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**SPECIAL PROVISIONS
 DIVISION "S"
 SPECIAL REQUIREMENTS**

S-1 CONTACT INFORMATION

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

S-2 INSURANCE

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

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

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

S-2.3 Commercial Automobile Liability:

Combined single limit each occurrence coverage or the equivalent covering owned, non-owned, and hired automobiles.	\$1,000,000
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S-2.4 Workers’ Compensation and Employer’s Liability:

A. Workers’ Compensation	<u>Statutory</u>
Employer’s Liability (Including stop gap coverage in monopolistic states)	\$1,000,000

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

B. Employer’s Liability. Bodily injury by:	
Each Accident	\$1,000,000
Disease – Policy Limit	\$1,000,000
Disease – Each Employee	\$1,000,000

S-2.5 Contractor’s Pollution Liability

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

Per Occurrence and Aggregate \$2,000,000

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

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

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

Policy Limits: (Amount of Project)

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

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

Notwithstanding any other provision of this Agreement to the contrary, no officer, employee or agent of the County is authorized to cause, suffer, or permit the Contractor or any of its employees, guests, agents, subcontractors, or suppliers to commence or perform any work or otherwise enter upon the project site unless and until all of the conditions of this Article have been conformed to and performed.

If Contractor shall fail to certify required insurance coverage to the County as set forth above, before commencing work hereunder, the County may, at its option and without waiving any rights under this Contract, place

insurance of the character, nature and limits described above to cover the operations of the Contractor, paying the premiums for the same and charging same to the Contractor.

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

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

S-2.9

The Contractor shall maintain insurance with these provisions:

1. Except as to Workers' Compensation, Employers' Liability and Professional Errors & Omissions insurance, County shall be named as additional insured under ISO form CG 20 10 07 04 and CG 20 37 07 04, or the equivalents as approved by County. The County as an additional insured shall have all the rights, coverages, and limits afforded the Contractor under the policies. In the event that any insurer issues a reservation of rights for County as an additional insured, County shall be entitled to employ independent counsel at Contractor's expense.
2. For all insurance policies required or referenced in this agreement, Contractor agrees to waive and shall require all Contractors of every tier to waive all subrogation rights on behalf of itself and 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. County must approve the insurance companies and all insurance companies shall maintain at all times a rating of A- or higher by A.M. Best. It shall be considered a material breach of this contract if at any time before, during or after completion of the project as required in this agreement for Contractor or any of its subcontractor's insurance to be

cancelled, non-renewed, reduced in coverage below that required in this agreement, or an insurance carrier rating is reduced below an A- as rated by A.M. Best (and Contractor has not obtained qualifying alternative insurance from an approved carrier).

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

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

S-2.11 REMOVAL OF LIENS

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

S-2.12 PARTIAL OCCUPATION BY OWNER

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

S-2.13 RIGHT TO AUDIT

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

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

S-2.14 PRESERVATION OF EVIDENCE

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

S-2.15 CONTRACT OBLICATIONS TO SURVIVE PERFORMANCE

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

S-3 **USE OF ADHESIVE ANCHORS**

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

S-4 **EMERALD ASH BORER COMPLIANCE**

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

S-4.1 No part of Ash (Fraxinus spp) tree from a quarantined area can be marketed to wood-using industries or individuals without an Emerald Ash Borer compliance agreement with the Minnesota Department of Agriculture.

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

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

S-4.3 The Contractor shall dispose of ash trees:

- (1) In accordance with the Emerald Ash Borer Compliance Agreement, and
- (2) By utilizing the ash wood chips within the construction limits for erosion control, construction exit pads or landscaping purposes.

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

S-5 (1103) DEFINITIONS

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

S-5.1 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 INCIDENTAL COST OR EXPENSE

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

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

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

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-6.1 Bidders shall be responsible for all costs involved in obtaining these permits.

S-7 (1206) PREPARATION OF PROPOSAL

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

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

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

S-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://ebidvault.rvision.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 (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-9 (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 filled out
- b) Proposal Form (Page 1 of 2 and Page 2 of 2)
- c) Form 21126D (if project is a Federal project)
- 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 9842".

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 within five (5) days after bid opening. This applies only to bidders submitting an electronic bid.

S-10 (1210) WITHDRAWAL OR REVISION OF PROPOSALS

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

Any bidder may withdraw or revise its Proposal after it has been deposited with the Contracting Authority, provided the request for withdrawal or

revision is received in writing before the time set for opening proposals.

The 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-11 (1212) PUBLIC OPENING OF PROPOSALS

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

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

S-12 (1302) AWARD OF CONTRACT

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

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

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

S-13 (1305) REQUIREMENT OF CONTRACT BOND

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

At the time of the execution of the Contract, the successful bidder shall furnish both a performance bond and a payment bond. Each bond shall list

the address of the successful bidder and of the surety, shall be written for the full amount of the contract price, 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-14 **(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 "15 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-15 **(1307) FAILURE TO EXECUTE CONTRACT**

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

S-16 **(1404) MAINTENANCE OF TRAFFIC**

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

- S-16.1 All traffic control devices shall conform to and be installed in accordance with the "Minnesota Manual On Uniform Traffic Control Devices" (MN MUTCD) and Part 6, "Field Manual for Temporary Traffic Control Zone Layouts", the Minnesota Flagging Handbook, the Minnesota Standard Signs Manuals, the Traffic Engineering Manual, and the provisions of Mn/DOT 1404 and Mn/DOT 1710 and the Traffic Control Layouts/Typical Traffic Control Layouts in the Plans, 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 for the life of the Contract from the start of Contract operations to the final completion thereof, including any times of suspension, or until approved by the Engineer, whichever is longer. The Engineer shall have the right to modify the requirements for traffic control as deemed necessary due to existing field conditions. The highways shall be kept open to traffic at all times, except as modified below.

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

S-16.2 Special Project Requirements

1. All traffic shall be maintained at all times on CSAH 22 south of West Minnehaha Parkway as shown on plans over a minimum traveled width of one 11 foot wide lane in each direction using the by-passes indicated in the plans, the existing road surfaces and the newly constructed road surfaces.
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. 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.
4. Two-way through traffic must be restored on bituminous surfacing on all roadways within the project limits on or before November 15, 2012.
5. The Contractor shall maintain, at all times, the existing traffic movements as shown on plans at the following intersections:
West 56th Street, West 55th Street, West 54th Street, and
Minnehaha Parkway (Eastbound).

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 is allowed shoulder, land and/or trail closures for work at the Lyndale Avenue/Minnehaha Parkway intersections south of the bridge. The Contractor is not allowed traffic restrictions on Minnehaha Parkway during the following events:
 - a) Lifetime Fitness Triathlon – July 2012
 - b) Minneapolis Bike Tour – September 2012
 - c) Twin Cities Marathon – October 2012
 - d) Monster Dash – October 2012
9. The Contractor shall maintain access for emergency vehicles and residents of Mount Olivet Careview Home at all times.
10. Pedestrian traffic shall be maintained and guided through the Project at all times per PROWAG. This includes the placement of signing and appropriate temporary striping as well as providing for at least one hard surfaced crossing in each direction at all intersections. The hard surface crossing may move during construction to accommodate the Contractor's operations, but one must be in service at all times, and have appropriate advance and guidance signing at all times. This work is incidental.
11. 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.
12. At various locations and times within the project the new storm sewer work will not function properly without completing the storm sewer construction thru the existing roadways being used to carry traffic. In those locations where the completion of the underground construction through the open traffic lanes is essential to the project progress, and safety of the motoring public, the Contractor will be permitted to utilize the open trench method of construction thru the roadways in order to complete as much of the construction as is required for the drainage to function properly.

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.

One lane of traffic in each direction shall be maintained at all times

- during any construction activities through the roadways open to traffic unless otherwise approved by the Engineer. Bituminous patches will be required at all locations where the driving surface is disturbed and shall be installed prior to reopening the roadway to traffic. Furnishing and placing the bituminous patching mixture shall be an incidental expense for which no direct compensation will be made.
13. If the Contractor desires to perform the construction work in a sequence other than that for which the Plans show appropriate signing, the Contractor shall provide complete revised Traffic Control Plans to the Engineer for approval at least 14 days before the signing for the desired revised staging is to be put into effect. The Contractor shall modify the proposed Traffic Control Plans as deemed necessary by the Engineer. No revised Traffic Control Plans will be permitted without the Engineer's approval.
 14. The Contractor shall furnish to the Engineer for approval, the plan for switching traffic from one traffic control stage to another. The plan shall be furnished prior to the switch and shall consist of the number of Contractor's personnel that will be available for the switch and the function each person will be performing.
 15. The Contractor shall be required to cover or remove all traffic control devices which may be inconsistent with traffic patterns during all traffic switches.
 16. Upon switching the traffic from one stage to the next stage differences in elevation between the new roadways and the existing roadways may occur. In the locations where cross traffic is to be maintained, temporary construction measures and temporary additional traffic control devices may be required. Any additional materials, labor, equipment and traffic control devices required to maintain cross traffic to and across the new roadway shall be furnished, installed, maintained and removed by the Contractor as an incidental cost of the project for which no direct compensation will be made.

All work required to ensure the safe and convenient use by thru traffic on CSAH 22 as well as all cross and turning traffic, that is to be maintained in accordance with the traffic control plans, shall be accomplished in a timely manner as soon as possible after the traffic routing is switched from one stage to the next stage.

17. The Contractor shall install final signing and pavement markings as necessary and required to safely open CSAH 22 to traffic. This work shall be completed on or before the date of opening as approved by the Engineer.

S-16.3 Traffic Control

- (a) 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.
- (b) 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.
- (c) 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.**

- (d) 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-16.4 General Requirements

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

- C. 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.
- D. 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.
- E. In the event of severe weather conditions the Contractor shall provide additional personnel and equipment to maintain all traffic control devices.
- F. The Contractor shall have at least ten extra Type I barricades with flashers, five extra Type III barricades, and ten extra plastic drums stored at a convenient location within the project limits for use in an emergency. The storage and use of said extra barricades, barrels, and

flashers shall be incidental to the lump sum traffic control pay items, not as Additional Traffic Control Devices.

- G. The Contractor shall store at least 10 extra Type III barricades and 10 extra retro-reflective 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.
- H. The Contractor shall furnish names, addresses, and phone numbers of at least three (3) individuals responsible for the placement and maintenance of traffic control devices. These individuals shall be "on call" 24 hours per day, seven days per week, during the times any traffic control devices, furnished and installed by the Contractor, are in place. The required information shall be submitted to the Engineer at the Pre-Construction Conference.
- I. 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.
- J. 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:

Minneapolis Traffic & Parking Services (Doug Maday)	(612) 673-5755
Minneapolis Public Works (Jeff Handeland)	(612) 673-2363
Minneapolis Police Department	(612) 348-2345
Minneapolis Fire Department	(612) 673-2890
Minneapolis Traffic Control Unit	(612) 335-5932

- K. 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.

- L. 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.
- M. 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.
- N. 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.
- O. The Contractor shall provide protective devices necessary to protect traffic from excavations, drop-offs, falling objects, splatter or other hazards that may exist during construction. This work shall be an incidental cost to the Contract.
- P. 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.
- Q. 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.
- R. The Contractor will not be allowed to store materials or equipment within 30 feet of through traffic unless approved by the Engineer. If materials or equipment must be stored within 30 feet of through traffic, the Contractor shall provide barricades or barriers as an incidental traffic control expense, as directed by the Engineer, to warn and protect traffic.
- S. All personnel working on or near the traveled roadway shall wear reflectorized safety vests.
- T. 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.

- U. Open excavation adjacent to the existing pavement will not be permitted on opposite sides of the roadway at the same time.
- V. Street identification signage shall be maintained at all times. This is necessary to maintain the '911' emergency system.
- W. All portable sign assemblies shall be perpendicular to the ground. No traffic control device (signs, channelizing devices, arrow boards, 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.

- X. When signs are installed, they shall be mounted on posts driven into the ground at the proper height and lateral offset as detailed in the MN MUTCD. **When signs are removed, the sign posts and stub posts shall also be removed from the Right of Way within two (2) weeks or the Contractor shall be subject to a daily charge assessed at a rate of \$100.00 per day for each day or portion thereof with which the Engineer determines that the Contractor has not complied.**
- Y. A Portable Changeable Message sign will be provided in advance of each temporary lane closure to communicate real time information.

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

Except as authorized by the Engineer, the message sign shall be stored off the shoulder when not in use. In the event the Engineer allows the message board to remain on the shoulder the message sign shall be delineated with a minimum of three (3) retro-reflective drums or weighted channelizers, or as determined by the Engineer.

Payment for Portable Changeable Message Signs furnished and installed, as directed by the Engineer, will be made by the Unit Day as specified in Section 2563 (PORTABLE CHANGEABLE MESSAGE SIGN) of these Special Provisions.

S-16.5 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-16.6 Temporary Lane Closure Requirements

1. 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.
2. 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.
3. 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.
4. Temporary lane closures or other restrictions by the Contractor, during work hours and consistent with the time restrictions herein, will be permitted during those hours and at those locations approved by the

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

When a temporary lane closure is used by the Contractor, the closure shall be incidental work and no direct compensation will be made therefor.

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

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

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

6. Temporary lane restrictions will not be permitted between the hours of 6:30 AM and 8:00 AM and between the hours of 4:00 PM and 6:00 PM on any weekday (Monday through Friday) excluding legal holidays. Work which will restrict or interfere with traffic shall not be performed between 12:00 noon on the day preceding and 9:00 AM 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 the hourly charge as set forth in Section 1807 (Failure to Complete the Work on Time) of these Special Provisions.

S-16.7 Paving and Milling Operations:

The contractor shall provide and install "DO NOT PASS" signs, and "PASS WITH CARE" signs prior to beginning any work that will remove any centerline pavement markings restricting passing. These signs shall remain in-place until the final centerline striping is completed. A "DO NOT PASS" sign shall be post mounted on the right side of the roadway at the beginning

of each no passing zone and a "PASS WITH CARE" sign shall be post mounted on the right side of the roadway at the termination of each no passing zone, as directed by the Engineer. Payment for these signs shall be included in the lump sum payment for traffic control.

Milling operations shall be completed over the full width of the section under construction on each day's run prior to opening the roadway to traffic.

The Contractor will be responsible for furnishing and installing temporary striping as directed by the Engineer. Payment for such temporary striping will be made as provided elsewhere in these Special Provisions.

The Contractor shall schedule milling and bituminous paving operation such that milled areas will be covered with the first lift of the new bituminous surfacing course within 72 hours of completion of the milling, except for delays caused by inclement weather.

Any drop-offs where traffic will cross between the in-place surface and the milled surface shall be tapered and/or chamfered so as to provide for the safe passage of traffic.

The Contractor shall furnish and install "ROUGH ROAD AHEAD" and "BUMP" signs with "Advisory Speed" plates at locations determined by the Engineer. Payment for these signs shall be included in the lump sum payment for traffic control.

The Contractor shall maintain traffic with a minimum of delay during milling and paving operations at intersections controlled by signals or by all-way stop signs.

The Contractor shall schedule construction operations so as to minimize traffic exposure to uneven lanes, milled edges, and edge drop-offs. Only after every attempt has been made to avoid these conditions and one or more of them are deemed necessary, the Contractor shall provide and maintain the appropriate traffic control in accordance with the "Longitudinal Drop-offs" guidelines in the Field Manual.

The Contractor shall not mill any notches for surfacing tapers until immediately prior to paving, except that with the Engineer's permission, the Contractor may mill the notches and install and maintain temporary bituminous tapers to provide for the safe passage of traffic until the surfacing taper is installed.

S-16.8 Signal and Lighting Systems:

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 until replacement (temporary or permanent) signal system(s) to be installed at the same location become operational.

During the period when any existing signal system is de-energized and the new 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.

The Contractor shall maintain street lighting by means of the in-place lights, the newly constructed lights, or a combination thereof, except as otherwise authorized in writing by the Engineer.

S-16.9 Measurement and Payment

A. Traffic Control will be measured and paid for as follows:

The lump sum price bid per area, and payments made therefor, shall be compensation in full for all costs of furnishing, installing, maintaining, relocating and removing the individual traffic control devices (including flaggers) as shown on the Traffic Control Layouts in the Plans and/or as specified in these Special provisions. The lump sum unit price shall not include payment for any items identified in the following "Additional Traffic Control Devices" sections. The lump sum shall also include traffic control devices used for daily lane closures, construction of the temporary widening, any extra signing needed to facilitate traffic switches, or for transitioning from one stage to another.

The lump sum Traffic Control items does not includes payment for the temporary striping and messages shown on the Traffic Control Layouts and any pavement marking removal.

B. Partial payments for each of the multiple pay items for traffic control identified as Items 2563.601 Traffic Control Area "___" will be made as percentages of the respective Contract lump sum amount per stage according to the following schedule:

	<u>Cumulative % of Lump Sum Traffic Control Item to be Paid</u>
When all traffic control devices per individual area as shown on the Traffic Control Layouts, are installed	75%
Upon completion of all designed work in individual area and all traffic control devices required for that stage are removed	25%
S-16.10 Additional Traffic Control Devices	
In addition to the traffic control devices and pavement markings shown on the Traffic Control Layouts in the Plans, and/or Field Manual and the devices and markings required for temporary widening and anticipated daily lane closures the Engineer may require more traffic control as traffic conditions on the Project may warrant.	
A. General Requirements:	
The Contractor shall furnish the additional traffic control devices as ordered by the Engineer.	
The devices shall be installed and maintained in a functional and/or legible condition, at all times, to the satisfaction of the Engineer.	
B. Measurement:	
Flashers, barricades, reflectorized drums, tube delineators, portable changeable message signs, and standard signs, will be measured by the number of individual units of each type furnished and installed complete in place, multiplied by the number of Calendar Days each unit is in service.	
Standard signs of each type, other than 4 ft x 4 ft signs will be measured by the face area of signs furnished multiplied by the number of Calendar Days each respective sign is in service.	
Special construction signs will be measured by the face area thereof furnished and installed as specified.	
Raised pavement markers will be measured by the number of individual units of each type furnished and installed.	
Pavement markings will be measured by the length of each type and width installed. Broken lines will be measured by the actual length of line painted and will not include the gaps between the markings.	

Double lines will be measured as one length along the centerline between the two lines.

C. Payment:

Payment for additional traffic control devices of each type, at the appropriate Contract Unit Price per day or per each, shall be compensation in full for all costs for furnishing, installing, maintaining and subsequently removing and disposing of the device.

Payment for standard signs of each type, other than 4 ft x 4 ft signs, at the appropriate Contract Unit Price, shall be compensation in full for all costs of furnishing, installing, maintaining and subsequently removing and disposing of the signs.

Payment for "Construction Signs - Special" at the Contract Unit Price per square meter (foot) shall be compensation in full for all costs involved with fabricating, furnishing and installing the signs, mounting hardware and posts, maintaining the signs, and removing the signs upon direction of the Engineer. All signs will remain the property of the Contractor.

Payment for portable changeable message signs at the Contract Unit Price per Unit Day shall be compensation in full for all costs incidental thereto, including but not limited to furnishing and installing the signs with appropriate messages, operating and maintaining the signs, revising the messages as directed by the Engineer, and removing the signs when no longer required as approved by the Engineer.

Payment for pavement markings at the appropriate Contract Unit Price per length, for each width and type 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) any other expenses incurred in completing the work that are not specifically included for payment under other Contract Items.

The provisions of Mn/DOT 1903 shall not apply to furnishing additional traffic control devices.

Payment for all additional traffic control devices, as ordered by the Engineer, will be made in accordance with the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2102.501	Pavement Marking Removal	Sq. Foot
2102.502	Pavement Marking Removal	Linear Foot
2533.507	Portable Precast Concrete Barrier – Des 8337	Linear Foot

2533.508	Relocate Portable Precast Concrete Medina Barrier – Des 8337	Linear Foot
2563.602	Raised Pavement Marker, Temporary	Each
2563.602	Portable Concrete Barrier Delineator	Each
2563.613	Type III Barricade (Diamond Grade)	Unit Day
2563.613	Reflectorized Plastic Safety Drum	Unit Day
2563.613	Flasher Type B (High Intensity)	Unit Day
2563.613 *	Portable Changeable Message Sign	Unit Day
2563.613	4 ft x 4 ft Standard Sign w/Support (Diamond Grade)	Unit Day
2563.618	Construction Signs – Special (Diamond Grade)	Sq. Foot
2581.501	Removable Preformed Plastic Marker	Linear Foot
2582.501	Pavement Message (Left Arrow) Paint	Each
2582.501	Pavement Message (Right Arrow) Paint	Each
2582.502	4 inch Solid Line White-Paint	Linear Foot
2582.502	6 inch Solid Line White-Paint	Linear Foot
2582.502	12 inch Solid Line White-Paint	Linear Foot
2582.502	4 inch Broken Line Yellow-Paint	Linear Foot
2582.502	4 inch Solid Line Yellow-Paint	Linear Foot
2582.502	4 inch Double Solid Line Yellow-Paint	Linear Foot

Barricades, drums and signs by the Unit Day shall be paid for up to 90 days per device. After 90 days, payment per unit day will continue at a reduction of 40% of the Unit Day bid price.

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

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(1407) FINAL CLEANUP

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

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

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

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

S-18 (1505) COOPERATION BY CONTRACTOR

Bidders are hereby advised that the following projects either have been recently let or will be let during the anticipated time this Contract will be in effect. The successful bidder shall coordinate its operations with those of the other Contractors on these projects:

A. C.P. 0403 Lyndale Avenue Bridge at Minnehaha Creek

S-18.1 The Contractor shall coordinate the construction activities and work required herein and cooperate with the holder(s) of the above listed contract(s), both present and future, and their forces in accordance with the provisions of Standard Specification Mn/DOT 1505 and as directed by the Engineer.

S-18.2 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-18.3 The following contacts shall be kept informed of activities that may affect their properties/business:

a) Washburn Library
 5244 Lyndale Avenue South
 Minneapolis, MN 55419

Contact:
 Paul Bell
 Building Operations Manager
 South Suburban Libraries
 Ridgedale Regional Center
 Ridgedale Drive
 Minnetonka, MN 55305

Phone: 952-847-8748

Cell: 612-328-6809
paul.bell@co.hennepin.mn.us

b) Prima Restaurant
53rd/ Lyndale

Contact:
Jennifer King
612-483-0596

S-19 (1506) SUPERVISION BY CONTRACTOR

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

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

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

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

S-20 (1507) UTILITY PROPERTY SERVICE

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

S-20.1 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-20.2 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-20.3 The following utility owners have existing facilities that may be affected by

the work under this Contract.

CenterPoint Energy Resources Corp.
Comcast Cable Communications, Inc.
Metropolitan Council Environmental Services (MCES)
Qwest Corporation
USI Wireless, Inc.
Xcel Energy

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-20.4 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-20.5 The City of Minneapolis utilities that are affected such as storm sewer, sanitary sewer, and water supply have been included in the Plan for adjustment or relocation. The Contractor shall notify Jeff Handeland, Engineer at telephone (612) 673-2363, 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-20.6 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-20.7 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-20.8 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-20.9 In all areas where the lower limit of the subgrade excavation, as indicated in the plans or as directed by the Engineer, is below the top elevation of any utility, excepting City water and sanitary sewer, within the project limits, the excavation shall be performed in the following manner:
- (A) The Contractor shall excavate all possible material from above and adjacent to the existing utility conduit within the practical safe limits of its excavating equipment (approximately 2 foot from the utility) without damaging the utility.
 - (B) The utility owner will remove all remaining materials from around their respective utility and deposit the materials adjacent to the utility at such a distance that the Contractor can then safely complete the removal.
 - (C) Backfill material shall be placed by the Contractor adjacent to the utility and the utility companies will backfill and compact the material below and around the utilities to such an extent that the Contractor can complete the backfill operations with excavating and roadway compaction equipment.

Payment will be made to the Contractor for all material removed (including that removed by the utility companies) but no payment in addition to the appropriate Contract bid price per cubic yard will be made for performing the above described work.

S-21 **(1508) CONSTRUCTION STAKES, LINES AND GRADES**

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

S-21.1 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-21.2 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-22 **(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-23

(1514) MAINTENANCE DURING CONSTRUCTION

The provisions of Mn/DOT 1514 are hereby supplemented with the following:

S-23.1 In addition to the Contractor’s requirements for sweeping as required under Mn/DOT 2051 (Maintenance and Restoration of Haul Roads) and in S-57, the Engineer may require additional sweeping of roads adjacent to the construction site to provide safe conditions for the traveling public, environmental reasons, local regulatory requirements or as otherwise directed by the Engineer.

Payment for additional sweeping ordered by the Engineer will be made as specified below. (This price represents a shared cost.)

Pick up Broom w/Operator	\$55.00 per hour
Self Propelled Pavement Broom w/Operator	\$30.00 per hour

S-23.2 The Contractor shall maintain drainage for all temporary roadways and work sites at all times. When existing drainage facilities are severed or otherwise rendered inoperable the Contractor shall construct as much of the designed drainage system as may be necessary to maintain adequate drainage. Temporary grading and/or ditching may also be required to maintain drainage. Payment will be made at the appropriate Contract unit price for all permanent drainage facilities constructed. Any temporary grading and ditching that is required shall be completed as an incidental expense unless it is part of the designed project earthwork and it is totally removed and permanently disposed of. All temporary drainage work shall be completed to the satisfaction of the Engineer.

S-23.3 All side slopes adjacent to temporary bypasses shall be effectively maintained against erosion. In the event erosion occurs the Contractor shall reshape the slope to its original elevations and cross-section as an incidental expense for which no direct compensation will be made. This side slope maintenance is required to ensure the integrity and traffic carrying ability of the adjacent temporary bypass.

S-24 (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-25 (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-26 (1701) LAWS TO BE OBSERVED

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

S-26.1 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-26.2 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-26.3 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-27 (1702) PERMITS, LICENSES, AND TAXES

Permits and licenses shall be procured and taxes paid in conformance with

Mn/DOT 1702 and the following:

- S-27.1 Any City licenses and permits required to perform electrical or water 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-27.2 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-27.3 This project meets the criteria established by the Minnesota Pollution Control Agency for requiring a General Permit Authorization to Discharge Storm Water Associated with a Construction Activity under the National Pollutant Discharge Elimination System/State Disposal System Permit Program (hereafter referred to as the "MPCA Construction Activity Permit"). Bidders are advised that prior to the commencement of any construction activities, the successful bidder will be required to **obtain this permit** as required by Mn/DOT 1717.2 and the modifications to that section contained in these Special Provisions. Copies of said permit and permit application form are included elsewhere in these documents as attachments. All application fees associated with this permit shall be paid by the Contractor.
- S-27.4 Bidders are advised that the County has applied to the following agencies for the necessary permits for grading, drainage, erosion control, and turf establishment, as represented in the Plans:
- A. Minnehaha Creek Watershed District
 - B. Minneapolis Park and Recreation Board
 - C. Minnesota Pollution Control Agency
- The various permits included in the Proposal for this project, as issued, shall be construed to be part of the Special Provisions in the Proposal. The conditions, requirements and restrictions of these permits shall be binding on the Contractor's operations under this Contract.
- S-27.5 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-28 **(1706) EMPLOYEE HEALTH AND WELFARE**

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

S-28.1 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-28.2 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-28.3 The Contractor is hereby advised that any work performed under the terms of this contract which in the opinion of the Engineer can not be adequately and safely inspected by County personnel due to the lack of OSHA or ANSI required safety measures (i.e. Trenches, fall protection, confined space or other hazards) be deemed Unauthorized Work in accordance with Mn/DOT 1512 and will not be paid for. A \$500.00 **monetary deduction (per incident) will be assessed by County for violations of safety standards and requirements that have the potential for loss of life and/or limb of Project personnel or the public.** The areas of special concern include, but are not limited to excavation stability protection, fall protection, protection from overhead hazards, vehicle backup protection (See S-28.2), confined space safety, blasting operations, and personal safety devices.

S-28.4 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-28.5 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 afore cited 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-28.6 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-28.7 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-28.8 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-29 (1707) PUBLIC CONVENIENCE AND SAFETY

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

- S-29.1 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-29.2 Bus routes for the Minneapolis School District will be affected by this Project. The Contractor shall notify the School District's Transportation representative, Frank Zimman (telephone # 612-668-2357) or Steve Crenshaw (telephone # 612-668-2351) a minimum of ten (10) working days prior to the date of any traffic changes that may affect school bus service.
- S-29.3 Postal service for 1 U.S. post office will be affected by this Project. The branch is Diamond Lake. Any mailbox relocations or roadway closures affecting deliveries shall be communicated with the appropriate post office ten (10) working days prior to date of affecting change.

Contacts for the Post Offices are:

Diamond Lake P.O.: Marth Witt (612) 823-2726

S-30 (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-30.1 The first paragraph of Mn/DOT 1710.2, is revised to read as follows:
- The Contractor shall provide, install, maintain and remove all traffic control devices as deemed necessary by the Department in accordance with the Contract, and the MN MUTCD; this includes, but is not limited to, the following:
- S-30.2 Subparagraph (b) of the first paragraph of Mn/DOT 1710.2, is revised to read as follows:
- (b) To control and guide traffic through the project. At the end of each day during paving operations, the Contractor shall be required to place temporary reflectorized pavement marking tape, in accordance with Mn/DOT Standard Specification 2581, as lane delineation between all traffic lanes on each paving lift that is, or will be, open to normal traffic flow. Furnishing and placing of temporary pavement marking tape shall be paid for in accordance with Mn/DOT 2581.
- S-30.3 The provisions of Mn/DOT 1710.3, 1710.4 and 1710.5 are hereby deleted from the Contract.
- S-30.4 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-30.5 Concrete median barrier delineators shall be one of the following types listed (200 mm x 114 mm (7⁷/₈ inch x 4¹/₂ inch) in size), or an approved equal, as directed by the Engineer:

- (A) Davidson Portable Concrete Barrier Marker
Davidson Plastic Co.
18726 East Valley Hwy.
Kent, Washington 98032
- (B) Guardrail and Barrier Delineator, 965, Simsonite
Signals Products Division, Amerace Corp.
7542 North Natchez Avenue
Niles, IL 60648
- (C) Reflexite Barrier Mount Delineator
Reflexite Corp.
315 South Street, P.O. Box 1628
New Britain, Conn. 06050
- (D) Duraflex Flexx 2020 Varrier Delineator
Duraflex Corp.
297 Margaret King Ave.
Ringwood, N.J. 07456

S-30.6 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-30.7 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-30.8 Portable changeable message signs shall comply with the requirements of Appendix 8-8.04 to Chapter 8 of the Mn/DOT Traffic Engineering Manual and the following:

(PCMS) Type C Trailer Mounted Message Signs will be permitted. It is

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

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

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

S-30.9 Temporary raised permanent markers and the selected mounting system shall be installed, maintained, and removed from the roadway in accordance with the applicable Mn/DOT Standard Specifications and the specification TEMPORARY RAISED PAVEMENT MARKERS (TRMPs).

Payment for temporary raised pavement markers will only be made as an additional traffic control device when so required by the Engineer. All temporary raised pavement markers shown on the traffic control layouts in the plans shall be installed and maintained as an incidental expense to the appropriate lump sum Traffic Control pay item.

S-31 (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-31.1 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 shown on sheets 42 to 46 of plans as shown by the "Protect Tree" symbol.

The Engineer shall have the right to add locations to the sheets if deemed necessary. Any costs associated with the necessary special precautions or special construction procedures shall be paid under pay item 2571.602 Tree Protection.

- S-31.2 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-32 **(1714) RESPONSIBILITY FOR DAMAGE CLAIMS**

Responsibility for damage claims shall be in accordance with the provisions of Mn/DOT 1714, except that the first paragraph is hereby deleted and replaced with the following:

The Contractor agrees to defend, indemnify, and hold harmless the County of Hennepin, the City of Minneapolis, 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-33 **(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-33.1 **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-33.2 By signing the Proposal and completing the NPDES permit application, the Contractor is a co-permittee with the County to ensure compliance with the terms and conditions of the General Storm Water Permit (MN R100001) and is responsible for those portions of the permit where the operator is referenced. This Permit establishes conditions for discharging storm water to waters of the State from construction activities that disturb 1 acre or more of total land area. A copy of the "General Permit Authorization to Discharge Storm Water Associated with a Construction Activity Under the National Pollutant Discharge Elimination System (NPDES)/State Disposal System

Permit Program” is available at:

<http://www.pca.state.mn.us/water/stormwater/stormwater-c.html> or by calling 612-596-3890.

The Contractor shall apply and pay for the NPDES Permit on this Project. Payment for the application shall be incidental to the Contract and no direct compensation will be made. The County will provide the Contractor with the application form with Section 1 thru 3 and 5 thru 14 completed, as part of the Contract document package. The Contractor shall fill out the Contractor’s portion (Section 4 and Section 15), complete the application process, and post the Permit and MPCA’s letter of coverage onsite.

A NPDES Permit Declaration form will be sent to the Contractor with the Contract award packet. A copy of the signed permit application and a signed Permit Declaration form must be returned to the County within 10 days after receipt of the Notice of Award letter. Submittal of the copy of the signed permit application and Permit Declaration is mandatory for Contract approval. No work which disturbs soil and/or work in waters of the state will be allowed on this Project until the NPDES Permit is in effect and the County has received the required documentation.

S-33.3

The Contractor shall be solely responsible for complying with the requirements in Part II.B and Part IV of the General Permit.

The Contractor shall be responsible for providing all inspections, documentation, record keeping, maintenance, remedial actions, repairs required by the permit. All inspections, maintenance, and records required in the General Permit Paragraphs IV.E, shall be the sole responsibility of the Contractor. The word "Permittee" in these referenced paragraphs shall mean "Contractor". Standard forms for logging all required inspection and maintenance activities shall be used by the Contractor. All inspection and maintenance forms used on this Project shall be turned over to the Engineer every two weeks for retention in accordance with the permit.

The Contractor shall have all logs, documentation, inspection reports on site for Engineer's review and shall post the permit and MPCA’s letter of coverage on site. The Contractor shall immediately rectify any shortcomings noted by the Engineer. All meetings with the MPCA, Watershed District, WMO, or any local authority shall be attended by both the Engineer and the Contractor or their representatives. No work required by said entities, and for which the Contractor would request additional compensation from the County, shall be started without approval from the Engineer. No work required by said entities and for which the changes will impact the design or requirements of the Contract documents or impact traffic shall be started without approval from the Engineer.

The Contractor shall immediately notify the Engineer of any site visits by Local Permitting Authorities performed in accordance with Part V.H.

S-33.4

The Contractor is advised that Section 1 of the NPDES application form makes a reference to Storm Water Pollution Prevention Plan (SWPPP). This Project's SWPPP is addressed throughout Mn/DOT's Standard Specifications for Construction, as well as this Project's Plan and these Special Provisions. The following table identifies NPDES permit requirements and cross-references where this Contract addresses each requirement.

NPDES Permit Requirements	Cross-Reference within this Contract
Obtain NPDES Permit; Permit Compliance; Submit Notice of Termination	Mn/DOT 1701, 1702; Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit)
Certified Personnel in Erosion / Sediment Control Site Management Develop a Chain of Command	Mn/DOT 1506, 1717, and 2573; Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit); and 2573 (Erosion Control Supervisor).
Project / Weekly Schedule (for Erosion / Sediment Control) Completing Inspection / Maintenance Log / Records	Mn/DOT 1717 and 2573; Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit); and
Project Specific Construction Staging	The Plans; Mn/DOT 1717; Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit); and 1806 (Determination and Extension of Contract Time)
Temporary Erosion / Sediment Control	The Plans; Mn/DOT 2573 and 2575
Maintenance of Devices / Sediment removal Removal or Tracked Sediment Removal of Devices	The Plans; Mn/DOT 1717 and 2573; Special Provisions: 1514 (Maintenance During Construction); 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination

	System (NPDES) Permit
Dewatering	Mn/DOT 2105.3B and 2451.3C; May also require DNR Permit
Temporary work not shown in the Plans Grading areas (unfinished acres exposed to erosion)	Mn/DOT 1717, 2573, and 2575; Special Provisions: 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination System (NPDES) Permit);
Permanent Erosion / Sediment Control and Turf Establishment	The Plans; Mn/DOT 1717, 2573 and 2575; Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit

S-33.5 The following table lists contaminants applied to permit.

Table 3. Road Runoff Pollutants

Material Chemical	Physical Description	Storm Water Pollutants	Location	Process for Containment
Pesticides	Various colored to colorless liquid, powder, pellets or grains	Chlorinated hydrocarbons, organophosphates, carbonates, arsenic	Herbicide use for noxious weed control	Certified applicator
Permanent Fertilizer	Liquid or solid grains: Nitrogen, phosphorous	Nitrogen, phosphorous, organic substrate	Newly seeded areas	Organic base, slow release forms only, tied up in compost
Temporary Fertilizer	Liquid or solid grains: Nitrogen, phosphorous	Nitrogen, phosphorous, potassium, chlorides	Rapid stabilization areas, topsoil berms stockpiles	managed application certified installer, quick cover plant materials
Cleaning Solvents	Colorless, blue, or yellow-green	Perchloroethylene, methylene, chloride, trichloroethylene	No equipment washing cleaning in project limits. Trained applicator for concrete cleaning and prep work	Tarps, monitor weather for rain and wind

Material Chemical	Physical Description	Storm Water Pollutants	Location	Process for Containment
Wastewater from Construction	Runoff from equipment washing	Water, soil, oil and grease, solids	Not allowed within the project area	
Asphalt	Black solid	Oil, petroleum distillates	Roadways, driveways, trails, parking lots	Excess materials will be removed from project limits
Concrete	White solid	Limestone, sand	bridge, walls, curb and gutter, walks, driveways	Designated wash areas or complete haul removal
Glue, adhesives	White or yellow liquid	Polymer, epoxies	expansions joints	Empty container management
Paints	Various colored liquid	Metal oxides, stoddard solvent, talc, calcium carbonate, arsenic	bridge end rails, concrete surface treatments, wall railings, sign posts	Empty container management
Curing compounds	Creamy white liquids	Naptha	Bridge, walls, curb and gutter, walks, driveways	
Wood Preservatives	Clear amber or dark brown liquid	Stoddard solvent petroleum distillates, arsenic, copper, chromium	Timber pads, sign posts, rail posts	Follow manufacturer's recommendations
Hydraulic oil/fluids	Pale yellow liquid petroleum	Mineral Oil	Random leaks	Oil absorbing diapers, trained personnel
Gasoline	Colorless, pale brown or pink	Petroleum hydrocarbon, benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment	Oil absorbing diapers, trained personnel
Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil and grease, naphthalene, xylenes	Secondary containment	Oil absorbing diapers, trained personnel

Material Chemical	Physical Description	Storm Water Pollutants	Location	Process for Containment
Kerosene	Pale yellow liquid Petroleum hydrocarbon	Coal oil, petroleum distillates	Secondary containment	Oil absorbing diapers, trained personnel
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol	Random leaks	Trained personnel
Erosion	Solid Particles	Soil, sediment	Project limits	Rapid stabilization measures

S-33.6 If the Contractor fails to perform the requirements as listed herein, the Engineer will issue a Work Order detailing the required action. The Contractor shall start the required action within twenty-four (24) hour of receipt of the Work Order and continue the required action until the Project is brought into compliance with the permit. Failure to perform the required action as specified, shall subject the Contractor to a \$1000/calendar day deduction.

The Contractor shall review and abide by the instructions contained in the permit package. The Contractor shall hold the County harmless for any fines or sanctions caused by the Contractor's actions or inactions regarding compliance with the permit or erosion control provisions of the Contract Documents.

S-33.7 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-33.8

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-33.9 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-33.10 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-33.11 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-33.12 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-33.13 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-33.14 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-34 (1801) SUBLETTING OF CONTRACT

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

S-34.1 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-34.2 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-35 (1802) TRAINING FOR CONSTRUCTION TRUCK OPERATORS

Operators of construction trucks hauling construction materials such as borrow, aggregate base, asphalt mixtures, and concrete paving mixtures are encouraged to become certified as a Level I Construction Truck Operator (CTO).

This one-day session taught in various Mn/DOT Districts features classroom

and hands-on educational experiences. The objective of the CTO Training is to make the driver aware of the Federal and State requirements and regulations regarding the construction truck and driver, and the safe driving techniques that will result in the safe operation of the construction truck. Presenters include Minnesota State Patrol, Minnesota Department of Transportation and the Minnesota Safety Council.

This training is co-sponsored by the Minnesota State Patrol, the Minnesota Highway Safety Center, the Minnesota Trucking Association, the Minnesota Asphalt Pavement Association and the Minnesota Department of Transportation.

Additional information about this certification program can be obtained by contacting any of the following:

	PHONE #	FAX #
Minnesota Asphalt Pavement Association: E-mail: info@mnapa.org	651-636-4666	651-636-4790
Minnesota Department of Transportation: E-mail: motorcarrier@dot.state.mn.us Website: http://www.dot.state.mn.us/motorcarrier	651-405-6060 Toll Free: 1-888-472-3389	651-405-6082
Minnesota Highway Safety Center: E-mail: tjsakry@stcloudstate.edu Website: http://mnsafetycenter.org	320-255-4732 Toll Free: 1-888-234-1294	320-255-3942
Minnesota State Patrol: Website : http://www.dps.state.mn.us/patrol/comveh/index.htm	651-405-6171 Toll Free: 1-888-472-3389	651-405-6082
Minnesota Trucking Association: E-mail: john@mtruck.org Website: www.mtruck.org	651-646-7351	651-641-8995

S-36 (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-36.1 The Work under this Contract shall be planned, reported and accomplished using the Critical Path Method (hereinafter referred to as CPM). All work associated with these requirements is considered incidental for which no direct payment will be made.

S-36.2 DEFINITIONS

Definitions can be found at <http://www.dot.state.mn.us/const/tools/contracttime.html> and are intended to supplement or supersede definitions provided with “Primavera Project

Planner” (P3), version 3.1

S-36.3 COMPUTER SOFTWARE

County uses “Primavera Project Planner” (P3), version 3.1 for Windows. If the Contractor utilizes software other than "Primavera Project Planner" (P3) the schedule shall be submitted in "Primavera Project Planner" (P3) format. The Contractor is responsible for any conversion discrepancies

S-36.4 NOTICE TO PROCEED(S)

This Project contains Notice to Proceed 1 (NTP1) and Notice to Proceed 2 (NTP2) criteria. The Contractor shall submit to the Engineer a Preliminary Schedule within eight (8) calendar days of issuance of Contract Award. Acceptance of the first Preliminary Schedule shall be a condition of Contract Approval and NTP1. NTP2 is a condition of Baseline Schedule acceptance and will not extend 90 calendar days from NTP1.

(A) Preliminary Schedule(s)

All schedules submitted prior to Baseline acceptance will be considered Preliminary Schedules. The Preliminary Schedule(s) are meant to communicate the Contractor’s general plan of work, and allow the Contractor to proceed with limited amount of work as parties work toward Baseline Schedule acceptance/NTP2. The first Preliminary Schedule shall communicate that all Milestone dates are understood and sufficiently detail a 30 day look-ahead period. Subsequent schedule submittals shall show the status of work actually completed, with data dates of the 15th of every month. The schedule should be received as soon as possible after the applicable data date, but in no instance shall be later than four (4) calendar days. Subsequent Preliminary Schedule(s) shall detail at least a rolling 45 day look-ahead period; in which this rolling 45 day look-ahead shall comply with the “Level of Detail” section contained herein.

(B) Baseline Schedule

Baseline Schedule shall include the entire scope of work shall not extend beyond any Contractual completion dates, contain negative float or utilize any other prohibited scheduling techniques. The Baseline shall include the level indicated in the “Level of Detail” section contained herein, unless changes are approved by the engineer.

TWO (2) WEEK LOOK-AHEAD SCHEDULE:

The Contractor shall submit a detailed two (2) week schedule to the Engineer each week until all work is completed. This schedule may be a hand generated but shall span a forward looking, rolling period of at

least fourteen (14) calendar days. This schedule is meant as the Contractor's best effort to fully communicate work planned for the rolling fourteen day period. Work within this rolling period shall specifically reference the applicable Working Schedule Activity ID; with the Activity Description broken down further to clearly communicate the work that is being accomplished.

S-36.5 SCHEDULE UPDATES

The Contractor shall submit an updated schedule which accurately reflects the status of work actually completed, with a data date of the 15th of every month. The schedule should be received as soon as possible after the applicable data date, but in no instance shall be later than four (4) calendar days. Changes to the Schedule shall be closely coordinated with the Engineer and are subject to the Engineer's acceptance. If County deems Work is performed substantially out of sequence then County will request in writing, the Contractor to demonstrate the impacts in accordance with "Time Impact Analysis" section contained herein.

S-36.6 ACCEPTANCE OF SCHEDULE

The Engineer's review and acceptance of Schedules will not waive any Contract requirements and shall not relieve the Contractor of any obligation or responsibility for submitting complete and accurate information. By review and acceptance of the Schedule County does not endorse or otherwise certify the validity or accuracy of any part of the Schedules. The responsibility for validity and accuracy of all Schedules is the sole responsibility of the Contractor.

The Engineer will accept or return comments on submitted schedules within fourteen (14) calendar days after being received. Schedules that are not accepted shall be corrected by the Contractor within seven (7) calendar days after the Engineer has returned comment. It is the Contractor responsibility to meet with the Engineer as often as necessary to satisfy the Engineer's comments within said seven (7) calendar days.

S-36.7 SCHEDULE RECOVERY

Unless otherwise directed in writing by the Engineer, whenever the current working schedule indicates negative Total Float greater than five (5) percent of the remaining calendar days before a contractual obligate Milestone, the Contractor shall submit, within seven (7) calendar days, a Time Impact Analysis (TIA) as described in "Time Impact Analysis" section herein; whereas the impact schedule shall recover the negative float regardless of fault of either party for past delays. The requirement to recover negative float regardless of fault is not a directive by County to accelerate the Work but rather a directive to provide a proposal with any cure involving

acceleration, at a cost to County, shall be directed in writing from County prior to any execution of acceleration thereof.

S-36.8 SCHEDULE SUBMISSION

The Contractor shall include the following for each Schedule submittal:

A narrative to include and discuss: (1) a bar chart sorted by Early Start indicating critical paths in red, (2) upcoming and pending coordination required with County, or 3rd parties, (3) potential problem areas, (4) description and reason for any changes made to the schedule and the affects the changes have on Milestones or Project Completion Date.

(A) Bar Charts shall contain the following information: (1) Activity ID and Activity Description, (2) Original Duration, (3) Early Start, Late Start and Late Finish, (4) Total Float, (5) Predecessors and Successors, and (6) Include a title block and a timeline on each page. As a minimum the title block shall include file name and revision; the timeline shall include start date, finish date, data date, and run date.

(B) One (1) CD-R compact disk containing a backup, in (P3) compressed format (PRX files).

S-36.9 TIME IMPACT ANALYSIS

The Contractor shall submit a Time Impact Analysis (TIA) to determine the effect of any impact when they believe they are impacted, or at the Engineer's request, regardless if the Contractor believes that there is no impact to the schedule. The Contractor shall be responsible to determine the effect of an impact as contemporaneously as possible; this may require the Contractor to estimate the duration of the impact while the impact is in progress. The Engineer may elect to specify the duration the Contractor should use in their analysis.

A Time Impact Analysis (TIA) shall include: 1) a statement that there is "No effect to the schedule" OR, 2) it shall include an Impact Schedule, any associated cost burden or savings, and a narrative report developed specifically to demonstrate the effects of deviation(s) from the current working schedule with basis for entitlement and identification of the provisions of the Contract. The Engineer may require that the logic for out of sequence work be fixed and analyzed via TIA. The Contractor shall submit a TIA within seven (7) calendar days of receiving a request for a TIA from the Engineer. The Engineer may accept the Impact Schedule as the new Working Schedule while parties negotiate associated cost burden or savings. All accepted Impact Schedules shall become the next Working Schedule and referenced in accordance with the "Naming Convention" section herein.

S-36.10 FLOAT SUPPRESSION / SEQUESTERED FLOAT

The Contractor shall not engage in float suppression manipulations which have the net effect of sequestering float time. It is expressly agreed and understood that the Contractor shall not be entitled to any compensation or damages on account of delays which could have been avoided by revising activity time or logic used to sequester float and will exclude the Contractor's right to recover any delay damages or compensation from County. Lags/Leads are subject to the consent of the Engineer. The Contractor shall remove any Lags/Leads and replace with an activity identifying the Lag/Lead upon request of the Engineer, regardless of prior acceptance on previous schedules

S-36.11 USE OF FLOAT

The Contractor acknowledges that all float is a shared commodity available to the Project and is not for the exclusive benefit of any party; but is an expiring resource available to accommodate changes in the Work, however originated. Contract time extensions for Contract performance will be granted only to the extent that delays or disruptions to effected work paths exceed total float along those paths of the current Working schedule in effect at the time of delay or disruption. It is understood that identified contingencies, as described in the "Calendar and Identified Contingency" section, become available total float as time elapses and the contingency was not used.

S-36.12 CALENDARS AND IDENTIFIED CONTINGENCY

The duration of each activity shall include the necessary work days to actually complete the work defined by the activity; contingency shall not be built into the durations but shall be accounted for in accordance with "Identified Contingency and Calendars" section contained herein.

Each activity shall be assigned the appropriate calendar. The Project calendars shall indicate planned work and nonworking days for each major item of Work. Each calendar, with the exception of the calendar utilized for tracking calendar days, shall include **a minimum of fifteen (15) percent weather contingency for each major item of Work affected by weather. The Contractor shall submit a statement indicating duration (in hours) of their normal work day as it relates to the work week, e.g., M-F (10 hrs) and Sat (6 hrs) for every calendar. Contingency will be the amount of indicated non workdays compared to this statement**

S-36.13 NON-COMPLIANCE

The Contractor's refusal, failure or neglect to diligently pursue timely acceptance of any schedule, or TIA shall constitute reasonable evidence that the Contractor is not prosecuting the Work, or separable part, with

the diligence that will insure its completion within the applicable Contract Time and shall constitute sufficient basis for the Engineer to exercise options available in the "Non-Compliance" section contained herein.

The Engineer may use one or a combination of the following. The Engineer will use their best judgment in determining which of the following option(s) will best facilitate compliance:

(A) 100 Percent Withholding

The Engineer may withhold an amount up to 100 percent of the estimated value of work performed.

(B) **Monetary Deduction**

The Engineer may **assess a non recoverable monetary deduction of \$1000/day** for every day past an applicable deadline within these Special Provisions (1803 CRITICAL PATH METHOD (CPM) SCHEDULE).

S-36.14 LEVEL OF DETAIL

Each Activity shall: (1) have a unique activity description and contain a verb, (2) be a duration of not more than twenty (20) working days nor less than 5 days, unless otherwise authorized by the Engineer, (3) have at least one predecessor and one successor activity, except for Project start and finish respectively, and (4) Express activity durations in Days.

S-36.15 The Progress Schedule required as per Mn/DOT 1803.1 shall include and identify separate tasks for temporary and permanent erosion control activities.

S-36.16 Bidders are hereby advised that the reconstruction of the underground utility systems identified in section S-77, S-78, and S-79 of these Special Provisions will impact the progress of the roadway reconstruction activities. From the standpoint of overall disruption and inconvenience to the community it is considered prudent to accomplish the reconstruction of the underground utility systems in conjunction with this Project. The completion of the removals and grading activities required by this contract at the earliest possible time will aid in the completion of the installation of new utility lines by others in a timely fashion. The successful roadway reconstruction contractor should also anticipate the loss of efficiency in its construction activities and the unavailability of work areas within the project between the time the existing pavement and sidewalks are removed and the time all underlying work is completed so that the roadway surfacing activities can proceed.

S-36.17 This contract contains a provision that all project roadways must be reopened to through traffic on a bituminous paved surface throughout the project on or before November 15, 2012. This requirement may be met by restoring through traffic on the new bituminous (wear or binder course), the existing bituminous surface, or temporary bituminous pavement. The Contractor shall consider this requirement when scheduling the pavement removal and grading activities of the project.

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-36.18 Pedestrian traffic and sidewalk availability is a major concern throughout the project. Sections S-36.20, S-80, S-83, and S-91 of this Proposal contain special provisions governing the removal of existing sidewalks and construction of new sidewalks. The Contractor's Progress Schedule shall include sidewalk removal and construction activities in accordance with the referenced Special Provisions.

S-36.19 The Contractor's construction schedule for the project shall incorporate the following timing and sequencing restrictions:

The following activities will need to be incorporated into the project schedule: Contact: Heather Ocel 612-230-6415, Minneapolis Park & Recreation Board.

- 1) Lifetime Fitness Triathlon – July
- 2) Minneapolis Bike Tour – September
- 3) TC Marathon – October
- 4) Monster Dash - October

Lehman's Garage construction – coordinate driveway access and construction. See attached plan. Contact – Mark Kronbeck, LA Project Manager, Alliant Engineering, Inc. at 612-767-9338 or Rick Cossette at 952-888-8700.

Operational needs and issues Lyndale project:

The turn from westbound 56th Street to southbound Lyndale must be available throughout the project

The turn from northbound Lyndale to eastbound 54th Street must be available throughout the project

The bus stops on Lyndale at 56th Street must be able to accommodate two buses once the project is completed. Route changes have led to a need for longer stops. 80' should be enough. We discussed these stops in November but this may be a change.

We would need temporary stops along westbound 56th street between Nicollet and Lyndale. This would require no parking on that side of the street. We will also need a temporary stop on westbound 56th street just far-side of Lyndale.

Mount Olivet parking lot construction – A Waiver of Trespass will need to be acquired from Mount Olivet (see attached).

The County will have a construction project (CP 0403) underway north of this project and the Contractor will need to coordinate any tie-ins between projects.

It is not intended nor shall it be construed that all the restrictions within this contract that affect the Contractor's construction activities are included in this section. Other restrictions exist on the work and are included elsewhere in this Proposal and the Plans.

S-36.20

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.

- (1) The Contractor must designate a responsible person familiar with PROWAG to assess proposed sidewalk layouts at each site before work begins. This person must be on site at all times that any work concerning pedestrian facilities is being performed.
- (2) Pedestrian Access Routes must be constructed meet to the following criteria:
 - a maximum 2.0% cross slope
 - a maximum 8.3% longitudinal slope, not to exceed 15 feet on the initial curb ramp or 30 feet on other sidewalk ramps
 - landings must be a minimum 4 feet by 4 feet with a maximum 2.0% slope in all directions
 - 4 foot minimum width must be continuously maintained throughout the Pedestrian Access Route
 - vertical discontinuities must be less than 0.25 inches
 - must provide positive drainage without allowing any ponding

If the Contractor constructs any pedestrian or shared-use trail facilities that are not as indicated on the Plan, do not meet the above requirements, or do not follow the agreed upon resolution, the

Contractor will be responsible for correcting the deficient facilities with no compensation paid for the corrective work. To ensure that the facilities are constructed to be compliant with PROWAG, the Contractor shall follow the following three steps:

- (3) 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 a resolution. Once the Engineer and the Contractor reach agreement on what is to be done, the Contractor may proceed to the next step.
- (4) The Contractor shall transition from the in-place curb type to the new curb and gutter. Prior to beginning the installation of any curb and gutter, the Contractor must verify the curb cuts:
 - (a) will be located within the crosswalk.
 - (b) will be aligned with the opposing pedestrian ramp across the roadway.
 - (c) will allow for required slopes to be met.
 - (d) will maintain existing drainage patterns as well as existing gutter inflows/outflows.

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 agreement on what is to be done, the Contractor may proceed to the next step

- (5) The Contractor shall verify that the required slopes and landing can be achieved after setting sidewalk forms, and prior to pouring the concrete walks. Once the Contractor has verified the required landing area, longitudinal slopes, and cross slopes can be achieved, the Contractor can complete the concrete sidewalk pour.
- (6) The Contractor is reminded that all joints and edges of the walk shall be rounded with a 1/4 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 Mn/DOT 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.

S-37 **(1804) FAILURE TO MAINTAIN SATISFACTORY PROGRESS**

The provisions of Mn/DOT 1804 are hereby modified with these Special Provisions.

The last sentence of 1804 is deleted and the following substituted therefore:

- A. If the Contractor fails to adhere to the approved Working Schedule or fails to take action as ordered to remedy unsatisfactory progress; a notice of default may be issued as provided for in 1808, and/or options under the Non-Compliance section in Section S-1803 (Critical Path Method (CPM) Schedule) of these Special Provisions.

S-38 **(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-39 **(1806) DETERMINATION AND EXTENSION OF CONTRACT TIME**

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

S-39.1 Construction operations shall be started on or before April 16, 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-39.2 All work required under this Contract, except maintenance work and Final Clean Up shall be completed on or before November 15, 2012.

S-39.3 Mn/DOT 1806.1 (Determination of Contract Time) is hereby deleted and the following substituted therefore:

In addition to the requirements indicated above all work required to finish project shall be completed within 10 calendar days or the Contractor will be assessed a monetary deduction as shown in Mn/DOT 1807.

1806.1 DETERMINATION OF CONTRACT TIME

The Contract starting date is the latest date specified for the beginning of construction operations as set forth in the Proposal or the eight day after the date on Notice of Contract Approval, whichever is later.

When the Contract time is specified as a fixed calendar completion date or calendar day, the Department has determined the Contract time by considering the Proposal quantities, normal weather for the locality and season of the year, and the necessity of having the work completed by the specified date. The Engineer may only extend the time in accordance with 1806.2.

(1) **Avoidable Delays**

Avoidable delays are those delays that the Contractor could foresee or had power to control or prevent. Avoidable delays include, but are not limited to, the following circumstances or conditions:

- (A) Delays caused by conditions on the Project, including traffic conditions, that could be foreseen or anticipated prior to time of bid opening. These conditions include the curing of concrete, drying of paint, setting of bituminous courses, and other foreseeable construction-sequencing delays.
- (B) Delays due to the Contractor's failure to provide sufficient forces and equipment to maintain satisfactory progress in completing the progress-controlling operations.
- (C) Delays due to slow delivery of materials from the supplier or fabricator when the material was available in warehouse stock, or when delivery was delayed for reasons of priority, late ordering, financial considerations, or other causes within the power of the Contractor to avoid.
- (D) Delays caused by plant and equipment failure of less than 4 hours duration, or delays of any duration due to the Contractor's failure to provide and maintain the equipment in good mechanical condition or to provide for immediate emergency repairs.

(2) **Unavoidable Delays**

Unavoidable delays are those delays that the Contractor could not foresee or have the power to control or prevent and that occur with no fault or negligence on the part of the Contractor. Partial delay will be recognized when conditions prevent work on progress-controlling operations with full efficiency. In addition to inclement weather conditions, the following circumstances or conditions will be considered unavoidable delays:

- (A) Delays caused by failure of the Department to approve the Contract at least 8 calendar days in advance of the latest date specified for beginning construction operations.
- (B) Delays caused by an earthquake, flood, cloudburst, cyclone, tornado, or other cataclysmic phenomenon of a nature beyond the power of the Contractor to foresee and defend against.
- (C) Delays caused by acts of the Government or a political subdivision, or by acts of the public enemy, including fires, epidemics, and strikes not caused by improper acts or omissions of the Contractor.
- (D) Delays caused by the Department or other parties, such as commercial manufacturers and fabricators, the actions or non actions of which are not within the power of the Contractor to control or overcome.
- (E) Delays caused by non completion of work being done by other contractors or utility owners, or due to other unforeseeable interferences not the fault of the Contractor.
- (F) Delays directly attributable to the performance of Extra Work or increased quantities of work that were not addresses in an executed change order.
- (G) Extraordinary delays in the delivery of materials resulting from strikes, lockouts, freight embargoes, governmental acts, or sudden disaster of a nature beyond the power of the Contractor or supplier to foresee and forestall.

The following is hereby deleted from the beginning of 1806.2 (Extension of Contract Time):

“The granting of additional time for completion of the work will be limited to the performance of Extra Work or increased quantities of work. Additional time allowed will be limited to a period of time proportional to the increased dollar volume of work, unless:

- (A) It can be shown that the added work was a controlling factor in the rate of progress, or
- (B) An extension of Contract time was otherwise allowed in the agreement or order authorizing the additional work, in which case the value of that work will be excluded from further consideration in determining the additional time to be allowed.”

The following is hereby added to the beginning of 1806.2 (Extension of

Contract Time):

The granting of additional time for completion of the work will be determined under the Time Impact Analysis Section S-1803 (Critical Path Method (CPM) Schedule) of these Special Provisions. No extensions requested by the Contractor will be considered unless the Contractor has accepted the Baseline Schedule and the Working Schedule has been regularly updated.

Mn/DOT 1806.3 (Revision of Working Day Charges) is hereby deleted in its entirety.

S-40 (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-40.1 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-40.2 Liquidated damages will be assessed the Contractor in the amount of \$2,000.00 per calendar day for failure to complete those portions of the project described in S-39.2 of these Special Provisions and re-open all project roadways to through traffic on or before November 15, 2012.

S-40.3 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
1506	SUPERVISION BY CONTRACTOR
1706	EMPLOYEE HEALTH AND WELFARE
1803	PROSECUTION OF WORK
2533	PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337
2573	STORM DRAIN INLET PROTECTION
2580	INTERIM PAVEMENT MARKING

S-40.4 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-40.5 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-40.6 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-40.7 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-40.8 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-40.9 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-40.10 Assessment of all the aforesated liquidated damages shall be applied separately or in any concurrent combination deemed appropriate by the Engineer.

S-41 (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-42 (1901) MEASUREMENT OF QUANTITIES

The provisions of Mn/DOT 1901 are hereby supplemented with the following:

S-42.1 The Contractor shall provide automated weighing devices when materials are paid for by mass (weight) and hauled in trucks.

S-42.2 Automated Weighing Device

Automated weighing devices shall be interlocked to a ticket printer. The ticket shall contain the date, Project number, pay item number, truck or tractor and trailer identification, truck tare and net mass (weight). The Contractor shall provide the truck driver with a copy of the weigh ticket. The truck drive shall give the ticket to the inspector on the Project.

S-42.3 Uniform Load

In the event that the Contractor requests the use of Uniform Loads, the method of arriving at uniform loading must be approved by the Engineer. Automated weighing devices will be required when belt scales are used in Uniform Load determinations. Periodic Spot checks will be required. Trucks will be stopped and required to be run over a commercial scale.

S-43 (1904) EXTRA AND FORCE ACCOUNT WORK

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

S-43.1 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-43.2 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-44 (1905) ELIMINATION OF WORK

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

S-44.1 Delete paragraph (4).

S-45 (1906) PARTIAL PAYMENTS

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

S-45.1 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-45.2 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-46 (1908) FINAL PAYMENT

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

- S-46.1 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-47 (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-47.1 The Contractor shall be required to file a written claim presenting all required data to determine if a reimbursement should be allowed.
- S-47.2 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-48 (2021) MOBILIZATION

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

2021.1 DESCRIPTION

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

2021.2 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-49 (2031) FIELD OFFICE AND LABORATORY

The Contractor shall furnish, maintain, and remove a field office and field laboratory in accordance with the provisions of Mn/DOT 2031, except as modified as follows:

S-49.1 The sixth and seventh sentences of the first paragraph of Mn/DOT 2031.2 are hereby deleted and replaced with the following:

The telephone service provided to both the field office and the field laboratory shall be touch tone service with "call waiting" and shall include touch tone telephone sets. Two telephones shall be provided in the field office; one at each end of the trailer. The Contractor shall pay for the telephone installation, basic monthly phone service charges, all local calls, and all long distance calls within a 50-mile radius, and the removal of the telephone.

S-49.2 The Contractor shall provide either: a DSL Deluxe high speed Internet basic connection, high speed Broadband cable connection or equivalent internet provider plus a wireless router to allow a minimum of 4 computers to

connect into the internet to allow for the remote computer and telephone access that is compatible with the County requirements at time of installation. Contractor shall cover installation and monthly rental costs for modems, routers, filters, maintenance fees and / or ISP charges, as required by the County to operate a remote business environment. In the event such services are not available in the area, then the Contractor shall provide an ISDN phone connection. If ISDN is not available, the Contractor shall provide for a standard dial up phone connection or a minimum of four mobile PC MC1A (wireless) cards, with associated monthly service contracts for the life of the Contract.

- S-49.3 The field office and laboratory shall have operational electric power and telephone service prior to beginning operations on the Project. The electric power may be supplied by temporary usage of a generator of sufficient capacity to operate the lights and climate control units until such time that the required electrical service hook-up can be provided.
- S-49.4 The potable water supplied shall be both hot and cold.
- S-49.5 The provisions of Mn/DOT 2031.3A(10) are hereby modified to say that the minimum floor area of the field office, based on exterior dimensions, shall be not less than 672 square feet. The field office shall have a room (min. 12' length) at each end plus center meeting room. The office shall have a hard surface floor, not carpet. All desk areas shall have a lighting source within 3 feet of desk surface.
- S-49.6 In addition to the aforementioned modifications, the Contractor shall, at no direct cost to the County, provide and maintain the following items for exclusive use by County personnel for the entire duration of the Contract:
- (1) One combination (All-in-One) plain paper scanner/facsimile/printer/dry toner photocopying machine able to staple, duplex copy and color copy with auto feed capable of reproducing 8½" X 11" on up to and including 11" X 17" sheets of paper machine with a separate telephone line and number shall be provided in the field office. The machine should be equipped with "Bluetooth" connectivity to allow for laptop computers to print directly to the printer wirelessly. The Contractor shall coordinate the installation of drivers to accommodate this connectivity with Hennepin County I.T. Services. See Special Provision Section S-49.2 for additional connectivity requirements. The brand and model of the machine selected shall be approved by the Engineer prior to ordering the installation in the field office.
 - (2) The telephone service provided shall have a minimum of one incoming line for and an additional separate dedicated line for the facsimile

- machine. The telephone sets provided shall have multi-line capabilities.
- (3) The field offices and laboratory shall be connected with an intercom system (either direct or via telephone lines). If the telephone option is used, the Contractor will be required to provide one additional telephone in the laboratory.
 - (4) The telephone service provided shall have a minimum of one incoming line for each telephone provided and an additional separate dedicated line for the facsimile machine. The telephone sets provided shall have multi-line capabilities.
 - (5) One first aid kit including, but not limited to the following:
Thermometer, scissors, assorted adhesive bandages, cold compress, ace bandage, gauze wrap, sterile pads, medical tape, tweezers, first aid spray, cotton swabs, cotton balls, alcohol, antiseptic, hydrogen peroxide, aspirin, toothache drops, ammonia inhalants, eye irrigation package, wire splint and a handbook.
 - (6) A lockable, fireproof, non-portable safe with an interior volume of no less than 18 ft³ and no dimension less than 2 feet. The interior of the safe shall be configured to accommodate storage of a personal computer and printer that will be furnished by the County. The safe shall be securely fastened to the field office. In the event a safe with acceptable size or configuration is not obtainable the Contractor shall provide other means of security acceptable to the Engineer.

All equipment and accessories furnished by the Contractor are subject to the approval of the Engineer.

S-49.7 The Contractor shall provide contract maintenance agreements on all electrical accessories, for the life of this Contract. These maintenance agreements shall be incidental to the field office.

The Contractor shall be responsible for repairing or replacing any of the equipment provided under this Contract should damage or loss occur due to theft or vandalism. In the event the facsimile and/or copier equipment be damaged beyond repair or stolen, the Contractor shall provide equivalent replacements within three working days after the loss of the use of the equipment, throughout the life of the Contract. All costs of repair and/or replacement shall be incidental to the Contract Unit Price of the field office and/or laboratory.

S-49.8 The field office and laboratory shall be provided and put into place at the work site prior to the start of construction activities and shall remain in place thereafter for the life of the Contract, including all periods of work

suspension.

S-50 (2051) MAINTENANCE AND RESTORATION OF HAUL ROADS

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

S-50.1 The Contractor shall not use any City Street as a haul road unless approved by the Engineer and City.

S-51 (2101) CLEARING AND GRUBBING

Clearing and grubbing shall be performed in accordance with the provisions of Mn/DOT 2101 and the following:

S-51.1 The first paragraph of Mn/DOT 2101.3D Disposal Limitations, is revised to read as follows:

The Contractor shall dispose of trees, brush, stumps, roots, and other debris or byproducts by chipping, marketing, or burning. The Contractor:

S-51.2 Mn/DOT 2101.3D(4) under Disposal Limitations, is revised to read as follows:

(4) Shall conduct burning only after the disposal options are deemed impractical, and in accordance with 2104.3, Minnesota Rules Chapter 7009 and any applicable local ordinances. At no time shall waste tires, rubble, or plastics or similar materials be used to ignite the wood resources.

S-51.3 Mn/DOT 2101.3D(5) under Disposal Limitations, is revised to read as follows:

(5) Shall not bury trees, brush, stumps, roots, and other debris or by-products within the State Right of Way.

S-51.4 Mn/DOT 2101.3D1(a) under Marketable Trees, is revised to read as follows:

a) Shall not burn or waste marketable trees without having written proof from three potential wood-using industries or individuals that the wood is not wanted. This requirement only applies when the volume of marketable trees on the Project exceeds 75 m³ (**100 cubic yards or 20 cords or 10,000 board feet**).

S-51.5 Mn/DOT 2101.3D2c(3) under Disposal Deadlines and Locations, is revised to read as follows:

(3) Within the Right of Way by burning or chipping, when allowed.

S-51.6 The first paragraph of Mn/DOT 2101.3D3 Pine, is revised to read as follows:

The Contractor shall dispose of all non-marketable pine trees, brush, stumps, roots, and debris by chipping, debarking, burning, or covering with an air tight tarp within 20 calendar days of being cleared during the growing season.

- S-51.7 Mn/DOT 2101.3D6 Burying, is hereby deleted in its entirety.
- S-51.8 The first paragraph of Mn/DOT 2101.4B Area Basis, is revised to read as follows:
- When the hectare is the unit, quantities will be determined by measuring (to the nearest 0.02 hectare (**0.05 acre**)) all areas cleared and all areas grubbed, within the limits shown in the Plans or staked by the Engineer. All measurements will be made horizontally to point 3 m (**10 feet**) outside the trunks of qualifying trees or stumps on the perimeter of the area being measured. Separate areas smaller than 0.02 hectare (**0.05 acre**) will be considered to be 0.02 hectare (**0.05 acre**).
- S-51.9 The first paragraph of Mn/DOT 2101.5 Basis of Payment, is revised to read as follows:
- Payment for the accepted quantities of clearing and grubbing at the Contract prices per unit of measure will be full compensation for all removal and disposal costs, including the costs of securing outside disposal sites as needed and on carrying out the specified treatment in disposing of elm, oak wilt infected red oaks, pine, and marketable trees.
- S-51.10 The areas to be cleared and grubbed shall be as defined by the greater of the construction limits or the clear zone requirements as shown on the plans.
- S-51.11 No tree shall be cut until the Engineer has marked it for removal. The Contractor shall remove only those trees necessary to be removed to construct the Project. All other trees shall be protected from damage during construction. Trees shall be felled so that they fall away from trees being saved. In the event that a tree being saved is damaged or scraped, the damaged area of the tree shall be painted with an approved pruning paint within one (1) hour of the damage. The Contractor shall have on hand at least one (1) full gallon of pruning paint at all times for this purpose.
- S-51.12 The third sentence of the first paragraph of Mn/DOT 2101.3C is hereby deleted. All stumps shall be removed completely to a minimum depth of 6 inches below the proposed ground surface.
- S-51.13 Bidders are hereby advised that, for public relation reasons as well as others, not all clearing and grubbing limits and trees to be removed will be identified and marked by the Engineer throughout the project limits at the beginning of construction activities. Clearing and grubbing operations shall

be staged with grading activities on the project. Multiple mobilizations and demobilizations will be required to complete all clearing and grubbing required on the project. The unit price bid shall include as many mobilizations and demobilizations as necessary to clear and grub the project limits as staked by the Engineer.

S-51.14 The Contractor shall take special care to preserve existing trees and shrubs whenever possible. This may include careful grading operations, slight adjustments of slopes, and placing snow fence at tree drip lines. Snow fence has been provided in the contract to help preserve trees and shrubs. Snow fence placement is shown in especially sensitive locations.

S-51.15 The Contractor shall take special care to preserve existing trees and shrubs. The Contractor shall, prior to grubbing and/or excavation operations, cleanly cut tree roots of trees that are to be preserved.

Root cutting shall be performed at the locations directed by the Engineer and in accordance with the Miscellaneous Details – Vegetation Protection Detail and the provisions of 2572.3A2.

The method of measurement shall be in accordance with 2572.4B. The provisions of 2572.5B (2) are hereby deleted. The Contract unit price for Item 2101.603 Root Cutting shall be the unit price contained in the bid of the successful bidder.

Payment for root cutting will be made under Item 2101.603 Root Cutting at the contract bid price per linear foot, which shall be compensation in full for all costs incurred. The provisions of Mn/DOT 1903 shall not apply to Item 2101.603 Root Cutting.

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 µg/m³ 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 2104.503 Remove Bituminous Pavement.
- S-53.5 Item 2104.501 Remove Modular Block Retaining Wall is for the complete removal of existing retaining walls.
- The method of measurement for Remove Retaining Wall shall be by the length along the base of the wall. Payment at the Contract unit price per foot shall be compensation in full for all costs of removing and disposing of the retaining walls entirely, including that portion embedded below ground and any tie-back system that may exist. Payment for retaining wall removal shall be made at the Contract unit price per linear foot regardless of the height or type of wall removed.
- S-53.6 Item 2104.602 Remove Miscellaneous Structure is for removal of a former pay phone pole with mounting bracket for a phone and a suspended wire connecting it to the Enterprise rent-a-car building. The Contract Unit price per each shall include all cost associated with the removal.
- S-53.7 Item 2104.523 Salvage Lighting Unit is for the complete removal of the existing lighting system as stated in "SL" Specification. The Contract unit price per each shall include all costs associated with the complete removal and disposal/salvaging of lighting system.
- S-53.8 Item 2104.509 Remove Light Base Foundation is for the complete removal of bases and associated items as stated in the "SL" specification. The Contract unit price per each shall include all costs associated with the complete removal of base system.
- S-53.9 Item 2104.602 Salvage & Reinstall Bus Shelter is for salvaging 4 bus shelters, as indicated in the plans and as directed by the Engineer. The Contractor shall install a new pad at the location directed by the Engineer. Pads shall be 1 foot larger than their bus shelter and 4" thick with a 6" CL5 base. The Contract unit price per each shall be compensation in full for all

costs associated with salvaging bus shelters and constructing new pad and reinstall bus shelter complete.

S-53.10 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 as directed by the Engineer per S-82 and S-84 Special Project ADA Requirements and 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-53.11 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-53.12 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-53.13 The salvaged signal and lighting materials are to be delivered to the City of Minneapolis at 300 Border Avenue North. It shall be the Contractor's responsibility to coordinate the delivery with City personnel. All deliveries shall be made during normal City working hours and shall be coordinated a minimum of 24 hours in advance, unless otherwise arranged with the City. Deliveries of salvaged items shall be coordinated through Mr. Larry Mountjoy (612) 673-5514.

The Contractor shall unload the salvaged materials and place them in the locations within the yard designated by the yard attendant.

S-53.14 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-53.15 The Contractor will need to remove and reinstall awning supports at 5516 Lyndale (Coldwell Banker) in order to install concrete sidewalk. Also at 5517 Lyndale (Mount Olivet), a railing support will need to be removed and reinstalled at Sta 30+28 for sidewalk installation. The cost for this work shall incidental to the sidewalk pay item.

S-53.16 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-53.17 Measurement and payment for the removal and disposal of materials will be made only for those Items of removal work specifically included for payment as such in the Proposal and as listed in the Plans. The removal of any unforeseen obstruction requiring in the opinion of the Engineer equipment or handling substantially different from that employed in excavation operations, will be paid for as Extra Work as provided in Mn/DOT 1403.

S-54 (2105) EXCAVATION AND EMBANKMENT

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

S-54.1 Material from the top 1 foot of the natural soil shall not be used in the upper 3 feet of the roadbed.

S-54.2 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-54.3 The first and second sentences, in the second paragraph in Mn/DOT 2105.3D Disposition of Excavated Material, are revised to read as follows:

When the soils are so varied that selection and placement of uniform soils is not practical, the Contractor shall use disks, plows, graders or other equipment to blend and mix suitable soils to produce a uniform soil texture, moisture

content and density; except that, all soils that contain 20 percent or more particles passing the #200 sieve shall be blended, mixed and dried with a disk, within the entire upper 6 feet of embankment. The disk shall meet the requirements of 2123 N, Disk Harrow. A disk is also to be used below the upper 6 feet of the embankment fill area, if in the opinion of the Engineer, the Contractor is not producing a uniform soil texture.

S-54.4 The fifth paragraph in Mn/DOT 2105.3D Disposition of Excavated Material is revised to read as follows:

Peat, muskeg, and other unstable materials that are not to be used in the roadbed embankments shall be deposited in the areas indicated in the Plans or elsewhere as approved by the Engineer. All other material that is considered unsuitable for use in the upper portion of the roadbed shall be placed outside of a 1:1 slope down and outward from the shoulder lines on fills under 30 feet in height or outside of a 1 vertical to 1.5 horizontal slope down and outward from shoulder lines on fills over 30 feet in height, or used to flatten the embankment slopes, or disposed of elsewhere as approved by the Engineer.

S-54.5 The second sentence in the eighth paragraph of Mn/DOT 2105.3D Disposition of Excavated Material, is revised to read as follows:

No stones exceeding 6 inches in greatest dimension will be permitted in the upper 3 feet of the roadbed embankment.

S-54.6 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-54.7 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-54.8 Add the following section in the Standard Specifications: 2105.3F3 modified Penetration Index Method.

F3 Modified Penetration Index method

The full thickness of each layer of Select and Granular Borrow subgrade materials shall be compacted to achieve a penetration index value as described in the modified dynamic cone penetrometer (DCP) test procedure,

as determined by a Mn/DOT standard dynamic cone penetrometer (DCP) device. For test purposes, a layer will be considered 1-foot (300 mm) in compaction thickness. Two DCP tests shall be conducted at selected sites within each 4,000 cu. yd. (3,000 m³) (CV) of constructed subgrade. If either of the tests fails to meet the specified requirements, the material represented by the test shall be recompacted and retested for penetration index compliance.

- S-54.9 The Contractor shall salvage, stockpile and reuse select grading material designated by the Engineer for use within the roadway embankment, subgrade or other areas of the project. An estimated quantity of select granular borrow has been provided in the Bid Proposal for use on the project in the event that excavated material from within the project construction limits does not provide an adequate amount of grading material to meet the project requirements. No select granular 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 2105.522 Select Granular Borrow (volume measurement).
- S-54.10 It shall be the Contractor's responsibility to stockpile, as may be necessary for use in either subsequent stages, any grading materials found to be in excess of the amount needed for a particular Stage. The provisions of the fifth paragraph of Mn/DOT 2105.5 are hereby modified to include placing into stockpiles and subsequent removal from stockpiles and reuse included in this Contract as an incidental expense to the contract excavation pay items.
- S-54.11 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-54.12 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:

- (B) Wetlands, as described in “Wetlands of the United States”, Circular 39, published by the U.S. Department of Interior, Fish and Wildlife Service;
- (C) 100-year frequency flood plains;
- (D) Archaeological or historic sites – See Section 1701 (LAWS TO BE OBSERVED (CULTURAL RESOURCES)) of these Special Provisions for specific requirements;
- (E) Areas with stability or settlement problems;
- (F) Areas with artesian conditions;
- (G) Unique animal or plant communities;
- (H) Landscapes or geologic formations with exemplary, unique, rare or threatened/endangered characteristics.
- (I) 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”.
- (J) 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 not 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 MnDOT 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-54.13 The Contractor will be permitted to salvage for use on this or other projects all existing bituminous and concrete materials removed from within the roadway excavation limits. Any use of salvaged materials, however, shall be subject to the material specifications of its intended uses.

S-54.14 The first sentence of the third paragraph of Mn/DOT 2105.3G is hereby deleted and replaced with the following:

Earthwork finishing and topsoil covering operations, along with temporary protection or permanent cover (as defined in Appendix A to the attached "General Permit Authorization to Discharge Storm Water Associated with a Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program") shall be conducted concurrently with the grading operations so as to permit prosecution and completion of temporary protection or permanent cover at the earliest practicable time within the required time frames included in any and all applicable permits.

S-54.15 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-54.16 The temporary bypass shall be as shown in plans and described on sheet 6 of plans. Each stage has work that needs to be completed in order that traffic flow is not impeded. The temporary bypass for each stage shall be included in the pay item 2105.602 Construct Temporary Bypass paid as one time for all stages. The payment shall be 1/3 per each Stage 1, 2 and 5 for a total of one (1).

S-55 EXCAVATION SPECIAL

Contaminated soil from adjacent petroleum release sites may be encountered on this Project at the locations of old gas station sites. The actual locations and amounts of contaminated soils, as well as the extent of contamination levels which may be encountered, are unknown. The following pay item and special provisions are hereby included in the Contract for the removal and disposal of petroleum based contaminated soils as directed by the Engineer, in the event such contaminated soils are encountered during the construction of the Project.

Excavation Special shall consist of excavating and handling petroleum based

contaminated soils in accordance with the applicable provisions of Mn/DOT 2105, as directed by the Engineer, and the following:

- A. The successful bidder on this Contract shall demonstrate to the Engineer that its employees and subcontractors working on this project have proper health and safety training on hazardous waste sites in accordance with state and federal laws and regulations. The Contractor also should prepare a Health Safety Plan for its activities within the Project limits.
- B. In the event on-site observations indicate contamination exists at any location within the project limits (organic vapor detector readings above 10 parts per million (ppm), visual or olfactory evidence), the Contractor shall IMMEDIATELY NOTIFY THE ENGINEER. The Engineer shall be responsible for notifying the necessary regulatory agencies and other necessary parties. If necessary, the Contractor shall be prepared to stop work at the contaminated site for 48 hours after notifying the Engineer, to allow the Engineer time to test for contamination.
- C. When excavation resumes at the contamination site(s), the criteria for determining which soils are to be treated as contaminated shall be based on field monitoring with an Organic Vapor Detector, an instrument which can detect hydrocarbon vapors. The County and/or its environmental consultant will operate the Organic Vapor Detector at the excavation site(s) as the Contractor continues to perform the necessary removals, and will determine which soils are to be classified as contaminated. When excavation in the area where contaminated soils are located is complete, the Contractor shall permit the County to collect soils samples from the bottom and sidewalls of the excavation. Soils shall not be excavated beyond the limits shown on the cross sections in the plan unless otherwise approved by the Engineer. Utility trench excavations that extend through contaminated soil that exhibits organic vapor detector readings above 10 ppm shall be lined with 6 mil (minimum thickness) plastic.
 1. The Contractor shall immediately (within the same day) haul and place any encountered contaminated soil in the sub-cuts or other embankment areas on the Project as approved by the Engineer. Contaminated soil that is excavated and placed in non-paved locations shall be covered with a minimum of one foot of clean, uncontaminated soil. Contaminated soil with organic vapor detector readings above 10 ppm shall not be placed in utility trenches.
 2. In the event relocation within the project is not immediately available, the Contractor shall stockpile the contaminated soil at a

location approved by the Engineer. The stockpile location(s) shall be, if possible, within the project limits. If not possible, the stockpile(s) shall be within a one-mile radius of the excavation site.

3. When stockpiling is required, the Contractor shall stockpile the contaminated soil on minimum 6 mil plastic, and cover the stockpile with minimum 4 mil reinforced plastic. The stockpile shall be surrounded by fencing if the Engineer determines that additional security measures are necessary. The stockpile cover shall be securely anchored by the Contractor. The stockpile shall be inspected a minimum of once per week and the cover shall be maintained as necessary. Contaminated soils removed from separate excavations shall be placed in separate stockpiles, or as approved by the Engineer.
 4. If permitted by the regulatory agencies the stockpiled petroleum contaminated soils shall be placed in sub-cuts or embankment fills as approved by the Engineer as soon as such acceptable areas become available in the Project.
- D. It is anticipated that all petroleum contaminated soils encountered on this Project will be incorporated into the new construction and that no petroleum contaminated soil will be hauled off the project. In the event that is not possible, based on the concentration levels, the Contractor shall determine the necessary means of off-site disposal.
- E. The Contractor shall comply with all applicable Minnesota Pollution Control Agency petroleum contamination, tanks and emergency response section fact sheets, guidelines, and regulations.
- F. Measurement will be made by the excavated volume (EV) of the contaminated soil in its original and final cross sections.
- G. Payment at the Contract unit price per yard (EV) for Item 2105.607 Excavation Special shall be compensation in full for all costs of excavating, hauling and placing, either in a sub-cut, embankment or stockpile, as approved by the Engineer any petroleum contaminated soils encountered by the Contractor during the construction of the Project. Compaction of the materials, the exact requirements of which will be governed by the final location of the material, shall also be an incidental expense to the Excavation Special contract unit price.
- H. Payment at the Contract unit price per yard (EV) for Item 2105.609 "Haul & Dispose of Contaminated Material" shall be compensation in full for all costs of excavating, hauling, stockpiling, handling and disposal of petroleum-based contaminated soils in accordance with

State and Federal law for any petroleum-contaminated soils encountered by the Contractor during the construction of the Project that he/she is directed to haul offsite.

All monitoring and testing of encountered contaminated soils shall be performed by the county and/or its environmental consultant, all at no cost to the Contractor.

- I. All costs associated with the development of a Health Safety Plan, as previously mentioned, and all costs incurred by the Contractor regarding any health and safety training for work in hazardous waste sites in accordance with state and federal laws and regulations shall be incidental expenses to the Excavation Special pay item contract unit price.

In the event contaminated soils are stockpiled and subsequently relocated into the project sub-cuts or embankments, two separate payments will be made at the contract unit price for Item 2105.607 Excavation Special. In those situations when two separate payments are made under the same pay item, the quantity used for both payments will be the same excavated volume quantity as originally measured (i.e. no provisions for swell or shrinkage from excavated volume to stockpile and again to compacted volume).

Any petroleum contaminated soils encountered during utility installations shall also be paid for as Excavation Special.

- J. All monitoring and testing of encountered contaminated soils shall be performed by the County and/or its environmental consultant, all at no cost to the Contractor.
- K. The provisions of Mn/DOT 1903 shall not apply to item 2105.609 “Haul and Dispose of Contaminated Material”, or Item 2105.607 “Excavation Special”.

S-56 (2123) EQUIPMENT RENTAL

Equipment shall be furnished in accordance with the provisions of Mn/DOT 2123, except as modified below:

- S-56.1 The first sentence of Mn/DOT 2123.3B (Dozer) is hereby changed to read:

The dozer may be of either the angle-dozer or bull-dozer type attached to a crawler-type tractor having at least 140 horsepower at the drawbar and power operated controls.

- S-56.2 The following is added to Mn/DOT 2123.3 SPECIFIC REQUIREMENTS:

N Disk Harrow

The disk harrow shall be of sufficient size and mass to manipulate the soils to a depth of approximately 12 inches and shall meet the approval of the Engineer.

S-56.3 The following is added to Mn/DOT 2123.5 BASIS OF PAYMENT:

2123.610 Disk Harrowhour

S-57 (2123) STREET/SIDEWALK 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 and sidewalk for pedestrians.

Removal shall be accomplished with self-propelled street/sidewalk 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 or sidewalks within or adjacent to the project which are experiencing aggregate or soil deposits due to the project construction activities.

S-57.1 The need for roadway or sidewalk 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-57.2 Roadway or sidewalk 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-57.3 The method of measurement and basis of payment for Item 2123.610 Street or Sidewalk Sweeper (with Pickup Broom) shall be by the hour for the actual time spent sweeping the project roadways or adjacent streets or sidewalk 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 or Sidewalk Sweeper (with Pickup Broom) shall not be subject to any price adjustments as provided in Mn/DOT 1903.

S-57.4 Payment under Item 2123.610 Street or Sidewalk Sweeper (with Pickup Broom) will only be for those hours of sweeping necessary to keep the project roadways and adjacent roadways or sidewalk 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-58 (2211) AGGREGATE BASE

Aggregate base courses shall be constructed in accordance with the provisions of Mn/DOT 2211 except as modified below:

S-58.1 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-58.2 Compaction shall be achieved by the "Modified Penetration Index Method". See Section S-58.4 and the current "MODIFIED DCP TEST PROCEDURE" and corresponding figures at the following link <http://www.dot.state.mn.us/materials/gbmodpi.html> for information about this compaction method.

S-58.3 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-58.4 The following is hereby added to Mn/DOT 2211.3C:

C4 Modified Penetration Index Method

The full thickness of each layer of Class 3, 5, 6, or 7 shall be compacted to achieve a penetration index value as described in the modified dynamic cone penetrometer (DCP) test procedure, as determined by a Mn/DOT standard dynamic cone penetrometer (DCP) device. For test purposes, a test layer will be described in the modified dynamic cone penetrometer (DCP) test procedure. Two DCP tests shall be conducted at selected sites within each 800m³ (**1000 cubic yards**) (CV) of constructed base course. If either of the tests fails to meet the specified requirements, the material represented by the test shall be recompacted and retested for penetration index compliance.

Water shall be applied to the base material during the mixing and spreading operations so that at the time of compaction the moisture content is no less than 5 percent of dry weight.

See the current “MODIFIED DCP TEST PROCEDURE” and corresponding figures found at the following link:
<http://www.dot.state.mn.us/materials/gbmodpi.html>.

S-58.5 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-58.6 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-58.7 Mn/DTO 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-58.8 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-58.9 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-58.10 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 Sublots/4 Samples)**

% Passing Outside Specified Limits*		
4.75 mm (#4) 2.00 mm (#10) And 425 µm (#40) Sieves	75 µm (#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
<p>* 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.</p>		

S-58.11 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-58.12 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-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/m3)		<u>OD</u>
f)	Absorbed moisture in the aggregates (kg/m3)	$(e \times d)$	<u>Abs</u>
g)	Saturated surface dry (SSD) weights for aggregates (kg/m3)	$(e + f)$	<u>SSD</u>
h)	Free moisture (kg/m3)	$(c - d) \times e$	<u>Free Mst</u>
i)	Target weights for one cubic meter of concrete (kg/m3)	$(g + h)$	<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-92 Wire-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-231 Weighing 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, 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:

Sieve	% Allowed
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 **(2301) REINFORCED TIE BARS (EPOXY COATED)**

The provisions of Mn/DOT 2301 are hereby modified as follows:

S-61.1 The work shall consist of placing No. 13 reinforcement tie bars (epoxy coated) in both joints of the concrete slab and gutter shown on Detail C and parking bay detail on sheet 19. Bars shall be placed at mid-point of slab and equal distance along bay.

Payment will be made under Item 2301.603 No. 13 Reinforced Tie Bars (Epoxy Coated) at the Contract bid price per each, which shall be compensation in full for all costs incidental thereto including, but not limited to, furnishing bars, and installation necessary to complete the work.

S-62 **(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 AsphaltMC-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-1H 21 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

Payment for the accepted quantity of asphalt emulsion and cutback shall be at the Contract price per unit of measure for undiluted asphalt emulsion and neat cutback. Furnishing and applying sand on newly tacked surfaces at pedestrian crossings shall be at no expense to the Department with no direct compensation being made therefore. Should the contract fail to include a Contract Item covering payment for the bituminous material used for tack coat, all costs of furnishing and applying bituminous tack coat material will be included in the compensation provided for the bituminous mixture, with no measurement made of the bituminous material used and with no direct compensation being made therefore.

Payment for the tack coat will be made on the basis of the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2357.502	Bituminous Material for Tack Coat	Liter [gallon]

S-63 (2360) PLANT MIXED ASPHALT PAVEMENT

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

S-63.1 Mix Designation Numbers for the bituminous mixtures on this Project are as follows:

Type SP 12.5 Wearing Course	SPWEB340C
Type SP 12.5 Non-Wearing Course	SPNWA330C

S-63.2 The sentence “In addition to the list the above pavement surface must meet requirements of 2399 (Pavement Surface Smoothness) requirements.” is deleted from **2360.3E Surface Requirements** of the **2360 (Plant Mixed Asphalt Pavement) Specification**. The requirements of 2360.3E Surface Requirements will apply.

S-63.3 **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-63.4 **Table 2360-20 Longitudinal Joint Density Requirement of the 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.

S-63.5 **2360.3.D.1.h Mat Density Cores of the 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 \pm 12.5 mm [**6 inches \pm 0.5 inch**] from the edge of the top of the mat (ex. center of 100 mm [**4 inch**] core barrel 200 mm \pm 12.5 mm [**8 \pm 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-63.6 **2360.3.D.1.j Companion Core Testing of the 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-63.7 **2360.3.D.1.n Longitudinal Joint Density of the 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.

- S-63.8 **2360.3.D.1.p Shoulders of the 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-63.9 **Table 2360-24 Payment Schedule for Longitudinal Joint Density (SP Wear and SP Shoulders, 4% Void) of the 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-63.10 **Table 2360-25 Payment Schedule for Longitudinal Joint Density (SP Non-wear and SP Shoulders, 3% Void) of the 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.
- S-63.11 **2360.3.D.1.r Pay Factor Determination of the 2360 (Plant Mixed Asphalt Pavement) Specification** is hereby deleted.

S-63.12 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-63.13 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-63.14 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>
2350.501	Type (1) (2) Wearing Course Mixture ((4))	metric ton [ton]
2350.502	Type (1) (2) Non Wearing Course Mixture ((4))	metric ton [ton]
	(1) Traffic Level Designation (LV or MV as appropriate).	
	(2) Aggregate size designation, as per Table 2360.2-E.	
	(3) "Wearing" or "Non Wearing" as appropriate.	
	(4) AC binder grade designation.	
	(5) Specified lift thickness.	

S-64 (2461) STRUCTURAL CONCRETE

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

S-64.1 Mn/DOT 2461.3B shall be deleted and replaced with the following:

B Classification of Concrete

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

Table 2461-2 Mix Number Identification				
First Digit	Second Digit	Third Digit	Fourth Digit	Additional Digits
Type	Grade	Slump range	Coarse aggregate gradation range	Class A coarse aggregate when required, modified mix designation, or both

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

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

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

B1 Type Designation

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

Table 2461-3 Concrete Type Designation		
Concrete Type	Target Air Content*, %	Maximum Water/Cement Ratio
1	2.0	≤ 0.53 for 1A43 ≤ 0.68 for 1C62 ≤ 0.64 for 1C Grout
3	6.5 †	≤ 0.45 †
* For concrete mix design purposes only The water/cement ratio is defined as the ratio of the total water weight to the total cementitious weight. † Unless otherwise required by 2301 or elsewhere in the contract.		

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]
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-64.2 Mn/DOT 2461.3E shall be deleted and replaced with the following:

E Concrete Admixtures3113

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-64.3 Mn/DOT 2461.3F shall be deleted.

S-64.4 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-64.5 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 as approved by the Engineer.

S-64.6

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

A4b Air Content

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

Make any adjustments immediately to maintain the desired air content.

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

A4b(1) Non-Conforming Material

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

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

General Concrete (Target Air Content 6.5%)	
Air Content, %	Adjusted Contract Unit Price
> 10.0	The Department will pay 75 percent of the contract unit price for the concrete represented for material placed as approved by the Engineer.
>8.0 – 10.0	The Department will pay 95 percent of the contract unit price for the concrete represented for material placed as approved by the Engineer.
5.0 – 8.0	The Department will pay 100 percent of the contract unit price for the concrete represented, for material placed as approved by the Engineer.
>4.0 – <5.0	The Department will pay 75 percent of the contract unit price for the concrete represented for material placed as approved by the Engineer.
>3.5 – 4.0	The Department will pay 25 percent of the contract unit price for the concrete represented and placed as approved by the Engineer. If the Engineer, in conjunction with the Concrete Engineer, determines the surface is exposed to freeze-thaw cycling, coat the concrete with an approved epoxy penetrant sealer from the Mn/DOT Approved Products list.

General Concrete (Target Air Content 6.5%)	
Air Content, %	Adjusted Contract Unit Price
≤ 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-64.7 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-64.8 Mn/DOT 2461.4D1 shall be deleted and replaced with the following:

D Certified Ready-Mix Concrete

D1 Definition

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

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

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

Certified Ready-Mix Terminology	
Term	Definition
Mix design water	The maximum allowable water content for 1 cu. yd [1 cu. m] of concrete in accordance with Mn/DOT Form TP 02406, <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.

S-64.9 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-64.10 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-64.11 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-64.12 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.

<p>Table 2461-7A General Concrete for Individual Aggregate Fractions Fine and Coarse Aggregate Specification Sieves other than Fine Aggregate No. 200 [75 µm]</p>
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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 μ m] sieve and on other sieves concurrently, the Department will only reduce the price based on the larger percentage deduction. The Engineer, in conjunction with the Concrete Engineer, will determine adjusted contract unit prices for coarse aggregate quality failures.

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

D7d Moisture Content

Ensure the producer performs the following:

- (1) Determine the moisture content using the oven dry method in all fractions of the aggregate.
- (2) Document moisture tests on Mn/DOT Form 2152, *Concrete Batching Report*.
- (3) Chart the moisture content of each aggregate.

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

D7e Plant Diaries

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

D7f Batch Weight Verification

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

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

- (1) Watching the ready-mix truck reverse the drum after washing,
- (2) Verifying use of the current moisture test,
- (3) Verifying that any additional water added to adjust the slump is recorded, and
- (4) Validating water weights on the load batched and comparing the total water with the design water

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

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

D7g Certificate of Compliance

Provide a computerized Certificate of Compliance with each truckload of ready-mixed concrete at the time of delivery. The Department defines computerized to mean a document that records mix design quantities from load cells and meters.

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

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

- (1) Name of the ready-mix concrete plant,
- (2) Name of the Contractor,
- (3) Date,
- (4) State Project Number (SP) or (SAP),
- (5) Bridge Number (when applicable),
- (6) Time concrete was batched,
- (7) Truck number,
- (8) Quantity of concrete in this load,
- (9) Running total of each type of concrete, each day for each project,
- (10) Type of concrete (Mn/DOT Mix Designation Number),
- (11) Cementitious materials using Mn/DOT Standard Abbreviations,
- (12) Admixtures using Mn/DOT Standard Abbreviations
- (13) Aggregate sources using 5 digit State Pit Numbers, and
- (14) Admixture quantity fl. oz. per 100 pounds of cementitious [**mL per kg**] or oz per cu. yd [**mL per cu. m**]
- (15) Batch information for materials using Mn/DOT standardized labels to represent each column shown in Table 2461-7C. Present the information in the order listed across the page (a through k) or print the information using two lines provided that the materials are identified in each line of information.

Table 2461-7C Standardized Certificate of Compliance Labels		
Category	Formula	Standard Label
a) Ingredients (aggregate, cementitious, water, admixtures)	—	Ingredient
b) Product Source (Mn/DOT Standard Abbreviation)	—	Source
c) Total Moisture Factor (in decimals to 3 places)	—	MCFac
d) Absorption Factor (in decimals to 3 places)	—	AbsFac
e) Mn/DOT mix design oven dry (OD) weights, <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>	$(\text{cu. yd} \times \text{i})$ [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-65 (2471) STRUCTURAL METALS

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

S-65.1 Delete the forth 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-65.2 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-65.3 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-65.4 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-65.5 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-65.6 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-66 (2472) METAL REINFORCEMENT

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

S-66.1 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. ~~in concrete structures other than concrete pavement and concrete base.~~

S-67 (2502) SUBSURFACE DRAINS, SUBCUT DRAIN TYPE

This work shall consist of constructing subsurface drains in accordance with the applicable provisions of Mn/DOT 2502, the details included in the plans, as directed by the Engineer, and the following:

S-67.1 The location and alignment of the subsurface drains and outlets are shown in a general manner on the Plans. Exact location and alignment shall be as determined by the Engineer in the field to ensure that the drain properly collects and discharge observed or anticipated flowing groundwater and infiltration water that may accumulate in the bottom of granular – backfilled subcuts.

S-67.2 The Contractor may choose either of two options for the construction of these drains; Option 1, thermoplastic pipe may be placed in the bottom corner of the sub-cut and then the sub-cut backfilled; Option 2, the sub-cut is first backfilled and then PE pipe is placed by machine trencher.

S-67.3 Material Requirements:

Perforated drain pipe shall be 4 inch perforated Corrugated Polyethylene (PE) Tubing, Mn/DOT 3278. All perforated pipe shall be wrapped with Geotextile, Mn/DOT 3733, Type I. Fine Filter Aggregate shall meet the requirements of Mn/DOT 3149.2J, which is modified so that the percent passing the No. 40 sieve will be 5-35.

S-67.4 Unless otherwise noted in the plans, drain grades shall not be less than 0.2 percent. The Contractor shall supply and use laser grade control equipment when placing all TP pipe and for PE pipe when pipe grades do not follow working grades at a constant depth.

S-67.5 The Contractor shall place 4 inch perforated Corrugated Polyethylene (PE) Tubing as shown in the detail in the plans.

Drains shall be placed by machine trencher capable of cutting the trench, shaping the trench bottom to cradle the lower one-third of the pipe, laying the pipe, and backfilling with filter aggregate in one simultaneous and continuous operation. Plowing will not be permitted. The trenching head shall be equipped with a shield to prevent adjacent material from caving.

Trench width shall be 8 inches minimum, 10 inches maximum, with pipe being centered therein.

The trench shall be backfilled with Fine Filter Aggregate. Filter aggregate shall be free flowing and receive vibratory compaction to the satisfaction of the Engineer. In addition to the required trench compaction, at least one pass of general compaction, as directed by the Engineer, shall be made over the trench prior to placing the overlying required pavement structure.

The trenching operation may be performed after the sub-cut backfill has been placed and compacted.

S-67.6 Construction Requirements

Perforated pipe drains shall be connected directly to permanent drainage structures via non-perforated discharge pipes which shall be constructed concurrently with the drains and be laid at roughly right angles to the roadway centerline. A 12 inch straight length of (TP) connecting pipe shall be provided to connect (PE) subsurface drains to structures. This connector pipe shall be attached to the (PE) edge drain to provide easy entry (alignment) for probes, cleaners or video cameras.

Discharge pipes shall be connected to the drainage structures at a height of approximately 1 foot, but not less than 6 inches, above the top of the structure invert. The connection method shall be approved by the Engineer.

S-67.7 Measurement and Payment

Measurement will be made by the length of furnished and satisfactorily installed subsurface pipe drains, approved by the Engineer.

The provisions of Mn/DOT 2502.5 are hereby modified to the extent that:

Payment made under Item 2503.541 4 inch Perforated (PE) Pipe Drain at the Contract unit price per linear foot shall be full compensation for fabric wrapped pipe, furnished and installed as specified, filter aggregate backfill and compaction, end caps, connecting the pipe drains into the drainage structures, and all other associated work required to install the perforated pipe drains as detailed, specified, and as directed by the Engineer.

The non-perforated connecting pipe length and coupling(s) shall be included for payment with the discharge footage. Payment made under Item 2503.521 4 inch (TP) Pipe Drain at the Contract unit price per linear foot shall be full compensation for trenching, furnishing and placing non-perforated (TP) discharge pipe, wyes, tees, connectors, other connectors as necessary, connecting the discharge pipe into the drainage structure, backfill and compaction, and all other associated work required to install the non-

perforated discharge pipes between the outlet drainage structures and the perforated pipe drains.

S-68 **(2503) PIPE SEWERS**

Pipe sewers shall be furnished and installed in accordance with the provisions of Mn/DOT 2503, Section 12 of the AASHTO LRFD Bridge Design Specifications, except as modified as follows:

- S-68.1 In addition to the provisions of Mn/DOT 2451, the trench backfill shall be compacted by approved mechanical tampers.
- S-68.2 Each shipment of pipe shall be accomplished by a Certification of Compliance furnished by the pipe manufacturer, in accordance with Mn/DOT 1603. Damaged pipe shall not be used.
- S-68.3 Payment under Item 2503.602 Connect Into Existing Drainage Structure at the Contract unit price per each, shall be compensation in full for all costs incidental thereto, including but not limited to, all materials and labor necessary to connect the proposed storm sewer pipe to the existing storm sewer structure and repair any holes where a pipe is removed (i.e. MN 1 21R in particular). Any damage caused to the existing storm sewer structure shall be repaired at no expense to the County and to the satisfaction of the Engineer.

S-69 **(2503) SANITARY SEWER**

All revisions to the existing sanitary sewer system and the installation of new sanitary sewer components required on this contract shall be completed in accordance with the applicable specifications of Mn/DOT 2503, the City of Minneapolis (hereinafter referred to as the "City's Sanitary Sewer Specifications" found at www.ci.minneapolis.mn.us/public-works, click on Standard Specifications + Detail Plates) the following Special Provisions, and as directed by the Engineer.

S-70 **(2503) DISCONNECT AND RECONNECT TO EXISTING
SANITARY SEWER SERVICE**

This work consists of disconnecting and constructing a new connection into existing sanitary sewers in accordance with the applicable Mn/DOT Standard Specifications, City's Sanitary Sewer spec and the following:

- S-70.1 If a service is in the way of storm sewer installation, the Contractor will be required to disconnect sanitary sewer service and reconnect after storm sewer is in place. Cost for this work shall be paid under the following two pay items. The provisions of MnDOT 1903 shall not apply.

S-70.2 Item No. 2503.602 Disconnect to Sanitary Sewer Service: Payment shall be made for each disconnect at the unit price in the Proposal, and shall include temporary plugging of pipe to keep it clean while installing a storm sewer pipe and providing a means to maintain flow in service until reconnected.

Item No. 2503.602 Reconnect to Existing Sanitary Sewer Service: Payment shall be made for each reconnect of an existing sanitary sewer service at the unit price in the Proposal, and shall include connections made at manholes or to pipes using a Fernco adapter or approved equivalent.

S-70.3 Changes to private drainage/sewer piping require a Utility Connection permit. To get permitting information, contact 612-673-2454.

Two areas related to utility connection are:

- a) Connect 12" PVC from ICB 212 to CB 23 will require 1 coupling plus appr. 8' of 12" PVC. All work is incidental to CB 23.
- b) Connect 10" clay pipe from ICB 218 to CB 26 will require 1 coupling plus 8' – 12" PVC. All work is incidental to CB 26.

S-71 **(2503) POLYVINYL CHLORIDE PIPE SEWER**

This work shall consist of furnishing and installing polyvinyl chloride (PVC) pipe and fittings in accordance with the Plans, and the Standard Utilities Specifications for Sanitary Sewer and Storm Sewer Installation and Trench Excavation and Backfill/Surface Restoration, Revised 1999, as prepared by the City Engineers Association of Minnesota (CEAM) and published by the League of Minnesota Cities, St. Paul, Minnesota, and as modified in this Specification.

S-72 **(2504) INSPECTION HOLE**

Pay Item 2504.603 Inspection Hole shall be used as indicated by the Engineer to determine the location and elevation of existing watermain or other subsurface facilities. Inspection hole excavations will be measured for payment by the vertical depth of excavation, regardless of the actual hole size, completed as indicated by the Engineer. Payment for inspection holes excavated as indicated by the Engineer at the Contract unit price per linear foot (vertical measure) shall be compensation in full for all costs of excavating, placing and compacting backfill to the satisfaction of the Engineer, and obtaining underground utility locates prior to the excavation. The provision of 1903 shall not apply.

S-73 **(2504) WATER DISTRIBUTION SYSTEM**

All revisions to the existing water distribution system and the installation of new water lines and other appurtenances on this contract shall be completed in accordance with the City of Minneapolis (hereinafter referred to as the "City's Water Main Specifications" found at

www.ci.minneapolis.mn.us/public-works, click on Standard Specifications + Detail Plates), the following Special Provisions, and as directed by the Engineer.

S-74 **(2504) ADJUST CURB STOP BOXES**

S-74.1 The Contractor shall be required to adjust all curb stop boxes directed by the Engineer. The unit price bid for the adjustment of each curb stop box shall be considered compensation in full for all equipment, materials, and labor including setting the valve box or curb box as directed by the Engineer.

S-74.2 All valves within the roadway shall be set to ¼-inch below the elevation of the finished pavement surface.

Measurement will be made by the number of boxes adjusted. Payment will be made under Item 2504.602 (Adjust Curb Stop Box) at the Contract bid price per each, which shall be compensation in full for all costs incidental thereto including, but not limited to, furnishing extensions as required and replacing any materials damaged by the Contractor's operations.

S-75 **(2504) RELOCATE HYDRANT**

This work shall consist of relocating hydrants with housings after extending the leads, at a location outside of the roadbed, as directed by the Engineer, in accordance with the following:

S-75.1 All additional materials furnished under this specification shall be new and like in kind to that in place.

S-75.2 Prior to relocation, the hydrant and gate valve shall be cleaned of all foreign matter and after installation shall be disinfected in accordance with the procedures described in paragraphs No.'s 1227 and 1228 of Section XII "Manual of Water Supply Sanitation" of the Minnesota Department of Health.

S-75.3 Hydrant relocation will be measured by the number of hydrants installed complete with housing as specified. Payment will be made under Item 2504.602 (Relocate Hydrant) at the Contract bid price per each, which shall be compensation in full for all costs incidental thereto including, but not limited to, any additional water leads, drain pits, concrete blocking, extensions, risers or fittings necessary to complete the relocation.

S-76 **(2504) RECONNECT WATER SERVICE**

S-76.1 **MATERIALS**

Copper Pipe: Copper tubing shall be Type K water tube conforming to ASTM Specification B-88, soft temper. Connections to existing piping shall be Ford flared end joint coupling or approved equal.

S-76.2 CONSTRUCTION REQUIREMENTS

This work will include the installation of new copper water service lines between existing lines. Any fittings necessary to modify the size of the service line, along with the necessary couplings to connect to the existing service, shall be included. The Contractor shall make note of the service condition and report to the Engineer any deficiencies that may exist.

S-76.3 BASIS OF PAYMENT

Item 2504.602 Reconnect Water Service: Payment shall be made for each connection made at the unit price in the Proposal and shall include all labor and materials to reconnect the service line.

S-77 (2504) WATER MANHOLES

MnDOT 2506.3106, and 3616 are modified as follows:

S-77.1 All backfill material around manholes shall be compacted by approved mechanical tampers.

S-77.2 A **4 inch** thick concrete encasement shall be placed around the outside of the manhole or catch basin as detailed in current Mn/DOT Standard Plate 4026. This encasement shall be placed at the time of final casting placement and shall be incidental for which no payment will be made.

S-77.3 BASIS OF PAYMENT

Item 2506.603 Reconstruct Water Manholes: Payment shall be made by the linear foot measured from the old manhole removal line (removal shall be 3 feet) to the top of the new finished manhole. The unit price bid for each type of structure shall be considered compensation in full to construct each manhole complete, in-place in conformance with the plans.

The unit price bid shall also include setting the casting to the finish grade as designated by the Engineer, and conforming to the provisions of MnDOT Specification 2506. Furnishing of casting will be under pay item 2506.516 Casting Assembly (Water).

S-77.4 All work required under pay Reconstruct Water Manholes shall be completed in accordance with the appropriate City of Minneapolis Standard Specification on http://www.ci.minneapolis.mn.us/public_works/plate_home.asp#topofpage

S-78 (2504) TRENCH EXCAVATION

This work shall conform to MnDOT 2503 and consist of the following:

- a) Extra depth of pipe over 10' from MH34A to IDMN242
- b) Use of trench boxes to reduce width of trench required

Item 2504.603 Trench Excavation: Payment shall be made by linear foot along trench where depth exceeds 10 feet for cost of extra depth. The Unit price bid per linear foot shall be considered compensation in full for use of trench boxes and depth beyond 10 feet to excavate and backfill trench as necessary to place pipe.

S-79 **(2506) SANITARY SEWER MANHOLES**

Mn/DOT 2506, 3106, and 3616 are modified as follows:

S-79.1 All backfill material around manholes shall be compacted by approved mechanical tampers.

S-79.2 A **4 inch** thick concrete encasement shall be placed around the outside of the manhole or catch basin as detailed in current Mn/DOT Standard Plate 4026. This encasement shall be placed at the time of final casting placement and shall be incidental for which no payment will be made.

S-79.3 **BASIS OF PAYMENT**

Item 2506.603 Reconstruct Sanitary Manholes: Payment shall be made by the linear foot measured from the old manhole removal line (removal shall be 3 feet) to the top of the new finished manhole. The unit price bid for each type of structure shall be considered compensation in full to construct each manhole complete, in-place in conformance with the plans.

The unit price bid shall also include setting the casting to the finish grade as designated by the Engineer, and conforming to the provisions of MnDOT Specification 2506. Furnishing of casting will be under pay item 2506.516 Casting Assembly (Sanitary Sewer).

S-79.4 All work required under pay Reconstruct Sanitary Manholes shall be completed in accordance with the appropriate City of Minneapolis Standard Specification on http://www.ci.minneapolis.mn.us/public_works/plate_home.asp

S-80 **(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-80.1 All backfill material around manholes and catch basins shall be compacted by approved mechanical tampers.

S-80.2 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-80.3 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-80.4 At various locations within the Project new catch basins or manholes are to be constructed over in-place pipes. No additional compensation is to be made for this work. All costs associated with constructing structures in this manner, including, but not limited to, breaking the existing pipe, shall be incidental to the Contract unit price of the appropriate 2506 pay item.

S-80.5 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-81 VIBRATORY AND BACKFILLING CONCRETE RESTRICTIONS

The provisions of Mn/DOT 2521 and 2531 are supplemented and/or modified with the following:

S-81.1 Mn/DOT 2521.3E and 2531.3J are hereby modified to include the following provision:

The Contractor shall not operate any vibratory equipment adjacent to the newly placed concrete for a minimum of 24 hours. Vibratory operations and backfilling may commence after 72 hours or after the concrete has reached a minimum compressive strength of 3000 psi. The concrete control specimens shall be cast, cured, and tested as prescribed in 2461.4A5. If high early-strength concrete is permitted, the curing period may be reduced to a minimum of 24 hours or as directed by the Engineer. Should any damage result, the operations shall be suspended until corrective action has been

taken and the concrete may be subject to 1503 and 1512.

The following vibratory equipment shall be excluded from these restrictions after 24 hours:

- (1) Hand operated concrete consolidation equipment
- (2) Hand held vibratory plate compactors

Other equipment/operations may be excluded at the discretion of the Concrete Engineer

S-82

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 pedestrian ramp details included in this Plan are examples that can be used in certain applications. The Engineer may provide additional details to those provided in the Plans that meet the PROWAG guidelines as the need arises and field conditions dictate.

The Contractor must designate a responsible person familiar with PROWAG to assess proposed sidewalk layouts at each site before work begins. This person must be on site at all times that any work concerning pedestrian facilities is being performed.

Pedestrian Access Routes must be constructed meet to the following criteria:

- (1) a maximum 2% cross slope
- (2) a maximum 8.3% longitudinal slope, not to exceed 15 feet
- (3) landings must be a minimum 4 feet by 4 feet with a maximum 2% slope in all directions.

If the Contractor constructs any pedestrian or shared trail facilities that do not comply with PROWAG, the Contractor will be responsible for correcting the deficient facilities with no compensation paid for the corrective work. To ensure that the facilities are constructed to be compliant 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 what is to be done, the Contractor may proceed to the next step.

- (2) The Contractor shall transition from the in-place curb type to the new curb and gutter. Prior to beginning the installation of any curb and gutter, the Contractor must verify the curb cuts:
 - a) will be located within the crosswalk;
 - b) will be aligned with the opposing pedestrian ramp across the roadway;
 - c) will allow for required slopes to be met.

If all of these conditions cannot be met, the Contractor shall consult with the Engineer to determine the best solution. When the Contractor proceeds with the curb and gutter placement, they will be acknowledging that PROWAG can and will be met. The Contractor may then proceed to the next step.

- (3) The Contractor shall verify that the required slopes and landing can be achieved after setting sidewalk forms, and prior to pouring the concrete walks. Once the Contractor has verified the required landing area, longitudinal slopes, and cross slopes can be achieved, the Contractor can complete the concrete sidewalk pour.

The Contractor is reminded that all joints and edges of the walk shall be rounded with a 1/4 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 Mn/DOT 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.

S-83 **(2521) WALKS**

Walks and entrance noses shall be constructed in accordance with the provisions of Mn/DOT 2521 and the following:

- S-83.1 No deductions in the walk measurement will be made for the metal covers, miscellaneous signal, lighting structures, sign collars or utility access covers encompassed in the work.
- S-83.2 Bidders are hereby advised that the work required in the center medians may be altered during the construction of this Project. Due to the pending future contract for landscaping within the corridor and the decisions yet to be made on certain aesthetic elements within the corridor the quantity of Item 2521.604 will be subject to change. Any alterations to the Contract in

regards to the change of work required in the center medians shall be accomplished in accordance with the provisions of Mn/DOT Standard Specification 1402.

- S-83.3 It shall be the Contractor's responsibility and expense to provide temporary access, if required by the Engineer, to any property where access is affected by sidewalk construction.
- S-83.4 Included in the signing details in the plan is a detail for sign sockets that are to be installed by the Contractor in the concrete walks as they are poured. The actual locations shall be identified by the Engineer and the City. The sign sockets are to be purchased from City of Minneapolis (appx. \$25 cost) by the Contractor.
- S-83.5 Payment for the installation of these sign collars shall be made under Item 2564.602 Install Sign Collar.
- S-83.6 The Engineer shall have the right to require the construction of sidewalk within 24 hours of his direction in all locations where in his opinion the absence of a hard surface walkway is an undue hardship to the affected business, residence or pedestrian traffic.
- S-83.7 Concrete entrance noses shall be constructed in accordance with the referenced Standard Plates 7109 and 7113 as applicable. Compensation for the concrete entrance noses shall be paid under Item 2531.602 Concrete Entrance Nose Design 7113 on an each basis.
- S-83.8 All work required to prepare the base, except new aggregate material, associated with the replacement sidewalks shall be as directed by the Engineer and shall be incidental to the new sidewalk construction. Any new aggregate base material that may be required by the Engineer shall be compensated for under Item 2211.501 Aggregate Base Class 5.
- S-83.9 All joints shall be sawed not tooled in the sidewalk. This work is incidental to sidewalk construction.

S-84 (2521) SAWING CONCRETE WALK

This work shall consist of sawing concrete walk to remove half at a time in order to keep access to businesses open:

Measurement will be made by the length of concrete walk sawed. Payment will be made under Item 2521.603 (Sawing Concrete Walk) at the Contract bid price per linear foot, which shall be compensation in full for all costs relative thereto.

The 2521.515 Sawing Concrete Walk is for providing a sawed joint between old and new walk.

S-85 **(2531) PEDESTRIAN CURB RAMP – TRUNCATED DOME SYSTEMS**

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

- S-85.1 The Contractor shall select a truncated dome product from the approved products list at <http://www.dot.state.mn.us/products/miscmaterials/truncateddomes.html> . Only approved products are allowed. Stamped concrete is not allowed. OR at the following website for radical truncated domes http://adatile.reachlocal.com/coupon/?scid=804182&cid=698601&tc=11011305460674771&rl_key=8ec41f743a13aebba8589acb7abc6c99&kw=5707494&dynamic_proxy=1&primary_serv=adatile.reachlocal.net. There is 17-20' radium dome at 270.9 sq ft and 1-30' radium dome at 25.4 sq ft.
- S-85.2 The truncated dome area will be measured by the square meter [**square foot**]. Payment will be made under Item 2531.618 (Truncated Domes) at the Contract bid price per square foot, which shall be compensation in full.

S-86 **(2531) CONCRETE CURBING**

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

- S-86.1 In locations directed by the Engineer, concrete driveway pavement and 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-86.2 Concrete noses shall be constructed in accordance with the details in the plans and Standard Plates 7113 as applicable. They shall be measured and paid for by the each. Payment at the Contract unit price per each for Item 2531.602 Concrete Entrance Nose Design 7113 shall be compensation in full for all costs of labor, materials and equipment necessary to construct the various concrete noses required.
- S-86.3 In those locations where driveways are to be constructed through curbed mainline sections, the curb shall be reduced in height to 1 inch as detailed in the plans. Payment for the curb and gutter across the full width of the

driveway will be at the full Contract unit price for the applicable 2531.501 Concrete Curb and Gutter pay item per unit of length even though the curb section has been reduced.

S-86.4 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-86.5 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 hours 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-86.6 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 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-87 (2533) PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337

The Contractor shall furnish and install portable precast concrete median barriers in accordance with current Mn/DOT Standard Plate No. 8337, these provisions, the Plan details and the following:

- S-87.1 All portable precast concrete median barriers shall be placed as shown in the Plans and as directed by the Engineer. The barrier shall not be removed until the Engineer approves the removal.
- S-87.2 The implementation dates of Technical Memorandum No. 08-03-TS-01 shall not apply to this Contract. Only barrier built using Standard Plate No. 8337B shall be allowed.
- S-87.3 The portable precast concrete median barrier shall remain the property of the Contractor upon completion of the Project. The Contractor shall arrange for disposal of the barrier outside of the Right of Way at the completion of the Project.
- S-87.4 The Contractor shall only place barrier that is deemed to be acceptable.

To be acceptable, the barrier section shall meet the following minimum requirements:

- 1. Connecting loops shall be intact and undamaged. In the case of wire rope, there shall be no delamination or missing strands.
- 2. May have no more than hairline cracking due to handling and wear present.
- 3. Barrier faces and/or ends may have areas where surface concrete has been lost, but no area that would affect impacting vehicle travel/direction or overall structural integrity.
- 4. Rebar surface may be partially exposed but is not likely to affect impacting vehicle travel/direction or overall structural integrity.
- 5. Finished edges are reasonably square with no loss of concrete and may have minimal chipping due to wear.

The barrier is **unacceptable** in the following cases:

- 1. Any connecting loops are cracked or, in the case of wire rope, are delaminated or missing strands.
- 2. Barrier section has major cracking that is likely to affect its structural integrity.

3. Barrier faces have extensive loss of surface concrete which would affect vehicle travel/direction.
4. Finished edges are so worn and rounded that the Type "F" face is no longer well-defined.
5. Barrier is delaminated to the point that rebars are completely exposed and are likely to affect impacting vehicle travel/direction or structural integrity.

Additional information regarding acceptable and unacceptable barrier can be found at the website for the Office of Traffic, Safety and Operations at: <http://www.dot.state.mn.us/products>

S-87.5 The Contractor will be subject to a non-compliant charge for **unacceptable** Portable Concrete Barrier sections. Non-compliance charges, for each incident, will be **assessed at a rate of \$250.00 per hour**, for each or any portion thereof, which the Engineer determines that the Contractor has not complied.

S-87.6 The Contractor will be subject to a non-compliant charge for failure to properly connect the Portable Concrete Barrier sections. Non-compliance charges, for each incident, will be **assessed at a rate of \$250.00 per hour**, for each or any portion thereof, which the Engineer determines that the Contractor has not complied.

S-87.7 Measurement will be made by the length of Portable Concrete Barrier installed. Payment will be made under Item 2533.507 (Portable Precast Concrete Barrier Design 8337) at the Contract bid price per meter [**linear foot**], which shall be compensation in full, but not limited to, loading, hauling and installing the concrete median barrier and subsequent loading, hauling and removal of the barrier.

S-88 (2533) RELOCATE PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337

This work shall consist of relocating portable concrete median barrier within the Project limits as directed by the Engineer and the following:

S-88.1 When portable median barrier has to be removed from the Project roadways, but will be needed again in a later phase of the work, the Engineer may direct that it be stockpiled on or near the Project site. When this is done, payment will be made under Item 2533.508 (Relocate Portable Precast Concrete Barrier Design 8337). Payment will be made once for removing the barrier from the roadway and placing it in the stockpile; and again for removing it from the stockpile and installing it in the roadway.

S-89 **(2554) IMPACT ATTENUATORS**

This work shall consist of furnishing, installing, and removing Impact Attenuators as shown in the Plan. This work shall be performed in accordance with the applicable Mn/DOT Standard Specifications and the following:

- S-89.1 The Impact Attenuator shall be on the Mn/DOT Approved Product List for Temporary Crash Attenuators. The list is found on the Mn/DOT website at <http://www.dot.state.mn.us/products>. It shall be the responsibility of the Contractor to obtain all required details to install these systems.
- S-89.2 The Contractor shall choose an Impact Attenuator that fits the site specific requirements for the Project.
- S-89.3 Measurement will be made by the number of impact attenuators furnished, installed, and removed as specified. Payment will be made under Item 2554.615 (Impact Attenuator) at the Contract bid price per assembly, which shall be compensation in full for all costs relative thereto.

S-90 **(2554) RELOCATE IMPACT ATTENUATOR**

This work shall consist of relocating impact attenuator assemblies within the Project site as directed by the Engineer and the following:

- S-90.1 Payment will be made for relocating the impact attenuator assemblies under any of the following conditions:
 - 1. Relocating the assemblies within the Project roadways.
 - 2. Relocating the assemblies from Project roadway to stockpile for later use on Project roadways.
 - 3. Relocating the assemblies from stockpile to Project roadways.
- S-90.2 Measurement will be made on the basis of each separate impact attenuator assembly relocated. Payment will be made under Item 2554.615 (Relocate Impact Attenuator) at the Contract bid price per assembly, which shall be compensation in full for all costs incidental thereto.

S-91 **(2563) CONSTRUCTION SIGN – SPECIAL**

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

- S-91.1 All materials required to furnish and install the special construction signs shall remain the property of the Contractor.

- S-91.2 Measurement will be made by the area in square feet of special construction signs constructed as specified.
- S-91.3 Payment will be made under Item 2563.618 (Construction Sign – Special) at the Contract bid price per square foot, which shall be compensation in full for all costs incidental thereto, including but not limited to furnishing and installing the signs, mounting hardware and posts, maintaining the signs, and removing the signs upon direction of the Engineer.
- S-92 (2563) PORTABLE CHANGEABLE MESSAGE SIGN**
- The Contractor shall furnish, install, maintain and remove Portable Changeable Message Signs in accordance with Contract provisions, as directed by the Engineer and the following:
- S-92.1 The Portable Changeable Message Signs shall be trailer mounted three-line DOT signs with eight characters per line, with a character height of 18 inches as approved by the Engineer.
- S-92.2 (PCMS) Type C Trailer Mounted Message Signs will be permitted and shall be on the qualified products list for portable changeable message signs as found at: <http://www.dot.state.mn.us/products/>. It is imperative that the Contractor continually operate each PCMS at maximum legibility. Many factors, such as mechanical problems, insufficient charging, incorrect intensity settings, or other factors can degrade performance. If at any time the Contractor fails to operate a Portable Changeable Message Sign at maximum legibility, as determined by the Engineer, no payment will be made for each day that the Message Sign is deemed inadequate.
- S-92.3 The changeable message signs shall be in operation within 24 hours after notification by the Engineer and removed within 24 hours after notification by the Engineer. Multiple mobilizations of the changeable message signs will be required and shall be incidental to providing the signs. The changeable message signs shall be subject to approval of the Engineer. All maintenance and repair as required will be considered incidental to the Contract price for the respective item.
- S-92.4 Except as authorized by the Engineer, the message sign shall be stored off the shoulder when not in use. In the event the Engineer allows the message board to remain on the shoulder the message sign shall be delineated according to Layout 4 (Partial Shoulder Closure) in the field manual, or as determined by the Engineer.
- S-92.5 Measurement will be made by the number of Portable Changeable Message Signs furnished and installed per day of service (Unit Day) as specified.
- S-92.6 Payment for Portable Changeable Message Signs furnished and installed, as

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

S-93 **(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-93.1 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-93.2 **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 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/provac/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-93.3 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 way-finding 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-93.4 No pedestrian curb ramp or blended transition work shall occur concurrently at adjacent intersections.

S-93.5 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-93.6 The Contractor is advised that the corridor has Transit service. Relocations 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-93.7 All traffic control required under this Contract for pedestrian access shall be performed as incidental work for which no direct payment will be made.

S-94 (2563) RAISED PAVEMENT MARKERS TEMPORARY (TRPMS)

This work shall consist of constructing temporary raised pavement markers and the selected mounting system, placing the marker on the roadway, and removing the marker in accordance with the specification TEMPORARY RAISED PAVEMENT MARKERS (TRPM) and the following:

S-94.1 The specification TEMPORARY RAISED PAVEMENT MARKERS (TRPM) can be accessed on the Mn/DOT Office of Traffic, Safety, and Operation website.

S-94.2 TRPMs will be measured by the number of markers installed. Payment will be made under Item 2563.602 (Raised Pavement Marker Temporary) at the Contract bid price per each.

S-95 (2564) INSTALL SIGN COLLAR

This work shall consist of purchasing from City and installing sign collars in conjunction with sidewalk construction.

S-95.1 The drawing entitled SIGN COLLAR PLACEMENT, details the sign collar to be furnished by the City of Minneapolis. Installation by the Contractor shall be in accordance with the details and notes included in said drawing.

S-95.2 Sign collars shall be installed at the locations to be determined by the Engineer and City during construction.

S-95.3 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 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 (612-673-5750).

S-95.4 Payment at the Contract unit price per each for Item 2564.602 Install Sign Collar shall be compensation in full for all costs associated with obtaining the sign collars from the City of Minneapolis and installing them in accordance with the specifications and details herein during the sidewalk construction.

S-96 **(2571) TREE PROTECTION – RAIN GARDEN**

This work shall consist of providing protection for existing trees and rain garden (sheet 68) in accordance with the details shown in the Plans and the following:

- S-96.1 The Contractor shall furnish, install, maintain, and remove snow fencing or other approved fencing at locations as directed by the Engineer.
- S-96.2 The fencing shall be approximate **50 linear feet** of **4 foot** high (nominal) fencing placed **10 to 12 feet** from the base of the trees and around rain garden, or as directed by the Engineer. The Tree Protection shall be in place before any work is performed in the vicinity of the trees to be protected.
- S-96.3 Measurement will be made of the number of rolls **50 linear foot** of fencing placed. Payment will be made under Item 2571.602 (Tree Protection) at the Contract bid price per linear foot, which shall be compensation in full for furnishing, installing, maintaining and removing fencing.

S-97 **(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-97.1 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-97.2 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 of 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-97.3 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-97.4 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-97.5 The Contractor shall furnish, install, maintain, and remove snow fencing or other approved fencing at locations as directed by The Engineer.

S-97.6 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-98 (2573) STORM WATER MANAGEMENT

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

S-98.1 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, Storm Water Pollution Prevention Plan (SWPPP), the "Minnesota Pollution Control Agency General Permit, Authorization to Discharge Storm Water", other applicable permits, and as directed by the Engineer.

S-98.2 The following are hereby added to the list of Standard Specification references listed in Mn/DOT 2573.2 MATERIALS:

L	Fiber Log	3895
M	Sod	3878
N	Fertilizer	3881

- O Hydraulic Soil Stabilizer.....3884
- P Erosion Control Blankets3885

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-98.3 The following are hereby added to TABLE 2573-1 contained in Mn/DOT 2573.3Q:

Item	Corrective action required when
Seeding	Not uniform placement Not seeded with drill when required Depth of seed incorrect No seedbed firming Incorrect rate of seed application Less than 3 inches tillage Not mulched within 24 hours
Fertilizer	Incorrect rate of application Not uniform placement Not incorporated properly
Mulch Material	Incorrect rate of application Not uniform placement
Disc anchoring	Insufficient depth of mulch anchoring Not done immediately after mulch placement
Erosion control blankets and mats	Inadequate soil loosening or preparation Upgrade ends not embedded on slopes Improper overlaps and joints Wrong staples used Insufficient number of staples Improper stapling pattern No embedment of joints in drainage ways

S-98.4 The first sentence of Mn/DOT 2573.3E2 is revised to read as follows:

The bio roll shall be installed and anchored with wood stakes. The stakes shall be at a minimum nominally 1 inch x 2 inch and a minimum of 16 inches long with a pointed end.

S-98.5 Mn/DOT 2573.3 A2, Construction of Temporary Storm Water Basins, is revised to read as follows:

Temporary storm water basins shall be constructed concurrently with the start of soil disturbing activities whenever practicable. The basins must be made fully functional and have storm water runoff from the localized watershed directed to the basins. The exposed side slopes of the basins must be mulched and/or seeded within the time periods as set forth in 1717, or as directed by the Engineer.

S-98.6 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-98.7 The first sentence of Mn/DOT 2573.3E2 is revised to read as follows:

The bioroll shall be installed and anchored with wood stakes. The stakes shall be at a minimum nominally 25 mm x 50 mm (**1 inch x 2 inch**) and a minimum of 400 mm (**16 inches**) long with a pointed end.

S-98.8 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-98.9 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-98.10 Temporary Rock Construction Entrance

Temporary rock construction entrances shall be constructed in accordance with the detail in the plan in the locations directed by the Engineer.

Temporary rock construction entrances will be measured and paid for by the each as Item 2573.602 Temporary Rock Construction Entrance. Compensation at the Contract unit price per each shall be compensation in full for all costs to construct, maintain, and remove the rock entrances as detailed, specified, and directed by the Engineer.

The actual payment for temporary rock construction entrances shall be made in two installments for each entrance constructed. Upon satisfactory construction 50% of the Contract unit price will be paid. The remaining 50% of the Contract unit price will be paid upon removal and restoration to the satisfaction of the Engineer.

No temporary rock construction entrance shall be removed until so authorized by the Engineer.

S-98.11 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-98.12 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-98.13 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-99 (2573) EROSION CONTROL SUPERVISOR

The provisions of Mn/DOT 2573.A1 are supplemented and/or modified with the following:

S-99.1 The second paragraph of Mn/DOT 2573.3A1 Erosion Control Supervisor, is revised to read as follows:

The Erosion Control Supervisor shall be a responsible employee of the prime Contractor and/or duly authorized by the prime Contractor to represent the prime Contractor on all matters pertaining to the NPDES construction stormwater permit compliance. The Erosion Control Supervisor shall have authority over all Contractor operations which influence NPDES permit compliance including grading, excavation, bridge construction, culvert installation, utility work, clearing/grubbing, and any other operation that increases the erosion potential on the Project. In addition, the Erosion Control Supervisor shall **implement the Contractor's quality control program and other provisions in accordance with 1717.2 and** be available to be on the Project within 24 hours at all times from initial disturbance to final stabilization as well as perform the following duties:

The Contractor shall establish a chain of responsibility for their operations and their subcontractor's operations to ensure that the Storm Water Pollution Prevention Plan is implemented over the life of the Contract.

Certified, trained foremen shall be provided by the Contractor and subcontractor(s) for each construction operation that increases the potential for soil erosion or the possible siltation and turbidity of surface waters. Certified foremen are incidental to the Project for which no direct compensation will be made. As a minimum, the following foreman shall be certified and be on-site during the respective construction activities:

- (1) Foreman in charge of grading activities

- (2) Foreman in charge of bridge or culvert construction over rivers and streams
- (3) Foreman in charge of turf establishment activities

A minimum of one certified foreman shall be provided to direct each type of work listed above to ensure erosion is controlled, sedimentation is prevented and permit provisions are adhered to. If the Contractor(s) do not have foremen in charge of the respective operations, a certified lead worker shall be provided.

The certification is obtained by completing the two-day Erosion/Sediment Control Site Management Training course and passing the exam all provided by the University of Minnesota, Department of Bio-systems and Agricultural Engineering.

The Contractor shall furnish the names of the certified foremen(s) as well as the certified Erosion Control Supervisor at the pre-construction meeting to the Engineer. The Engineer shall be notified of changes in certified personnel over the life of the Contract.

The Contractor shall be responsible for maintaining a quality control program to ensure erosion is controlled, sedimentation is prevented, and provisions of permits are adhered to. The certified Erosion Control Supervisor shall conduct the quality control program as well as perform the required duties listed in these Special Provisions.

The quality control program shall consist of:

- a) Ensuring permit requirements related to the Contractors' and subcontractor(s)' construction activities are adhered to.
- b) Ensuring that all operators and/or subcontractor(s) on site have the proper erosion/sediment control certification.
- c) Informing the Engineer when the required certified erosion/sediment control personnel have not been provided.
- d) Conducting the inspections required by the NPDES permit.
- e) Maintaining the NPDES inspection log.
- f) Ensuring corrective actions are taken in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.

- g) Ensuring that erosion control is incorporated into the work in a timely manner and that disturbed areas are stabilized with mulch/seed or vegetative cover on a section-by-section basis.

The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. NPDES inspection records shall be maintained by the Contractor at the Project site and made available at all times for verification by the Engineer.

S-99.2 Add the following to Mn/DOT 2573.3A1

- 12. Contact the State Duty Officer MPCA (800-422-0798 or 651-649-5451).

S-100 (2573) TEMPORARY ROCK CONSTRUCTION ENTRANCE

This work consists of furnishing, installing, maintaining, and removing temporary rock construction entrances as required by permit or as directed by the Engineer, with the purpose of reducing the amount of solid tracked by construction vehicles from the site to surfaces outside the site where runoff can carry the solids to stormwater discharge. This work shall be performed in accordance with the applicable Mn/DOT Standard Specifications and the following:

S-100.1 MATERIALS

- a) Rock, Class 1 Crushed Rock, Mn/DOT 3138.
- b) Type V Permeable Geotextile Fabric, Mn/DOT 3733.

S-100.2 CONSTRUCTION REQUIREMENTS

See the Standard Plan Sheet for "Rock Construction Entrance", included in the Plan as Sheet No. 39, except as modified:

- a) The minimum rock depth shall be 8 inches.
- b) Geotextile fabric shall be used under the rock to prevent migration of under lying soil into the rock.

This work shall consist of installing a temporary rock construction entrance and exit for trucks entering and exiting the Project. The temporary rock construction entrances shall be constructed as shown on Sheet No. 39 of the Plans, and as directed by the Engineer. The work shall be accomplished according to Mn/DOT 2573, these Special Provisions, or as directed by the Engineer.

S-100.3 MEASUREMENT AND PAYMENT

Temporary Rock Construction Entrances will be measured by the each acceptably installed as specified. Payment will be made under Item 2573.602 (Temporary Rock Construction Entrances) at the contract bid price

per each, which shall 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.

Temporary Rock Construction Entrances will be measured by the each acceptably installed as specified. Payment will be made under Item 2573.602 (Temporary Rock Construction Entrance) at the Contract bid price per each, which shall be compensation in full for installing, cleaning, and the removal of the material once construction is completed, and all cost incidental thereto.

S-101 (2573) STORM DRAIN INLET PROTECTION

Storm Drain Inlet Protection work shall be done in accordance with the applicable Mn/DOT Standard Specifications, the details shown in the Plan, and the following:

S-101.1 STORM DRAIN INLET PROTECTION

Storm Drain Inlet protection shall consist of the best management practices and devices for preventing sedimentation into and through underground drainage systems.

The Contractor must protect Storm Drain Inlet with sediment capture devices prior to soil disturbing activities that would result in sediment laden storm water runoff entering the storm drain system. The Contractor shall provide effective Storm Drain Inlet protection over the life of the Contract until all sources with potential for discharging to an inlet have been stabilized. As the Contractor's operations change, the Storm Drain Inlet Best Management Practice for sediment control must be modified by the Contractor to ensure proper effectiveness for sediment capture.

The Contractor is responsible for preventing or minimizing the potential for unsafe, flooding, or siltation problems. For example, devices must be regularly cleaned out and emergency overflow must be an integral part of the device to reduce the flooding potential; and devices must be placed such that driving hazards or obstructions are not created. Sediment deposited in and/or plugging drainage systems will be the responsibility of the Contractor and shall be removed at no expense to the Department.

S-101.2 MAINTENANCE

The Contractor shall clean, remove sediment or replace storm drain inlet protection devices on a routine basis such that the devices are fully functional for the next rainstorm event. Removal and disposal of trapped sediment in storm drain inlet protection devices shall be incidental to the

Project. Sediment deposited in and/or plugging drainage systems is the responsibility of the Contractor and shall be removed at no expense to the Department.

S-101.3 MEASUREMENT AND PAYMENT

Storm Drain Inlet protection will be measured by the number of individual culvert ends properly protected over the life of the Contract without regard to the various types or number of devices used at each Storm Drain Inlet. Payment will be made under Item 2573.530 (Storm Drain Inlet Protection) at the Contract bid price per each, which shall be compensation in full for all labor, materials, equipment and other incidentals necessary to complete the work as specified, including the cost of maintenance and removal.

S-101.4 PARTIAL PAYMENTS

Storm drain inlet protection will be paid in partial payment amounts for satisfactory completion of the following work:

- Initial Installation25% payment
- Maintenance during first half of Contract period25% payment
- Maintenance during last half of Contract period and removal of the debris ...50% payment

S-101.5 DEDUCTIONS

If the Contractor fails to properly install, remove sediment, or maintain Storm Drain Inlet protection, the Contractor will be subject to a **\$500.00 per calendar day deduction** for noncompliance. The deduction will apply to each inlet that is out of compliance and will be deducted from monies owed to the Contractor.

S-102 (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-102.1 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-Approve 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-103 (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-103.1 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-103.2 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-103.3 The mulching material to be used for the Type 1 mulch shall be grain straw.

S-104 SPECIFICATION FOR TOPSOIL “A”

S-104.1 GENERAL DESCRIPTION

The City of Minneapolis, Department of Public Works, *Standard Supplemental Specifications for the Construction of Public Infrastructure in the City of Minneapolis*, shall govern, with references to the *Minnesota Department of Transportation, Standard Specifications for Construction, 2005 Edition*, including all addendums and applicable memorandums, except where modified in these contract specifications. The City of Minneapolis, Department of Public Works, *Standard Supplemental Specifications for the Construction of Public Infrastructure in the City of Minneapolis*, are available on the City of Minneapolis website:

<http://www.ci.minneapolis.mn.us/public-works/doc/StandardSupplementalSpecs.pdf>

S-104.2 DESCRIPTION OF PRODUCT

Topsoil Borrow shall conform to MNDOT Table 3877.1 and shall be furnished and placed by the contractor and have prior approval by the engineer to hauling and dumping.

TOPSOIL BORROW ‘A’	Minimum	Maximum
Material passing 2.00 mm sieve	85%	-----
Clay	5%	30%
Silt	10%	70%
Sand & gravel	10%	70%
Organic matter	3%	20%
pH	6.1	7.8

The contractor shall submit to the engineer a list of prospective sources for topsoil borrow ‘A’ at least one (1) month prior to the time of use to the time of use.

Texture of the topsoil borrow shall be classified according to the engineering definition of particle size. Texture shall be determined by the method described in AASHTO T 88.

The current standard testing procedure of the University of Minnesota, Soil Science Department, Soils Testing Laboratory shall be used for determining pH, percent of organic matter, extractable phosphorus, exchangeable potassium and soluble salts.

The topsoil A will not be ordered in one order and multiple orders and deliveries will be necessary. The cost for multiple, separate deliveries shall be included in this unit price.

S-104.3 MEASUREMENT AND PAYMENT

- A. The engineer reserves the right to direct the contractor to increase or decrease quantities.
- B. The payment for topsoil A will be made by the Cubic Yard, delivered and placed will be compensation in full for all costs incidental thereto.

S-105 **(2580) INTERIM PAVEMENT MARKING**

This work shall consist of placing interim pavement markings on those pavements, prior to opening them to traffic, where the in-place surface is to be covered by a subsequent paving course or the permanent lane markings are to be placed at a future date. The Contractor has the option of furnishing the following material, unless the material type is indicated in the Plan:

- (A) Removable Preformed Plastic Pavement Marking (100 mm [4 inch] wide) Tape Mn/DOT 3355.
- (B) Traffic Marking Paint in accordance with Mn/DOT 3591 and 3592, and the following specifications:
 - THREE MINUTE DRY ALKYD TRAFFIC PAINTS
 - APPLICATION SPECIFICATION FOR CONVENTIONAL TRAFFIC MARKING PAINT

The above specifications can be accessed on the Mn/DOT Office of Traffic, Safety, and Operation website.

- (C) Temporary Raised Pavement Markers in accordance with the following specification:
 - TEMPORARY RAISED PAVEMENT MARKERS (TRPMs)

The above specifications can be accessed on the Mn/DOT Office of Traffic, Safety, and Operation website.

- S-105.1 When centerline or lane markings (excluding edge lines) are removed, interim pavement markings shall be provided prior to opening the roadway to traffic. The markings shall be applied to a clean, dry surface in accordance with the manufacturer's recommendation or as approved by the Engineer.
- S-105.2 The Contractor will be required to use primer prior to the installation of all tape regardless of weather or pavement conditions or Manufacturer's specifications. All other installation procedures and materials used shall follow the manufacturer's specifications. Application of the primer shall be incidental to the cost of installing the tape.
- S-105.3 The Contractor shall place all centerline and lane markings prior to ending work each day. Edge lines shall be placed within 14 calendar days.
- S-105.4 All interim markings must be placed during daylight hours. The Contractor shall conform with the following interim striping tolerances:
- A tolerance of plus 6 mm [**1/4 inch**] and - 0" from the specified width will be allowed for striping provided the variation is gradual and does not detract from the general appearance. Lengths for the broken line segments may vary no more than plus or minus 76 mm [**3 inch**]. All longitudinal markings are to be placed 50 mm \pm 25 mm [**2 inch \pm 1 inch**] from the edge of pavement or longitudinal (centerline) joint. Also, pertaining to the cycle length, the total allowance for the broken segment and gap shall be no more than plus or minus 76 mm [**3 inch**]. Establishment of application tolerances shall not relieve the Contractor of their responsibility to comply as closely as practicable with the planned dimensions.
- In the event the Engineer determines the interim striping is out of tolerance it is the responsibility of the Contractor to take corrective action. Removal shall be performed utilizing equipment that is not detrimental to the final surface, as required by the Engineer. All costs associated with removing and restriping the interim markings will be at the Contractor's expense. This would include any costs associated with damage caused to the wearing course after pavement marking removal.
- If the Contractor is negligent in adhering to the above provisions, he/she shall be subject to an hourly charge assessed at a rate of \$250.00 per hour for each hour or any portion thereof which the Engineer determines that the Contractor has not complied.**
- S-105.5 When temporary raised pavement markings are used as interim markings, they shall be installed as per the TRPM specification or as indicated in the Plan. Removal of TRPM's shall be incidental to the bid price.
- S-105.6 The interim markings shall be maintained and replaced by the Contractor

without additional compensation until they are covered by the next paving course, are replaced with permanent pavement markings, or final acceptance of the Project is made. The Contractor will be required to remove all Temporary Raised Pavement Markings used as Interim Pavement markings. Any solid line delineations on the final pavement surface marked with Pavement Marking Tape must also be removed prior to placing the Permanent Pavement Markings. The Engineer may require the removal of any Interim Pavement Markings that will interfere with the placement of the permanent markings or could cause confusion to the traveling public if left in place. Removal of interim pavement Markings, if required, shall be incidental to the Contract bid price for the Item, and shall be in accordance with Mn/DOT 2102.

S-105.7 Interim pavement markings will be measured by the actual length in meters [**linear feet**] of each line marked as indicated in the Plan and will not include the gap between skip stripes. No additional quantity will be included for repair or renewal work. Measurement for raised pavement markings will be made according to the length of line being simulated.

S-106 (2581) REMOVABLE PREFORMED PLASTIC MASK (BLACK)

This work shall consist of furnishing, placing and removing temporary pavement marking material over in-place pavement markings when traffic control must be temporarily changed. This work shall be in accordance with the provisions of Mn/DOT 22581, as modified below. The removable preformed plastic pavement marking material shall conform to the requirements of Mn/DOT 3355.

S-106.1 The 2nd paragraph of Mn/DOT 2581.4 is changed to read as follows:

The measurement is based on a **6 inch** wide marking tape. Broken line marking will be measured by the actual length of material used and will not include the gap between the broken lines.

S-106.2 Measurement will be made by the length in **linear feet**.

S-106.3 Payment for pavement markings of each type 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 for all costs of furnishing, placing, maintaining, replacing, and removing the Marking.

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2581.603	Removable Preformed Plastic Mask (Black)	linear foot

S-107 (2582) PERMANENT PAVEMENT MARKINGS (POLY PREFORMED GROUND IN)

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

- S-107.1 The language below applies to permanent pavement markings for this Project that are to be recessed pavement markings, utilizing Poly Pref (GR IN).
- S-107.2 The pavement marking material utilized for this Project must be listed within **Tape System-Permanent** category on the Mn/DOT Approved/Qualified Products Lists.
- S-107.3 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

Qualified materials can be found on Mn/DOT's Qualified Products List (QPL) on the Office of Traffic, Safety and Technology website. The Pavement Marking Materials QPL can be found at <http://www.dot.state.mn.us/products/pavementmarkings/pmmaterials.html>. 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-107.4 The provisions of Mn/DOT 2582.3A2 are hereby deleted and replaced with the following:

Training of a striping Contractor – To assure the proper installation of pavement markings, the Contractor’s crew shall obtain manufacturer certification. Certification is typically achieved by attending an application training seminar. The training shall address surface preparation and all application requirements and techniques necessary for successful marking tape applications. Upon completion of the seminar for these personnel, the manufacturer of the marking tape shall provide written certification of approval to each person approved. On-site Contractor personnel shall present a valid training certification card upon request of the Engineer or other state Project personnel.

S-107.5 GROOVING BITUMINOUS and/or CONCRETE PAVEMENT SURFACES FOR POLYMER PREFORMED TAPE PAVEMENT MARKINGS

The polymer preformed tape pavement markings are to be grooved into the pavement surfaces. **GRINDER-TYPE CUTTING HEADS CANNOT BE**

USED. The goal of the grooving process is to protect the pavement marking from snowplow damage and ultimately extend the service life of the pavement markings. Grooving operations are incidental to permanent pavement marking operations.

S-107.6 The following is hereby added to Mn/DOT 2582.3B, Application:

The Contractor has the option to dry or wet groove the pavement while the roadway is open or closed to traffic. The groove must be cleaned completely prior to pavement marking application, using an air compressor with at least 185 CFM air flow and 120 PSI air pressure. The compressor must be equipped with a moisture and oil trap, and cannot have more than 50 feet of 3/4 inch ID hose between the compressor and the air nozzle. The air nozzle must have an inside diameter of 1/2 inch or greater.

(A) Grooving Equipment

The grooving shall be performed by a self-propelled machine equipped with gang stacked diamond cutting blades mounted on a floating head with controls capable of providing uniform depth and alignment.

The cutting heads shall consist of stacked 3 mm to 9 mm [**1/8 inch to 3/8 inch**] wide diamond tipped cutting blades. The spacers between each blade must be such that the raise in the bottom of the finished groove between the blades is less than 25% of the groove depth. The resulting bottom of the groove shall have a fine corduroy finish. If a coarse tooth pattern is present, the Contractor shall increase the number of blades and/or decrease the thickness of the spacers on the cutting head.

The equipment shall be capable of grooving the total width of the groove in one pass or be capable of grooving uniform depths with multiple passes. The maximum number of passes is detailed below. If multiple passes are used, the ridge between passes shall be mechanically removed prior to groove cleaning and pavement marking application.

The equipment shall be capable of grooving double lines simultaneously or parallel lines to a uniform depth with two passes.

The equipment shall be self-vacuuming and leave the cut groove ready for pavement marking installation. Dry cut grooving without a vacuum will only be allowed if markings run perpendicular to the roadway, such as Stop Bars. The pavement marking manufacturer shall approve the equipment and method used.

(B) Grooves

The grooving shall be preformed within the following tolerances. Failure to meet these tolerances will result in the suspension of work until the Contractor can demonstrate that these tolerances can be met to the satisfaction of the Engineer. **The pavement marking system shall be applied so that it is centered within the groove.**

GROOVE WIDTH AND MAXIMUM NUMBER OF PASSES		
MARKING WIDTH	GROOVE WIDTH	MAX NUMBER OF PASSES
100 mm [4 inches]	130 mm ± 3 mm [5" ± 1/8"]	1
150 mm [6 inches]	180 mm ± 3 mm [7" ± 1/8"]	1
200 mm [8 inches]	230 mm ± 3 mm [9" ± 1/8"]	1
300 mm [12 inches]	330 mm ± 3 mm [13" ± 1/8"]	2
600 mm [24 inches]	635 mm ± 3 mm [25" ± 1/8"]	3

The groove depth shall be 110 mil ± 10 mil.

Since pavements are irregular, the depth of groove across the width may vary. To compensate for this, the depth of the groove shall be measured from the bottom of the groove to a straight edge extended over the groove from the pavement surface opposite the pavement joint.

FULL DEPTH GROOVE LENGTHS	
Full Depth Groove Length (Broken Line)	3 m ± 75 mm [10 feet ± 3 inches]
Tapers At End of Each Line	150 mm ± 230 mm [6 inches to 9 inches]
Space Between Double lines	100 mm ± 6 mm [4 inches ± 1/4 inch]

The groove shall be placed 50 mm ± 25 mm [**2 inches ± 1 inch**] from the edge of joints or seams along edge or centerline, unless otherwise indicated in the Plan.

Grooving alignment deviations from the control guide or existing lines specified by the Engineer shall not exceed 50 mm [**2 inches**].

All pavement markings to be grooved in shall be placed in accordance with pavement marking or element manufacturer's instructions.

If the Poly Pref (GR IN) markings are to be installed in the same location where there are existing pavement markings, including interim or temporary, the removal of the existing pavement markings shall be incidental to and included within the Poly Pref (GR IN) pay item. The Contractor may cut the groove and remove the existing marking in a simultaneous operation.

S-107.7 Mn/DOT 2582.3G is hereby deleted and replaced with the following:

Contractors applying pavement markings for Mn/DOT under a contract **are required** to fill out the "Construction Striper Operations Daily Log" form which can be found on the Office of Traffic, Safety and Technology website and as approved by the Engineer.

S-107.8 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 UNIT</u>
2582.502 __ __ inch width (2) (3) – Poly Preform (GR IN)	linear foot
(2) Specified Type of Line (Solid, Broken or Dotted)	
(3) Specify Color	

S-108 (2582) PAINT PAVEMENT MARKINGS

This work shall consist of furnishing and applying paint pavement markings as separate temporary traffic control items during construction and/or as permanent markings and/or interim pavement markings on the bituminous binder course for control and guidance of traffic over the winter in the event the final bituminous wearing course and permanent pavement markings are not placed during 2012. The paint pavement markings shall only be installed when authorized by the Engineer, and then they shall be installed as directed by the Engineer and in accordance with the Plans, the attached 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-108.1 The Contractor may furnish and place either the 3-minute dry alkyd or the water-based paint.

S-108.2 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-108.3 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. Pavement messages of each type will be measured separately by the number thereof constructed as specified.

S-108.4 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.

Item No.	Description	Unit
2582.501	Pavement Message (Left Arrow) Paint	Each
2582.501	Pavement Message (Right Arrow) Paint	Each
2582.502	4 inch Solid Line White-Paint	Linear Foot
2582.502	6 inch Solid Line White-Paint	Linear Foot
2582.502	12 inch Solid Line White – Paint	Linear Foot
2582.502	4 inch Solid Line Yellow-Paint	Linear Foot
2582.502	4 inch Double Solid Line Yellow-Paint	Linear Foot
2582.502	4 inch Broken Line Yellow-Paint	Linear Foot

S-109 (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/m³ [**5.0 pounds per cubic yard**].
- 3) A maximum of 5.0% limestone by mass (**weight**) may be interground

with the cement provided that the chemical and physical requirements are met. Only intergrind limestone that is naturally occurring, consisting of at least 70% by mass of one or more of the mineral forms of calcium carbonate. Calculate and report the limestone content in Portland cement on the Test Mill Report as described in ASTM C 150, Annex A1. Include the CO₂ content of the Portland cement on the Test Mill Report. Determine the CO₂ content in accordance with ASTM C 114. When any quantity of limestone is added, report the C₃S as calculated in ASTM C150, Annex A1, using the actual CO₂ 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-110

(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-111 **(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:
 - (a) Those fractions passing the 1 inch [25 mm] sieve are combined and based on the composite value;
 - (b) 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
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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,									
<i>percent by weight passing square opening sieves</i>									
Aggregate	2 in [50 mm]	1½ in [37.5 mm]	1¼ in [31.5 mm]	1 in [25.0 mm]	¾ in [19.0 mm]	⅝ in [16.0 mm]	½ in [12.5 mm]	⅜ in [9.5 mm]	No.4 [4.75 mm]
CA-00	—	—	—	100	95 – 100	—	—	—	0 – 10
CA-15	100	95 – 100	—	—	35 – 65	—	—	5 – 25	0 – 7
CA-25	100	95 – 100	—	—	50 – 80	—	—	20 – 40	0 – 7
CA-35	—	100	95 – 100	—	55 – 85	—	—	20 – 45	0 – 7
CA-45	—	—	100	95 – 100	65 – 95	—	—	25 – 55	0 – 7
CA-50	—	—	—	100	85 – 100	—	—	30 – 60	0 – 12
CA-60	—	—	—	—	100	85 – 100	—	40 – 70	0 – 12
CA-70	—	—	—	—	—	100	85 – 100	50 – 100	0 – 25
CA-80*	—	—	—	—	—	—	—	100	55 – 95

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

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

3137.3 SAMPLING AND TESTING

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

Table 3137-5	
Preliminary Coarse Aggregate Testing	
Aggregate	Notification and Testing Requirement
New source	Notify the Engineer at least 1 month before use. Perform new source concrete aggregate testing in accordance with the procedure on the Department’s website.
Previously tested aggregate	Notify the Engineer at least 2 weeks before use. Perform additional testing

	as directed by the Engineer, in conjunction with the Concrete Engineer.
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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-112 (3138) AGGREGATE FOR SURFACE AND BASE COURSES

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

S-112.1 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-112.2 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-112.3 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 meet requirements.
- (c) The Contractor mixes the material during placement to the satisfaction of the Engineer.

S-112.4 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-113 (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-114 **(3236) REINFORCED CONCRETE PIPE**

The provisions of Mn/DOT 3236 are modified and/or supplemented with the following:

S-114.1 Manufacturers of reinforced concrete pipe may produce an alternate “offset joint” on the spigot end of the pipe. This type of offset joint is to be used with the profile or prelubricated pipe seal systems. See Mn/DOT Standard Plate 3006.

S-114.2 The first paragraph of Mn/DOT 3236.2A3 is hereby deleted and replaced with the following:

Cement substitutions as addressed in 2461.3D are hereby modified as follows to allow:

- a) 30 percent Class F or Class C fly ash by weight
- b) 35 percent ground granulated blast furnace slag by weight
- c) 35 percent substitution with a combination of ground granulated blast furnace slag and Type F or Type C fly ash by weight.

All other provisions of 2461.3D shall apply. The use of admixtures shall conform to 2461.3E.

S-115 **(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-116 **(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-117 **(3310) HIGH STRENGTH LOW ALLOY COLUMBIUM-VANADIUM STEEL**

The second paragraph of Mn/DOT 3310.2 is hereby deleted and replaced with the following:

Sheet and strip supplied to this Specification shall conform to ASTM A 1011/A 1011M, Grade 340 (50), Class 1; ASTM A 1018/A 1018M, Grade 340 (50), Class 1; and 3308.

S-118 **(3352) SIGNS AND MARKERS**

Traffic signs and markers used on this project shall be fabricated in accordance with the provisions of Mn/DOT 3352 and the following:

S-118.1 All sign panels provided shall meet the requirements of Mn/DOT 3352.2A1a and the following:

The panel thickness for all signs with the length of the longest side equal to or less than 18 inches shall be 0.080 inch \pm 0.004 inch.

S-118.2 In addition to the requirements of Mn/DOT 3352.2B1, all signs shall show careful, finished workmanship in all particulars. Corner radii shall meet each edge of the sign at a tangent point with a smooth junction. Surfaces and edges of the sign shall be smooth and free from defects. Mounting holes shall be smooth and free from defects. Material surrounding holes shall be flat and free of burrs or sharp edges. Signs showing poor workmanship will be rejected.

S-119 **(3355) REMOVABLE PREFORMED PLASTIC PAVEMENT MARKINGS FOR TRAFFIC LANE DELINEATION AND LEGENDS**

The provisions of Mn/DOT 3355 are hereby modified and/or supplemented with the following:

S-119.1 The third sentence of the first paragraph of Mn/DOT 3355.2 is hereby deleted and replaced with the following:

The markings shall be precoated with a pressure sensitive adhesive and shall be capable of adhering to asphalt concrete and portland cement concrete surfaces in accordance with manufacturer's instructions and shall be immediately ready for traffic after application.

S-119.2 The Qualified Product List is located at:

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

S-120 (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-121 (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-122 (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-123 (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-124 (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) Sprayable 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-125 (3891) STORM DRAIN INLET PROTECTION

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

S-125.1 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-125.2 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-126 **TEMPORARY WIDENING**

The Contractor shall construct and maintain temporary widening in the locations and to the alignment, cross-section, grades and surfacing indicated in the Plans or as directed by the Engineer.

All base and surfacing materials used in the construction and maintenance of the temporary widening will be measured and paid for at the applicable contract bid prices for the various items involved.

All excavation and embankment required in the construction of temporary widening that is not otherwise included for payment with the permanent construction and the subsequent removal and disposal of materials, including bituminous surfacing, from the temporary widening when it is no longer needed will be considered to be incidental work and no direct compensation will be made therefor.

S-127 **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 City of Minneapolis Transportation Division, 300 Border Avenue North, 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 make no warranty, express or implied, that the utility companies will relocate their facilities in accordance with the terms of said Agreements, Permits or Orders.

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

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

S-128 **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.