixed concrete used on this Contract from a Certified Concrete Plant meeting all of the pertinent requirements of

Mn/DOT Standard Specifications 1604 and 2461 and the following.

It is the Prime Contractor's responsibility to ensure that the Ready-Mix Concrete Producer adheres to all of the requirements. At the time of delivery, a computerized Certificate of Compliance shall accompany each truckload of ready-mixed concrete used by the Contractor or any sub-contractor on this Contract. Computerized means that the concrete mix design quantities batched are recorded from load cells and meters.

If the computer that generates the Certificate of Compliance malfunctions, the Producer may finish any pours that are in progress provided the plant issues handwritten Certificates of Compliance on the most current version of Mn/DOT form TP 00042. New pours shall not commence without a working computerized Certificate of Compliance.

The Certificate of Compliance shall label each item of information and shall include:

- (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 including brand, type and production mill and production power plant for fly ash using MN/DOT Standard Abbreviations available on the Concrete Engineering Unit website
- (12) Admixture brand and product name using MN/DOT Standard Abbreviations
- (13) Aggregate sources using State Pit Numbers
- (14) Admixture quantity per 100 wt. of cement or oz/cm(cy) for:
 - a) air-entraining admixtures,
 - b) water reducing admixtures,
 - c) other admixtures

The Certificate of Compliance shall list the batch information for all materials and use Mn/DOT standardized labels to represent each column in the order listed below. It is preferable that all the information is presented across the page (a through k) but printing the information using two lines is satisfactory provided that the materials are identified in each line of information and is presented in the following order.

METRIC CERTIFICATE OF COMPLIANCE		
<u>CATEGORY</u>		<u>STANDARD LABEL</u>
a) Ingredients (aggregate, cementitious, water, admixtures)		<u>Ingredient</u>
b) Product Source (Mn/DOT Standard Abbreviation)		<u>Source</u>
c) Total Moisture Factor (in decimals to 3 places)		<u>MCFac</u>
d) Absorption Factor (in decimals to 3 places)		<u>AbsFac</u>
e) Mn/DOT mix design oven dry (OD) weights (kg/m ³)		<u>OD</u>
f) Absorbed moisture in the aggregates (kg/m ³)	$(e \times d)$	<u>Abs</u>
g) Saturated surface dry (SSD) weights for aggregates (kg/m ³)	$(e + f)$	<u>SSD</u>
h) Free moisture (kg/m ³)	$(c - d) \times e$	<u>Free Mst</u>
i) Target weights for one cubic meter of concrete (kg/m ³)	$(g + h)$	<u>CM Targ</u>
j) Target batch weights (kg)	$(CMs \times i)$	<u>Target</u>
k) Actual batch weights (kg)		<u>Actual</u>

ENGLISH CERTIFICATE OF COMPLIANCE		
<u>CATEGORY</u>		<u>STANDARD LABEL</u>
1) Ingredients (aggregate, cementitious, water, admixtures)		<u>Ingredient</u>
2) Product Source (Mn/DOT Standard Abbreviation)		<u>Source</u>
3) Total Moisture Factor (in decimals to 3 places)		<u>MCFac</u>
4) Absorption Factor (in decimals to 3 places)		<u>AbsFac</u>
5) Mn/DOT mix design oven dry (OD) weights (lbs/cy)		<u>OD</u>
6) Absorbed moisture in the aggregates (lbs/cy)	$(e \times d)$	<u>Abs</u>
7) Saturated surface dry (SSD) weights for aggregates (lbs/cy)	$(e + f)$	<u>SSD</u>
8) Free moisture (lbs/cy)	$(c - d) \times e$	<u>Free Mst</u>
9) Target weights for one cubic yard of concrete (lbs/cy)	$(g + h)$	<u>CY Targ</u>
10) Target batch weights (lb)	$(CYs \times i)$	<u>Target</u>
11) Actual batch weights (lb)		<u>Actual</u>

Note: Actual cubic meters (cubic yards) batched may vary due to differences in: air content, weight tolerances, specific gravities of aggregates and other variables.

Total Water (Batch Water + Free Moisture) (kg/lbs)

The Certificate of Compliance shall compute the water available to add [(Mix Design Water)x (CM (CY's)) – Total water] (liters/gallons)

The Certificate of Compliance shall provide space for water adjustment information, including:

1. Water in liters (gallons) added to truck at plant (filled in by batchman or driver)
2. Water in liters (gallons) added to truck at the jobsite (filled in by driver)
3. Total actual water in kg (lbs) = **(Total Water from Certificate of Compliance + any additions)** (filled-in by Field Inspector)

Note: Drivers are required to fill-in spaces. Enter Zero (0) if no water is added.

The ticket shall also include the following information printed with enough room beside each item to allow the field inspector to record the appropriate test results: air content, air temperature, concrete temperature, slump, cylinder number, location/part of structure, time discharged, and signature of Inspector.

Location for Producer's Representative signature.

A Mn/DOT Certified Plant 1 Technician representing the Producer shall review the first Certificate of Compliance for each mix type, each day, for accuracy and hand sign the Certificate at a location designated for signature. By signing the Certificate of Compliance the representative agrees to the terms of this policy and certifies that the materials itemized in this shipment comply with the applicable Minnesota Department of Transportation specifications and the Project Plans.

Definitions

Mix Design Water – The maximum allowable water content for one cubic meter (yard) of concrete as noted on Mn/DOT Estimated Composition of Concrete Mixes Form TP-02406

Total Moisture Factor - Total amount of water carried by a given aggregate.

Absorption Factor - Water contained within the pores of the aggregate and 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 or mixer by the batcher

Total Water = Batch Water + Free Moisture

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 Prime Contractor

D7b Quality Control Testing and Sampling

The Prime Contractor/Producer, supplying concrete from a Ready-Mix Plant involved in the Certified Plant Program, will provide testing of the materials in the concrete as outlined below. A Concrete Plant Level 2 Technician Quality Control Supervisor, certified by Mn/DOT, shall oversee all testing and plant operations. The Quality Control Supervisor shall remain on site during concrete production or be accessible by cellular phone to assure their presence at the plant site within one hour. A Mn/DOT Certified Plant Technician will maintain or oversee the maintenance of a plant diary. The diary, kept at the plant site for 5 calendar years, will document yards produced each day, tests performed, material problems, breakdowns, weather, etc., all to the approval of the Engineer.

The testing rates stated in the Schedule of Materials Control are minimums. **All samples shall be taken in a random manner using an appropriate number generator.** Changes in the material require taking additional tests. Changes include but are not limited to: variable gradation results, new aggregates arriving on site, moisture conditions changing due to weather, or any other condition that warrants additional testing in the opinion of the Engineer. **The Agency may determine when additional testing is necessary.**

Mechanical shakers are required for sieve analysis of fine and coarse aggregates. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing discuss the equipment and calibration necessary for performing the required tests. The following is a list of the applicable tests and standards.

- AASHTO T-27.....Sieve Analysis of Fine and Coarse Aggregates
- AASHTO T-255.....Total Moisture Content of Aggregate by Drying
- AASHTO M-92Wire-Cloth Sieves for Testing Purposes. The sieves shall comply with the requirements of 5-693.420B of the Department's Bituminous Manual "Equipment Calibration and Verification Policies and Procedures for Laboratory Certification".
- AASHTO M-231Weighing Devices Used in the Testing of Materials. The scales shall comply with the requirements of 5-693.820 of the Department's Bituminous Manual “Calibration of weigh scales”.

The provisions of 2461.4D3 apply regarding requirements to notify the Engineer of intent to pour concrete. If the Ready-Mix Producer needs to change plants for an unexpected reason, it is allowable on an infrequent basis if the Quality Control Supervisor obtains approval from the Project Engineer or Metro Inspection (for the Metro District) before the plant change is made.

The Agency Plant Monitor shall watch the material sampling process whenever possible.

D7c Moisture Content

All moisture tests are run by a Plant Level 1 Technician certified by Mn/DOT.

The Ready-Mix Producer shall determine the moisture content in all fractions of the aggregate according to the Schedule of Materials Control. Changes in the material may require additional testing. The Producer is responsible for all costs associated with determining the moisture content, including equipment, labor, and materials.

The Ready-Mix Producer will document each moisture test, which is kept on file at the plant site for 5 calendar years. The moisture content of each aggregate is charted and available at the plant. The Producer must allow Agency personnel to observe the batching process to verify weights shown on the Certificate of Compliance.

D7c1 Moisture Content Determination by Oven Dry Method

The moisture content of the aggregate is determined by the oven dry method as outlined in the Mn/DOT Concrete Manual.

D7c2 Moisture Content Determination by Moisture Probe

In lieu of performing oven dry moisture contents on fine aggregate, the Producer may use a moisture probe. To obtain approval for the use of a moisture probe, the Producer must calibrate the moisture probe before each construction season using the method described in 5-694.142 of the Mn/DOT Concrete Manual. The written permission of the Engineer is required to use other methods.

The Producer must complete an oven dry moisture comparison on the fine aggregate and chart both the probe moisture content and the oven dry method results at a minimum rate of once per week.

D7d Gradations

All gradation testing is performed by a Plant Level 1 Technician certified by Mn/DOT. Minimum testing rates shall be determined according to the Schedule of Materials Control.

The Ready-Mix Producer shall determine the gradation of the fine aggregate to ensure conformity to Mn/DOT Specification 3126 and the coarse aggregates to ensure conformity to Mn/DOT Specification 3137 or as otherwise required or permitted in the Special Provisions of the contract. The Producer is responsible for all costs associated with running gradations including equipment, labor and materials. The Producer shall perform all testing at the plant site to ensure immediate re-sampling and testing of failing material.

The Producer shall run gradations and perform calculations as outlined in the Mn/DOT Concrete Manual. The Producer shall split and bag all Quality Control samples and clearly identify them (Date, Test No., Time, Type of Material, Plant, and Sampling Location) and retain them for a period of two weeks for companion sampling by the Agency.

The Ready-Mix Producer shall document the results of all gradations on the Weekly Concrete Aggregate Report (Mn/DOT Form 2449) utilizing every other column to provide room for Agency companion results. The Ready-Mix Producer will chart

all sieves of the coarse aggregate and the 2.36 mm (#8), 600 µm (#30), and 300 µm (#50) sieves of the fine aggregate quality control samples using procedures outlined in the Concrete Plant 1 Certification Course. In addition, the Producer shall plot the results of the Agency verification samples on the same chart. Supporting documentation for all gradations and charts is kept on file at the plant site for 5 calendar years.

Agency Plant Monitors will take verification samples according to the Schedule of Materials Control. **(NOTE: Where problems with compliance with the Certified Ready Mix Program occur, plant inspections and testing rates shall increase).** Agency verification samples are used for acceptance unless specified elsewhere in the Contract.

Agency Plant Monitors shall observe the actual water batched on a minimum of one load of concrete each time a verification gradation is collected. This observation includes: watching the ready-mix truck reverse the drum after washing to remove all wash water, checking to verify that an accurate moisture test is utilized during batching, confirming that the water measuring device is providing accurate data, and verifying that any additional water added to adjust the slump is recorded. It is extremely important that the actual water is verified since the durability of the concrete depends on maintaining a low water-cement ratio. The Agency Plant Monitor shall document the actual water batched on the Weekly Certified Ready-Mix Plant Report (Mn/DOT Form 24143) and submit a copy to the Concrete Engineering Unit.

If the gradation tests on split samples from quality control or verification samples result in a variation between the Producer and the Agency greater than that set forth below, the two parties will cooperatively take and split a new sample. The Producer's representative shall test the sample while witnessed by the Agency Plant Monitor. If this problem continues, the Project Engineer, the District Materials Engineer and the Concrete Engineer will make a total review of this plant.

Allowable variations on percent passing any sieve:

<u>Sieve</u>	<u>% Allowed</u>
50 mm - 9.5 mm (2" - 3/8")	+ or - 6
4.75 mm - 600 µm (#4 - #30)	+ or - 4
300 µm (#50)	+ or - 3
150 µm (#100)	+ or - 2
75 µm (#200)	+ or - 0.6

The Ready-Mix Producer, after an acceptable time period, may request a reduction in testing rates if past results warrant. Such a request is subject to approval by the Mn/DOT Concrete Engineer. This approval is based on extraordinary procedures performed by the Aggregate Supplier and Ready-Mix Producer to ensure consistency and quality control. Extra fractions and bins are an example of such a procedure.

D7e Concrete Plant Contact Report

Prior to the production of Agency concrete each construction season, an Agency and a Producer technician with Concrete Plant 1 certification shall perform a

thorough on-site inspection of the concrete plant and complete a Concrete Plant Contact Report (Mn/DOT Form 2163). The Producer signs the report thereby certifying compliance with the Certified Ready Mix requirements and continual maintenance of the plant as reviewed.

D7f Non-Compliance

If a proposed plant cannot produce concrete, perform testing, or report information as required during completion of the Concrete Plant Contact Report, concrete from this plant is not acceptable.

After completing the Concrete Plant Contact Report and starting any Project, procedural changes that cause non-compliance with this program will result in decertification of the plant and cessation of further production of concrete for the Project. Decertification will also occur at any plant that continually produces concrete that is in noncompliance as detailed above. Complete disregard of this specification or fraudulent test reports are grounds for immediate Decertification. Decertification could include any or all, but is not limited to, the following actions:

- 1) Revocation of Plant Certification.
- 2) Revocation of Technician Certification for individual(s) involved.
- 3) Loss of bidding privileges as determined by the State Construction Engineer.
- 4) Criminal prosecution for fraud as determined by the Attorney General.

Decertification actions are determined by the Mn/DOT Concrete Engineer.

S-60 **CONCRETE CURING**

Mn/DOT specifications: 2301.3M2, 2401.3G, 2404.3C3, 2521.3C3b, 2531.3G2 are hereby modified to include the following provision:

The Contractor shall place all types of membrane cure material homogeneously to provide a uniform solid white opaque coverage on all exposed concrete surfaces (equal to a white sheet of typing paper). The membrane cure shall be placed within ½ hour of concrete placement or once the bleed water has disappeared unless otherwise directed by the Engineer. Failure to comply with these provisions will result in a price reduction for the concrete item involved in accordance with Mn/DOT 1503.

Exception: Specific Mn/DOT approved alpha methyl styrene curing membranes may have a base color (i.e. yellow) that cannot comply with the above requirement. In this case, the color shall be of a uniform solid opaque consistency meeting the intent of the above requirement.

S-61 **(2357) BITUMINOUS TACK COAT**

The provisions of Mn/DOT 2357 are hereby deleted and replaced with the following:

2357.1 DESCRIPTION

This work shall consist of the application of bituminous material (emulsion or liquid asphalt) on a bituminous or concrete pavement prior to paving a new lift of Hot Mixed Asphalt.

2357.2 MATERIALS

A. Bituminous Material3151

The bituminous material for tack coat will be limited to one of the following kinds of emulsified asphalt. However, the Engineer may authorize the use of medium cure cutback asphalt (MC-250) during the early and late construction season when it is anticipated the air temperature may drop below 32 degrees Fahrenheit.

Allowable grades are as follows:

Emulsified Asphalt

Anionic.....SS-1, SS-1h

Cationic.....CSS-1, CSS-1h

Cutback Asphalt

Medium Cure Liquid Asphalt.....MC-250

Only Certified Sources are allowed for use. Mn/DOT's Certified Source List is located at the following link: <http://www.dot.state.mn.us/products/> .

2357.3 CONSTRUCTION REQUIREMENTS

A Restrictions

Tack coat operations shall be conducted in a manner that offers the least inconvenience to traffic, with movement in at least one direction permitted at all times without pickup or tracking of the bituminous material.

The tack coat shall not be applied when the road surface or weather conditions are unsuitable as determined by the Engineer. The daily application of tack coat shall be limited to approximately the area on which construction of the subsequent bituminous course can reasonably be expected to be completed that day.

B Equipment

The bituminous material shall be applied with a distributor meeting for requirements of 2321.3C1.

C Road Surface preparations

At the time of applying bituminous tack coat material, the road surface shall be dry and clean and all necessary repairs or reconditioning work shall have been completed as provided for in the Contract and approved by the Engineer.

All objectionable foreign matter on the road surface shall be removed and disposed of by the Contractor as the Engineer approves.

Preparatory to placing an abutting bituminous course, the contact surfaces of all fixed structures and the edge of the in-place mixture in all courses at transverse joints and in the wearing course at longitudinal joints shall be given a uniform coating of liquid asphalt or emulsified asphalt, applied by methods that will ensure uniform coating.

D Application of Bituminous Tack Coat material

Unless otherwise indicated in the plans or provisions, the bituminous tack coat material shall be applied within the application rates shown below in Table

2357.3-D as based on pavement type or condition and type of bituminous material. The Engineer shall approve the time and rate of application. Only a Mn/DOT certified asphalt emulsion supplier is allowed to dilute the emulsion. When diluted, the supplier shall provide asphalt emulsion diluted 1 part emulsion to 1 part water. Dilution of asphalt emulsion in the field is not allowed. The Engineer may waive the tack coat requirement when multiple lifts are paved on the same day.

**Table 2357.3-D
 Tack Coat Application Rates**

Pavement Type or Condition	Application Rate, liter/square meter [gallons/sy]		
	Undiluted Emulsion SS-1, SS-1H, CSS-1, CSS-1H	Diluted Emulsion (1 part Emulsion to 1 part water) ¹ SS- 1, SS-1H, CSS-1, CSS-1H	MC Cutback ² MC-250
New HMA	0.14 – 0.23 [0.03 – 0.05]	0.23 – 0.46 [0.06 – 0.10]	0.14 – 0.23 [0.03 – 0.05]
Aged HMA ³ or Un-milled PCC	0.23 – 0.37 [0.05 – 0.08]	0.46 – 0.69 [0.10 – 0.15]	0.23 – 0.37 [0.05 – 0.08]
Milled HMA or Milled PCC	0.32 – 0.46 [0.07 – 0.10]	0.64 – 0.92 [0.14 – 0.20]	0.32 – 0.46 [0.07 – 0.10]

¹ As approved by the asphalt emulsion supplier

² When approved by the Engineer

³ Older than 1 year

The temperature of the bituminous material at the time of application shall be approved by the Engineer, within the limits specified following:

SS-1, SS-1H, CCS-1, CSS-1H21 to 71°C (**70 to 160° F**)

MC-250.....74 to 104°C (**165 to 220° F**)

Unless otherwise directed, sand shall be spread on the newly tacked surface at pedestrian crossings.

2357.4 METHOD OF MEASUREMENT

A Bituminous Material

Bituminous material used for tack coat will be measured by volume at 15°C (**60° F**)

2357.5 BASIS OF PAYMENT

All costs of furnishing and applying bituminous tack coat material will be incidental with no direct compensation being made therefore:

S-62 (2360) PLANT MIXED ASPHALT PAVEMENT

Mn/DOT 2360 are hereby deleted from the Mn/DOT Standard Specifications and replaced with the attached **2360 Plant Mixed Asphalt Pavement Specification** dated February 4, 2011.

S-62.1 Mix Designation Numbers for the bituminous mixtures on this Project are as follows:

Type SP 12.5 Wearing Course SPWEB340B

- S-62.2 **The first paragraph of 2360.3.D.1 of the attached 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted and replaced with the following:
- D.1 Maximum Density
- Compact the pavement to at least the minimum required maximum density values in accordance with Table 2360-19, “Required Minimum Lot Density (Mat)”.
- S-62.3 **Table 2360-20 Longitudinal Joint Density Requirement** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-62.4 **2360.3.D.1.h Mat Density Cores** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted and replaced with the following:
- D.1.h Mat Density cores
- Obtain four cores in each lot. Take two cores from random locations as directed by the Engineer. Take the third and fourth cores, the companion cores, within 1 ft [0.3 m] longitudinally from the first two cores. Submit the companion cores to the Engineer immediately after coring and sawing. If the random core location falls on an unsupported joint, at the time of compaction, (the edge of the mat being placed does not butt up against another mat, pavement surface, etc.) cut the core with the outer edge of the core barrel 0.3 meters [**1 foot**] away (laterally) from the edge of the top of the mat (joint). If the random core location falls on a confined joint (edge of the mat being placed butts up against another mat, pavement surface, curb and gutter, or fixed face), cut with the outer edge of the core barrel 150 mm ± 12.5 mm [**6 inches ± 0.5 inch**] from the edge of the top of the mat (ex. center of 100 mm [**4 inch**] core barrel 200 mm ± 12.5 mm [**8 ± 0.5 inches**] from the edge of the top of the mat). Cores will not be taken within 300 mm [**1 foot**] of any unsupported edge. The Contractor is responsible for maintaining traffic, coring, patching the core holes, and sawing the cores to the paved lift thickness before density testing.
- The Engineer may require additional density lots to isolate areas affected by equipment malfunction, heavy rain, or other factors affecting normal compaction operations.
- S-62.5 **2360.3.D.1.j Companion Core Testing** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted and replaced with the following:
- The Department will select at least one of the two companion cores per lot to test for verification.
- S-62.6 **2360.3.D.1.n Longitudinal Joint Density** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-62.7 **2360.3.D.1.p Shoulders** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-62.8 **Table 2360-24 Payment Schedule for Longitudinal Joint Density (SP Wear and SP Shoulders, 4% Void)** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-62.9 **Table 2360-25 Payment Schedule for Longitudinal Joint Density (SP Non-wear and SP Shoulders, 3% Void)** of the attached **2360 (Plant Mixed Asphalt**

Pavement) Specification is hereby deleted.

S-62.10 **2360.3.D.1.r Pay Factor Determination** of the attached **2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.

S-62.11 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment for the accepted quantities of asphalt mixture used in each course at the Contract prices per unit of material shall be compensation in full for all costs of constructing the asphalt surfacing as specified, including the costs of furnishing and incorporating any asphalt binder, mineral filler, hydrated lime, or anti-stripping additives that may be permitted or required.

In the absence of Contract items covering shoulder surfacing and other special construction, the accepted quantities of material used for these purposes will be included for payment with the wearing course materials.

S-62.12 Payment for the item of asphalt mixture production at the Contract unit price of mixture produced shall be compensation in full for all costs of producing the mixture, hauling and placed, with no deductions being made for the asphalt materials. The provisions of Mn/DOT 1903 are modified to the extent that the Department will not make a price adjustment in the event of increased or decreased quantities of asphalt mixture items.

S-62.13 Payment for plant mixed asphalt surface will be made on the basis of the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2104.603	Remove and Replace Bituminous Pavement.....	[Linear Foot]

S-63 (2461) STRUCTURAL CONCRETE

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

S-63.1 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.

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.		

B2 Grade Designation

The Department will designate concrete grade using a letter to represent the anticipated compressive strength and the minimum cementitious content in accordance with 2461.3C, "Cementitious Content," and Table 2461-4:

Table 2461-4 Concrete Grade Designation		
Concrete Grade	Type 1 Anticipated Compressive Strength, <i>psi [MPa]</i> *	Type 3 Anticipated Compressive Strength, <i>psi [MPa]</i> *
U	6,300 [43]	5,600 [39]
V	6,000 [41]	5,300 [37]
W	5,700 [39]	5,000 [34]
X	5,400 [37]	4,700 [32]
Y	5,000 [34]	4,300 [30]
A	4,500 [31]	3,900 [27]
B	4,100 [28]	3,400 [23]

Table 2461-4 Concrete Grade Designation		
Concrete Grade	Type 1 Anticipated Compressive Strength, <i>psi [MPa]</i> *	Type 3 Anticipated Compressive Strength, <i>psi [MPa]</i> *
C	3,200 [22]	2,700 [19]
* Anticipated minimum strength produced in accordance with the Department specifications and cured for 28 days under laboratory conditions.		

The Concrete Engineer, in coordination with the Engineer, may increase the cement content for concrete with test cylinder results less than the anticipated compressive strength in accordance with Table 2461-4, "Concrete Grade Designation." The Contractor may request an increase in the cement content as approved by the Engineer, in conjunction with the Concrete Engineer.

B3 Slump Designation

Refer to the slump designation for the upper limit of the slump range without a water reducer in accordance with Table 2461-5:

Table 2461-5 Slump Designation	
Slump Designation	Slump Range without Water Reducer, <i>in [mm]</i>
1	½ – 1 [12 – 25]
2	1 – 2 [25 – 50]
3	1 – 3 [25 – 75]
4	2 – 4 [50 – 100]
5	2 – 5 [50 – 125]
6	3 – 6 [75 – 150]

B4 Coarse Aggregate (CA) Designation

Refer to the coarse aggregate designation for the range of optional coarse aggregates gradations allowed in the mix in accordance with Table 3137-4, "Coarse Aggregate Designation for Concrete," and Table 2461-6:

Table 2461-6 Coarse Aggregate Designation for Concrete	
Range	Optional Coarse Aggregate Designation
0	CA-00 only
1	CA-15 to CA-50, inclusive
2	CA-15 to CA-60, inclusive
3	CA-35 to CA-60, inclusive

4	CA-35 to CA-60, inclusive
5	CA-45 to CA-60, inclusive
6	CA-50 to CA-70, inclusive
7	CA-70 only
8	CA-80 only

B5 Additional Designations

For mix designs that require a specified class of coarse aggregate as defined in 3137.2.B, an additional letter will follow the fourth digit of the Mix Number such as “A” (Class A Aggregate Requirement).

The Engineer may identify special concrete mix designations with additional letters following the last digit such as “HE” (High Early), “WC” (Water-Cement Ratio), “HPC” (High Performance Concrete), “MS” (Microsilica), or others.

S-63.2 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-63.3 Mn/DOT 2461.3F shall be deleted.

S-63.4 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 \pm 0.10 cu. ft [**1.000 cu. m \pm 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-63.5 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.
$\leq 1\frac{1}{2}$ 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.
$1\frac{3}{4}$ in [45 mm] – $2\frac{1}{4}$ 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.
$> 2\frac{1}{4}$ 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.
$\leq 1\frac{1}{2}$ 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.
$> 1\frac{1}{2}$ 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 $\frac{1}{2}$ 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
$\leq \frac{1}{2}$ 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.
$> \frac{1}{2}$ in [12 mm] – $\frac{3}{4}$ 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.
$> \frac{3}{4}$ 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 $\frac{1}{2}$ 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
$\leq \frac{1}{2}$ 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.
$\geq \frac{3}{4}$ in [20 mm] above slump range	The Department will pay 25 percent of the relevant contract unit price for materials placed

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
	as approved by the Engineer.

S-63.6 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

General Concrete (Target Air Content 6.5%)	
Air Content, %	Adjusted Contract Unit Price
	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-63.7 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-63.8 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 used 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, <i>Estimated Composition of Concrete Mixes</i> .
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.
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S-63.9 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-63.10 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-63.11 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-63.12 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] – 3/8 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		Formul a	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, <i>lb/cu. yd [kg/cu. m]</i>	—	OD
f)	Absorbed moisture in the aggregates, <i>lb/cu. yd [kg/cu. m]</i>	$(e \times d)$	Abs
g)	Saturated surface dry (SSD) weights for aggregates, <i>lb/cu. yd [kg/cu. m]</i>	$(e + f)$	SSD
h)	Free moisture, <i>lb/cu. yd [kg/cu. m]</i>	$(c - d) \times e$	Free Mst
i)	Target weights for one cubic yard of concrete, <i>lb/cu. yd [kg/cu. m]</i>	$(g + h)$	CY Targ [CM Targ]
j)	Target batch weights, <i>lb [kg]</i>	$(cu. yd \times i)$ [cu. m x i]	Target
k)	Actual batch weights, <i>lb [kg]</i>	—	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:

- (1) Revoke plant certification.
- (2) Revoke technician certification for individuals involved,
- (3) Revoke bidding privileges as determined by the Construction Engineer, and
- (4) Criminal prosecution for fraud as determined by the Attorney General.

S-64 **(2471) STRUCTURAL METALS**

The provisions of Mn/DOT 2471 are modified with the following:

S-64.1 Delete the fourth paragraph of Mn/DOT 2471.3A2 and substitute the following:

The Contractor/Fabricator performing coating application must demonstrate qualification by obtaining the AISC Sophisticated Paint Endorsement (SPE), the

SSPS QP Certification, or a Quality Control Plan (QCP) that is acceptable to the Engineer.

S-64.2 Add the following to the end of the second paragraph of Mn/DOT 2471.3C:

The Engineer will audit suppliers with approved QCP's on a biannual or annual basis or as deemed necessary by the Engineer to determine if the QCP is being implemented. The Department will invoke its Corrective Action Process if the audit indicates non-conformance. Corrective action, up to and including the supplier hiring a third party Quality Control inspector, may be required as a disciplinary step, at no cost to the Department. A copy of the Departments Corrective Action Process is available from the Engineer.

S-64.3 Add the following to Mn/DOT 2471.3E1 as the first paragraph:

Steel plates and splice plates for major structural components shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile or compressive stresses.

S-64.4 Add the following to Mn/DOT 2471.3F:

F1b Web-to-Flange Welds

For the purpose of this specification, a repair is defined as any area of the welded product not in compliance with the current edition of AASHTO AWS D1.5 Bridge Welding Code. Limit each individual web-to-flange weld repairs to 2 percent of the weld length and grinding web-to-flange weld repairs to 5 percent of the weld length. Exceeding these limits will result in revocation of the Welding Procedure Specification (WPS) used to perform the initial production welding.

S-64.5 Add the following as Mn/DOT 2471.3G1:

G1 Fracture Critical Welding Qualifications

Fracture Critical Welder Qualifications shall be in accordance with AASHTO/AWS D1.5-Bridge Welding Code. Annual requalification shall be based upon acceptable radiographic test results of either a production groove weld or test plate. If a welding is requalified by a test, a WPS written in accordance with the requirements of D1.5, shall be used and the test plate shall be as shown in Figure 5.24. The WPS shall be included in the Fabricators QCP.

S-64.6 Add the following to Mn/DOT 2471.3N1:

Work that is not performed in accordance with the suppliers approved QCP shall be subject to rejection in accordance with 1512.

S-65 (2472) METAL REINFORCEMENT

The provisions of Mn/DOT 2472 are modified with the following:

S-65.1 Mn/DOT 2472.1 is hereby deleted and replaced with the following:

2472.1 DESCRIPTION

This work shall consist of the furnishing of metal reinforcement of the type, shape and size specified, and its satisfactory placement at the locations required by the Contract.

S-66 **(2504) ADJUST CURB STOP**

This work shall consist of adjusting curb boxes to the new surface in accordance with the applicable Mn/DOT Standard Specifications, as detailed in the Plan, and the following:

- S-66.1 The Contractor shall do the work in accordance with the specifications and requirements by the City of Minneapolis. The Contractor shall notify the City in advance of doing this work to determine any additional requirements and to allow the City to have a representative on site as follows:

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- S-66.2 Measurement will be made by the number of curb boxes adjusted as specified. Payment will be made under Item 2504.602 (Adjust Curb Stop) at the Contract bid price per each, which shall be compensation in full for all costs incidental thereto for adjusting curb boxes to the new surface to the satisfaction of the Engineer. Any damage to the items as a result of the Contractor's operations shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

S-67 **(2506) MANHOLES AND CATCH BASINS**

Manholes and catch basins shall be constructed in accordance with the provisions of Mn/DOT 2506, except as modified as follows:

- S-67.1 All backfill material around manholes and catch basins shall be compacted by approved mechanical tampers.
- S-67.2 Concrete collar encasements with a minimum thickness of 4 inches shall be placed around the outside of all manhole and catch basin structures within the roadway in accordance with the details included in the plans and as directed by the Engineer. These concrete collars shall be placed at the time of final casting adjustment. All costs to install the concrete collars shall be incidental to the appropriate Contract unit price for the structure or the casting adjustment.
- S-67.3 After frame or ring castings have been set to final grade and all concrete work has been completed, the inner surfaces of all existing and new pre-cast concrete adjusting rings incorporated into any structure that has been constructed, reconstructed or adjusted shall receive an application or applications of an epoxy protective coating. The epoxy coating material shall be one of those listed on the Mn/Dot Concrete Engineering Unit's list of approved Epoxy Penetrant Sealers, or an approved equal.
- The surfaces of the concrete on which the protective coating is to be applied shall be thoroughly cleaned by wire brushing. All loose mortar or other foreign matter shall be removed from these surfaces. Application shall be as recommended by the manufacturer.
- Furnishing and placing the protective coating, as specified above, will be considered to be incidental expense for which no direct compensation will be made.
- S-67.4 The frame and ring castings to be adjusted will be identified in the field by the Engineer. The work to be accomplished in conjunction with the casting adjustments includes the removal of the existing surrounding concrete pavement

and adjacent curb, salvaging and reinstalling the existing casting, and installing new concrete pavement and curb to replace those removed as necessary to accomplish the casting adjustment.

The Engineer will identify the removal limits for the concrete pavement and curb. The casting shall be adjusted to the elevation as determined and set by the Engineer. Concrete collars conforming to the detail attached to this Proposal shall be installed around the adjusting rings.

- S-67.5 Prior to final acceptance of the project as a whole, the Contractor shall clean all drainage structures of debris, sediment, and floatable contaminants. All costs of cleaning the structures, including but not limited to the use of a vacuum truck, shall be an incidental expense to the construction of the structures.

S-68 (2521) CONCRETE WALK

This work shall consist of constructing Concrete Walk, including necessary Subgrade Preparation, Aggregate Base, and Grading as indicated in the Plan, in accordance with the provisions of MnDOT 2112, 2211, 2521, other Contract provisions, and the following:

S-68.1 **CONSTRUCTION REQUIREMENTS**

- (A) **Concrete Walk** – The walk shall be constructed as detailed in the Plan and conform to the requirements of MnDOT 2521, Walks.

To avoid corner breaks, all walk edges shall be formed and constructed perpendicular to the back of curb and gutter sections and concrete structures for a one foot minimum distance.

All existing signs shall be salvaged and reinstalled as directed by the Engineer or as indicated in the Plan.

- (B) **Grading** – If not otherwise detailed in the Plan, all fill sections shall be graded flush with the top of walk for a minimum 18 inches from the edge of walk and then down at a maximum 1:3 slope to existing terrain. The Contractor shall blend in the toe of fill slope and adjacent areas so as not to adversely affect drainage.

S-68.2 Mn/DOT 2521.3C3 is hereby modified to include the following provision:

After completing final finishing operations, cure all exposed concrete surfaces for at least 72 hours. Extend the minimum curing period to 96 hours when using fly ash or cementitious substitutions as defined in 2461.A.6. Use one of the following curing methods:

- (1) Place the membrane curing compound conforming to 3754 or 3755 within 30 minutes of concrete placement or once the bleed water has dissipated, unless the Engineer directs otherwise in accordance with 2521.3.E.1.a. Place the membrane curing compound on the edges within 30 minutes after permanent removal of the forms or curing blankets, unless the Contract requires otherwise.
- (2) Place plastic curing blankets or completely saturated burlap curing blankets as soon as practical without marring the surface in accordance with 2521.3.E.1.b.

Failure to comply with these provisions will result in the Engineer applying a monetary deduction in accordance with 1503. When there is not a separate Contract unit price for Structural Concrete, the Department will apply a monetary deduction of \$50.00 per cu. yd. [\$65.00 per cu. m] or 50 percent of the Contractor-provided invoice amount for the concrete in question, whichever is less.

Whenever weather conditions are such as to cause unusual or adverse placing and finishing conditions, expedite the application of a curing method or temporarily suspend the mixing and placing operations, as the conditions require.

If necessary to remove the coverings to saw joints or perform other required work, and if the Engineer approves, remove the covering for the minimum time required to complete that work.

C3a Curing Methods

C3a(1) Membrane Curing Method

Before application, agitate the curing compound as received in the shipping container to obtain a homogenous mixture. Protect membrane curing compounds from freezing before application. Handle and apply the membrane curing compound in accordance with the manufacturer's recommendations.

Apply the curing compound with an approved airless spraying machine in accordance with the following:

- (1) At a rate of 1 gal per 150 sq. ft (1 L per 4 m²) of surface curing area.
- (2) Apply homogeneously to provide a uniform solid white opaque coverage on all exposed concrete surfaces (equal to a white sheet of typing paper). Some Mn/DOT approved curing compounds may have a base color (i.e. yellow) that cannot comply with the above requirement. In this case, provide a uniform solid opaque consistency meeting the intent of the above requirement.
- (3) If the curing compound is damaged during the curing period, immediately repair the damaged area by re-spraying.

The Engineer will approve the airless spraying machine for use if it is equipped with the following:

- (1) A re-circulating bypass system that provides for continuous agitation of the reservoir material,
- (2) Separate filters for the hose and nozzle, and
- (3) Multiple or adjustable nozzle system that provides for variable spray patterns.

If the Engineer determines that the initial or corrective spraying may result in unsatisfactory curing, the Engineer may require the Contractor to use the blanket curing method, at no additional cost to the Department.

C3a(2) Curing Blanket Method

After completion of the finishing operations and without marring the concrete, cover the concrete with curing blankets. Install in a manner that envelops the exposed concrete and prevents loss of water vapor. After the concrete has cured,

apply membrane curing compound to the concrete surfaces that will remain exposed in the completed work.

C3b Protection Against Rain

Protect the concrete from damage due to rain. Have available, near the site of the work, materials for protection of the edges and surface of concrete. Should any damage result, the Engineer will suspend operations until the Contractor takes corrective action and may subject the rain-damaged concrete to 1503 and 1512.

C3c Protection Against Cold Weather

If the national weather service forecast for the construction area predicts air temperatures of 34 °F [1 °C] or less within the next 24 h and the Contractor wishes to place concrete, submit a cold weather protection plan.

Protect the concrete from damage including freezing due to cold weather. Should any damage result, the Engineer will suspend operations until corrective action is taken and may subject the damaged concrete to 1503 and 1512.

C3c(1) Cold Weather Protection Plan

Submit proposed time schedule and plans for cold weather protection of concrete in writing to the Engineer for acceptance that provides provisions for adequately protecting the concrete during placement and curing. Do not place concrete until the Engineer accepts the cold weather protection plans.

S-68.3 Mn/DOT 2521.3E is hereby deleted and replaced with following:

E Backfilling

Protect newly placed concrete from damage by adjacent vibratory or backfilling operations for a minimum of 24 hours. Perform vibratory operations and backfilling 72 hours after placing the concrete or after the concrete reaches a compressive strength of at least 3,000 psi [**20.7 Mpa**]. The Engineer will cast, cure, and test the concrete control specimens in accordance with 2461.3G5. If damage results from any of these operations the Engineer will suspend all operations until corrective action is taken and a new method is approved. The Engineer may subject damaged concrete to 1503 and 1512.

The Contractor may hand operate concrete consolidation equipment and walk behind vibratory plate compactors 24 hours after placing the concrete, and other equipment as approved by the Engineer in conjunction with the Concrete Engineer.

After curing, backfill or perform embankment construction to the elevations shown on the plans, without damaging the concrete. Use suitable grading materials from the excavation for backfill material in accordance with 2105, unless otherwise required by the Contract. Place and compact the backfill material in accordance with 2105.

Dispose of surplus excavated materials in accordance with 2105.

S-68.4 METHOD OF MEASUREMENT

Measurement of Concrete Walk will be made by top surface area.

S-68.5 BASIS OF PAYMENT

Payment will be made under Item 2521.618 (Concrete Walk) at the Contract bid price per square foot, including the area of walk under the truncated domes, which shall be compensation in full for all costs of furnishing, and installing the required material. In areas where Directional Curb is constructed, the triangular area that is behind the projected back of curb line will be paid for as Concrete Walk at the contract bid price for Item 2521.618 (Concrete Walk). All excavation or borrow including hauling or disposal that is necessary to meet the walk grades in the Contract shall be incidental unless specifically provided for in the Plan. If common borrow requirements exceed 8 cubic yards (CV) at any individual site/quadrant, than the common borrow required at that location and not specifically accounted for in the Plan will be paid for at \$20 per cubic yard (CV).

If the Plan calls for payment of Aggregate Base and/or other Grading items for a pedestrian facility, then payment will only be made for the locations specifically provided for in the Plan. All salvaging and reinstalling of signs as a result of concrete walk construction shall be incidental unless specifically provided for in the Plan.

S-68.6 Item 2521.603 Seal Concrete Walk Joints (Silicone) is for all materials and work necessary to seal concrete walk joints where the walk abuts existing buildings or new concrete curb design special when directed by the Engineer. Details of the joint work are provided in the plans for sidewalk joint caulking and concrete curb design special. The silicone material shall be clear or grey in color and shall be an approved (Mn/DOT) silicone sealant (an approved list is attached to this Proposal). All sealants shall be installed as per manufacturer's recommendations. Payment at the contract unit price per linear foot shall be compensation in full for furnishing and installing the silicone jointing material as per plan details, manufacturer's recommendations, and as directed by the Engineer.

S-69 **(2531) CONCRETE CURB AND GUTTER**

This work shall consist of constructing Concrete Curb and Gutter and the necessary Aggregate Base in accordance with the provisions of MnDOT 2531, other Contract provisions, and the following:

S-69.1 CONSTRUCTION REQUIREMENTS

Concrete Curb and Gutter – The curb and gutter shall be constructed to meet the details in the Plan. The transition from the existing curb and gutter section to the new curb and gutter section shall occur within 5 feet of the point where the curb and gutter construction begins. The gutter in-slope shall be constructed as detailed in the Plans. The gutter in-slope transitions shall occur outside of the zero height curb area. The proposed gutter width shall be modified as necessary so as not to protrude into the adjacent travel lane with approval from the Engineer.

The Contractor must form, at a minimum, the top 1½ inches of the gutter face. The Contractor shall not use the existing roadway edge as a form for the top 1½ inches of the gutter face unless approved by the Engineer.

If the gutter flow line in front of the proposed curb ramps exceeds 2.0 percent slope, the flow line should be adjusted to allow a flatter slope in front of the curb ramps, but still provide positive drainage. The Contractor must consult with the Engineer before modifying any flow line that will result in the slope of the adjacent bituminous patching exceeding 5 percent.

The Contractor shall construct a contraction joint through the curb and gutter section at the bottom of the curb height tapers where the curb height equals zero inches.

In locations directed by the Engineer concrete curb and gutter shall be constructed of high early strength concrete. The high early strength concrete construction will be paid for at the Contract price bid for standard strength driveway pavement and standard strength curb and gutter plus 15 percent of the Contract bid price thereof.

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

S-69.2 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 in place 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-69.3 The last paragraph of Mn/DOT 2531.3C shall be deleted and replaced with the following:

Longitudinal construction joints between a concrete median or gutter section and a concrete pavement shall not be sawed or sealed.

S-69.4 Mn/DOT 2531.3G is hereby modified to include the following provision:

After completing final finishing operations, cure all exposed concrete surfaces for at least 72 hours. Extend the minimum curing period to 96 hours when using fly ash or cementitious substitutions as defined in 2461.A.6. Use one of the following curing methods:

- (1) Place the membrane curing compound conforming to 3754 or 3755 within 30 minutes of concrete placement or once the bleed water has dissipated, unless the Engineer directs otherwise in accordance with 2521.3.E.1.a. Place the membrane curing compound on the edges within 30 minutes after permanent removal of the forms or curing blankets, unless the Contract requires otherwise.
- (2) Place plastic curing blankets or completely saturated burlap curing blankets as soon as practical without marring the surface in accordance with 2521.3.E.1.b.

Failure to comply with these provisions will result in the Engineer applying a monetary deduction in accordance with 1503. When there is not a separate Contract unit price for Structural Concrete, the Department will apply a monetary deduction of \$50.00 per cu. yd [\$65.00 per cu. m] or 50 percent of the Contractor-provided invoice amount for the concrete in question, whichever is less.

Whenever weather conditions are such as to cause unusual or adverse placing and finishing conditions, expedite the application of a curing method or temporarily suspend the mixing and placing operations, as the conditions require.

If necessary to remove the coverings to saw joints or perform other required work, and if the Engineer approves, remove the covering for the minimum time required to complete that work.

G1 Curing Methods

G1a Membrane Curing Method

Before application, agitate the curing compound as received in the shipping container to obtain a homogenous mixture. Protect membrane curing compounds from freezing before application. Handle and apply the membrane curing compound in accordance with the manufacturer's recommendations.

Apply the curing compound with an approved airless spraying machine in accordance with the following:

- (1) At a rate of 1 gal per 150 sq. ft (1 L per 4 m²) of surface curing area.
- (2) Apply homogeneously to provide a uniform solid white opaque coverage on all exposed concrete surfaces (equal to a white sheet of typing paper). Some Mn/DOT approved curing compounds may have a base color (i.e. yellow) that cannot comply with the above requirement. In this case, provide a uniform solid opaque consistency meeting the intent of the above requirement.
- (3) If the curing compound is damaged during the curing period, immediately repair the damaged area by re-spraying.

The Engineer will approve the airless spraying machine for use if it is equipped with the following:

- (1) A re-circulating bypass system that provides for continuous agitation of the reservoir material,
- (2) Separate filters for the hose and nozzle, and
- (3) Multiple or adjustable nozzle system that provides for variable spray patterns.

If the Engineer determines that the initial or corrective spraying may result in unsatisfactory curing, the Engineer may require the Contractor to use the blanket curing method, at no additional cost to the Department.

G1b Curing Blanket Method

After completion of the finishing operations and without marring the concrete, cover the concrete with curing blankets. Install in a manner that envelops the exposed concrete and prevents loss of water vapor. After the concrete has cured, apply membrane curing compound to the concrete surfaces that will remain exposed in the completed work.

G2 Protection Against Rain

Protect the concrete from damage due to rain. Have available, near the site of the work, materials for protection of the edges and surface of concrete. Should any damage result, the Engineer will suspend operations until the Contractor takes corrective action and may subject the rain-damaged concrete to 1503 and 1512.

G3 Protection Against Cold Weather

If the national weather service forecast for the construction area predicts air temperatures of 34 °F [1 °C] or less within the next 24 h and the Contractor wishes to place concrete, submit a cold weather protection plan.

Protect the concrete from damage including freezing due to cold weather. Should any damage result, the Engineer will suspend operations until corrective action is taken and may subject the damaged concrete to 1503 and 1512.

G3a Cold Weather Protection Plan

Submit proposed time schedule and plans for cold weather protection of concrete in writing to the Engineer for acceptance that provides provisions for adequately protecting the concrete during placement and curing. Do not place concrete until the Engineer accepts the cold weather protection plans.

S-69.5 Mn/DOT 2531.3J is hereby deleted and replaced with the following:

J Backfilling

Protect newly placed concrete from damage by adjacent vibratory or backfilling operations for a minimum of 24 hours. Perform vibratory operations and backfilling 72 h after placing the concrete or after the concrete reaches a compressive strength of at least 3,000 psi [**20.7 Mpa**]. The Engineer will cast, cure, and test the concrete control specimens in accordance with 2461.3G5. If damage results from any of these operations the Engineer will suspend all operations until corrective action is taken and a new method is approved. The Engineer may subject damaged concrete to 1503 and 1512.

The Contractor may hand operate concrete consolidation equipment and walk behind vibratory plate compactors 24 hours after placing the concrete, and other equipment as approved by the Engineer in conjunction with the Concrete Engineer.

After curing, backfill or perform embankment construction to the elevations shown on the Plans, without damaging the concrete. Use suitable grading materials from the excavation for backfill material in accordance with 2105, unless otherwise required by the Contract. Place and compact the backfill material in accordance with 2105.

Dispose of surplus excavated materials in accordance with 2105.

S-69.6 METHOD OF MEASUREMENT

Measurement of Concrete Curb and Gutter will be by the linear foot measured at the face of the curb.

S-69.7 BASIS OF PAYMENT

Payment will be made under Item 2531.603 (Concrete Curb and Gutter) at the Contract bid price per linear foot, which shall be compensation in full for all costs of furnishing and installing the required material including Aggregate Base.

S-70 (2531) CONCRETE CURB DESIGN V

This work shall consist of constructing Concrete Curb Design V of varying heights up to 8 inches as detailed in the Plan and in accordance with the provisions of MnDOT 2531, other Contract provisions, and the following:

S-70.1 CONSTRUCTION REQUIREMENTS

The Concrete Curb Design V shall be constructed as detailed in the Plan. Concrete Curb Design V may be constructed independent of or integral to the adjacent sidewalk. The bottom elevation of the V Curb shall match the bottom elevation of the adjacent sidewalk slab. When the Concrete Curb Design V is constructed independent of the sidewalk, the portion of the Concrete Curb Design V that will have new concrete walk placed against it shall be clean so as to maximize bonding between the walk and V curb. The joint locations in the curb shall align with the joint locations in the adjacent concrete walk. The locations requiring the use of Concrete Curb Design V, and the height of the Concrete Curb Design V to be constructed shall be determined by the Engineer.

In locations directed by the Engineer concrete curb and gutter shall be constructed of high early strength concrete. The high early strength concrete construction will be paid for at the Contract price bid for standard strength driveway pavement and standard strength curb and gutter plus 15 percent of the Contract bid price thereof.

S-70.2 METHOD OF MEASUREMENT

Measurement will be by the linear foot of Concrete Curb Design V constructed measured at the face of curb. Curb height shall be measured from the top of the adjacent concrete walk to the top of the curb.

S-70.3 BASIS OF PAYMENT

Payment will be made under Item 2531.603 (Concrete Curb Design V) at the Contract bid price per linear foot, which shall be compensation in full for all costs of performing the work as specified. All concrete approach noses will be paid as 2 feet of Concrete Curb Design V and 2 feet of roadway curb and gutter design adjacent to the approach nose. Any additional Concrete Curb Design V beyond the quantity provided in the Plan, will be paid for at \$20 per linear foot.

S-71 **(2531) TRUNCATED DOMES**

This work consists of furnishing and installing Truncated Dome Systems (detectable warning surfaces) at pedestrian curb ramps in compliance with the Public Rights-of-Way Accessibility Guidelines (PROWAG). This work shall be performed in accordance with the applicable MnDOT Standard Specifications, these Special Provisions, the details in the Plan, and the following:

S-71.1 CONSTRUCTION REQUIREMENTS

The Contractor shall select a truncated dome product from the approved products list at <http://www.dot.state.mn.us/products/miscmaterials/truncateddomes.html>. The truncated domes shall be placed in concrete and shall be pressed firmly into the concrete to the point that concrete fills the vent holes on the truncated dome plates. No cutting of truncated domes will be allowed unless approved by the Engineer. Any swelling of the concrete that occurs around the truncated domes must be screeded off and the surrounding concrete shall be finished flush with the truncated dome plate edge. To ensure that the truncated domes are well seated in concrete, the Contractor should provide a 3 inch minimum border around the edges of the truncated domes.

The Contractor will be allowed to interchange 9 foot 5 inch and 10 foot radial truncated domes when either is called for in the Plan. If the Contractor does make a substitution, the Contractor will be required to modify the curb line radius to match the truncated domes and meet the detectable edge requirements listed in Section S-2531 (CONCRETE CURB AND GUTTER) of these Special Provisions.

S-71.2 METHOD OF MEASUREMENT

The truncated dome area will be measured by the square foot.

S-71.3 BASIS OF PAYMENT

Payment will be made under Item 2531.618 (Truncated Domes) at the Contract bid price per square foot, which shall be compensation in full for furnishing and installation of truncated domes.

S-72 (2540) RELOCATE BENCH

This work shall consist of temporarily relocating a concrete or wood bench as identified in the plans to allow for the construction of the walk.

S-72.1 Prior to relocating the planter the Contractor shall contact the owner of the bench to determine if the owner would prefer to relocate the bench. If the owner of the bench elects to move the bench the Contractor shall allow the owner of the bench reasonable time to do so.

S-72.2 Payment for Item 2540.602 Relocate Bench at the Contract unit price per each, shall be compensation in full for all costs of labor, material, and equipment necessary to protect and move the bench outside the construction limits to allow for the walk construction and to move the bench back to its original location once the work is complete in accordance with these specification and as directed by the Engineer.

S-73 (2563) TEMPORARY PEDESTRIAN ACCESS CONTROL

This work shall consist of providing Temporary Access Control Plan. This plan shall consist of identifying a Temporary Pedestrian Accessible Route (TPAR) and features needed to assist pedestrian, bicyclists and non-motorized vehicles safe movement within and around the construction zone. This work shall be done in accordance with Contract provisions and the following:

S-73.1 The Contractor shall develop and provide for a continuous Temporary Pedestrian Accessible Route (TPAR) for this Project. The TPAR shall clearly address all non-motorized users in the construction zone. The Contractor shall submit this plan to the Engineer for acceptance at the pre-construction meeting.

S-73.2 PEDESTRIAN ACCESS

(A) The TPAR must have a minimum width of 48 inches (4 feet) and guide pedestrians through and/or around the Project by using devices such as signage, barricades, and temporary curb ramps or blended transitions. The Contractor may provide an alternate route that is accessible and within 1 block(s) offset of the closed construction area. To the maximum extent feasible, the TPAR shall be provided on the same side of the street as the disrupted route. Where the TPAR is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be protected with a

pedestrian barricade or channelizing device. All TPARs must have a smooth, level, slip-resistant surface and shall meet the applicable requirements of the Public Right-of-Way Accessibility Guidelines (PROWAG).

- (B) The Contractor shall schedule and coordinate the replacement of the pedestrian access to accommodate the needs of the business and residences. Existing sidewalks shall be left in-place until such time that it is required to remove them to accommodate new construction. Pedestrian access may be provided to businesses and homes through the use of any public access from adjacent parking lots and side streets. Front door access must be provided to buildings without alternate public entrances. Where disrupted by construction, the Contractor must provide a continuous TPAR for all areas disrupted construction throughout all phases of construction.
- (C) For technical provisions on TPAR, the Contractor is directed to the Guidelines for Accessible Public Rights-of-Way at: <http://www.access-board.gov/prowac/draft.htm> and Chapter 6D of the MN MUTCD. The pedestrian accessibility checklist is on page 6D-5 and 6D-6 of the MN MUTCD. The Contractor shall complete MN MUTCD Fig. 6D-1, "Pedestrian Accessibility Considerations in Temporary Traffic Control Zones Check List". A copy shall be provided to the Engineer at the pre-construction meeting.
- (D) The Contractor shall notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate a change in pedestrian access.

S-73.3 Traffic control devices must allow for an accessible route through the Project. TPAR pedestrian barricades and channelizing devices shall be continuous, stable, and non-flexible and shall consist of a wall, fence, or enclosures. The base of any traffic control devices shall be a continuous raised barrier of no more than 6 inches in height and must allow for drainage. The purpose of this barrier is to provide a continuous wayfinding device for the visually impaired, therefore the barrier shall not have any points that might catch a person who is using a cane for a guide. The Devices shall provide a continuous surface or upper rail at a minimum 3 feet above the ground or walkway surface. Support members shall not protrude into the path. Whenever possible the TPAR shall only utilize in-place street crossings. TPAR must be regularly inspected and updated depending on Project staging.

S-73.4 No pedestrian curb ramp or blended transition work shall occur concurrently at adjacent intersections.

S-73.5 The Contractor shall be responsible for maintaining the TPAR within this Project. The Contractor shall furnish the name, addresses, and phone number of at least one individual responsible for the placement and maintenance of TPAR. This individual shall be "on call" 24 hours per day, seven days per week during the times any devices, furnished and installed by the Contractor, are in place. The required information shall be submitted to the Engineer at the pre-construction meeting.

The Contractor shall be expected to answer calls immediately and begin corrective measures needed within one hour. **If the Contractor is negligent in correcting the deficiency within one hour of notification the Contractor shall be subject to**

a monetary deduction at the rate of \$100.00 per hour when only one residence or location is affected and at the rate of \$500.000 per hour in all other cases that the Engineer determines the Contractor has not complied.

- S-73.6 The Contractor is advised that the corridor has Transit service. Re-locations of stops can only be made with the approval of the Engineer. The Contractor is hereby directed to Section S-1707 (PUBLIC CONVENIENCE AND SAFETY) of these Special Provisions.
- S-73.7 Only one side of the roadway may be disrupted at a time for pedestrian curb ramp, blended transition, or sidewalk construction. Where it is not feasible to provide a same-side TPAR and pedestrians will be detoured, the alternate route must provide a similar level of accessibility to the existing route. This may include the incorporation of accessible pedestrian signals (APS), curb ramps, or other accessibility features.
- S-73.8 No measurement will be made of the various items that constitute Temporary Pedestrian Access Control, but all such work shall be construed to be included in the lump sum payment under Item 2563.601 (Temporary Pedestrian Access Control). The lump sum payment shall be compensation in full for all costs of furnishing, installing, maintaining and removing the individual devices.
- S-74 (2564) SIGN COLLAR**
- This work shall consist of installing sign collars purchased from the City in conjunction with sidewalk construction.
- S-74.1 The drawing entitled SIGN COLLAR PLACEMENT, details the sign collar to be purchased from the City of Minneapolis. Installation by the Contractor shall be in accordance with the details and notes included in said drawing.
- S-74.2 Sign collars shall be installed at the locations to be determined by the Engineer during construction.
- S-74.3 The Contractor shall obtain the sign collars to be installed from the City of Minneapolis. It shall be the Contractor's responsibility to make arrangements with the City of Minneapolis Transportation Division to purchase and pick up the sign collars during normal business hours at 300 Border Avenue North, Minneapolis, Minnesota. Arrangements for pick up shall be coordinated through Jeff Hymes (telephone #612-673-5750).
- S-74.4 Payment at the Contract unit price per each for Item 2564.602 Sign Collar shall be compensation in full for all costs associated with furnishing the sign collars from the City of Minneapolis and installing them in accordance with the specifications and details herein during the sidewalk construction.
- S-75 (2565) ADJUST HAND-HOLE**
- This work shall consist of adjusting hand-hole castings to match the proposed sidewalk elevations.
- S-75.1 The frame and ring castings to be adjusted will be identified in the Plan or in the field by the Engineer. The work to be accomplished in conjunction with the casting adjustments includes the removal of the existing surrounding concrete pavement

and adjacent curb, salvaging and reinstalling the existing casting, and making any modifications to the hand-hole as necessary to accomplish the casting adjustment.

If any hand-hole or hand-hole cover to be adjusted is damaged by the Contractor's operation, then the Contractor shall furnish and install a new identical hand-hole or hand-hole cover at his/her own expense.

S-75.2 Payment for Item 2565.602 Adjust Hand-hole at the Contract unit price per each, shall be compensation in full for all costs of labor, material, and equipment necessary to adjust the hand-hole in accordance with these specification and as directed by the Engineer.

S-76 (2565) ADJUST HAND-HOLE SPECIAL

At the location indicated in the Plan, the Contractor shall adjust the existing concrete hand-hole to finish grade.

THIS ITEM INCLUDES THE FOLLOWING:

1. Removal of the existing concrete casting.
2. Adjusting the existing concrete structure to allow the final casting elevation to match the finish grade elevation.
3. Furnishing and installing a new casting per the plan details.
4. Excavation and backfill.
5. Restoration as directed by the Engineer.

MEASUREMENT AND PAYMENT

Adjust Hand-hole Special at the location indicated in the Plan will each be measured as an integral unit complete in place and will each be paid under Pay Item No. 2565.602 per EACH.

S-77 (2572) PROTECTION AND RESTORATION OF VEGETATION

This work consists of protecting and preserving vegetation from damage in accordance with the provisions of Mn/DOT 2572, as directed by the Engineer, and the following. It also consists of the use of temporary fence as a conspicuous barrier in areas where fences are to be relocated, where retaining walls are to be constructed, between work sites and pedestrian facilities open for public use, and in other locations as determined and directed by the Engineer.

This work shall consist of protection for existing trees in accordance with the details shown in the Plans and the following:

S-77.1 The first paragraph after Mn/DOT 2572.3A(5) under Protecting and Preserving, is revised to read as follows:

The Contractor shall not place temporary structures, store material, or conduct unnecessary construction activities within a distance of 26 feet outside the drip line of trees designed to be preserved without approval from the Engineer.

S-77.2 The second paragraph of Mn/DOT 2572.3A2 Clean Root Cutting is revised to read as follows:

The Contractor shall immediately and cleanly cut damaged and exposed roots. Trees designated for protection shall have damaged roots cut back to sound healthy tissue and shall have topsoil immediately placed over the exposed roots. The Contractor shall immediately cover root ends that are exposed by excavating activities with 6 inches of topsoil as measured outward from the cut root ends. Exposed cut oak roots shall be immediately (within 5 minutes) treated with a wound dressing material consisting of latex paint or shellac. The Contractor shall limit cutting to a minimum depth necessary for construction and shall use a vibratory plow or other approved root cutter prior to excavation.

S-77.3 The third sentence of Mn/DOT 2572.3A8 Destroyed or Disfigured Vegetation, is revised to read:

The Engineer will assess damages of trees and landscaping at not less than the appraisal damages as determined by the current edition of the "Guide for Plant Appraisal – Council of Tree and Landscape Appraisers" published by the International Society of Arboriculture.

S-77.4 Post installations and spacing shall be adequate to support and maintain all temporary fences in upright positions at all times to maximize their effectiveness.

S-77.5 The Contractor shall furnish, install, maintain, and remove snow fencing or other approved fencing at locations as directed by The Engineer.

S-77.6 The provisions of Mn/DOT 2572.5B(1) are hereby deleted. The Contract unit price for Item 2572.501 Temporary Fence shall be the unit price contained in the bid of the successful bidder. Payment at the Contract unit price per linear foot shall be compensation in full for all costs necessary to furnish, install, maintain, and remove the temporary fence as specified and as directed by the Engineer.

S-78 (2573) STORM WATER MANAGEMENT

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

S-78.1 2573.1 DESCRIPTION is hereby modified as follows:

This work shall include furnishing, installing, maintaining and removing erosion or sediment control devices as required in the Plans, Special Provisions, applicable permits, and as directed by the Engineer.

S-78.2 The following are hereby added to the list of Standard Specification references listed in Mn/DOT 2573.2 MATERIALS:

L Fiber Log.....3895

The following paragraphs are hereby added to the end of Mn/DOT 2573.3A:

The Contractor shall be required to maintain, at all times on the project site, a supply of the erosion control devices included in the Contract. The minimum amount of on-hand erosion control devices shall be 10 percent of the Contract quantity for each item. The Contractor shall replenish the supply as the items are used to maintain the 10 percent on-hand materials regardless of the percentage of the estimated quantity previously incorporated into the project, unless otherwise directed by the Engineer.

- S-78.3 The second paragraph of Mn/DOT 2573.3 A5, Vehicle Tracking Onto Paved Surfaces, is revised to read as follows:
- The Contractor is responsible for insuring paved streets are clean at the end of each working day or more often as necessary to provide safety to the traveling public. Tracked sediment on paved surfaces must be removed by the Contractor within 24 hours of discovery, in accordance with 1717.2. Payment for street sweeping to provide safe conditions for the traveling public, environmental reasons or regulatory requirements shall be as provided in accordance with 1514.
- S-78.4 The first paragraph of Mn/DOT 2573.3J Filter Log Installation, is revised to read as follows:
- J Filter Log Installation**
- Filter logs shall be placed in accordance with the Plan. Straw and wood fiber filter logs shall be staked in place with wood stakes. Wood stakes shall be at a minimum 1 x 2 inch nominal size by 16 inches long. The stakes shall be driven through the back half of the log at an angle of approximately 45 degrees with the top of the stake pointing upstream. When more than one log is needed for length, the ends shall be overlapped 6 inches with both ends staked. Staking shall be every 1 foot along the log unless precluded by paved surface or rock.
- S-78.5 Mn/DOT 2573.5A Acceptance of Work is hereby replaced with the following:
- Upon satisfactory installation of temporary control devices, the Engineer may authorize partial payment not exceeding 65% percent of the Contract bid price for the appropriate pay item. The remaining percentage will be paid after the devices are removed, provided they have been continuously maintained to the satisfaction of the Engineering throughout the time they were in-place.
- S-78.6 The following is hereby added to the end of the first paragraph in Mn/DOT 2573.5 BASIS OF PAYMENT:
- Payment for Temporary Erosion Control Items shall also be compensation in full for all non-emergency mobilization necessary to fully perform all temporary items as required.
- All sediment removal from erosion control devices and sediment basins, as specified herein and required by the Engineer, shall be completed by the Contractor as an incidental expense to erosion control pay items included in the plans. No direct payment will be made by the County for sediment removal.
- S-78.7 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 specified, including the costs of maintenance and removal as required by the Contract. The Contractor will receive compensation at the appropriate Contract prices, or in the absence of a Contract bid price, according to the following unit prices, or in the absence of a Contract price and unit price, as Extra Work. The provisions of 1903 are modified to the extent that the Department will not make a price adjustment in the event of increased or decreased quantities of temporary erosion control items.

S-78.8 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 specified, including the costs of maintenance and removal as required by the Contract. The Contractor will receive compensation at the appropriate Contract prices, or in the absence of a Contract bid price, according to the following unit prices, or in the absence of a Contract price and unit price, as Extra Work. In the absence of a Contract item for Erosion Control Supervisor, this work shall be considered incidental.

S-78.9 Mn/DOT 2573.5 E, Unit Prices, is revised to read as follows:
The Department will pay the following unit prices for temporary sediment control items 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/m³ (**\$5.50 per cubic yard**)
- (5) Bituminous Lined Flume..... \$6.00/m² (**\$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-79 (2575) SITE RESORATION

This work shall consist of turf establishment in locations of ADA improvements, as detailed in the Plan and in accordance with the provisions of MnDOT 2575, other Contract provisions, as directed by the Engineer, and the following:

S-79.1 Construction Requirements

All ADA turf establishment areas shall be completed in a time frame that complies with the project SWPPP.

Construction of the turf establishment areas shall comply with the seeding requirements of 2575.3M, except that instead of seed and mulch, all areas shall be restored with seed and erosion control blanket category 1.

S-79.2 Method of Measurement

Measurement will be by Each Turf Establishment area constructed.

S-79.3 Basis of Payment

Payment will be made under Item 2575.602 (Site Restoration) at the Contract bid price per Each, which shall be compensation in full for all costs of performing the work as specified and as noted on the plans, including tilling, fertilizing, blanket, seed, and establishing vegetative cover.

S-80 (2575) RAPID STABILIZATION SPECIFICATIONS

This work shall consist of operations necessary to rapidly stabilize small critical areas, to prevent off site sedimentation and/or to comply with permit requirements. The work may be performed at any time during the contract and will be conducted on small areas that may or may not be accessible with normal equipment. This work shall be done in accordance with the applicable Mn/DOT Standard Specifications, the details shown in the Plan, and the following:

S-80.1 BASIS OF PAYMENT

In the absence of a Contract bid price, the Department will pay the following unit prices for Rapidly Stabilizing Small Scattered Critical Areas directly abutting Waters of the State during rough grading and as required in the NPDES permit. These unit prices shall be construed to include mobilizations for this activity.

Rapid Stabilization	Pre-Approved Prices	
Method 1	\$400/acre	Approved price reflects small quantities. Quantities installed per Project visit are assumed to require approximately 1 to 2 acres of coverage.
Method 2	\$898/acre	Approved price reflects small quantities. Quantities installed per Project visit are assumed to require approximately 1 to 2 acres of coverage.
Method 3	\$566/M gallon	Approved price reflects small quantities. Quantities installed per Project visit are assumed to require approximately 3000 to 9000 gallons of product slurry.
Method 4	\$2.50/SY	Approved price reflects small quantities. Quantities installed per Project visit are assumed to require approximately 200 to 800 SY of coverage.
Method 5	\$45/ton	Approved price reflects small quantities. Quantities installed per Project visit are assumed to require approximately 10 to 20 tons of riprap.

S-81 (2575) CONTROLLING EROSION AND ESTABLISHING VEGETATION

This work shall be constructed in accordance with the provisions of Mn/DOT 2575 and as modified as follows:

S-81.1 Delete the second sentence of the third paragraph of Mn/DOT 2575.3L1 from the Contract and substitute the following therefor:

All replacement sod shall be maintained for an additional 30 growing days after replacement in the same manner provided above for the original installation. Upon expiration of the maintenance period or any replacement maintenance periods, the Engineer will make a final inspection and accept all sod which is in a normal healthy growing condition. No payment will be made for sod which is not in an

acceptable condition at the time of the final inspection.

S-81.2 Add the following to Mn/DOT 2575.4C:

The quantity of seeding for which payment will be made shall be the quantity shown in the bid schedule, provided, however; that payment will be made on the basis of the actual quantity instead of plan quantity if and to the extent that any area changes are established through remeasurement of the seeding areas as provided for herein. Either the Engineer or the Contractor may cause remeasurement of any area, in which case the final quantity will be adjusted on the basis of final measurements.

The Contractor may cause remeasurement of seeding areas by submitting a written request to the Engineer stating the specific locations in which he feels changes were made or the planned quantity was in error.

If, within 7 days after completion of all seeding, there has been no request submitted, the Contractor shall have waived his right to dispute the planned quantity for final payment for seeding under the Contract.

S-81.3 The mulching material to be used for the Type 1 mulch shall be grain straw.

S-82 (2582) PERMANENT PAVEMENT MARKINGS

The provisions of Mn/DOT 2582 are hereby modified and/or supplemented with the following:

S-82.1 The provisions of Mn/DOT 2582.2 are hereby deleted and replaced with the following:

A	Preformed Plastic Markings for Permanent Traffic Lane Delineation and Legends.....	3354
B	Epoxy Resin Pavement Markings (Free of Toxic Heavy Metals).....	3590
C	High Solids Water-Based Traffic Paint.....	3591
D	Drop-On Glass Beads.....	3592

Qualified materials can be found on Mn/DOT's Qualified Products List on the Office of Traffic, Security and Operations website. Other materials may be used on a provisional basis as detailed in the QPL process and as approved by the Engineer. Type of material used will be as specified by Contract Documents.

S-82.2 The following is hereby added to Mn/DOT 2582.3B, Application:

Any pavement markings to be grooved in shall be placed in accordance with manufacturer's instructions.

S-82.3 The provisions of Mn/DOT 2582.5 are hereby deleted and replaced with the following:

2582.5 BASIS OF PAYMENT

Payment for pavement markings installed at contract prices per unit of material shall be compensation in full for all costs incurred in materials, traffic control, installation, surface preparation, use of primers, in accordance to contract documents or as approved by the Engineer.

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2582.501	Pavement Message (1) (2)	Each
2582.502	__ inch width (3) (4) (2).....	linear foot
2582.503	Crosswalks (2).....	square foot

(1) Specify Message
 (2) Specify Material
 (3) Specified Type of Line (Solid, Broken or Dotted)
 (4) Specify Color

S-83 (2582) PAINT PAVEMENT MARKINGS

This work shall consist of furnishing and applying paint pavement markings as permanent markings for control and guidance of traffic. The paint pavement markings shall be installed as directed by the Engineer and in accordance with the Plans, the specifications "Three Minute Dry Alkyd Traffic Paints", "High Solids Water Based Traffic Paint", "Drop-on Glass Beads", "The Application Specification for Conventional Pavement Marking Materials, 3 Minute Dry alkyd and High Solids Latex", the specifications are available on the following website <http://www.dot.state.mn.us/products/>, and the following:

- S-83.1 The Contractor may furnish and place either the 3-minute dry alkyd or the water-based paint.
- S-83.2 The Contractor shall give the Engineer a minimum of 36 hours advance notice of the need for establishment of control points required for the application of pavement markings.
- S-83.3 Pavement markings will be measured separately by length of each type constructed complete in place as specified. Broken line will be measured by the actual length of line marked and will not include the gap between the broken lines.
- S-83.4 Payment for pavement markings of each type and width will be made in accordance with the schedule set forth below at the appropriate Contract bid price for the specified unit of measure. Such payment, in each instance, shall be compensation in full for all costs incidental thereto including, but not limited to; (1) all costs of preparing the surface, (2) controlling and protecting traffic, and (3) maintaining the work, together with any other expenses incurred in completing the work that are not specifically included for payment under other Contract items.

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>
2582.502	6 inch Solid Line White-Paint	Linear Foot
2582.502	12 inch Solid Line White-Paint	Linear Foot

S-84 (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 ($\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$) shall not exceed 0.60 percent. The total alkalis in the cementitious material shall not exceed 3.0 kg/m^3 [**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 interground 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 ASTM C 150, 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-85

(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:

1. The fly ash constituent of the interground cement shall not exceed 20 percent.
2. The fly ash constituent of blended cement shall not exceed 15 percent.
3. The ground granulated blast furnace slag constituent of the interground cement shall not exceed 35 percent.

4. 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-86 (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
<p>* 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.</p> <p> Exclusive of shale, soft iron oxide particles, and total spall materials.</p> <p>† 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.</p> <p>‡ Thickness less than 25 percent of the maximum width. Length greater than 3 times the maximum width.</p> <p># Each individual fraction at the point of placement consists of dust from the fracture and free of clay or shale.</p> <p>§ For each individual fraction at the point of placement.</p> <p>** 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.</p>		

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
<p>* 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.</p> <p> Exclusive of shale, soft iron oxide particles, and total spall materials.</p> <p>† 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.</p>		

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]	½ in [16.0 mm]	¼ 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-87 (3138) AGGREGATE FOR SURFACE AND BASE COURSES

The provisions of Mn/DOT 3138 are hereby modified as follows:

S-87.1 The second paragraph of Mn/DOT 3138.2B Gradation Tables 3138-1 and 2, is revised to read as follows:

If Class 7 is substituted for Classes 1, 3, 4, 5, or 6, it shall meet the gradation requirements of the substituted class (Table 3138-1); except that, for Class 5 and 6, up to 5 percent by mass (weight) of the total composite mixture may exceed 25.0 mm (1 inch) sieve but 100 percent must pass the 37.5 mm (1.5 inch) sieve. Surfacing aggregate mixtures containing salvaged materials shall meet the gradation requirements of the materials specified in the Plan. All gradations will be run on the composite mixture before extraction of the bituminous material.

S-87.2 TABLE 3138-1 in Mn/DOT 3138.2B Gradation Tables 3138-1 and 2, is hereby deleted and replaced with the following:

TABLE 3138-1
BASE AND SURFACING AGGREGATE
Total Percent Passing

Sieve Size	Class 1 (A)	Class 2	Class 3 (A)	Class 4 (A)	Class 5 (A) (B)	Class 6 (A) (B)
75 mm (3 inches)	--	--	--	--	--	--
50 mm (2 inches)	--	--	100	100	--	--
37.5 mm (1½ inches)	--	--	--	--	--	--
25.0 mm (1 inch)	--	--	--	--	100	100
19.0 mm (¾ inch)	100	100	--	--	90-100	90-100
9.5 mm (⅜ inch)	65-95	65-90	--	--	50-90	50-85
4.75 mm (No. 4)	40-85	35-70	35-100	35-100	35-80	35-70
2.00 mm (No. 10)	25-70	25-45	20-100	20-100	20-65	20-55
425 µm (No. 40)	10-45	12-30	5-50	5-35	10-35	10-30
75 µm (No. 200)	8.0-15.0	5.0-13.0	5.0-10.0	4.0-10.0	3.0-10.0	3.0-7.0

- (1) When salvaged materials are substituted for another class of aggregate, it shall meet the gradation requirements of the class being replaced except as amended in 3138.2 B.
- (2) The gradation requirements for aggregates containing 60% or more crushed quarry rock may be amended with the concurrence of the Project Engineer and the Grading and Base Engineer.

S-87.3

The first paragraph of Mn/DOT 3138.3 Sampling and Testing, is hereby deleted and replaced with the following:

Samples for testing to determine compliance with the aggregate gradation specifications for base and shoulder surfacing shall be obtained from the roadway at a time when the material is ready for compaction. However, Class 1, 2, and 7 shoulder surfacing aggregates may be sampled from a stockpile, tested, and accepted before roadway placement, provided that:

- (a) No more than 25 percent of the stockpile samples fail to meet gradation requirements.
- (b) The average of all stockpile tests meets requirements.
- (c) The Contractor mixes the material during placement to the satisfaction of the Engineer.

S-87.4 The fifth paragraph of Mn/DOT 3138.3 Sampling and Testing, is revised to read as follows:

The stockpile shall be sampled at the rate of one field gradation test per 1,000 metric tons (**tons**) of aggregate used on the Project.

S-88 (3139) GRADED AGGREGATE FOR BITUMINOUS MIXTURES

Mn/DOT 3139 is hereby deleted and replaced with the following:

3139 Graded Aggregate for Bituminous Mixtures

3139.1 Scope

Provide graded aggregate for use in bituminous mixtures.

3139.2 PLANT MIXED ASPHALT Requirements

A Composition

Provide graded aggregate composed of any combination of the following sound durable particles as described in 3139.2B.

Do not use graded aggregate containing objectionable materials including:

- (1) Metal,
- (2) Glass,
- (3) Wood,
- (4) Plastic,
- (5) Brick, or
- (6) Rubber.

Provide coarse aggregate free of coatings of clay and silt.

Do not add soil materials such as clay, loam, or silt to compensate for a lack of fines in the aggregate.

Do not blend overburden soil into the aggregate.

Feed each material or size of material from an individual storage unit at a uniform rate.

Do not place blended materials from different sources, or for different classes, types, or sizes together in one stockpile unless approved by the Engineer as a Class E aggregate.

B Classification

B.1 Class A

Provide crushed igneous bedrock consisting of basalt, gabbro, granite, gneiss, rhyolite, diorite, and andosite. Rock from the Sioux Quartzite Formation may contain no greater than 4.0 percent non-Class A aggregate. Do not blend or add non-Class A aggregate to Class A aggregate.

B.2 Class B

Provide crushed rock from other bedrock sources such as carbonate and metamorphic rocks (Schist).

B.3 Class C

Provide natural or partly crushed natural gravel obtained from a natural gravel deposit.

B.4 Class D

Provide 100 percent crushed natural gravel produced from material retained on a square mesh sieve with an opening at least twice as large as Table 3139-2 allows for the maximum size of the aggregate in the composite asphalt mixture. Ensure the amount of carryover, material finer than the selected sieve, no greater than 10 percent of the Class D aggregate by weight.

B.5 Class E

Provide a mixture consisting of at least two of the following classes of approved aggregate:

- (1) Class A,
- (2) Class B, and
- (3) Class D.

B.6 Steel Slag

Steel slag cannot exceed 25% of the total mixture aggregate and be free from metallic and other mill waste. The Engineer will accept stockpiles if the total expansion is no greater than 0.5 percent as determined by ASTM D 4792

B.7 Taconite Tailings

Obtain taconite tailings from ore mined westerly of a north-south line located east of Biwabik, Minnesota (R15W-R16W) or from ore mined in southwestern Wisconsin.

B.8 Recycled Asphalt Shingles (RAS)

Provide recycled asphalt shingles manufactured from waste scrap asphalt shingles (MWSS) or from tear-off scrap asphalt shingles (TOSS). Consider the percentage of RAS used as part of the maximum allowable Recycled Asphalt Pavement (RAP)

percentage. See Table 3139-3.

B.8.A RAS Gradation.....Mn/DOT Laboratory Procedure 1801

Provide RAS in accordance with the following gradation requirements:

Table 3139-1 RAS Gradation	
Sieve size	Percent passing
½ in [12.5 mm]	100
No. 4 [4.75 mm]	90

B.8.B Binder Content

Determine the binder content using chemical extraction meeting the requirements of Mn/DOT Lab Procedure 1851 or 1852.

B.8.C Bulk Specific Gravity

The Contractor may use an aggregate bulk specific gravity (Gsb) of 2.650 in lieu of determining the shingle aggregate Gsb in accordance with Mn/DOT Lab Procedure 1205.

B.8.D Waste Materials

Do not allow extraneous materials including metals, glass, rubber, nails, soil, brick, tars, paper, wood, and plastics greater than 0.5 percent by weight of the graded aggregate as determined by material retained on the No. 4 [4.75 mm] sieve as specified in Mn/DOT Laboratory Procedure 1801.

B.8.E Stockpile

Do not blend an RAS stockpile with other salvage material. Do not blend MWSS and TOSS. The Contractor may blend virgin sand material with RAS to minimize agglomeration if the Contractor accounts for the blended sand in the final mixture gradation.

B.8.F Certification

Ensure the processor provides RAS certification on the following Department form “Scrap Asphalt Shingles from Manufacture Waste” or “Tear-Off Scrap Asphalt Shingles” at www.dot.state.mn.us/materials/bituminous.html

B.9 Crushed Concrete and Salvaged Aggregate

The Contractor may incorporate no greater than 50 percent of crushed concrete and salvaged aggregate in non-wear mixtures. Do not use crushed concrete in wearing courses.

B.10 Ash

Sewage sludge ash and waste incinerator ash are allowed as an aggregate source at a maximum of 5% of the total weight of the mixture. Only use sewage sludge ash meeting the requirements of the Tier II hazard evaluation criteria as approved by the Engineer with concurrence with Mn/DOT’s Environmental Assessment Engineer in the mixture. Only use waste incinerator ash sources approved by the Engineer with

concurrence with Mn/DOT's Environmental Assessment Engineer.

B.11 Recycled Asphalt Pavement (RAP)

B.11.A Aggregate Angularity

Provide combined RAP and virgin aggregates that meet the composite coarse and fine aggregate angularity for the mixture being produced.

B.11.B Objectionable Material

Do not use RAP containing objectionable materials including metal, glass, wood, plastic, brick, or rubber.

B.11.C Asphalt Binder Content

Determine the asphalt binder content using the Mn/DOT Lab Manual Method 1851 and 1852.

B.11.D Bulk Specific Gravity

Determine the bulk specific gravity in accordance with Mn/DOT Laboratory Procedure 1205 or 1815.

C Quality

C.1 Los Angeles Rattler Test.....Mn/DOT Laboratory Procedure 1210

Ensure a coarse aggregate loss no greater than 40 percent.

C.2 Soundness (Magnesium Sulfate).....Mn/DOT Laboratory Procedure 1219

Maximum loss after 5 cycles on the coarse aggregate fraction (material retained on No. 4 [4.75 mm] sieve for any individual source within the mix) as follows:

- (1) Percent passing the $\frac{3}{4}$ in [19 mm] sieve to percent retained on the $\frac{1}{2}$ in [12.5 mm] sieve, $\leq 14\%$,
- (2) Percent passing the $\frac{1}{2}$ in [12.5 mm] sieve to percent retained on the $\frac{3}{8}$ in [9.5 mm] sieve, $\leq 18\%$,
- (3) Percent passing the $\frac{3}{8}$ in [9.5 mm] sieve to percent retained on the No. 4 [4.75 mm] sieve, $\leq 23\%$,
- (4) For the composite if all three size fractions are tested, the composite loss $\leq 18\%$, and acceptance will be granted if:
 - (4.1) If the Contractor meets the composite requirement, but fails to meet at least one of the individual components, the Engineer may accept the source if each individual component is no greater than 110 percent of the requirement for that component.
 - (4.2) If the Contractor meets each individual component requirement, but fails to meet the composite, the Engineer may accept the source if the composite is no greater than 110 percent of the requirement for the composite.

Coarse aggregate that exceeds the requirements in this section for material passing the No. 4 [4.75 mm] sieve cannot be used.

C.3 Spall Materials and LumpsMn/DOT Laboratory Procedure 1219

Stop asphalt production if the percent of spall or lumps measured in the stockpile or cold feed exceeds the values listed in Table 3139-3. Determine lump compliance by dry batching.

C.4 Insoluble Residue Test.....Mn/DOT Laboratory Procedure 1221

If using Class B carbonate materials ensure the portion of the insoluble residue passing the No. 200 [75 µm] sieve is no greater than 10 percent.

Blending of sources and/or beds with an insoluble residue up to 15% is allowed to meet the 10% insoluble residue requirement. Individual beds thinner than 150 mm [6 inches] up to 5% of the total face height, are exempt from the 15% maximum insoluble residue requirement. However, the aggregate producer shall practice good quality control at all times and exclude poor quality stone to the extent practical, regardless of the bed thickness and/or pocket size and location.

No carbonate quarry rock from the Platteville Geological Formation is allowed.

D Gradation

Ensure the aggregate gradation broad bands meet the following requirements in accordance with AASHTO T-11 (passing the No. 200 [75 µm] wash) and AASHTO T-27.

Table 3139-2				
Aggregate Gradation Broad Bands (percent passing of total washed gradation)				
Sieve size	A	B	C	D
1 in [25.0 mm]	—	—	100	—
¾ in [19.0 mm]	—	100*	85 – 100	—
½ in [12.5 mm]	100*	85 – 100	45 – 90	—
⅜ in [9.5 mm]	85 – 100	35 – 90	—	100
No. 4 [4.75 mm]	25 – 90	30 – 80	30 – 75	65 – 95
No. 8 [2.36 mm]	20 – 70	25 – 65	25 – 60	45 – 80
No. 200 [0.075 mm]	2.0 – 7.0	2.0 – 7.0	2.0 – 7.0	3.0 – 8.0
* The Contractor may reduce the gradation broadband for the maximum aggregate size to 97 percent passing for mixtures containing RAP, if the oversize material originates from the RAP source. Ensure the virgin material meets the requirement of 100 percent passing the maximum aggregate sieve size.				

Table 3139-3				
Mixture Aggregate Requirements				
Aggregate Blend Property	Traffic Level 2	Traffic Level 3	Traffic Level 4	Traffic Level 5
20 year Design ESAL's	<1 million	1 - 3 million	3 - 10 million	10 – 30 million

Min. Coarse Aggregate Angularity (ASTM D5821) (one face / two face), %- Wear (one face / two face), %- Non-Wear	30/- 30/-	55 / - 55 / -	85 / 80 60/ -	95 / 90 80 / 75
Min. Fine Aggregate Angularity (FAA) (AASHTO T304, Method A) %- Wear %-Non-Wear	40 40	42 40	44 40	45 40
Flat and Elongated Particles, max % by weight, (ASTM D 4791)	-	10 (5:1 ratio)	10 (5:1 ratio)	10 (5:1 ratio)
Min. Sand Equivalent (AASHTO T 176)	-	-	45	45
Max. Total Spall in fraction retained on the #4 [4.75mm] sieve – Wear Non-Wear	5.0 5.0	2.5 5.0	1.0 2.5	1.0 2.5
Maximum Spall Content in Total Sample – Wear Non-Wear	5.0 5.0	5.0 5.0	1.0 2.5	1.0 2.5
Maximum Percent Lumps in fraction retained on the #4 [4.75mm] sieve	0.5	0.5	0.5	0.5
Class B Carbonate Restrictions				
Maximum% -#4 [-4.75mm] Final Lift/All other Lifts	100/100	100/100	80/80	50/80
Maximum% +#4 [+4.75mm] Final Lift/All other Lifts	100/100	100/100	50/100	0/100
Max. allowable scrap shingles– MWSS ⁽¹⁾ Wear/Non Wear	5/5	5/5	5/5	5/5
Max. allowable scrap shingles – TOSS ⁽¹⁾ Final Lift/All other Lifts	5/5	5/5	0/5	0/0

(1) MWSS is manufactured waste scrap shingle and TOSS is tear-off scrap shingle.

3139.3 Permeable Asphalt Stabilized Stress Relief Course (PASSRC) and Permeable Asphalt Stabilized Base (PASB) Requirements

A Restrictions

Do not use recycled materials including glass, concrete, bituminous, shingles, ash, and steel slag.

B Gradation

The Gradation limits are also considered the Job Mix Formula (JMF) limits.

B.1 PASB

Table 3139-4	
PASB Aggregate Gradation	
Sieve Size	Percent Passing
1 ½ inch [37.5 mm]	100
1 inch [25.0 mm]	95 - 100
¾ inch [19.0 mm]	85 – 95
3/8 inch [9.5 mm]	30 – 60
No. 4 [4.75 mm]	10 – 30
No. 8 [2.36 mm]	0 – 10
No. 30 [600 µm]	0 – 5
No. 200 [75 µm]	0 - 3

B.2 PASSRC

Table 3139-5	
PASSRC Aggregate Gradation	
Sieve Size	Percent Passing
5/8 inch [16.0 mm]	100
1/2 inch [12.5 mm]	85 – 100
3/8 inch [9.5 mm]	50 – 100
No. 4 [4.75 mm]	0 – 25
No. 8 [2.36 mm]	0 – 5

C **Quality**

Requirements will meet all of 3139.2.C.

D **Mixture Quality Requirements**

Table 3139-6	
Mixture Aggregate Requirements for PASSRC & PASB	
Aggregate Blend Property	
Coarse Aggregate Angularity (ASTM D5821) (one face/two face) % PASSRC ⁽¹⁾ PASB ⁽¹⁾	95/- -/65
Fine Aggregate Angularity (FAA) (AASHTO T304, Method A) %	NA
Flat and Elongated Particles, max(2) % by weight, (ASTM D 4791)	NA
Clay Content (2) (AASHTO T 176)	NA

Total Spall in fraction retained on the 4.75mm [#4] sieve	3.0
Maximum Spall Content in Total Sample	5.0
Maximum Percent Lumps in fraction retained on the 4.75mm [#4] sieve	0.5

- (1) Carbonate Restrictions: If Class B (as defined in 3139.2.B.2), crushed carbonate quarry rock (limestone or dolostone), is used in the mixture, or if carbonate particles in the material retained on the 4.75 mm [No. 4] sieve exceeds 55 percent, by weight, the minus 0.075 mm [# 200] sieve size portion of the insoluble residue shall not exceed 10 percent.

3139.4 Ultra Thin Bonded Wearing Course (UTBWC) Requirements.

A Restrictions

Do not use recycled materials including glass, concrete, bituminous, shingles, ash, and steel slag.

B Coarse Aggregate

Provide a Class A aggregate, as defined in 3139.2.B.1, in accordance with the following requirements:

Table 3139-7 UTBWC Coarse Aggregate Requirements		
Tests	Mn/DOT Laboratory Manual Method	Limit, %
Flat and elongated ratio at 3:1	1208	≤ 25
Los Angeles Rattler Test (LAR)	1210	≤ 40
Bulk Specific Gravity	1204	

C Fine Aggregate

Provide fine aggregate, passing the No. 4 [4.75 mm] sieve in accordance with the following requirements:

Table 3139-8 Fine Aggregate Requirements		
Tests	Method	Limit, %
Sand equivalent*	AASHTO T 176	≥ 45
Uncompacted void content	Mn/DOT Laboratory Manual 1206	≥ 40
Bulk Specific Gravity	Mn/DOT Laboratory Manual 1205	

3139.5 SAMPLING AND TESTING

Perform sampling, sieve analysis, lumps, crushing, and shale testing meeting the requirements of the Mn/DOT Laboratory Manual.

S-89 **(3301) REINFORCEMENT BARS**

The third to the last paragraph of Mn/DOT 3301.2 is hereby deleted and replaced with the following:

When epoxy coated reinforcement bars are specified, coating shall be in conformance with AASHTO M 284M/M 284-06. Application of epoxy coating shall be made in a fusion bonded epoxy coating plant that has been granted "Certification" by the Concrete Reinforcing Steel Institute, or an organization approved by the Materials Engineer.

S-90 **(3302) DOWEL BARS**

Mn/DOT 3302 is hereby deleted and replaced with the following:

Dowel bars shall be fabricated from Grade 40 or 60 steel in accordance with AASHTO M31 and be epoxy coated in conformance with AASHTO M254. The ends of the dowel bars may be epoxy coated at the discretion of the fabricator. Application of epoxy coating shall be made in a fusion bonded epoxy coating plant that has been granted "Certification" by the Concrete Reinforcing Steel Institute, or an organization approved by the Materials Engineer.

The plant's quality control office shall maintain documentation containing the data required by certification. This documentation shall contain test data and measurements taken at times and locations approved by the Engineer, ensuring that monitoring, by personnel not directly involved in production, is sufficient for compliance with approved procedures.

All dowel bars shall be stored and protected in accordance with 2472.

Shearing will be permitted provided the coating is not damaged and subject to permissible deformation. Any deformation larger than true shape shall not exceed 1 mm (**0.04 inch**) increase in diameter or thickness and shall not extend more than 10 mm (**0.40 inch**) from the dowel end.

S-91 **(3591) HIGH SOLIDS WATER BASED TRAFFIC PAINT**

The following is hereby added to Mn/DOT 3591.2C:

C5 Glass beads shall be applied immediately after application of a paint line at a rate of 960 gram per Liter (**8 pounds per gallon**). Beads shall be evenly distributed on pavement. All material shall be placed in a workmanlike manner, which shall result in a clearly defined line that has been adequately reflectorized with glass beads.

S-92 **(3592) DROP-ON GLASS BEADS**

The provisions of Mn/DOT 3592.3 are hereby deleted and replaced with the following:

3592.3 SPECIFIC REQUIREMENTS

Glass beads shall meet the requirements of AASHTO M247, Type 1, “standard gradation” except the beads will have a minimum of 80 percent true spheres. The dual treated beads will meet the moisture resistant requirements of AASHTO M 247 Section 4.4.2 and pass the adherence treatment Dansyl Chloride Test. The moisture resistant silicone treated beads will meet AASHTO M 247 Section 4.2.2.

S-93 (3753) TYPE 1-D MEMBRANE CURING COMPOUND

The following is hereby added to the Mn/DOT Standard Specifications:

3753 TYPE 1-D MEMBRANE CURING COMPOUND

3753.1 SCOPE

Provide clear or translucent liquid membrane forming curing compounds with a Type 1-D fugitive dye for spray application on portland cement colored or stamped surfaces, where a finished white surface would mask the decorative finished concrete surface when exposed to the air.

3753.2 REQUIREMENTS

A General

Provide membrane curing compound meeting the following requirements:

- All membrane-curing compounds pre-approved by the Department before use. The most current approved lots and batches with product expiration dates are available from the Approved Products list,
- Meets the requirements of the Mn/DOT Curing Compound Manufacturer Approval Program, as listed in the Mn/DOT Approved Products List, including pre-testing of materials by the manufacturer,
- Meets the requirements of ASTM C 309, Type 1-D Curing Compound, and
- The Engineer will not allow the use of curing compound that is over 1 year from the manufacture date.

The Contractor may use Type 1-D curing compound in other concrete applications as approved by the Engineer or as shown on the special provisions. Use of any other Type 1 curing compound is at the discretion of the Engineer in conjunction with the Concrete Engineer.

3753.3 SAMPLING AND TESTING

Provide samples for testing meeting the requirements of the Schedule of Materials Control.

Test the material at an application rate of 200 sq. ft. per gal [5 sq. m per L].

S-94 (3754) POLY-ALPHA METHYLSTYRENE (AMS) MEMBRANE CURING COMPOUND

Mn/DOT 3754 is hereby deleted and replaced with the following:

3754 POLY-ALPHA METHYLSTYRENE (AMS) MEMBRANE CURING COMPOUND

3754.1 SCOPE

Provide poly-alpha methylstyrene liquid membrane curing compounds for spray application on portland cement concrete surfaces exposed to the air.

3754.2 REQUIREMENTS

Provide membrane-curing compound meeting the following requirements:

- (1) All membrane-curing compounds pre-approved by the Department before use. The most current approved lots and batches with product expiration dates are available from the Approved Products list.
- (2) Meets the requirements of the Mn/DOT Curing Compound Manufacturer Approval Program, including pre-testing of all materials by the manufacturer.
- (3) Meets the requirements of ASTM C 309 for the type required by the contract.
- (4) The Engineer will not allow the use of curing compound that is over 1 year from the manufacture date.
- (5) White pigmented Type 2, Class B.
- (6) Resin is 100 percent poly-alpha methylstyrene.

Table 3754-1 Requirements for 3754 AMS Curing Compound	
Properties	Range
Total solids, % by weight of compound	≥ 42
% reflectance in 72 h (ASTM E 1347)	≥ 65
Loss of Water, kg/sq. m in 24 h (ASTM C 156)	≤ 0.15
Loss of Water, kg/sq. m in 72 h (ASTM C 156)	≤ 0.40
Settling Test, ml/100 ml in 72 h*	≤ 2
V.O.C. Content, g/L	≤ 350
Infrared Spectrum, vehicle	100% α methylstyrene
* Test in accordance with the method on file at the Materials Laboratory.	
Match the infrared scan for the dried vehicle from the curing compound to the infrared scan on file at the Materials Laboratory	

3754.3 SAMPLING AND TESTING

Provide samples for testing meeting the requirements of the Schedule of Materials Control.

Test the material at an application rate of 200 sq. ft per gal [**5 sq. m per L**].

S-95 (3755) LINSEED OIL MEMBRANE CURING COMPOUND

The following is hereby added to the Mn/DOT Standard Specifications:

3755 LINSEED OIL MEMBRANE CURING COMPOUND

3755.1 SCOPE

Provide extreme service white pigmented, heavy bodied linseed oil emulsion for application as a membrane cure and sealer.

3755.2 REQUIREMENTS

Provide membrane curing compounds meeting the following requirements:

- (1) All membrane-curing compounds pre-approved by the Department before use. The most current approved lots and batches with product expiration dates are available from the Approved Products list.
- (2) Meets the requirements of the Mn/DOT Curing Compound Manufacturer Approval Program, including pre-testing of materials by the manufacturer,
- (3) Composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution meeting the requirements of ASTM C 309, Type 2, except the Department will waive the drying time,
- (4) The Engineer will not allow the use of curing compound that is over 1 year from the manufacture date,
- (5) Spray-able at temperatures of at least 40° F [4° C], and
- (6) Chemical requirements in accordance with the following table:

Table 3755-1	
Chemical Requirements of Linseed Oil Membrane Curing Compound (volumes exclusive of added pigment)	
Material Requirements	Percent by Weight
Oil phase (50% ± 4% by volume):	
Boiled linseed oil	80
Z-8 viscosity linseed oil	20
Water phase (50% ± 4% by volume)	
	100

3755.3 SAMPLING AND TESTING

Provide samples for testing meeting the requirements of the Schedule of Materials Control.

Test membrane curing compound at an application rate of 200 sq. ft per gal [**5 sq. m per L**].

S-96 (3876) SEED

The provisions of Mn/DOT 3876 are supplemented and/or modified with the following:

S-96.1 The second paragraph of Mn/DOT 3876.1 is hereby deleted and replaced with the following:

Pure live seed (PLS) is the percent of seed germination plus dormant and/or hard seed times the percent of seed purity of each species divided by 100.

S-96.2 Mn/DOT 3876.2A General Requirements is hereby deleted and replaced with the following:

A General Requirements

All seed lots shall conform to the latest seed law of the State (Minnesota Statutes 21.80-21.91, last revised 8/2/06), and any applicable federal regulations, including those governing labeling and weed seed tolerances. Seed lots sold or offered for sale in the state of Minnesota are subject to inspection, sampling, and testing for verification of label claims and compliance with the Minnesota Seed Law by the Department of Agriculture (M.S. 18J.04). Tolerances for germination and purity factors will be applied as established in Rules 1510.0050, 1510.0060, 1510.0070, 1510.0080, 1510.0090 and 1510.0100 to seed lots sampled and tested by official methods. For all seed used in Mn/DOT mixes or projects, tests for viability (including germination and TZ tests) are valid for 12 months from the test date, exclusive of the month the test was completed. Seed shall be installed while tests are still valid.

All legume seed, including native legumes, shall have been pre-inoculated with the proper bacterial culture for the species being inoculated and with the bacteria culture designed for this purpose (pre-inoculation), in the manner and within the time specified by the manufacturer.

A1 Labeling

Contractor shall supply seed that is labeled according to the labeling requirements for agricultural seed as set forth in the Minnesota Seed Law, section 21.82. The contractor shall supply seed that also contains the following information:

- a) County of genetic origin for each native component (List at least two counties for germplasm comprising accessions from multiple counties)
- b) PLS percent for each mix component (Purity x Total Germination and Hard or Dormant Seed/100) for each mix component (**For PLS component of mix's**)
- c) Total PLS weight for the bag. The tag shall identify this as the pay item. (**For PLS component of mix's**)
- d) Total bulk weight for the bag
- e) Area covered by the amount of seed in the bag when applied at the rate specified for the mix
- f) All information pertaining to individual components in a mix is required for all components, including those that constitute less than 5% of the total mix.

Tags must not be hand written. If any of the above mentioned information is not included on the tag the material will be subject to specification 1503.

When multiple bags are required to keep certain species or groups of species separate for the purpose of seeding those bags may be placed inside of a larger bag as long as each bag is labeled separately and the outer bag is labeled with the name of the mix.

Each package of seed must include a "Certified Vendor" tag that is issued by Mn/DOT Erosion Control unit. This will indicate that the seed has come from a Mn/DOT Approved Seed Vendor as described in 3876.3.

A2 Seed Cleaning

Contractor shall use seed that has been cleaned to an extent sufficient to allow its passage through appropriate seeding equipment. Seed of introduced species must be suitable for use in conventional seeders. Seed of native species must be suitable for use in native seed drills without plugging up the boxes, drop tubes, or planting units of the seed drills. Contractor shall not use seed that has been conditioned so much that it suffers reduced viability as a result.

A3 Substitutions

Alternate species or germplasm may only be used by requesting permission from the Office of Environmental Services Turf and Erosion Control Engineering Unit. Requests for permission must include written proof from three potential suppliers that the specified germplasm is not available. Approved substitutions will be named in a memo at the time they are approved. All currently approved substitutions will be posted on the Office of Environmental Services Erosion Control Unit website. Use of germplasm not listed herein will be considered unacceptable and will be subject to 1503.

A4 Requirements for seed of native species

Contractor shall supply and plant all seed in the 300 series mixes as pure live seed (PLS). This includes the cover crop, grass, sedge, and forb components. All seed in the cover crop component of mixes in the 300 series must be certified by the Minnesota Crop Improvement Association (MCIA) or the appropriate seed certifying agency in the seed's state of origin, if other than Minnesota.

All native seed used in mixes in the 300 series shall be certified by the Minnesota Crop Improvement Association (MCIA) in the Source Identified class. The genetic origin for this seed shall be within Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin.

Source Identified seed shall be accompanied by the appropriate quality mark documentation from the MCIA, in the form of a MCIA-labeled yellow tag or certification certificate. County of genetic origin shall be clearly identified on the seed label for all native seed. Selected class and Tested class germplasm of native species listed in Table 3876-1 located on the website of the Office of Environmental Services Erosion Control unit may be used in 100 and 200 series seed mixtures.

If a specified species or germplasm is not available, substitutions will be granted for native seed in the 300 series mixes according to the following order of preference:

1. First preference, MCIA certified Source Identified class with a genetic origin in Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin
2. Second Preference: Source Identified seed certified by a seed certifying agency other than MCIA but with a genetic origin in Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin
3. Third Preference: Certified seed of varieties/germplasm listed in Table 3876-1.
4. Fourth Preference: Wild Type from Minnesota or eastern North Dakota,

eastern South Dakota, northern Iowa, or western Wisconsin. Wild type seed is defined as seed of a local or regional ecotype that has originated from remnant native stands and that has not undergone any intentional selection process.

S-96.3 Mn/DOT Table 3876-1 is hereby deleted and replaced with the following:

TABLE 3876-1 NATIVE GRASSES SEED COUNTS AND ACCEPTABLE GERmplasm			
Trade Name	Scientific Name+	Acceptable Varieties/Germplasm*	Seeds Per Pound
Big Bluestem	<i>Andropogon gerardi</i>	Bonilla, Bison	131,200
Sideoats Grama	<i>Bouteloua curtipendula</i>		96,000
Blue Grama	<i>Bouteloua gracilis</i>		640,000
Fringed Brome	<i>Bromus ciliatus</i>		160,000
Kalm's Brome	<i>Bromus kalmii</i>		128,000
Hairy wood chess	<i>Bromus purgans</i>		121,600
Buffalo grass	<i>Buchloe dactyloides</i>		51,200
Blue-joint grass	<i>Calamagrostis Canadensis</i>		3,360,000
Bottle Brush Sedge	<i>Carex comosa</i>		384,000
Tussock Sedge	<i>Carex stricta</i>		848,000
Fox Sedge	<i>Carex vulpinoidea</i>		1,440,000
Canada Wild Rye	<i>Elymus canadensis</i>	Mandan	67,200
Bottle brush grass	<i>Elymus hystrix</i>		75,200
Slender Wheat Grass	<i>Elymus trachycaulus</i>	Revenue	135,000
Virginia Wild Rye	<i>Elymus virginicus</i>		62,400
Western Wheat Grass	<i>Elytrigia smithii</i>		113,600
Reed Manna Grass	<i>Glyceria grandis</i>		1,280,000
Fowl Manna Grass	<i>Glyceria striata</i>		2,560,000
Common rush	<i>Juncus effusus</i>		16,000,000
June Grass	<i>Koeleria macrantha</i>		2,400,000
Switch Grass	<i>Panicum virgatum</i>	Forestburg, Dacotah	224,000
Fowl Bluegrass	<i>Poa palustris</i>		2,080,000
Canada Bluegrass	<i>Poa compressa</i>		2,400,000
Little Bluestem	<i>Schizachyrium scoparium</i>	Itasca Germplasm	140,800
Green Bulrush	<i>Scirpus atrovirens</i>		2,240,000
Wool-grass	<i>Scirpus cyperinus</i>		2,880,000
Soft-stem Bulrush	<i>Scirpus validus</i>		496,000
Indian Grass	<i>Sorghastrum nutans</i>	Tomahawk	132,800
Prairie Cordgrass	<i>Spartina pectinata</i>	Red River Germplasm	105,600
Rough Dropseed	<i>Sporobolus asper</i>		480,000
Sand Dropseed	<i>Sporobolus cryptandrus</i>		3,200,000
Prairie Dropseed	<i>Sporobolus heterolepsis</i>		224,000
Green Needle Grass	<i>Stipa viridula</i>		120,000

* Varieties listed are approved for use in 100 and 200 series mixes. Their substitution for MCIA Source Identified seed in 300 series mixes is only allowed upon satisfaction of the requirements of 3876.2 A5. When multiple varieties are listed for a single species, they are listed in order of preference.

S-96.4 Delete Mn/DOT 3876.2B Requirements for Native Grasses, Sedges, Rushes (label and paragraphs) and replace with:

B Requirements for Native Grasses, Sedges, and Rushes..... Table 3876-1

(Keep table 3876-1)

S-96.5 Delete Mn/DOT 3876.2E Requirements for Native Forbs (Wildflowers): (label and paragraphs) and replace with:

E Requirements for Native Forbs (Wildflowers)..... Table 3876-4

(Keep table 3876-4)

S-96.6 Mixtures 260 and 270 in Mn/DOT Table 3876-5 are hereby deleted and replaced with the following:

Mixture: 260			
Common Name	Bulk Rate		% of Mix Component
	kg/ha	lb/ac	
Bluegrass, Kentucky "Certified Park"	35.8	40	32.0
Bluegrass, Canada	11.2	12.5	10.0
Bluegrass, Kentucky - Low Maintenance ¹	33.6	37.5	30.0
Fescue, hard	9.0	10	8.0
Rye-grass, perennial	22.4	25	20.0
GRAND TOTALS:	112	125	100.0
¹ Any accepted low maintenance Kentucky Bluegrass Except "Park" <i>Purpose: Commercial Turf</i>			

Mixture: 270			
Common Name	Bulk Rate		% of Mix Component
	kg/ac	lb/ac	
Bluegrass, Kentucky - Elite	33.6	37.5	25.0
Bluegrass, Kentucky - Improved	33.6	37.5	25.0
Bluegrass, Kentucky - Low Maintenance	33.6	37.5	25.0
Red fescue, creeping	10.8	12	8.0
Rye-grass, perennial	22.8	25.5	17.0
GRAND TOTALS:	134.4	150	100.0
<i>Purpose: Residential Turf</i>			

S-96.7

The 300 series mixes from Mn/DOT Table 3876-5 are hereby deleted and replaced with the following:

Table 3876-5

Mixture: 310			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	2.8	2.5	25.0
Indian grass	2.8	2.5	25.0
Wild-rye, Virginia	2.2	2.0	20.0
Switch grass	0.6	0.5	5.0
Blue-joint grass	0.3	0.25	2.5
Green bulrush	0.3	0.25	2.5
Wool grass	0.3	0.25	2.5
Giant bur reed	0.3	0.25	2.5
Cordgrass, prairie	1.7	1.5	15.0
Grass Totals:	11.3	10.0	100.0
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Wet Forbs Mixture (Table 3876-6)	2.2	2.0	100.0
GRAND TOTALS:	91.8	82.0	100.0
*Oats to be substituted for spring plantings			
Purpose: Native mix for wetter areas. Infiltration ponds, dry ponds, wet ditches. Tall height.			

Mixture: 325			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	1.7	1.5	15.0
Fringed brome	1.7	1.5	15.0
Wheat grass, slender	1.7	1.5	15.0
Virginia wild-rye	1.7	1.5	15.0
Switch grass	0.6	0.5	5.0
Fowl bluegrass	1.7	1.5	15.0
Indian grass	1.7	1.5	15.0
Prairie cord grass	0.6	0.5	5.0
Grass Totals:	11.4	10.0	100.0
	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Blue-joint grass	0.22	0.2	10.0
Bottlebrush sedge	0.34	0.3	15.0
Tussock sedge	0.22	0.2	10.0
Fox sedge	0.22	0.2	10.0
Reed manna grass	0.22	0.2	10.0
Fowl manna grass	0.22	0.2	10.0
Green bulrush	0.22	0.2	10.0
Wool grass	0.22	0.2	10.0
Soft-stem bulrush	0.34	0.3	15.0
Sedge Totals:	2.22	2.0	100.0

Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	61.6	56	80.0
Rye-grass, annual	12.3	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	77	70	100.0
Wet Forbs Mixture (Table 3876-6)	2.2	2.0	100.0
GRAND TOTALS:	92.8	84.0	100.0
*Oats to be substituted for spring plantings			
Purpose: Native sedge/prairie meadow mix. Reaches a height of 915 mm to 1220 mm (36 to 48 inches). Developed for use on hydric soils and for wetland restoration.			

Mixture: 328			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	2.2	2	12.5
Brome, fringed	2.2	2	12.5
Wild-rye, Virginia	4.4	4	25.0
Switchgrass	1.1	1	6.3
Bluegrass, fowl	5.5	5	31.2
Indian grass	2.2	2	12.5
Grass Totals:	17.6	16.0	100.0

Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	61.6	56.0	80.0
Rye-grass, annual	12.3	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	77	70	100.0

Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Milkweed, marsh	0.33	0.3	15.0
Prairie clover, purple	0.33	0.3	15.0
Tic-trefoil, showy	0.33	0.3	15.0
Sunflower, early	0.33	0.3	15.0
Black-eyed Susan	0.55	0.5	25.0
Vervain, blue	0.33	0.3	15.0
Economy Forbs Totals:	2.2	2.0	100.0
GRAND TOTALS:	96.8	88.0	100.0

*Oats to be substituted for spring plantings
Purpose: Native mix for infiltration ponds, dry ponds, temporary wet ditches. Tall height.

Mixture: 330			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Gramma, sideoats	3.4	3.0	21.5
Gramma, blue	2.8	2.5	18.0
Bluestem, little	3.9	3.5	25.0
June grass	1.1	1.0	7.0
Dropseed, sand	1.1	1.0	7.0
Wild-rye, Canadian	3.4	3.0	21.5
Grass Totals:	15.7	14.0	100.0

Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Dry Forbs Mixture (Table 3876-6)	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Application: Native mix for Sandy/dry areas. Short height.			

Mixture: 340			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	3.3	3.0	21.5
Bluestem, little	2.8	2.5	18.0
Wild-rye, Canadian	2.2	2.0	14.0
Grama, sideoats	2.2	2.0	14.0
Switch grass	0.6	0.5	4.0
Dropseed, sand	0.6	0.5	3.5
Bluegrass, Canada	3.4	3.0	21.5
June grass	0.6	0.5	3.5
Grass Totals:	15.7	14.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Dry Forbs Mixture (Table 3876-6)	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Purpose: Native mix for Sandy/Dry areas. Mid-height.			

Mixture: 350			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	3.4	3.0	21.5
Indian grass	2.8	2.5	18.0
Bluestem, little	2.8	2.5	18.0
Grama, sideoats	3.4	3.0	21.5
Wild-rye, Canadian	2.2	2.0	14.0
Switch grass	1.1	1.0	7.0
Grass Totals:	15.7	14.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0

Mesic Forbs Mixture (Table 3876-6)	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Application: Native mix for general roadside areas.			

S-96.8

Mn/DOT Table 3876-6 is hereby deleted and replaced with the following:

Table 3876-6

Mixture: Mesic Forbs		
Common Name	Botanical Name	% of Mix
Aster, smooth-blue	<i>Aster laevis</i>	5.0
Milkvetch, Canada	<i>Astragalus canadensis</i>	5.0
Prairie clover, white	<i>Dalea candidum</i>	5.0
Prairie clover, purple	<i>Dalea purpureum</i>	5.0
Tick-trefoil, Showy	<i>Desmodium canadense</i>	5.0
Coneflower, narrow-leaved	<i>Echinacea angustifolia</i>	5.0
Ox-eye, common	<i>Heliopsis helianthoides</i>	5.0
Coneflower, grey-headed	<i>Ratibida pinnata</i>	5.0
Blazingstar, rough	<i>Liatris aspera</i>	5.0
Blazingstar, tall	<i>Liatris pycnostachya</i>	5.0
Bergamot, wild	<i>Monarda fistulosa</i>	5.0
Penstemon, showy	<i>Penstemon grandiflorum</i>	5.0
Mint, mountain	<i>Pycnathemum virginianum</i>	5.0
Coneflower, columnar	<i>Ratibida columnifera</i>	5.0
Black-eyed Susan	<i>Rudbeckia hirta</i>	5.0
Goldenrod, stiff	<i>Solidago rigida</i>	5.0
Vervain, blue	<i>Verbena hastata</i>	5.0
Vervain, hoary	<i>Verbena stricta</i>	5.0
Alexanders, heart-leaved	<i>Zizia aptera</i>	5.0
Alexanders, golden	<i>Zizia aurea</i>	5.0
	Total:	100.0
Rate: 0.6 kg/ha (½ pounds per acre) PLS.		

Mixture: Dry Forbs		
Common Name	Botanical Name	% of Mix
Leadplant	<i>Amorpha canescens</i>	10.0
Milkweed, butterfly	<i>Asclepias tuberosa</i>	2.0
Aster, heath	<i>Aster ericoides</i>	4.0
Tic-seed, stiff	<i>Coreopsis palmate</i>	2.0
Yarrow	<i>Achillea millefolium</i>	2.0
Long-leaved bluets	<i>Hedyotis longifolia</i>	1.0
Bushclover, round-headed	<i>Lespedeza capitata</i>	3.0
Blazingstar, rough	<i>Liatris aspera</i>	4.0
Blazingstar, dotted	<i>Liatris punctata</i>	3.0
Lupine, wild	<i>Lupinus perennis</i>	5.0
Prairie clover, white	<i>Dalea candidum</i>	5.0
Prairie clover, purple	<i>Dalea purpureum</i>	16.0
Prairie rose	<i>Rosa arkansana</i>	1.0
Black-eyed susan	<i>Rudbeckia hirta</i>	18.0
Goldenrod, gray	<i>Solidago nemoralis</i>	3.0
Goldenrod, upland	<i>Solidago ptarmicoides</i>	1.0
Goldenrod, stiff	<i>Solidago rigida</i>	2.0
Goldenrod, showy	<i>Solidago speciosa</i>	2.0
Vervain, hoary	<i>Verbena stricta</i>	14.0
Alexander's, golden	<i>Zizia aurea</i>	2.0
	Total:	100.0

Rate: 0.6 kg/ha (½ pounds per acre) PLS

Mixture: Wet Forbs		
Common Name	Botanical Name	% of Mix
Hyssop, fragrant giant	<i>Agastache foeniculum</i>	2.0
Water plantain	<i>Alisma subcordatum</i>	4.0
Meadow garlic	<i>Allium canadense</i>	1.0
Anemone, Canada	<i>Anemone Canadensis</i>	1.0
Milkweed, marsh	<i>Asclepias incarnata</i>	2.0
Aster, panicled	<i>Aster simplex</i>	3.0
Aster, New England	<i>Aster novaeangliae</i>	3.0
Aster, red-stalked	<i>Aster puniceus</i>	3.0
Aster, flat-topped	<i>Aster umbellatus</i>	1.0
Tick trefoil, Canada	<i>Desmodium glutinosum</i>	1.0
Joe-pye weed	<i>Eupatorium maculatum</i>	17.0
Boneset	<i>Eupatorium perfoliatum</i>	10.0
Goldenrod, grass-leaved	<i>Solidago graminifolia</i>	2.0
Sneezeweed	<i>Helenium autumnale</i>	1.0
Giant sunflower	<i>Helianthus giganteus</i>	2.0
Ox-eye, common	<i>Heliopsis helianthoides</i>	1.0
Great St. John's wort	<i>Hypericum pyramidalatum</i>	2.0
Iris, wild	<i>Iris versicolor</i>	1.0
Blazingstar, tall	<i>Liatris pycnostachya</i>	8.0
Bergamot, wild	<i>Monarda fistulosa</i>	1.0
Prairie clover, white	<i>Dalea candidum</i>	1.0
Prairie clover, purple	<i>Dalea purpureum</i>	2.0
Mountain mint	<i>Pycnathemum virginianum</i>	1.0
Black-eyed susan	<i>Rudbeckia hirta</i>	6.0
Goldenrod, stiff	<i>Solidago rigida</i>	2.0
Tall meadow rue	<i>Thalictrum dasycarpum</i>	2.0
Vervain, blue	<i>Verbena hastata</i>	14.0
Ironweed	<i>Veronia fasciculata</i>	1.0
Culver's root	<i>Veronicastrum virginicum</i>	3.0
Alexander's, golden	<i>Zizea aurea</i>	2.0
	Total:	100.0

Rate: 2.2 kg/ha (2 pounds/acre) PLS

S-97 (3891) STORM DRAIN INLET PROTECTION

The provisions of Mn/DOT 3891 are supplemented and/or modified with the following:

S-97.1 Mn/DOT 3891.3A Rock Log, is revised to read as follows:

Rock logs shall meet the requirements of 3897.2 Filter Log Type Rock Log.

S-97.2 Mn/DOT 3891.3B Compost Log, is revised to read as follows:

Compost logs shall meet the requirements of 3897.2 Filter Log Type Compost Log.

S-98 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, City of Minneapolis Transportation Division, 300 Border Avenue North, 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 makes 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.

S-99

TRUCK ROUTES

The Contractor may use all the City of Minneapolis approved truck routes. Any alternate routes must have the written approval of the City of Minneapolis Department of Public Works, City Traffic Engineer, prior to their use.

SCHEDULE OF PRICES
NOTICE TO BIDDERS

Particular note should be made in regard to the clarity of numerals (figures) and to the procedure for alterations as directed by Section 1301.

The following abbreviations may be used in item description and unit of measure in the Schedule of Prices.

A	Arch	EXC	Excavation
AS	Anti-seepage	EXP	Expansion
AB	Asbestos Bonded	FAB	Fabric
ACT	Actuated	FE	Fence
AGG	Aggregate	FERT	Fertilizer
ALUM	Aluminum	F+I	Furnish & Install
ASB	Asbestos	FOUND	Foundation
ASPH	Asphaltic	FT LG	Feet Long
AMBY	Assemblies	FURN	Furnish
B+B	Balled & Burlaped	GA	Gauge
BC	Bituminous Coated	GRAN	Granular
BIT	Bituminous	HA	Hectare
BLDG	Building	HI	High
BR	Bridge	INP	In Place
CAL	Caliper	INST	Install
CB	Catch Basin	JA	Jacked
CEM	Cement	L	Liter
C and G	Curb and Gutter	LIN FT	Linear Feet
CI	Cast Iron	LG	Long
CIP	Cast-in-Place	M	Meter
CL	Class	M2	Square Meter
COMM	Commercial	M3	Cubic Meter
CONC	Concrete	MAINT	Maintenance
COND	Conductor	MATL	Material
CONN	Connection	MBM	1000 Board Feet
CONST	Construct	MET	Metal
CONT	Continuously	MM	Millimeter
CP	Cattle Pass	MOD	Modification
CTD	Coated	MPA	Metal Pipe Arch
CU FT	Cubic Feet	MTD	Mounted
CU METER	Cubic Meter	ON MET	Non Metallic
CU YD	Cubic Yard	ON PERF	Non-Perforated
CULV	Culvert	ON REINF	Non-Reinforced
CWT	Hundred Weight	OH	Overhead
DES	Design	PA	Pipe-Arch
DBL	Double	PAVT	Pavement
DI	Drop Inlet	PERF	Perforated
DIAM	Diameter	PL	Plate
DRWY	Driveway	PNEUM	Pneumatic

PREC	Precast
PREST	Prestressed
PVC	Poly Vinyl Chloride
RCPA	Reinforced Concrete Pipe Arch
REINF	Reinforced
RELO	Relocation
RESTOR	Restoration
RMC	Rigid Metallic Conduit
RNMC	Rigid Non Metallic Conduit
RDWY	Roadway
SG	Sand & Gravel
SIG	Signal
SPE	Special
SQ FT	Square Feet
SQ METER	Square Meter
SQ YD	Square Yard
STA	Station
STD	Standard
STL	Steel
STKPL	Stockpile
STR	Strength
STRUCT	Structural
SPPA	Struct. Plate Pipe Arch
SYS	System
T	Traffic
T	Metric Ton
TBR	Timber
TEMP	Temporary
THERMO	Thermoplastic
TRTD	Treated
UNDERGRD	Underground
UNTRTD	Untreated
VAR	Variable
VM	Vehicle Measure
WEAR	Wearing

S.A.P. 027-030-027
CSAH 9 & 152; C.P. 1122
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