

# DIVISION 1

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## GENERAL REQUIREMENTS

### INTRODUCTION

These General Requirements amend or supplement Division I of the Minnesota Department of Transportation (MnDOT) Standard Specifications for Construction (2018 Edition). With the exclusion of *Definitions and Terms, Bidding Requirements and Conditions, and Bidding Requirements and Covenants*, unless specifically stated, provisions of MnDOT Division I which are not amended or supplemented **shall not apply** to this Contract.

### GR - 1 SUMMARY OF WORK

The **insert Project name** shall include the furnishing of all labor, materials, tools, and equipment necessary to complete the **street construction, watermain, sanitary sewer, storm sewer, grading, and appurtenant work** as shown on the Plans and specified herein.

### GR - 2 WORK SEQUENCE

The Contractor shall:

1. Perform its work in such a manner as to cause the least interference with adjoining property owners and the general public.
2. For each phase of the project, construct work in a sequence that will allow the utility work to follow immediately upon the removal of the bituminous pavement and concrete curb and gutter. Subgrade excavation, subgrade preparation, and placement of aggregate base shall be completed within two weeks of the completion of any utility work. Curb and gutter placement, final aggregate base placement, and the first lift of bituminous pavement shall be placed within two weeks of initial aggregate base placement. All restoration work within the boulevard area shall be completed within two weeks of paving the bituminous base course.
3. Limit the area under construction at any given time to minimize the impacts to adjoining properties and limit the duration that activities will disturb residents on each street.
4. Limit the area under construction to the area(s) indicated on the plan, unless otherwise approved by the Engineer. Under construction is defined as the time period from bituminous removal to placement of aggregate base.
5. All proposed haul roads must be submitted for review and approved by the Engineer. The Contractor cannot utilize newly paved streets as haul roads. Any damage to existing streets due to unapproved construction use will be repaired at the Contractor's expense.
6. Concrete curb and gutter and bituminous paving crews shall be mobilized to the project whenever a minimum of one working day, but not more than two working days, are satisfactorily prepared for their respective work.

### GR - 3 (1401) INTENT OF CONTRACT

The provision of MnDOT 1401 shall apply.

**GR - 4 (1402) CONTRACT REVISIONS**

The provision of MnDOT 1402 are modified and/or supplemented with the following:

Delete Paragraph 1402.6 in its entirety.

**GR - 5 (1403) NOTIFICATION FOR CONTRACT REVISIONS**

The provision of MnDOT 1403 shall apply.

**GR - 6 (1404) MAINTENANCE OF TRAFFIC**

The provisions of MnDOT 1404 are modified and/or supplemented with the following:

Add the following new paragraph to MnDOT 1404.1:

**A. Access to Properties**

The Contractor shall maintain driveway access to the residents at the end of each day. Each resident must be able to drive their vehicle into the driveway. The only exception is the time after the curb and gutter is poured, and after the driveway is restored. The Contractor shall salvage aggregate or recycled bituminous from the project, or haul approved granular material to the project site, at no additional cost to the Owner for use in ramping the driveways to maintain access.

The Contractor shall accommodate special access needs of the residents (medical needs, working the night shift, etc.) and provide access to driveways and roadways as required.

If access is determined to be unsuitable for individual residences by the Engineer, the Contractor shall make the necessary improvements to reestablish an acceptable access to the property.

The Contractor shall notify the Owner at least one week in advance of any daytime road closures or access restrictions.

**GR - 7 (1405) USE OF MATERIALS FOUND ON THE PROJECT**

The provisions of MnDOT 1405 shall apply.

**GR - 8 (1406) PRESERVATION OF HISTORICAL OBJECTS**

The provisions of MnDOT 1406 shall apply.

**GR - 9 (1407) FINAL CLEANUP**

The provisions of MnDOT 1407 are modified and/or supplemented with the following:

During the progress of the work, the area affected shall be kept clean and free of all rubbish and surplus materials. All unnecessary 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, 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, other construction equipment, or stockpiles placed by the Contractor. The Contractor shall remove all rubbish from any grounds which the Contractor occupied and shall leave all the premises and adjacent properties affected by the operation in a neat and restored condition satisfactory to the Engineer.

Street sweeping (with a pickup broom) will be required periodically. Any material deposited on streets adjacent to the project from construction or hauling operations shall be cleaned as directed by the Engineer. If the Contractor fails to clear adjacent roadways within 24 hours of notification, the Engineer shall arrange to have the roadways cleaned by the Owner and bill the Contractor \$500 per occurrence. The \$500 fee for street sweeping will be deducted from project retainage for each occurrence.

#### **GR - 10 (1502) PLANS AND WORKING DRAWINGS**

The provisions of MnDOT 1502 are modified and/or supplemented with the following:

Drawings provided by the Owner will include the information, as applicable to the project, in accordance with MnDOT 1502. The Owner's Standard Plates, MnDOT's Standard Plates, and MnDOT's Standard Plans may provide supplemental information.

Except as provided for otherwise, [REDACTED] copies of Plans and Specifications shall be furnished to the Contractor without charge. Any additional copies requested by Contractor shall be furnished upon payment of charges made at the prevailing rate charged by City.

One complete set of the Plans and Specifications and any approved Change Orders and Engineer Directives shall be maintained by the Contractor at the Site and shall be available to the Engineer at all reasonable times.

#### **GR - 11 (1503) CONFORMITY WITH CONTRACT DOCUMENTS**

The provisions of MnDOT 1503 shall apply.

#### **GR - 12 (1504) COORDINATION OF CONTRACT DOCUMENTS**

The provisions of MnDOT 1504 are modified and/or supplemented with the following:

Delete the second sentence of the first paragraph and replace with the following:

If discrepancies exist between the Contract documents, the order of precedence is defined in the Agreement and General Conditions for Public Improvements, Article 1.1.

#### **GR - 13 (1506) SUPERVISION BY CONTRACTOR**

The provisions of MnDOT 1506 shall apply.

#### **GR - 14 (1507) UTILITY PROPERTY AND SERVICE**

The provisions of MnDOT 1507 are modified and/or supplemented with the following:

The plans show only known underground utilities, public and private, and the locations are approximate. No assurance is given that additional underground facilities do not exist. The utilities are classified as "Level D" unless the plans specifically state otherwise. This utility quality level was determined according to the guidelines of CI/ASCE38-02, entitled "Standard Guidelines for the Collection and Depiction of Existing Subsurface Data".

State law requires the Contractor to contact Gopher State One Call (811) for utility locations before doing any underground excavation. The Contractor is responsible for ascertaining the actual location of underground utilities.

All bidders are encouraged to contact the affected utilities prior to submitting a bid to determine the extent of their facilities within the project area and the scope and anticipated schedule of any facility relocation, removal, or adjustment. The following utility owners are known to have existing facilities that may be affected by the Work:

Sanitary Sewer  
Watermain  
Storm Sewer

**City of Prior Lake**  
1703 Adelman St. SE  
Prior Lake, MN 55372  
(952) 447-9896

Gas

**CENTERPOINT ENERGY**  
505 Nicollet Mall  
P.O. Box 59038  
Minneapolis, MN 55459-0038

Contact: Emily Suppes 612-321-5363

EMERGENCY: 612-372-5050

Gas

**NORTHERN NATURAL GAS CO**  
Brad Peek  
Enron Corp-NNG Farmington District  
Office  
4685 West 212th St  
Farmington, MN 55024  
(952) 463-7126 Ext. 227

Electric

**XCEL ENERGY (new subdivisions)**  
5309 West 70th St  
Edina, MN 55439  
(952) 829-4578 FAX (952) 829-4558

Steve Sandey  
210 E. Lime Street  
Mankato, MN 56001  
(507) 387-9671 (FAX) (507) 387-9604  
Steven.S.Sandey@xcelenergy.com

EMERGENCY: 1-800-722-9360  
STREET LIGHT OUTAGES: 1-800-960-6235

Electric

**MN VALLEY ELECTRIC COOP**  
Eric Kes  
P.O. Box 125  
125 Minnesota Valley Electric Dr  
Jordan, MN 55352  
(952) 492-8233 (FAX) (952) 492-8296  
Locator: John Wierke  
EMERGENCY: (952) 492-8255

Electric

**SHAKOPEE PUBLIC UTILITIES**

Joe Adams  
1030 East 4th Ave  
Shakopee, MN 55379  
(952) 445-1988  
EMERGENCY: (952) 445-6681

Telephone

**NUVERA**

4690 Colorado Street S.E.  
Prior Lake, MN 55372  
(952) 226-7000  
Nuvera.net

Owen Havrilla  
952-226-9908  
[OwenHavrilla@nuvera.net](mailto:OwenHavrilla@nuvera.net)  
EMERGENCY:  
Larry Shephard: 952-226-9767  
Cal Lee: 320-234-5280

Telephone

**CENTURY LINK**

Lee Sexton, Engineer II  
301 W 65<sup>th</sup> Street  
Richfield, MN 55423  
[Lee.Sexton@centurylink.com](mailto:Lee.Sexton@centurylink.com)  
(612) 798-7705 (612) 861-8173 (FAX)  
Cell: (612) 834-4827  
EMERGENCY DISPATCH: 611

Brenda Lexcen  
*(buried service wire)*  
*(for permit billing purposes)*  
6300 Shingle Creek Pkwy  
4<sup>th</sup> Floor  
Brooklyn Center, MN 55430  
Phone: (763) 585-3349 (FAX) (763)  
585-3445  
[blexcen@qwest.com](mailto:blexcen@qwest.com)

Rick Hammerschmidt  
*(underground service wire)*  
(952) 937-9727

Cable

**MEDIACOM**

Louis Johnson  
Tech Ops Manager  
1670 Lake Drive West  
Chanhassen MN 55317  
Phone 952-448-4150  
Fax 952-448-4733  
[Ljohnson1@mediacomcc.com](mailto:Ljohnson1@mediacomcc.com)

Mark Maxwell  
Quality Assurance Sup. – Lakes Region  
1670 Lake Drive West  
Chanhassen, MN 55317  
952-448-4559/Cell #845-544-9694  
[mmaxwell@mediacomcc.com](mailto:mmaxwell@mediacomcc.com)

Emergency  
Travis Martin, Construction Specialist  
1670 Lake Dr. West  
Chanhassen, Mn 55317  
845-527-1527 (cell)  
tmartin@mediacomcc.com

Cable

**LaPointe Utilities**  
4819 235<sup>th</sup> Street N.  
Forest Lake MN 55025  
Contractor for Mediacom  
Ryan LaPointe  
Phone: 612-201-0200  
Fax: 651-982-1173  
[rosshulman@yahoo.com](mailto:rosshulman@yahoo.com)  
Locator #: 952-895-0218

Soil and Water Conservation

**SCOTT SOIL & WATER  
CONSERVATION DISTRICT**  
Ryan Holzer  
7151 West 190<sup>th</sup> Street, Suite 125  
Jordan, MN 55352  
952-492-5424

Gopher State OneCall

**GOPHER STATE ONE CALL  
(OPEN 24 HOURS)**  
FOR ALL UTILITY LOCATIONS:  
1-800-252-1166  
651-454-0002

MN/DOT Electrical Service

ESS Dispatch Hours:  
6:00 a.m. – 4:00 p.m.  
651-366-5750  
After Hours Service and weekends:  
4:00 p.m. – 6:00 a.m.  
651-234-7110  
[essdispatch.dot@state.mn.us](mailto:essdispatch.dot@state.mn.us)

“Gas, electric, communications, utilities, and others” will be relocating or constructing new utilities along the streets within the project area. The Contractor shall be required to accommodate this work with their construction operations.

Prior to commencing construction, the Contractor shall check all existing manholes, catch basins, gate valve boxes, stop boxes, culverts, and storm sewer lines in the construction zones to determine their condition. Failure to report deficiencies in writing, and have such deficiencies acknowledged in writing by the Engineer, will be cause for any required repairs and/or cleaning to be charged to this Contractor.

The Contractor shall coordinate construction activities with the activities of all utility owners present within the project limits. This includes delays associated with scheduling conflicts, fees charged by utility owners for construction services, and the time necessary to communicate and work with utility owners within the project limits.

The location, protection, maintenance and/or repair, if damaged, of all in-place utilities shall be the responsibility of the Contractor. The Contractor shall have sole responsibility for providing temporary



support and for protecting and maintaining all existing utilities on the Site during the entire period of construction including, but not limited to, the period of excavation, backfill and compaction. The Contractor shall exercise particular care, whenever gas mains or other utility lines are crossed, to provide compacted backfill or other stable support for such lines to prevent any detrimental displacement, rupture or other failure.

Where construction operations require the interruption of service of a utility, the Contractor shall notify the utility at least 48 hours before the interruption and shall advise the utility of the probable time when the service will be restored.

## **GR - 15 (1508) CONSTRUCTION STAKES, LINE, AND GRADES**

MnDOT 1508 is deleted in its entirety and replaced with the following:

### **1508 CONSTRUCTION STAKES, LINE AND GRADES**

The Engineer will provide horizontal and vertical control construction stakes to allow the Contractor to construct the improvements as follows:

1. Offset stakes placed at 25-foot intervals for the first 100 feet out of each manhole, then 100-foot intervals thereafter for sanitary or storm sewer, with a cut sheet indicating horizontal and vertical distances from the stake to the pipe invert.
2. Offset stakes placed at 50-foot intervals, including changes in direction and appurtenances for watermain construction.
3. Curb and Gutter: 3-foot offset stakes placed at 25-foot intervals with a cut sheet indicating a cut/fill to the proposed top of curb.
4. Reference hubs (blue tops) at approximately 100-foot intervals at a measured distance either side of centerline, including cut or fill instructions for subgrade and/or gravel base.

It shall be the Contractor's responsibility to accurately construct the improvements in accordance with the construction stakes and the plans. The Contractor is fully responsible for all measurements made from any offset construction stake or measurements made from any stakes and marks established by the Engineer. The Contractor shall review the construction documents and construction stakes and will not rely solely upon the construction stakes. The Contractor shall notify the Engineer of any discrepancies between the Contract Documents and the construction stakes. The Contractor shall not knowingly take advantage of any such discrepancies. Construction stakes will not be placed by the Owner until a written request is received from the Contractor giving the Engineer 48 hours' notice, describing where and when the Contractor wants the construction stakes placed for the next week's construction. The stakes will be set only one time and it will be the responsibility of the Contractor to preserve the stakes.

The Engineer shall have the right to order the Contractor to have construction stakes replaced if the Engineer determines that a significant number of stakes have been destroyed.

The replacement of any construction stakes will be done by the Engineer at the Contractor's expense and for which the Contractor will be billed.

The Contractor shall be responsible for replacement of all property or section corners removed by the Contractor. The Owner will mark all property corners and section corners the Owner is aware of prior to construction. The Contractor shall notify the Engineer of any property corner, whether the Owner has marked them or not, which the Contractor may disturb in sufficient time to allow the Engineer to establish ties to the corner. The replacement of property or section corners shall be by the Owner at the Contractor's expense and for which the Contractor will be billed.

No additional compensation shall be allowed the Contractor for any claims of crews being held up because of lack of line and grade stakes.

**GR - 16 (1511) INSPECTION OF WORK**

The provisions of MnDOT 1511 are modified and/or supplemented with the following:

Any person representing Federal or State agencies, the Engineer, or Owner shall have the right of entry to inspect the Work being performed by the Contractor. If the case warrants, the Contractor shall provide proper facilities for such access and inspection.

The Contractor shall notify the Engineer anytime they anticipate working on this project. No work will be allowed without notifying the Engineer a *minimum of 24 hours beforehand*.

**GR - 17 (1512) UNACCEPTABLE AND UNAUTHORIZED WORK**

The provisions of MnDOT 1512 shall apply.

**GR - 18 (1513) RESTRICTIONS ON MOVEMENT AND STORAGE OF HEAVY LOADS AND EQUIPMENT**

The provisions of MnDOT 1513 are modified and/or supplemented with the following:

The Contractor shall limit the roadways utilized for delivery of equipment and for hauling operations.

The Contractor shall provide and use only rubber track/tire dozers, front end loaders, and other necessary equipment on all work where street pavements or portions of pavements are undisturbed for the protection of the pavements or in such locations as the Engineer may direct.

No compensation will be allowed to the Contractor for replacement of damaged utilities and resurfacing or replacing damaged pavements.

**GR - 19 (1514) MAINTENANCE DURING CONSTRUCTION**

The provisions of MnDOT 1514 shall apply.

**GR - 20 (1515) CONTROL OF HAUL ROADS**

The provisions of MnDOT 1515 shall apply.

**GR - 21 (1601) SOURCE OF SUPPLY AND QUALITY**

The provisions of MnDOT 1601 shall apply.

**GR - 22 (1603) MATERIALS: SPECIFICATIONS, SAMPLES, TESTS, AND ACCEPTANCE**

The provisions of MnDOT 1603 are modified and/or supplemented with the following:

Delete the first paragraph of MnDOT 1603.2 and replace with the following:

Testing of materials and/or densities shall be completed to assure quality of materials and/or workmanship. The Observer will coordinate and order the tests to be performed. Initial testing of materials and/or densities, in accordance with the requirements below, will be paid for by the Owner. Any retesting due to failures shall be at the expense of the Contractor.

Delete the last sentence of the first paragraph of MnDOT 1603.2 and replace with the following:

MnDOT's 2019 SALT Schedule of Materials Control – Local Government Agency will be followed on this project. Initial testing of materials and/or densities, in accordance with the requirements below, will be paid for by the Owner. Any retesting due to failures shall be at the expense of the Contractor. The schedule of Materials Control is available online: <http://www.dot.state.mn.us/stateaid/construction/2019-salt-smc-lga.pdf>.

Add the following new paragraph to MnDOT 1603.2:

Copies of all test results, either passing or failing, shall be provided to the Observer, Owner, and Engineer. Failing test results shall be retested to confirm compliance with the project specifications.

#### **GR - 23 (1606) STORAGE OF MATERIALS**

The provisions of MnDOT 1606 are modified and/or supplemented with the following:

The Contractor may use the City right of way for storage of materials, unless otherwise prohibited in the contract construction documents. Storage of materials will need to be kept in an organized clean manner and will not be allowed to block or otherwise prohibit access to properties in the project area. The appropriate storage area available to the Contractor will be determined in the field by the Owner.

Any disturbed area shall be cleaned up and fully restored to the pre-existing condition prior to closing out this project. The Contractor shall be required to install protective fencing and silt fence around the storage area. The protection, cleanup, and restoration of the project storage area shall be the Contractor's responsibility; no compensation will be made for this work. It is anticipated that all work, including stockpiling of materials, will be completed within the roadway right-of-way.

#### **GR - 24 (1607) HANDLING MATERIALS**

The provisions of MnDOT 1607 shall apply.

#### **GR - 25 (1608) UNACCEPTABLE MATERIALS**

The provisions of MnDOT 1608 shall apply.

#### **GR - 26 (1609) DEPARTMENT PROVIDED MATERIAL**

The provisions of MnDOT 1609 shall apply.

#### **GR - 27 (1701) LAWS TO BE OBSERVED**

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

Delete MnDOT 1701.2 and replace with the following:

##### **1701.2 WORKER CONDUCT**

The Owner intends to provide a workplace free of violence, threats of violence, harassment, and discrimination. The Owner has zero tolerance for violence in the workplace. Contractors shall maintain a workplace free of violence, harassment, and discrimination. The Contractor shall immediately remove from the Project any employee of the Contractor or a Subcontractor in violation of these requirements. The Contractor shall not discriminate against prospective employees because of age, race, color, sex, creed, religion, nationality, or disability.

Delete MnDOT 1701.3 in its entirety.

## **GR - 28 (1702) PERMITS, LICENSES, AND TAXES**

The provisions of MnDOT 1702 are modified and/or supplemented with the following:

The following permits will be acquired by the Owner (except as noted). The Contractor is required to follow the provisions of all permits:

### Minnesota Pollution Control Agency (MPCA):

The Contractor shall become a co-permittee with the Owner to ensure compliance with the National Pollutant Discharge Elimination System (NPDES) General Storm Water Permit (MNR 100001) required by the Minnesota Pollution Control Agency (MPCA). This permit establishes conditions for discharging storm water to waters of the State from construction activity disturbing one or more acres of total land area.

The Contractor shall be required to sign the NPDES permit seven days prior to beginning construction operations and shall abide by all permit requirements until the site has undergone final stabilization and a notice of termination has been submitted to the MPCA. The Contractor shall cooperate with the Owner to implement a fully-documented inspection and maintenance program for all temporary erosion and sediment control measures as required by the NPDES permit.

### Minnesota Pollution Control Agency (MPCA):

The Owner has submitted a completed application to the MPCA for a Sanitary Sewer Extension Permit.

### Metropolitan Council Environmental Services (MCES):

Modifications to the MCES sanitary sewer collection system will require permits/approval from MCES prior to construction. Modifications to the sanitary sewer collection system include service replacement/reconnection, and adjustment/modification to existing manholes. MCES may also require a Sanitary Sewer Modification Permit from the MPCA before construction can begin.

### Minnesota Department of Health:

The Owner has submitted plans and specifications to the Minnesota Department of Health as required for Watermain Plan Review.

### Prior Lake Spring Lake Watershed District:

The Owner has obtained a permit from the Watershed District. The Contractor shall be responsible to follow all permit requirements, pay all fees and bonds as may be required by the Watershed District.

### Scott County Water Management Organization:

The Owner has obtained a permit from the Water Management Organization. The Contractor shall be responsible to follow all permit requirements, pay all fees and bonds as may be required by the Water Management Organization.

### Scott County:

A Right-of-Way Permit for work within County right-of-way (County Highway \_\_\_ ) will be required. The permit shall be obtained by the Owner. The Contractor is responsible for registering with \_\_\_\_\_ County and following permit requirements.

### Minnesota Department of Transportation (MnDOT):

A Right-of-Way Permit for work within State right-of-way (State Highway \_\_\_ ) will be required. The permit shall be obtained by the Owner. The Contractor is responsible for complying with the approved permit, paying all fees and providing bonds, as required by MnDOT.

### Minnesota Department of Natural Resources (DNR):

The Contractor shall acquire a DNR Water Appropriations permit if any dewatering becomes necessary.

**GR - 29 (1705) FEDERAL-AID PROVISIONS**

The provisions of MnDOT 1705 shall apply for Federally funded projects.

**GR - 30 (1706) EMPLOYEE HEALTH AND WELFARE**

The provisions of MnDOT 1706 are modified and/or supplemented with the following:

The Contractor, at their own expense, shall provide and maintain temporary toilet facilities at the site during the construction period sufficient for the scheduled workforce. The Contractor and Engineer shall agree to the location of the temporary toilet facilities.

Areas of special concern include, but are not limited to, excavation stability protection, fall protection, protection from overhead hazards, vehicle backup protection, confined space safety, blasting operations, and personal safety devices.

The Contractor must not use motor vehicle equipment that has an obstructed rear view unless the vehicle has a reverse alarm that is audible above the surrounding noise level; or an observer signals to the operator that it is safe to reverse.

**GR - 31 (1707) PUBLIC CONVENIENCE AND SAFETY**

The provisions of MnDOT 1707 are modified and/or supplemented with the following:

Regular hours of construction operation shall be 7:00 a.m. to 7:00 p.m., Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday. Work on Sunday will require permission of the City Council. The Contractor shall submit all work hour extension requests in writing to the Engineer. The Contractor shall structure the proposed project schedule based on the stated regular hours of construction operation working hours.

The Contractor shall not be permitted to work on Sundays or holidays, except in the case of emergencies. Requests for modification of working hours must be approved by the Owner. The Contractor shall submit all requests in writing to the Engineer. The Contractor shall structure the proposed project schedule based on the stated working hours.

The Contractor shall comply with local and state ordinances on noise abatement. All equipment shall have effective mufflers on engine exhaust systems.

The Contractor shall be required to accommodate garbage collection while the project is under construction. Coordination shall include contact with the solid waste companies that service the area and maintaining access to the individual residences. If the Contractor fails to accommodate garbage collection, the Contractor shall contract independently to have the garbage removed at no cost to the Owner.

The Contractor shall provide barricades, fences or other means of protection necessary to properly execute the work and adequately protect its employees, employees of the Owner, employees of the Engineer, and members of the public according to federal, state, and local regulators. All utility trenches shall be backfilled at the end of each working day to the satisfaction of the Engineer.

All labor and materials necessary to comply with these provisions are incidental, and no payment shall be made.

**GR - 32 (1710) TRAFFIC CONTROL DEVICES**

The provisions of MnDOT 1710 shall apply.

**GR - 33 (1711) USE OF EXPLOSIVES**

The provisions of MnDOT 1711 shall apply.

**GR - 34 (1712) PROTECTION AND RESTORATION OF PROPERTY**

The provisions of MnDOT 1712 are modified and/or supplemented with the following:

The Contractor shall protect, and/or remove and reinstall all fences, street signs, retaining walls, and other items required to construct the proposed improvements. Work associated with protecting, and/or removing and reinstalling fences, street signs, lawn irrigation systems, and other items shall be considered incidental to the project unless specific bid items are included.

The Contractor shall take whatever steps necessary to protect adjoining properties and structures from hazards due to performance of the work. The Contractor is responsible for any and all damage to properties and structures that occur as a result of the Contractor's operations.

The street and utility construction may occur in close proximity to a number of existing structures. The Contractor shall use shoring or other means as necessary to ensure that those structures are protected during construction.

Existing residences may not be of modern construction and are thus sensitive to vibrating equipment. The Contractor shall take care when utilizing vibratory equipment to avoid damage to adjoining structures. Damage to structures resulting from the use of vibratory equipment are the responsibility of the Contractor. In the event of a complaint or perceived problem, a seismograph will be required to be provided at the Contractor's expense.

All labor and materials necessary to comply with the provisions of this section are incidental, and no payment shall be made.

**GR - 35 (1716) CONTRACTOR'S RESPONSIBILITY FOR WORK**

The provisions of MnDOT 1716 are modified and/or supplemented with the following:

The Contractor shall guarantee and maintain the stability of all work, equipment and materials for a period of two years from date of final payment. This Contractor shall provide as part of the contract security a separate two-year maintenance bond to be dated to begin the date the Owner formally accepts the project. The provisions of this paragraph shall not be construed as restricting Contractor's liability for breach of contract by reason of non-conformance with the specification for defects or faulty workmanship.

**GR - 36 (1717) AIR, LAND, AND WATER POLLUTION**

Pollution of natural resources of air, land, and water by operations under this Contract shall be prevented, controlled, and abated in accordance with the rules, regulations, and standards adopted and established by the Minnesota Pollution Control Agency (MPCA) and MnDOT 1717.

The provisions of MnDOT 1717 are modified and/or supplemented with the following:

Add the following requirements to MnDOT 1717.1.D:

The Contractor shall be responsible for dust control.

Water for construction purposes may be obtained from the City of Prior Lake, Public Works, 17073 Adelmann Street SE, (952) 440-9675. The Contractor shall make suitable arrangements with the Public Works Department for the location where water may be obtained.

Add the following requirements to MnDOT 1717.2:

By signing the NPDES Declaration and completing the electronic online NPDES CSW permit, the Contractor is a co-permittee with the Owner to ensure compliance with the terms and conditions of the Construction 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 one acre or more of total land area. A copy of the permit is available at <https://www.pca.state.mn.us/water/construction-stormwater>, or by calling (651) 296-3890.

Erosion control shall be placed and maintained by the Contractor as directed by the Engineer. The Contractor shall use the appropriate means of control for individual situations. The erosion control types may include but are not limited to silt fence, fiber blanket, rock construction entrances, diversion ditches, and catch basin inlet protection, all of which will be considered incidental to the project cost unless a bid item is provided in the Bid Form. Failure to maintain the erosion control will be sufficient cause to withhold further payments on the project until the maintenance is complete.

The erosion control measures for the project have been identified in the plan set and the NPDES Stormwater Pollution Prevention Plan (SWPPP); however, modifications can be made depending on actual site conditions.

Emergency Best Management Practices must be enacted to help minimize turbidity of surface waters and relieve runoff from extreme weather events.

All manholes shall be protected from surface water drainage. All storm sewer systems shall be protected from sedimentation, along with downstream ponding areas. All catch basins shall be protected with approved means of protection, immediately following construction.

Prior to final acceptance of the project the Contractor shall remove all erosion control items, unless otherwise directed by the Engineer in writing.

#### **GR - 37 (1802) QUALIFICATIONS OF WORKERS**

The provisions of MnDOT 1802 shall apply.

#### **GR - 38 (1804) PROSECUTION OF WORK**

The provisions of MnDOT 1804 are deleted in their entirety and replaced with the following:

##### **1804 PROSECUTION OF WORK**

##### **1804.1 SPECIAL PROJECT ADA REQUIREMENTS**

All pedestrian facilities on this Project must be constructed according to the Public Rights-of-Way Accessibility Guidelines (PROWAG) which can be found at:

<http://www.dot.state.mn.us/ada/pdf/PROWAG.pdf>. The appropriate pedestrian ramp details for each quadrant are included in the Plan. The Engineer may provide additional details to those provided in the Plan that meet the PROWAG guidelines as the need arises and field conditions dictate.

##### **A. Responsible Person – ADA Compliance Supervisor**

The Contractor must designate a responsible person competent in all aspects of PROWAG to assess proposed sidewalk layouts at each site before work begins. The designated person must have attended the MnDOT ADA Construction Certification Course and received a passing score, within the past three years. A minimum of one person per project must possess a valid ADA Construction Certification card anytime ADA work is being performed on the project.

ADA work shall include, but not be limited to the following: assessment of proposed sidewalk layouts at each site before work begins, determining and marking removal limits for work pertaining to pedestrian facilities, all ADA related removals and grading, forming and finishing of concrete at all pedestrian facilities, paving pedestrian crossings, placing bituminous pedestrian facilities, final grading,

and pavement markings. Any ADA work not listed above can be added at the discretion of the Engineer. An ADA Certified person is not required on site if the only work being performed concerns traffic signals and APS installations.

Any time work the Contractor is performing concerns pedestrian facilities, the Contractor's ADA Certified person shall be on site.

No measurement will be made of the various duties of the ADA Compliance Supervisor, and all such work shall be construed to be incidental to the project.

#### **B. Criteria for Pedestrian Facilities**

Pedestrian facilities must be constructed to meet the following criteria:

1. Pedestrian Access Routes (PAR) must be constructed to meet the following:
  - a. Minimum width of 4 ft.
  - b. Maximum cross slope of 2.0 percent.
  - c. Vertical discontinuities of less than ¼ inch.
  - d. Provide positive drainage without allowing any ponding, and maintain existing drainage flow patterns unless indicated otherwise in the Plan.
  - e. All grade breaks shall be constructed perpendicular to the path of travel.
  - f. Maximum 5 percent running slope unless adjacent roadway profile exceeds 5 percent.
2. Landings are part of the PAR and must be constructed to meet the following:
  - a. 4 ft x 4 ft minimum width and matching full width of incoming PAR.
  - b. Maximum slope of 2.0 percent in all directions.
  - c. Required at all locations where the PAR changes directions or inverse running slopes are greater than 2 percent.
  - d. Must be connected to the PAR.
  - e. Shall be constructed as a single plane surface having no grade breaks.
3. Ramps are part of the PAR and must be constructed to meet either of the following criteria:
  - a. Longitudinal slopes less than 5 percent in the direction of travel require no landing at the top of the ramp (unless the PAR changes direction).
  - b. Longitudinal slopes from 5 percent to 8.3 percent in the direction of travel require a landing at the top of the ramp.

#### **C. General Requirements**

The Contractor and the Engineer shall work together to construct all pedestrian facilities set forth in the plans. If the plan or site conditions do not allow accessibility standards to be met, the Contractor shall consult with the Engineer to determine a resolution. The Engineer shall respond to the Contractor in a timely manner with a solution on how to proceed. The Contractor shall mitigate any potential delays by progressing other available work on the project.

If the Contractor constructs any pedestrian facilities that are not per Plan, or do not meet the above requirements, or do not follow the agreed upon resolution with the Engineer, the Contractor will be responsible for correcting the deficient facilities with no compensation paid for the corrective work.

The following hold points will be utilized in the construction of pedestrian facilities:

1. **Removals:** The Contractor and the Engineer shall use the appropriate ramp, sidewalk, and driveway details in the Plan, and calculate the removal limits for the sidewalk and curb and gutter. If it is determined that the removal limits will exceed the plan removal limits by more than 10 ft and the plan removal limits are not adequate to meet PROWAG and MnDOT Standards, the Contractor shall consult with the Engineer to determine a solution. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may finish the removals.



2. **Curb and Gutter:**

- a. Curb and Gutter at Quadrants: Prior to pouring the curb and gutter at curb ramps the Contractor and the Engineer must verify that the curb and gutter will work with any vertical constraints (doorways, steps, bus stops, outwalks and landing areas). Prior to pouring curb and gutter at quadrants the Contractor must verify the zero-height curb, and curb transitions will be located as shown in the Plans and will provide an adequate detectable edge as shown on Standard Plan 5-297.250 (Sheet 4 of 6). Verify curb tapers are constructed at correct heights so that positive boulevard slopes and drainage is maintained away from landings and sidewalks, to the newly constructed curb and gutter sections. The Contractor shall verify that the proposed gutter flow lines will provide positive drainage as well as maintain existing drainage patterns including existing gutter inflows/outflows. The curb and gutter shall be constructed as detailed in the Plan with a defined flow line and with no vertical discontinuities over ¼ inch. For required flow line corrections including curb line raises and curb ramp cross slope “tabling”, see Standard Plan 5-297.250 (Sheet 6 of 6). Curb shall be poured at 3 percent inflow around the radius or at a minimum distance of 10 ft from any zero-height curb section when machine placed. The Contractor shall consult with the Engineer to determine a resolution if any of these conditions cannot be met. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may proceed with pouring the curb and gutter.
  
- b. Curb and Gutter at Roadway Sections: Prior to pouring curb and gutter at roadway sections the Contractor must verify proposed curb and gutter heights will work with existing roadway and shoulder slopes. The Contractor shall verify prior to placing the pedestrian facilities that positive drainage is maintained within public right-of-way (R/W), as well as maintaining existing off R/W drainage. The Contractor shall check to ensure all top back of curb elevations will allow for adequate boulevard slopes, PAR slopes, and widths as shown on Standard Plan 5-297.254 (Sheet 4 of 4) while maintaining all vertically constrained match points (doorways, steps, bus stops, outwalks and landing areas). The Contractor shall check all driveway locations and widths and follow driveway details and plans for all driveway layouts including curb heights and curb tapers. Driveway curbs sections and aprons shall be constructed to minimize changes in the sidewalk width, alignment, and profile. The Contractor shall consult with the Engineer to determine a resolution if any of these conditions cannot be met. Once the Engineer and the Contractor reach agreement on how to proceed, the Contractor may proceed with pouring the curb and gutter.

3. **Forming and Finishing:** After the curb and gutter has been correctly poured, and the Contractor has set the sidewalk forms, the Contractor shall verify prior to placing the curb ramps and sidewalks that positive drainage is maintained within public R/W, as well as maintaining existing off R/W drainage, and that all the requirements in 1804.1.B will be achieved.

- a. Ramps: In addition, the longitudinal slopes shown in the Construction Plans and the Standard Plan shall be utilized unless these conditions cannot be met. The starting point for setting the forms on the controlling ramp legs, landings, and sidewalk slopes should be the following:

Steep (S)	7%
Flat (F)	4%
Landing	1%
Sidewalk Cross Slope	1.5%

If any of these requirements cannot be met the Contractor shall meet with the Engineer to determine the best solution. Once the Engineer and the Contractor

reach an agreement on how to proceed, the Contractor may proceed with the curb ramp and sidewalk pour.

- b. Landings: An initial landing is the first required landing of a pedestrian ramp. All initial landings required at the top of a ramped sloped surface (greater than 2 percent longitudinal slope), shall be formed and placed separately in an independent concrete pour. This does not include initial landings placed at roadway grade such as depressed corners, parallel ramps, rural flat landings, or flat cut-throughs. Secondary landings consist of all landings beyond the initial landing. These secondary landings do not require a separate landing pour.

Wet casting or drill and grouting of reinforcement bars will be required in accordance with the details shown in Standard Plan 5-297.250 (Sheet 6 of 6). Wet casting of reinforcement bars shall be installed through holes or slots in the forms, with a form height at least equal to the walk thickness of the formed concrete shown in the plans. These bars shall be deformed and installed with minimum concrete cover of 2 in.

All necessary subgrade preparation and aggregate base placement for the entire ramp construction limit shall be done before the initial landing is constructed at each location.

#### **D. Laying Out the Work**

It shall be the responsibility of the Contractor, or Contractor's Surveyor if applicable, to lay out all proposed work at each intersection in accordance with the Plan and requirements listed in this Special Provision. The Contractor may confer with the Engineer for guidance in laying out the proposed work, but it will be the Contractor's responsibility to ensure the proposed work meets all the requirements of this Special Provision. This layout includes, but is not limited to placement of grade breaks, curb transitions, gutter flow lines, truncated dome placement, crosswalk marking placement, flares, landing limits, removal limits, driveway tie in limits, and ramp limits. It is important that the Contractor lay out this work properly to achieve the construction of a compliant pedestrian facility. The owner's surveyor will only stake points and elevations provided in the Plan. For custom designs, other than specific dimensions provided in the Plan, the Contractor shall be expected to scale dimensions from the Plan as needed to construct the facility. If scaled dimensions do not allow for a facility to be constructed to meet the requirements of 1804.1.B, the Contractor shall follow the process listed in 1804.1.C. This layout work shall be incidental.

#### **E. Existing Buildings**

The Contractor shall utilize measures and methods when working near existing buildings that will avoid damaging the building's face or structure. The contractor will be responsible for any damage to the building's face or structure, both below and above ground. Any damage resulting from Contractor's operations will be repaired at the Contractor's expense to the satisfaction of the Engineer.

#### **F. Joints and Edges**

The Contractor will round all joints and edges with a ¼ in radius grooving or edging tool within the PAR. This requirement includes all curb and gutter joints at zero-height curb sections at curb ramps. Contraction joints shall extend to at least 30 percent of walk thickness. The Contractor shall also have the option of providing saw cuts to construct the sidewalk joints. If saw cutting, provide 1/8 in wide contraction joints within the PAR, including all curb and gutter joints at zero-height curb sections. When greater than 50 ft of continuous sidewalk runs are constructed the contractor shall saw cut all joints. This work shall be incidental.

The top-grade break of walkable flares needs a visual joint to indicate a change in grade. To eliminate the use of excessive contraction joints in the quadrant the visual joint shall meet MnDOT 2521.3.C, except the depth requirement is reduced to ¼ in.

In sections where concrete-boulevard is placed between the back of curb and the sidewalk, the ½ in preformed joint filler material shall be placed at the back of curb and between the outside edge of sidewalk at existing building or structures. The ½ in wide preformed joint filler shall not be placed in the

longitudinal joint between the sidewalk and boulevard, unless it is necessary to provide expansion at fixed structures. At locations where sidewalk is adjacent to existing buildings, extend walk up to the edge of building and place  $\frac{1}{2}$  in preformed joint filler  $\frac{1}{2}$  in lower than top of walk whenever possible. Furnish and install Backer Rod of appropriate diameter when joints are  $\frac{1}{4}$  in wide or greater, clean surfaces and apply approved silicon joint filler to flush with top of walk. If the transverse sidewalk and boulevard joint layouts cannot be aligned, use approved preformed joint filler with a maximum  $\frac{1}{8}$  in width and place between the sidewalk and boulevard to prevent contraction joints from migrating into the adjacent concrete panels.

#### **G. Minimum Requirements**

The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4 ft. All new or reconstructed sidewalk widths shall match or exceed in place sidewalk and in no case shall it be less than 5 ft in width except at locations where obstructions cannot be moved or at driveways where slopes exceed the maximum allowable grades. The cross slope of the sidewalk or shared use path shall not exceed 2 percent, and shall be measured perpendicular to the path of travel across the entire surface width of the sidewalk or shared use path. Curb ramps should match proposed sidewalk PAR width and shall match full shared use path widths. Whenever possible, the entire landings should be placed in a single concrete placement. If this is not possible due to construction staging, follow requirements for reinforcement bar placement and tie adjacent landings together.

In areas where the sidewalk is to be constructed around fixed structures and the grade has been changed, the sidewalk shall be finished around these structures to the satisfaction of the Engineer at no additional cost.

Architectural elements such as brick pavers, concrete stamping, and multiple colored concrete placements shall be kept outside the curb ramps and landing areas. Any architectural elements that do not maintain a consistent flat smooth surface shall not be used within the PAR.

#### **H. Pedestrian Signal Systems**

All pedestrian signal systems should be installed as shown in the Plan and must be constructed to meet the following criteria. The Contractor shall verify that the proposed push button locations will meet all of the following criteria before proceeding with the installation of the pedestrian push button system:

1. Pedestrian push buttons shall be oriented with the button facing towards the intersection and the button face placed parallel to the outside edge of the crosswalk.
2. Pedestrian push buttons shall be a minimum of 4 ft and a maximum of 10 ft from the back of curb/edge of roadway, but may be placed  $1\frac{1}{2}$  ft to 4 ft from the back of curb/edge of roadway if mounted on a signal pole as indicated in the Plan or as approved by the Engineer.
3. Pedestrian push buttons shall be located at the outside crosswalk edge and shall be no more than 5 ft offset from the projected outside edge of the crosswalk/detectable warnings.
4. Pedestrian push buttons shall be a minimum of 10 ft apart, except in islands and medians where only a 6 ft clear distance must be maintained. This 6 ft obstruction free area is called a Maintenance Access Route (MAR).
5. The MAR is defined as a 6 ft minimum clear distance between any raised obstacles such as push button stations, electrical foundations (signal, lighting, or cabinet), buildings, V curb, utility poles, sign posts, etc. This MAR is needed for mechanical removal of snow and ice. A MAR is only required on the same route as the PAR. At quadrants, the MAR should be a paved surface but does not need to meet the PAR cross slope criteria.
6. Each pedestrian push button shall have a landing immediately adjacent to the push button face with minimum dimensions of 4 ft x 4 ft and a maximum slope of 2 percent in all directions. Center the push button on the edge of landing if possible to do so without violating any of the requirements listed in these Special Provisions. The landing must be connected to the Pedestrian Access Route.
7. All new hand holes shall be placed outside of the PAR, inclusive of ramps and landings.
8. The push buttons shall be mounted at a height of 42 in as indicated in the Plan, and shall have a 10 in maximum side reach. Every effort should be made to reduce the side reach distance to the least amount possible.

9. Crosswalk pavement markings shall be striped in a straight alignment between the outside edges of the detectable warnings from the corner closest to the roadway edge. Markings shall be placed with no kinks unless the crosswalks are shown as kinked in the Plan.
10. The Contractor shall maintain all working points marked by the surveyor and use the working points to lay out push button locations in accordance with the Plans and Special Provisions.

If any of these conditions cannot be met, the Contractor shall consult with the Engineer to determine a resolution per 1804.1.C. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may proceed. If the Contractor constructs any pedestrian push button systems or pedestrian facilities which do not meet the criteria or the agreed upon resolution, with the Engineer, the Contractor will be responsible for correcting the deficiencies with no compensation paid for the corrective work.

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

1. All push button station bases shall be installed using a breakaway pedestal base, see Typical APS Pedestrian Push Button Location and MnDOT approved/qualified products list. The pedestal base shall be fastened to the station foundation using four  $\frac{5}{8}$  in (UNC) x  $7\frac{1}{2}$  in stainless steel anchor rods. The push button station foundation shall be constructed as part of the sidewalk by increasing the sidewalk dimension to a 12 in maximum thickness and an 18 in minimum diameter to top of sidewalk surface. The push button station foundation shall be placed as part of the landing. All construction joints/grade breaks shall be located outside of foundation area and designated landing area.
2. Signal pole foundations which are being constructed in or adjacent to sidewalk shall be constructed in accordance with the applicable MnDOT Standard Plate 8120 or 8126. If a push button is proposed to be mounted on a signal pole, a MnDOT approved extension bracket shall be used. If a push button is proposed to be mounted on a signal pole, the APS push button shall meet the vertical, horizontal, and crosswalk skew requirements.
3. All newly installed pedestal foundations when used as a push button station shall be constructed in accordance with applicable MnDOT Standard Plate 8112. Concrete for new foundations shall be placed either with or after the landing concrete is placed, and the top of the foundation surface shall be  $\frac{1}{4}$  in maximum higher than the top of the landing surface. If a push button is placed on a new or existing pedestal pole, the push button shall be installed using three APS push button spacers (Saddle Adaptors), and the APS push button shall meet the vertical, horizontal, and crosswalk skew requirements.

#### **GR - 39 (1805) METHODS AND EQUIPMENT**

The provisions of MnDOT 1805 are modified and/or supplemented with the following:

The Contractor shall provide the Engineer a list of equipment to be used on the project, with a breakdown of the equipment used for each phase of construction, including removals, sanitary sewer, watermain, excavation/embankment, surfacing, and restoration. The Contractor shall provide equipment as approved by the Engineer. Deviation from the approved equipment will not be allowed without the written approval of the Engineer.

#### **GR - 40 (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME**

The provisions of MnDOT 1806 are deleted in their entirety and replaced with the following:

##### **1806 DETERMINATION AND EXTENSION OF CONTRACT TIME**

The "Commencement Date" is the date set forth in the notice to proceed. If there is no notice to proceed, the Commencement Date shall be the date of the execution of the Contract or such other date

as may be established in the Contract. Upon the Commencement Date, the Contractor shall begin and shall prosecute the Work regularly and without interruption, unless otherwise directed in writing by the City, with such workers, subcontractors and Contractor's Equipment, Tools and Supplies as is necessary to complete the Work within the Contract Schedule.

The Notice to Proceed is anticipated to be issued by the Owner in **Month/Year**.

The Work will be substantially completed on or before **Month/day/year**.

Substantial completion includes utility installation, placement of the first lifts of bituminous, sidewalk, pedestrian ramps, signage, restoration, and cleanup. The final lift of bituminous cannot be placed until all restoration is completed but will be placed prior to the final completion date specified.

The Work will be ready for final payment in accordance with the General Conditions on or before **Month/day/year**. Final completion includes removal and replacement of damaged or settled curb and street sections prior to placement of the final lift of bituminous, placement of the final lift of bituminous, placement of pavement markings, and resolving punch list items.

The project schedule has been set to accommodate sufficient time for private utility relocation and weather delays. It is the Contractor's responsibility to complete the project within the assigned schedule. No extension of time will be granted for weather conditions typical to the time of year the work is undertaken.

The Contractor shall submit, at such time as may reasonably be requested by the Engineer, schedules which shall show the order in which the Contractor proposes to carry on the Work, with dates at which the Contractor will start the various parts of the Work and estimated dates of completion of the various parts ("Contractor's Construction Schedule"). The Contractor's Construction Schedule shall be submitted for approval by the Engineer and City no later than 14 calendar days prior to mobilization. The Contractor's proposed schedule will align with the Contract milestone and completion dates. The Contractor shall allow for normal weather delays when developing the Progress Schedule in accordance with MnDOT Table 1803-2. The Engineer may request a revised schedule when any of the following events occur:

1. The project has experienced a change that affects controlling items of work.
2. The sequence of Work is changed from that in the approved schedule.
3. The project is significantly delayed.
4. The Engineer has granted an extension of Contract Time.

The Contractor shall submit the Revised Schedule within 7 calendar days of receiving a written request, or when an update is required by any other provision of the Contract.

In addition to the other requirements of this Section, Revised Schedules shall reflect the following information:

1. The actual duration and sequence of as-constructed Work activities, including revised Work.
2. Approved time extensions.
3. Any construction delays or other conditions that affect the progress of the Work.
4. Any modifications to the as-planned sequence or duration of remaining activities.
5. The Physical Completion of all remaining Work in the remaining Contract time.

If the progress schedule projects a finish date for the Project later than the Completion Date, the Contractor shall submit a revised schedule showing a plan to finish by the Completion Date. The Engineer will use the schedule to evaluate time extensions and associated costs requested by the Contractor.

If at any time the Engineer determines that the Contractor will not be able to meet the Contract Schedule or the Contractor's Construction Schedule, subject to approved adjustments, the Engineer may require that the Contractor submit a recovery plan to Engineer and City identifying the manner in which the Contractor will expedite the Work to ensure timely Substantial Completion.

If the Contractor is delayed at any time in the commencement or progress of the Work by any act or neglect of the City or Engineer or any employee of either, or of a separate contractor employed by the City, or any changes ordered in the Work by the City, or any other cause beyond the Contractor's control, the City's control, or the Engineer's control, the Contractor shall, within ten (10) days of when Contractor first recognizes the occurrence of any such delay, notify the Engineer and City of such delay. The Contract Schedule shall then be extended by Change Order or Engineer Directive for a reasonable time due to such delay.

Substantial completion includes utility installation, placement of the bituminous wear and non-wear courses, sidewalk, pedestrian ramps, signage, restoration, and cleanup.

Final completion includes removal and replacement of damaged or settled items prior to placement of the final course of bituminous, placement of the final lift of bituminous, placement of pavement markings, and resolving punch list items.

The Contractor shall provide 48-hour notice prior to installing traffic control signs. The Contractor shall schedule work to occur continuously to avoid delays. The Contractor shall coordinate schedules with all utility owners within the project limits.

The streets will be closed to thru traffic to accommodate construction.

#### **GR - 41 (1901) MEASUREMENT OF QUANTITIES**

The provisions of MnDOT 1901 shall apply.

#### **GR - 42 (1903) COMPENSATION FOR ALTERED QUANTITIES**

MnDOT 1903 is deleted in its entirety and replaced with the following:

##### **1903 COMPENSATION FOR ALTERED QUANTITIES**

There will be no adjustment in unit price for increased or decreased quantities. In addition, the Owner reserves the right to reduce certain quantities or delete certain items from each section of the bids as the Owner sees fit, either before or after the Award of Contract. There will be no additional compensation due to remobilization of equipment as necessary to complete punch list items or other items not completed by the Contractor. There will be no additional compensation due to restocking charges for materials not used on the project.

#### **GR - 43 (1908) FINAL ESTIMATE AND PAYMENT – CONDITIONS AND PROCESS**

MnDOT 1908 is deleted in its entirety and replaced with the following:

##### **1908 FINAL ESTIMATE AND PAYMENT – CONDITIONS AND PROCESS**

When the Contractor has completed the Work in accordance with the terms of the Contract, the Contractor shall request in writing final acceptance and payment and the Engineer shall certify in writing the Engineer's acceptance and approval of the Contractor's final request for payment to the City, which shall be the Contract Amount plus all approved modifications, less all approved deductions and less previous payments made.

The City shall accept the Work within 60 calendar days after receipt of the Contractor's request in writing or in the alternative notify the Contractor in writing the reasons why the Work has not been accepted. The City's failure to respond within said 60-day period will be deemed to be acceptance of the Work.

The Contractor shall furnish evidence that the Contractor has fully paid all debts for labor, Equipment and Materials incurred in connection with the Work with the application for final payment. Such evidence shall include but not be limited to all of the following:

1. A certificate by the Commissioner of Revenue stating that the Contractor and each of its subcontractors has complied with the provisions of Minn. Stat. 290.92 relating to withholding of income taxes upon wages.
2. A contractor's affidavit, from the Contractor and all of Contractor's subcontractors, stating that all payrolls, bills for Equipment and Materials, and other indebtedness connected with the Work for which the City or its property might in any way be responsible, have been paid or otherwise satisfied.
3. A general lien waiver and lien waivers from all subcontractors waiving liens related to the Work.
4. Contractor's W-9.
5. Consent of surety, if any, to final payment. If any subcontractor or material supplier refuses to furnish releases or receipts in full, Contractor may furnish a bond satisfactory to the City to indemnify the City against such lien or claim.

**GR - 44 (1910) COST ESCALATION**

The provisions of MnDOT 1910 shall apply.

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## DIVISION 2

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### SPECIFICATIONS

#### 2021 MOBILIZATION

The provisions of MnDOT 2021 are modified and/or supplemented as follows:

##### 2105.5 BASIS OF PAYMENT

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2021.501	MOBILIZATION	LS

#### 2101 CLEARING AND GRUBBING

The provisions of MnDOT 2101 are modified and/or supplemented as follows:

Delete Paragraph 2101.1 in its entirety and replace with the following:

##### 2101.1 DESCRIPTION

This work consists of removing and disposing of the trees, brush, stumps, roots, and other plant life, including dead and decayed matter, within the construction area designated for removal by the contract, as indicated on the plans or as directed by the Engineer.

##### 2101.3 CONSTRUCTION REQUIREMENTS

The Contractor shall assume multiple mobilizations for this work.

The Contractor shall notify the Engineer 48 hours (2 working days) before clearing and grubbing is proposed to start in order to evaluate and mark trees. No clearing and grubbing operations shall begin until the Engineer has clearly marked the trees to be removed.

All or part of this Project is in a county which has been placed under an Emerald Ash Borer Quarantine by the Minnesota Department of Agriculture (MDA). Contractor may contact MDA at 1-888-545-6684 or visit the Emerald Ash Borer website at <https://www.mda.state.mn.us/eab> to find more information. The Contractor must comply with the following requirements, with no direct compensation made.

The Contractor will not:

1. Offer any part of an Ash tree (*Fraxinus* spp.) from a quarantined area to any industry or individual without an Emerald Ash Borer Compliance Agreement with MDA; or
2. Make available any part of an ash tree or any non-coniferous (hardwood) species with bark from the quarantined area for use as firewood; or
3. Transport any part of an ash trees, in any form, outside of a quarantined county without complying with an Emerald Ash Borer Compliance Agreement with MDA; or
4. Transport any part of ash trees, in any form, outside the state of MN without obtaining the United States Department of Agriculture's and the MDA's joint approval of the Emerald Ash Borer Compliance Agreement.

The Contractor will:

1. Dispose of ash trees according to the Emerald Ash Borer Compliance Agreement; and
2. Use the ash wood chips within the construction limits for erosion control, construction exit pads, or other project related needs.

### **C. Grubbing Operations**

All depressions resulting from grubbing operations shall be filled and compacted within seven (7) days (incidental).

### **D. Disposal Limitations**

No disposal of debris shall be allowed on-site.

MnDOT 2104.4 is deleted and replaced with the following:

#### **2101.4 METHOD OF MEASUREMENT**

The Engineer will measure clearing and grubbing by area, lump sum, or individual unit as required by the contract. The Engineer will measure tree diameter by measuring at 4½ ft above the ground or by measuring the diameter of the tree stump after removal.

#### **A. Qualifying Trees and Stumps**

The Engineer will only measure trees for payment having a diameter greater than 3 in at a point measured 4½ ft above the ground surface.

The Engineer will only measure stumps for payment having a diameter greater than 3 in when measured at the point of cutoff.

The Engineer will not measure for the removal and disposal of stumps and brush with a diameter equal to or less than 3 in at the point of cutoff.

#### **B. Area Basis**

If the contract specifies the unit as an acre, the Engineer will determine quantities by measuring, to the nearest 0.05 acre, all areas cleared and all areas grubbed within the limits as shown on the plans or staked by the Engineer. The Engineer will make all measurements horizontally to points 10 ft outside the trunks of qualifying trees or stumps on the perimeter of the area being measured. The Engineer will measure separate areas less than 0.05 acre as 0.05 acre.

If isolated trees or stumps require removal outside the areas designated for clearing or grubbing by the acre, and no unit price is provided in the contract for clearing and grubbing individual trees or stumps, the Department will pay based on the following:

1. The Engineer will consider each isolated qualifying tree having a diameter less than 40 in when measured at a point 2 ft above the ground surface, and each isolated qualifying stump having a diameter less than 40 in at the point of cutoff as 0.05 acre.
2. The Engineer will consider each isolated tree or stump having a diameter of at least 40 in when measured at the points described in (1) above as 0.1 acre.

#### **C. Individual Unit Basis**

When the contract specifies "tree" as the unit, the Engineer will count the number of qualifying trees cleared and the number of qualifying stumps grubbed to determine the quantity.

#### **D. Lump Sum Basis**

The Engineer will not measure an individual area, tree, or stump if the contract specifies clearing and grubbing as a lump sum item.

## 2101.5 BASIS OF PAYMENT

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2101.501	CLEARING & GRUBBING	LS
2101.505	CLEARING	ACRE
2105.505	GRUBBING	ACRE
2105.524	CLEARING	TREE
2105.524	GRUBBING	TREE

## 2104 REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

The provisions of MnDOT 2104 are modified and/or supplemented as follows:

### 2104.3 CONSTRUCTION REQUIREMENTS

Add the following new paragraph to MnDOT 2104.3.B:

#### B.1 Haul Salvaged Materials

Salvaged materials, not required for installation elsewhere under this Contract, shall be loaded and hauled to the designated storage area(s) and deposited thereat in a manner satisfactory to the Engineer.

#### C. Removal Operations

Removals made by sawing, shall result in a neat, straight line, or a square edge. The use of wedges driven into the saw cut to break off the portion to be removed will not be permitted.

Add the following new paragraphs to MnDOT 2104.3.C:

#### C.2 Pavements and Sidewalks

Bituminous pavement removal for roadway reconstruction projects shall consist of reclamation of the existing pavement, loading and stockpiling reclamation material for use on site for access, subgrade stabilization of other uses as directed by the Engineer. Excess unused materials remaining in the stockpile become the property of the Contractor and are to be removed from the project site.

Add the following new paragraphs to MnDOT 2104.3.C:

#### C.7 Concrete Curb and Gutter

All concrete curb and gutter scheduled for removal and marked by the Engineer in the field shall first be saw cut, using a wet saw and then removed.

The Contractor shall be responsible for protecting all curb and gutter within the project that is to remain in place. Any damage to existing curb and gutter shall be the responsibility of the Contractor, and shall be repaired or replaced as directed by the Engineer with no additional compensation thereto.

#### C.8 Pipe Removal

Removal of storm sewer pipe and culvert, as noted in the plans, shall be in manner and at the stage of construction so that drainage will be maintained.

Add the following new paragraph to MnDOT 2104.3:

## F. Abandon Operations

Sanitary sewer, storm sewer, and/or watermain pipe that are to be abandoned shall be filled with a blown granular fill or other Engineer approved material and then plugged watertight. Filling and plugging of the abandoned pipe shall be included in the unit price for abandonment.

Manhole structures that are to be abandoned shall first have the cone section removed at least 4 feet below the surface (or as otherwise directed by the Engineer, incidental), and then filled with granular or other approved material to the top of the barrel section. The remainder of the backfilling shall consist of the native soils. Abandoning a manhole is not allowed unless specifically called for in the plans.

### 2104.4 METHOD OF MEASUREMENT

#### B. Length

Measurement will be by the length of pipe sealed and abandoned as specified.

#### E. Lump Sum

Add the following new paragraph to MnDOT 2104.4.E:

##### E.1 Salvage and Reinstall Landscape Structures

All landscape structure and landscaping (including, but not limited to plantings, gardens (including topsoil), rocks, mulch, retaining walls, boulders, monuments, fences, posts, and edging) shall be salvaged and given to the homeowner. At the end of the project, the salvaged items shall be reinstalled at their original location or as directed by the Engineer. Items damaged during this process shall be replaced by the Contractor. The Contractor shall coordinate with the Engineer to identify the landscaping items to be salvaged and reinstalled.

### 2104.5 BASIS OF PAYMENT

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 Bid Form and as listed in the Plans.

All costs of hauling salvaged materials shall be included in the cost of salvaging the material.

Payment at the Contract bid price per linear foot of abandoned pipe shall be payment in full for all costs involved.

Payment for Salvage and Reinstall Landscape Structures by Lump Sum shall be on a cost reimbursement basis. The Contractor shall provide invoices for the work to completed and shall present the invoices to the Engineer for consideration of payment. All invoices shall be approved by the Engineer before being paid under this item and shall not exceed the unit price bid per lump sum.

**OR**

Payment for Salvage and Reinstall Landscape Structures shall be incidental to construction unless specific pay items are provided for the items to be salvaged and reinstalled in the bid proposal.

**OR**

Payment for Salvage and Reinstall Landscape Structures shall be made at 30-percent of the lump sum bid item when all items identified by the Engineer are salvaged. The remaining 70-percent of the lump sum bid item will be made upon complete reinstallation of the identified items to the satisfaction of the Engineer.

Delete the last sentence of the second paragraph and replace with the following:

Saw cutting necessary for the removal of sidewalks or concrete curb and gutter shall be considered incidental with no direct compensation made.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2104.502	REMOVE PIPE APRON	EACH
2104.502	REMOVE MANHOLE	EACH
2104.502	REMOVE GATE VALVE & BOX	EACH
2104.502	REMOVE HYDRANT	EACH
2104.502	REMOVE DRAINAGE STRUCTURE	EACH
2104.502	SALVAGE CASTING	EACH
2104.502	SALVAGE SIGN	EACH
2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	L F
2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	L F
2104.503	REMOVE WATER MAIN	L F
2104.503	REMOVE SEWER PIPE (STORM)	L F
2104.503	REMOVE SEWER PIPE (SANITARY)	L F
2104.503	REMOVE CURB & GUTTER	L F
2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	S Y
2104.504	REMOVE CONCRETE PAVEMENT	S Y
2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	S Y
2104.504	REMOVE BITUMINOUS PAVEMENT	S Y
2104.518	REMOVE CONCRETE WALK	S F
2104.601	SALVAGE AND REINSTALL LANDSCAPE STRUCTURES	LS
2104.603	ABANDON STORM SEWER	L F
2104.603	ABANDON SANITARY SEWER	L F
2104.603	ABANDON WATER MAIN	L F

## **2105 EXCAVATION AND EMBANKMENT**

The provisions of MnDOT 2105 are modified and/or supplemented as follows:

### **2105.1 DESCRIPTION**

No modifications to the definitions provided in MnDOT 2105.1.A have been made.

Add the following new paragraph to MnDOT 2105.1:

#### **B. Dewatering**

The Contractor shall provide groundwater excavation dewatering as necessary to allow for construction on a stable foundation. The work potentially involves the drawdown of the water table (using wells or other means), placement of temporary barriers, or other satisfactory types of water control to allow for construction and to protect the improvements. Dewatering operations are controlled by permit from the DNR or other agencies. Dewatering operations must be in accordance with MnDOT 2573, the construction stormwater permit, NPDES permit, and SWPPP. Rerouting surface water is not considered dewatering and is incidental.

The Contractor is responsible for application for any necessary permits and compliance with all conditions of permits. The Contractor shall also be responsible for noise control during dewatering as directed by the Engineer.

**The Contractor shall make their own determination as to the extent of the groundwater on the project prior to bidding. No additional compensation will be made for a higher than expected groundwater table or any compliance requirements from regulatory agencies.**

Dewatering systems and excavations must remain inside construction limits.

## **2105.2 MATERIALS**

### **C. Geotextiles**

Geotextiles for stabilization shall conform to the requirements of MnDOT 3733, Type 5.

## **2105.4 METHOD OF MEASUREMENT**

Add the following new paragraphs to MnDOT 2105.4:

### **E. Dewatering**

The Engineer will measure dewatering by the lump sum.

## **2105.5 BASIS OF PAYMENT**

Add the following new paragraph to MnDOT 2105.5:

### **L. Dewatering**

Payment shall be made at the unit price bid on a lump sum basis and shall be compensation in full for materials, labor, and equipment necessary to complete the work as specified. Payment for dewatering is made only when an approved water appropriations permit is obtained from the MNDNR. Permits necessary for this work shall be considered incidental.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2105.504	GEOTEXTILE FABRIC TYPE 5	S Y
2105.601	DEWATERING	LS

## **2106 EXCAVATION AND EMBANKMENT – COMPACTED VOLUME METHOD**

The provisions of MnDOT 2106 are modified and/or supplemented as follows:

### **2106.1 DESCRIPTION**

#### **A. Definitions**

**No modifications to the definitions provided in MnDOT 2106.1.A have been made except for A.6, Select Grading Material.**

Delete MnDOT 2106.1.A.6 and replace with the following:

#### **A.6 Select Grading Material**

Select grading materials are all mineral soils found in the Triaxial Chart in the Grading and Base Manual, excluding: organic soils per MnDOT 2106.1.A.10, marl, and silt. Silt is defined as soils containing 80 percent or more silt-sized particles as determined by MnDOT Laboratory manual procedure 1302. Select Grading Material may contain up to 100 percent recycled materials composed of recycled concrete, asphalt, or glass meeting the following:

- no more than 10 percent glass,
- no more than 75 percent concrete, and
- with a bitumen content of 3.5 percent or less.

## 2106.2 MATERIALS

Delete MnDOT 2106.2.A.1 and replace with the following:

### A.1 Common Excavation

Excavation not classified in any other category, except that MnDOT 2106.2.A.7, "Topsoil Excavation" is included with common excavation.

Delete MnDOT 2106.2.A.2 and replace with the following:

### A.2 Subgrade Excavation

All excavation in the road core below the grading grade, exclusive of rock, muck, channel and pond, or rock channel excavation.

### A.5 Channel and Pond Excavation

MnDOT 2106.2.A.7, "Topsoil Excavation" is included with channel and pond excavation.

Add the following to MnDOT 2106.2.D Stabilizing Aggregate:

### D.1 3" Minus 100% Crushed Limestone

Material is used for finished subgrade as directed by the Engineer. Material gradations shall be submitted for review by the Owner and the Engineer prior to use on this project.

<u>Sieve Size</u>	<u>% Passing</u>	<u>Sieve Size</u>	<u>% Passing</u>
3" (75 mm)	100	3/8"	20
2" (50 mm)	95	#4	15
1 1/2" (38 mm)	73	#10	12
1 1/4" (31 mm)	60	#20	10
1" (25 mm)	50	#40	9
3/4" (19 mm)	38	#80	7
5/8" (16 mm)	33	#200	5

### D.2 1-1/2" Screened Clean Aggregate

Material shall be used for temporary subgrade stabilization as directed by the Engineer. Material gradations shall be submitted for review by the Owner and the Engineer prior to use on this project.

<u>Sieve Size</u>	<u>% Passing</u>
1 1/2" (38 mm)	100
1 1/4" (31 mm)	85-100
1" (25 mm)	50
3/4" (19 mm)	5-35
#4	0-5



## 2106.3 CONSTRUCTION REQUIREMENTS

Management of the excavated materials on the site is the Contractor's responsibility. All suitable material shall be utilized for roadway construction. Excess material shall become property of the Contractor.

### A. General

Where connection to an in-place roadway is made: at the termini of new road construction, cut vertically to the bottom of in place surfacing. Then, cut back within the construction limits at a 1(V):20(H) taper to the bottom of the recommended subgrade excavation.

Before beginning the embankment and excavation operations, topsoil shall be stripped and stockpiled for re-spreading upon the graded area.

Mining of materials for removal from the project area and replacement with less desirable materials by the Contractor shall not be permitted.

Delete MnDOT 2106.3.B in its entirety and replace with the following:

### B. Contractor Quality Control (QC) Testing, Aggregate Certification, and Moisture Requirements

#### B.1 Contractor Quality Control (QC) Testing

Perform Contractor QC testing as required in the Schedule of Materials Control. Correct areas represented by failing QC or Quality Assurance (QA) tests. Submit test results to the Engineer within one business day.

#### B.2 Aggregate Certification

Certify granular materials on Form G&B-104, and attach any required tests. Material placed without certification is unauthorized work.

#### B.3 Moisture Control

Meet the moisture content requirements listed in Table 2106-2.

<b>Compaction Requirement</b>	<b>Relative Moisture Content Requirement *</b>
Minimum of 100% maximum density	65% – 102%
Minimum of 95% maximum density	65% – 115%
Quality Compaction	65% – 102%
Penetration Index Method	≥ 65%
* As Determined on Form G&B-105	

Correct moisture content in areas represented by failing moisture tests.

Note that optimum moisture content determination tests and moisture tests during compaction are required for all compaction requirements, including quality compaction, LWD, penetration index, and specified density.

The Owner's proctor test results are used to determine optimum moisture determination.

### D. Excavating Operations

Subgrade excavations shall be performed for the removal of any unstable or unsuitable materials which may be encountered. Such excavations shall be backfilled with suitable excess material generated from the common excavation, or granular embankment material, or 3" Minus Crushed Limestone stabilizing

aggregate, as directed by the Engineer. If the Contractor proceeds without the approval of the Engineer, all work and material required for restoration of the roadbed to the proposed grade shall be at the Contractor's expense.

Temporary stabilization of the subgrade with 1 ½" aggregate materials is used as directed by the Engineer.

Delete MnDOT 2106.3.G in its entirety and replace with the following:

### **G. Agency Quality Assurance (QA)**

Test according to the Schedule of Materials Control.

#### **G.1 Material Testing**

Sample granular materials from the road core after spreading, but before compaction. Select crushing, aggregate quality, and bitumen samples using the random sampling method in the Grading and Base manual; additional samples and tests may be taken to delineate visually indicated material failures. Select gradation samples from locations that are at risk of not meeting the specification requirements.

#### **G.2 Compaction Testing**

Test for compaction using:

- Quality compaction, and specified density or the LWD method for materials not meeting the requirements of Table 3.149-1, 1 Granular Material, or
- Quality compaction, and specified density or granular penetration index or the LWD method for materials meeting the requirements of Table 3149-1, 1 Granular Material.

Test for compaction in areas with the greatest rutting or deflection, and near structures, and in an area at least 1 foot from an unconfined edge.

After Contractor correction of areas represented by a failing test, perform additional tests in areas with the greatest rutting or deflection.

For granular materials with less than 6 percent passing the #200 sieve, the Engineer may elect to only use the Quality Compaction method, MnDOT 2106.3.F.2.

Use the specified density method for virgin materials only.

The following method may be used in lieu of point testing (penetration index, specified density, or LWD) for material meeting Table 3149-1, 2 Select Granular Material, when the material thickness is 18 in or less and when not adjacent to Structures (per MnDOT 1103).

The Engineer may elect, with the concurrence of the Contractor, to have the Contractor test roll per MnDOT 2111, material meeting the requirements of Table 3149-1, 2 Select Granular Material, in lieu of point compaction testing. If this method is elected, the Contractor is required to first place 3 inches of base on top of the material meeting Table 3149-1, 2 Select Granular Material, prior to test rolling. For areas failing test rolling, the Contractor is required to remove the base and recompact the material meeting Table 3149-1, 2 Select Granular Material, then place the base back, and re-test roll. There is no additional compensation to the Contractor, if this method is selected. Additionally, the material meeting Table 3149-1, 2 Select Granular Material, is not accepted, until acceptable test rolling has occurred.

#### **G.3 Moisture Testing**

Optimum moisture content determination tests and moisture tests during compaction are required for all compaction requirements, including quality compaction, LWD, penetration index, and specified density.

### **H. Finishing Operations**

Topsoil borrow, in accordance with MnDOT 2574, shall be used only when specifically authorized by the Engineer. It shall only be used when there is not sufficient in place topsoil to restore the disturbed area. This work shall not be substituted for the work required of the Contractor to salvage and replace existing topsoil. All topsoil shall be free of all sticks, rocks/stones, and debris. Topsoil shall be of a consistency acceptable to the Engineer.

Excess topsoil may be disposed of outside the road core as directed by the Engineer.

### **2106.5 BASIS OF PAYMENT**

The Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required as Quality Control (QC). The Owner shall be responsible for all inspections and tests required as Quality Assurance (QA).

#### **C. Embankment Material**

Add the following new paragraph to MnDOT 2106.5C:

##### **C.1 Select Granular Embankment**

Select granular embankment shall be used only as directed by the Engineer.

Add the following new paragraphs to MnDOT 2106.5D:

##### **D.5 Common Excavation**

Payment shall be at the unit price bid per cubic yard as an excavated volume and shall be compensation in full for excavation (including salvaging and stockpiling topsoil), preparing the excavation and embankment areas, loading, hauling, placing and compacting fill, stockpiling materials, spreading topsoil, and disposal of material as required. Payment for Common Excavation shall not include the volume of items paid for separately as removals (e.g. curb, bituminous pavement, concrete pavement, reclaimed material).

Potholing to locate existing utilities may be required. All labor and materials use for potholing will be incidental.

##### **D.6 Subgrade Excavation**

Payment shall be made at the unit price bid per cubic yard as an excavated volume, and shall be compensation in full for excavation, hauling, stockpiling, and embankment, and the disposal of unsuitable materials. This work shall also include the replacement and compaction of suitable material within the excavated area unless it is directed by the Engineer that embankment material be used to replace the excavated material volume.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2106.507	EXCAVATION – COMMON	C Y
2106.507	EXCAVATION – SUBGRADE	C Y
2106.507	EXCAVATION – CHANNEL AND POND	C Y
2106.507	EXCAVATION - MUCK	C Y
2106.507	GRANULAR EMBANKMENT (CV)	C Y
2106.507	SELECT GRANULAR EMBANKMENT (CV)	C Y
2106.507	COMMON EMBANKMENT (CV)	C Y
2106.507	STABILIZING AGGREGATE (CV)	C Y

**2111 TEST ROLLING**

The provisions of MnDOT 2111 are modified and/or supplemented as follows:

**2111.2 EQUIPMENT**

Test rolling equipment shall be in accordance with 2111.2 A.2 and B.2.

**2111.3 CONSTRUCTION REQUIREMENTS**

**A1. General**

A representative of the Owner and Contractor shall be present during test rolling.

For full depth reclamation, the reclaimed material shall be test rolled prior to placement of the bituminous base course.

If it rains after a test roll has been performed and the test roll has been accepted, the Contractor, at the discretion of the Owner and Engineer, will be required to perform an additional test roll prior to commencing with construction at no additional compensation.

**2112 SUBGRADE PREPARATION**

The provisions of MnDOT 2112 are modified and/or supplemented as follows:

**2112.3 CONSTRUCTION REQUIREMENTS**

**A. General**

Maintain drainage for surface water to avoid unnecessary saturation of the subgrade.

**2112.5 BASIS OF PAYMENT**

The Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required as Quality Control (QC). The Owner shall be responsible for all inspections and tests required as Quality Assurance (QA).

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2112.519	SUBGRADE PREPARATION	RDST

**2123 EQUIPMENT RENTAL**

The provisions of MnDOT 2123 are modified and/or supplemented as follows:

**2123.3 SPECIFIC REQUIREMENTS**

Add the following new paragraph to 2123.3:

**O. Street Sweeper with Pickup Broom**

Throughout construction, constructed streets and roadways adjacent to the project shall be swept and cleaned as directed by the Engineer, and shall be in conformance with the NPDES permit. The Engineer may require additional sweeping of roads to ensure safety for the general public, protect the environment, uphold local requirements, or as otherwise directed. Material that is tracked off the project site shall be swept within 24 hours.

Removal of dirt and debris shall be accomplished with self-propelled street sweeping equipment with a pick-up broom and a sufficient size for the purpose intended, to the satisfaction of the Engineer. 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 MnDOT 2104.3.D.

**P. Utility Crew**

Utility crew will include the minimum following equipment: Backhoe with at least a 1.5 cubic yard bucket with operator, skid-steer loader or dozer with operator; tamping roller with operator; one Laborer; one Foreman. The utility crew is for exploratory excavation as directed by the Engineer.

**2123.5 BASIS OF PAYMENT**

Add the following new paragraph to 2123.5:

**A. Street Sweeper with Pickup Broom**

Payment will only be made for hours of time required to maintain cleaned roadways for the traveling public, as approved by the Engineer. No payment shall be made for sweeping that is normally required to construction the project, including, but not limited to, removal of bituminous millings, sweeping between bituminous lifts, and sweeping prior to placement of pavement markings. No payment will be made for sweeping done by "kickoff brooms."

Add the following new paragraph to 2123.5:

**B. Utility Crew**

Payment at the bid unit price per hour shall include all labor and equipment for work associated with additional utility work which has not been previously indicated or accurately shown in the plans, as directed by the Engineer. This item is not for the Contractor to fulfill their obligation to locate private utilities prior to excavation as required by the contract documents.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR
2123.610	UTILITY CREW	HOUR

**2130 APPLICATION OF WATER FOR DUST CONTROL**

The provisions of MnDOT 2130 are modified and/or supplemented as follows:

**2130.2 MATERIALS**

Water for construction purposes may be obtained from the City Public Works site at 17073 Adelman Street SE. Contact Public Works at 952-447-9896 to arrange for construction water.

**2130.5 BASIS OF PAYMENT**

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2130.523	WATER	MGAL

**2211 AGGREGATE BASE**

The provisions of MnDOT 2211 are modified and/or supplemented as follows:

## 2211.2 MATERIALS

Aggregate base shall be 100 percent crushed quarry rock (limestone) Class 5 as specified in MnDOT 3138.2B.

For virgin materials (MnDOT 3138.2B), the Contractor/Supplier may not knowingly allow brick and other objectionable material and must employ a QC process to screen it out, before it becomes incorporated into the final product. The amount of objectionable materials including but not limited to: brick, wood, plant matter, plastic, plaster, and fabric must not exceed 0.3 percent.

## 2211.3 CONSTRUCTION REQUIREMENTS

Delete MnDOT 2211.3.B in its entirety, and replace with the following:

### B. Contractor Quality Control (QC) Testing

If required by the Schedule of Materials Control, perform Contractor QC testing and submit results and all required forms to the Engineer within one business day.

Certify materials on Form G&B-104 and attach any required aggregate test results.

Correct base, which fails either QC or Quality Assurance (QA) testing Correct failing material before placing the next lift.

### C. Placing and Compacting

The Contractor shall install the aggregate base immediately, no more than 24 hours after completion and approval of the Grading Grade. If placement of the aggregate base is done more than 24 hours after the initial test roll, a second test roll shall be required and paid for by the Contractor. The Contractor shall be responsible to maintain the aggregate base until completion of bituminous surfacing with no direct payment, therefore. Additional aggregate base required due to erosion, washouts, trench settlements or other similar causes shall be replaced by the Contractor without additional compensation, therefore.

Add the following new paragraph to MnDOT 2211.4.D:

### D.4 Moisture Testing

Test for the moisture content in areas that appear least likely to meet specifications. Note that moisture tests during compaction are required for all compaction requirements, including quality compaction, LWD, penetration index, and specified density.

## 2211.5 BASIS OF PAYMENT

The Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required as Quality Control (QC). The Owner shall be responsible for all inspections and tests required as Quality Assurance (QA).

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2211.507	AGGREGATE BASE (CV) CLASS 5	C Y
2211.509	AGGREGATE BASE CLASS 5	TON

## 2215 RECLAMATION

The provisions of MnDOT 2215 are modified and/or supplemented as follows:

**Topic A – All Reclamation shall apply.**

**Topic B – Full Depth Reclamation (FDR) shall apply.**

**2215.1 DESCRIPTION**

**B. Description – Full Depth Reclamation (FDR)**

Pulverizing and blending shall be accomplished in a single operation in place.

The Contractor will perform a test strip to ensure that the reclamation material meets the correct specifications. Aggregate materials shall have uniform: appearance, texture, moisture content, and performance characteristics. The mixture shall be tested in accordance with the Schedule of Materials Control. Gradation requirements are as provided in the following table:

<b>Table 2215-1 Gradation Requirements</b>	
<b><i>Un-Stabilized Portion</i></b>	
<b>Sieve Size</b>	<b>Percent Passing</b>
3"	100
2"	90 – 100
<b><i>Stabilized Portion</i></b>	
<b>Sieve Size</b>	<b>Percent Passing</b>
1.5"	98 – 100

When reclaiming operations are not feasible as determined by the Engineer due to a lack of existing gravel base or other suitable subgrade material, the Contractor shall suspend reclaiming operations and remove and salvage the existing pavement by milling.

**2215.2 MATERIALS**

Delete MnDOT 2215.2.B.1 and replace with the following:

**B.1 Aggregate Base for Reclamation: MnDOT 3135.**

**2215.3 CONSTRUCTION REQUIREMENTS**

It shall be the Contractor's responsibility to provide traffic control in accordance with the current MN MUTCD for reclaiming operations. If flaggers are needed, the Contractor shall provide them and the cost associated with flaggers shall be included in the bid price for full depth reclamation.

**B.7 Placing and Compacting**

Place and compact pulverized materials in maximum 6-inch lifts.

Where subsurface utility installation work is to occur, the Contractor shall remove and stockpile the reclaimed material prior to performing the utility work. Any contaminated reclaimed material shall be removed and replaced as directed by the Engineer with no additional compensation provided to the Contractor.

Excess reclamation material not incorporated into the Work shall become property of the Contractor and shall be removed and disposed of at no cost to the Owner.

Add the following new paragraph to MnDOT 2215.3:

**D. Phasing**

It is the intent of the contract to allow the Contractor to reclaim one half of the roadway at a time without truck hauling. The Contractor may elect to truck haul and replace at no additional cost to the Owner.

**2215.5 BASIS OF PAYMENT**

The Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required as Quality Control (QC). The Owner shall be responsible for all inspections and tests required as Quality Assurance (QA).

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2215.504	FULL DEPTH RECLAMATION	S Y

## **2232 MILL PAVEMENT SURFACE**

The provisions of MnDOT 2232 are modified and/or supplemented as follows:

### **2232.1 DESCRIPTION**

Unless otherwise shown on the plans or modified herein, milling pavement surface will be 2-inches in depth and the full width of the pavement surface.

### **2232.3 CONSTRUCTION REQUIREMENTS**

The Contractor shall be responsible for marking and verifying the condition of existing structures within the roadway prior to beginning pavement milling.

Full width milling, for Mill and Overlay construction, shall not be performed more than 48 hours in advance of the wear course placement. Once the milling has been performed the uneven edge (transverse and longitudinal) shall be properly signed if the street is not closed to traffic.

For bituminous pavement transition for patching and new pavement surface to existing pavement surfaces (for reconstruction projects), the Contractor shall mill a 12" wide strip 2" deep (or as called out in the plans) along the edge of the existing bituminous pavement so the wear course will overlap the existing pavement.

### **2232.5 BASIS OF PAYMENT**

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2232.504	MILL BITUMINOUS SURFACE (2")	S Y

## **2331 PAVEMENT JOINT ADHESIVE**

### **2331.1 DESCRIPTION**

This work consists of applying pavement joint adhesive to the longitudinal construction joint formed between the concrete curb and gutter and the bituminous pavement. Joint adhesive is to be applied to the exposed face of the concrete gutter pan immediately prior to paving the bituminous wear course.

### **2331.2 MATERIALS**

Provide joint adhesive meeting requirements as specified in Table 2331-1.

<b>Table 2331-1 Joint Adhesive Requirements</b>		
<b>Test</b>	<b>Specification</b>	<b>Specification</b>
Brookfield Viscosity, 400°F	ASTM D3236	4,000 – 10,000 cp
Cone Penetration, 77°F	ASTM D5329	60 – 100 dmm
Resilience, 77°F	ASTM D5329	30% minimum



Ductility, 77°F	ASTM D113	30 cm minimum
Ductility, 39.2°F	ASTM D113	30 cm minimum
Tensile Adhesion, 77°F	ASTM D5329	500% minimum
Softening Point	ASTM D36	170°F minimum
Asphalt Compatibility	ASTM D5329	Pass

### 2331.3 CONSTRUCTION REQUIREMENTS

#### A. Equipment Requirements

Use a jacketed double boiler type melting unit, with both agitation and recirculation systems. Provide a pressure feed wand application system.

#### B. Material Handling

Submit a copy of the manufacturer's recommendations for heating, re-heating, and applying the joint adhesive material.

Do not remove the joint adhesive from the package until immediately before it is placed in the melter. Joint adhesive boxes must be clearly marked with the name of the manufacturer, the trade name of the adhesive, the manufacturer's batch and lot number, the application/pour temperature, and the safe heating temperature. Feed additional material into the melter at a rate equal to the rate of material used.

Verify the pouring temperature of the joint adhesive at least once per hour at the point of discharge. Stop production if the adhesive falls below the recommended application/pour temperature. When the temperature of the adhesive exceeds the maximum safe heating temperature, stop production, empty the melter, and dispose of that adhesive in an environmentally safe method. No payment will be made for this material or its disposal.

Do not blend or mix different manufacturer's brands or different types of adhesives.

#### C. Joint Adhesive Application

The face of the longitudinal joint must be clean and dry before the joint adhesive is applied. Apply the joint adhesive material to the entire exposed face of the concrete gutter pan where an adjacent HMA pavement will be constructed. Recommended band thickness is approximately 1/8 inch. The use of an application shoe attached to the end of application wand is recommended. Do not overlap the joint by greater than 1/2 inch at the top of the joint or 2 inches at the bottom of the joint. Apply the joint adhesive immediately in front of the paving operation. If the adhesive is tracked by construction vehicles, repair the damaged area and restrict traffic from driving on the adhesive.

#### D. Quality Control

Acceptance of the joint adhesive material is based on the certification by the manufacturer that the sealant meets the requirements listed in Table 2331-1. Field sampling shall be used to verify that the delivered joint adhesive meets the requirements of the specification. The Contractor shall take a sample from the application wand during the first 20 minutes of placing sealant from each melter on the Project in the presence of the Engineer.

Each sample shall consist of two aluminum or steel sample containers with the capacity to hold 5 pounds of sealant each. The two sampling containers shall be labeled with the project number, date, time, location, manufacturer and lot number of the sealant. Each container shall be numbered one of two, or two of two. The Engineer reserves the right to conduct supplementary sampling and testing of the sealant material.

The Contractor shall document the locations where the material from each lot number of sealant is placed.

If a field sample fails to meet any of the requirements in Table 2331-1, the work completed with the material from the lot that the field sample represents, shall be subject to a two percent reduction in the Contract unit price of the final lift of the plant mixed asphalt pavement.

**2331.4 METHOD OF MEASUREMENT**

Measure the joint adhesive by the linear foot.

**2331.5 BASIS OF PAYMENT**

Payment for the accepted quantity of joint adhesive at the Contract price of measure will be compensation in full for all costs of furnishing and applying the material as specified.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2331.603	JOINT ADHESIVE	L F

**2355 BITUMINOUS FOG SEAL**

The provisions of MnDOT 2356 are modified and/or supplemented as follows:

**2355.2 MATERIALS**

Add the following to 2355.2:

Bituminous Material for Fog Seal

Provide CRS-2Pd bituminous material for bituminous underseal meeting the requirements of 3151 E.2.

**2355.5 BASIS OF PAYMENT**

Payment will be per gallon and includes all labor, materials, and equipment necessary for traffic control, surface preparation, and application.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2355.506	BITUMINOUS MATERIAL FOR FOG SEAL	GAL

**2356 BITUMINOUS SEAL COAT AND BITUMINOUS UNDERSEAL**

The provisions of MnDOT 2356 are modified and/or supplemented as follows:

**2356.1 DESCRIPTION**

Add the following to 2356.1:

Each reference to Seal Coat, unless otherwise revised herein, applies to Bituminous Underseal.

Fog seal is required for bituminous underseal on roadways with speed limits greater than 40 MPH.

**2356.2 MATERIALS**

Add the following to 2356.2A:

A.1 Bituminous Material for Underseal

E.1. Provide CRS-2P bituminous material for bituminous underseal meeting the requirements of 3151

**Add the following to 2356.2B:**

B.1 Underseal Aggregate

Provide aggregate meeting the gradation, job mix formula tolerance, and quality requirements of Tables 3127-1 and 3127-2, for FA-2.5 aggregate.

**2356.5 BASIS OF PAYMENT**

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2356.504	BITUMINOUS SEAL COAT	S Y
2356.506	BITUMINOUS MATERIAL FOR SEAL COAT	GAL

**2357 BITUMINOUS TACK COAT**

The provisions of MnDOT 2357 are modified and/or supplemented as follows:

**2357.5 BASIS OF PAYMENT**

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GAL

**2360 PLANT MIXED ASPHALT PAVEMENT (MSCR)**

The provisions of MnDOT 2360 are modified and/or supplemented as follows:

**2360.1 DESCRIPTION**

**GENERAL**

Bituminous wear and non-wear courses shall be constructed in the same year.

Bituminous pavements shall not be constructed later than October 10<sup>th</sup> unless specifically approved in writing by the Engineer.

**A. Mixture Designations**

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

Type SP 9.5 Wearing Course (New & Reconstruction)	SPWEA340C
Type SP 12.5 Wearing Course (New & Reconstruction)	SPWEB340C
Type SP 12.5 Non-Wearing Course (New & Reconstruction)	SPNWB330C
Type SP 9.5 Wearing Course (3.0" Driveway/Walk/Trails)	SPWEA240B
Type SP 9.5 Wearing Course (Mill & Overlay)	SPWEA340B

## 2360.2 MATERIALS

Delete MnDOT 2360.2.B and replace with:

### B. Asphalt Binder Material

Only use Performance Graded (PG) Asphalt Binder meeting the requirements of AASHTO M 332, Table 3151-1A below, and the Combined State Binder Group Method of Acceptance for Asphalt Binder, available on the Asphalt Products page of the Approved/Qualified Products List.

Use asphalt binder supplier recommendations for mixing and compaction temperatures.

Table 3151-1A Multi Stress Creep Recovery (MSCR) Test Requirements				
Grade*	Binder Code for 2360 Mix Design	Jnr@3.2kPA, maximum	%R @ 3.2kPA, min.**	Jnr Difference (max. per M 332)***
PG 58S-28	B	4.5	N/A	report (75)
PG 58H-28	E	2.0	30%	report (75)
PG 58V-28	H	1.0	55%	report (75)
PG 58E-28		0.5	75%	report (75)
PG 58S-34		4.5	N/A	report (75)
PG 58H-34	C	2.0	30%	report (75)
PG 58V-34	F	1.0	55%	report (75)
PG 58E-34	I	0.5	75%	report (75)
PG 49S-34	M	4.5	N/A	report (75)
PG 52S-34	A	4.5	N/A	report (75)
PG 64S-22	L	4.5	N/A	report (75)

\* LTPP Bind temperature for Minnesota is 58°C for the high PG Grade temperature. The bottom three grades are special use binders and are to be tested at the high temperature indicated by the grade (example: PG 49S-34 is tested @ 49°C).

\*\* Use in place of Appendix X1 in AASHTO – M332.

\*\*\* Jnr Difference is waived for all “S, H, V, and E” grade binders. The test value should be reported for information only.

### G. Mixture Quality Management

The first paragraph of MnDOT 2360.2.G.4.b Sampling and Testing is revised as shown below:

Take QC samples at random tonnage or locations, quartered from a larger sample of mixture. Sample randomly and in accordance with the Schedule of Materials Control. Determine random numbers and tonnage or locations using the Bituminous Manual; Section 5-693.7 Table A or ASTM D 3665, Section 5, or, an Engineer approved alternate method of random number generation. ~~Sample either behind the paver or from the truck box at the plant site. Other sampling locations can be approved by the Engineer. The Contractor must decide and notify the Engineer where samples will be taken before production begins. The Contractor and Engineer must both agree to a change of sampling location once production has begun.~~ **Sample mixture from behind the paver. Sampling from the truck box at the plant site is not allowed unless approved by the Engineer. In addition to the QC sample, the Contractor will also bring an additional split of the mixture sample to the plant site and store for the Department for 10 calendar days.** The procedure for truck box sampling is on the Bituminous Office website. The Contractor will obtain at least a 130 lb sample. Split the sample in the presence of the Inspector. The Inspector will retain possession of the Agency portion of each split sample and randomly submit a minimum of one sample, on a daily basis, to the District Laboratory for Verification testing (see 2360.2.G.3). Store compacted mixture specimens and loose mixture companion samples for 10 calendar days. Label these split companion samples with companion numbers.

## 2360.3 CONSTRUCTION REQUIREMENTS

Add the following to 2360.3.C.3

### C.3 Longitudinal Joints

If the Contractor cannot complete full street width paving in one day, there shall be no longitudinal joints left exposed overnight. The Contractor shall plan his paving sequence to only have one adjacent paving pass or joint open at a time. In other words, on a street width requiring three (3) passes with the paving machine, the paving shall be completed in three successive and adjacent paving passes. There will be no exception to this requirement.

**D. Compaction**

The first paragraph of MnDOT 2360.3.D.1 is hereby deleted and replaced with the following:

Compact the pavement to at least the minimum required maximum density values in accordance with Table 2360-19, "Required Minimum Lot Density (Mat)".

MnDOT Table 2360-20 Longitudinal Joint Density Requirement is hereby deleted.

MnDOT 2360.3.D.1.h Mat Density Cores 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 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 1 ft 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 6 in ± 0.5 in from the edge of the top of the mat (ex. center of 4-in core barrel 8 in ± 0.5 in from the edge of the top of the mat). Cores will not be taken within 1 ft 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.

MnDOT 2360.3.D.1.j Companion Core Testing is hereby deleted and replaced with the following:

**D.1.j Companion Core Testing**

The Department will select at least one of the two companion cores per lot to test for verification.

MnDOT 2360.3.D.1.n Longitudinal Joint Density is hereby deleted.

MnDOT 2360.3.D.1.p Shoulders is hereby deleted.

MnDOT Table 2360-24 Payment Schedule for Longitudinal Joint Density 4% Void is hereby deleted.

MnDOT Table 2360-25 Payment Schedule for Longitudinal Joint Density 3% Void is hereby deleted.

MnDOT 2360.3.D.1.r Pay Factor Determination is hereby deleted.

**E. Surface Requirements**

MnDOT Table 2360-27 is replaced with the following:

<b>Table 2360-27 Surface Requirements</b>		
<b>Course/Location</b>	<b>Description</b>	<b>Tolerance</b>
Leveling/1 <sup>st</sup> lift using automatics	Tolerance also applies to 1 <sup>st</sup> lift placed other than leveling when automatics are used.	½ in
Wear	Tolerance of final 2 lifts from the edge of a 10 ft straightedge laid parallel to or at right angles to the centerline.	¼ in

<b>Table 2360-27 Surface Requirements</b>		
Shoulder Wear, Temporary Wear & Bypasses	Tolerance from the edge of a 10 ft straightedge laid parallel to or at right angles to the centerline.	¼ in
Transverse joints/construction joints	Tolerance from the edge of a 10 ft straightedge centered longitudinally across the transverse joint. Correction by diamond grinding required unless the Engineer and the Contractor agree to a deduct of \$1,500.	¼ in
20 ft pavement section excluded from IRI and ALR testing in Table 2399-3	Tolerance from the edge of a 10 ft straightedge placed parallel to or at right angles to centerline. Corrective Works required unless both the Engineer and the Contractor agree to a deduct of \$1,500 per lane.	¼ in
Transverse Slope	Tolerance for surface of each lift exclusive of final shoulder wear.	Not to vary by more than 0.4% from plans
Distance from edge of each lift and established centerline	No less than the plan distance or more than 3 in greater than the plan distance. The edge alignment of the wearing lift on tangent sections and on curve sections of 3 degrees or less can't deviate by more than 1 in from the established alignment in any 25 ft section.	See Description
Final wear adjacent to concrete pavements	After compaction the final lift of wear adjacent to concrete pavements must be slightly higher (but not to exceed ¼ in) than the concrete surface.	See Description
Final wear adjacent to fixed structures	After compaction the final lift of wear adjacent to gutters, manholes, pavement headers, or other fixed structures must be slightly higher (but not to exceed ¼ in) than the surface of the structure.	See Description
Finished surface of each lift *	Must be free of segregated and open and torn sections and deleterious material. *Excluding tight blade and scratch courses.	See Description

Delete the last paragraph of MnDOT 2360.3.E. Surface smoothness of the plant mixed asphalt pavement will not be evaluated using MnDOT 2399.

### **2360.5 BASIS OF PAYMENT**

The Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required as Quality Control (QC). The Owner shall be responsible for all inspections and tests required as Quality Assurance (QA).

Where bituminous driveway pavement is measured by the square yard, aggregate base material required beneath the driveway pavement shall be considered included in the cost of the bituminous driveway pavement.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2360.504	TYPE SP 9.5 WEAR CRS MIX (2, B) 3.0" THICK	S Y
2360.509	TYPE SP 9.5 WEARING COURSE MIX (3, C)	TON
2360.509	TYPE SP 12.5 WEARING COURSE MIX (3, C)	TON
2360.509	TYPE SP 12.5 NON-WEAR COURSE MIX (3, C)	TON
2360.509	TYPE SP 9.5 NON-WEAR COURSE MIX (3, B)	TON

### **2451 (CEAM 2600) STRUCTURE EXCAVATIONS AND BACKFILLS**

The provisions of MnDOT 2451 shall apply, in addition to the provisions of CEAM 2600, Trench Excavation and Backfill/Surface Restoration, which are modified and/or supplemented as follows:

#### **2451.2 (CEAM 2600.2) MATERIALS**

The provisions of CEAM 2600.2 are modified and/or supplemented as follows:

### **A.1 Granular Material Gradation Classifications**

Bedding and encasement materials, unless noted otherwise, shall meet the requirements of MnDOT 3149.2.B.1 Granular Material, except that 100 percent by weight shall pass the one-inch sieve.

### **2451.3 (CEAM 2600.3) CONSTRUCTION REQUIREMENTS**

The provisions of CEAM 2600.3 are modified and/or supplemented as follows:

#### **E. Pipeline Backfilling Operations**

If insufficient suitable materials are available to complete backfilling, excess suitable materials from other areas of the project may be used to complete the work, as directed by the Engineer.

Granular foundation, bedding, and encasement materials shall be placed around all pipe within areas of rock excavation.

Bedding as specified within the CEAM Standard Specifications and shall be used for all ductile iron pipe (DIP) and reinforced concrete pipe (RCP) installations unless otherwise called for in the drawings or directed by the Engineer.

Backfilling above the encasement zone shall comply with the general requirements specified in 2600.3.E and the following:

1. Backfill within the roadbed or building pad areas shall be placed in accordance with MnDOT 2105.3.E and shall be compacted to Specified Density Requirements in accordance with MnDOT 2105.3.F.1.
2. Backfill not within the roadbed or building pad areas shall be compacted to 95 percent of maximum density (MnDOT Standard Proctor).
3. Maximum backfill lift thicknesses may be increased or decreased by authority and at the discretion of the Engineer in consideration of material type, material disposition, or the demonstrated capability of compaction equipment.
4. The Engineer shall have full authority to suspend backfill operations until the preceding lift of backfill has been determined by the Engineer to be fully compacted and a passing compaction test has been taken. No additional compensation for lost time shall be made if backfill operations are suspended by the Engineer for the purposes of determining adequate trench backfill compaction.

### **2451.5 (CEAM 2600.5) BASIS OF PAYMENT**

The provisions of CEAM 2600.5 are modified and/or supplemented with the following;

Furnishing and placing of granular materials for foundation, bedding, cover or backfill placement as specified in connection with pipe or structure items shall be incidental to the pipe or structure item without any direct compensation being made.

For all utility work, granular foundation material (including 1 ½-inch clear rock) may be used in conjunction with or in lieu of dewatering. Any use of granular foundation material or other material to maintain a dry trench or improve the pipe foundation shall be considered incidental with no additional compensation.

## **2452 PILING**

The provisions of 2452 are modified and/or supplemented as follows:

### **2452.1 DESCRIPTION**

This work shall consist of furnishing and driving steel sheet piling in accordance with Mn/DOT 2452, or providing other trench shoring operations as required, at the locations specified in the Plans, and the following:

The Contractor shall design, furnish, place, and remove temporary steel sheet piling or provide other trench shoring operations, when required in the Contract or by the Engineer. The Contractor may furnish used sheet piling if it is in a condition acceptable to the Engineer.

**2452.2 MATERIALS**

Add the following immediately after 2452.2E:

- F. Materials for steel sheet piling shall be in accordance with Mn/DOT Specification 3373.

**2452.3 CONSTRUCTION REQUIREMENTS**

**D.9 SHEET PILING**

At locations where the elevation difference of the ground separated by the sheet piling is greater than 15 feet, the Contractor shall submit plans for the sheet piling that have been prepared and certified by a Licensed Professional Engineer in the State of Minnesota. The design criteria shall be shown on the submitted plans. At least four (4) weeks before starting construction of the sheet piling, the Contractor shall supply the Engineer with three copies of detailed plans and two copies of the associated calculations. Lateral support systems shall be required when retaining fills are greater than 20 feet in height unless the Contractor's Engineer can satisfactorily document that they are not required.

**2452.5 BASIS OF PAYMENT**

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2452.601	STEEL SHEET PILING (TEMPORARY)	L S

**2501 PIPE CULVERTS**

The provisions of MnDOT 2501 are modified and/or supplemented as follows:

**2501.5 BASIS OF PAYMENT**

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2501.502	___" RC PIPE APRON	EACH
2501.502	___" RC SAFETY APRON	EACH
2501.502	___" SPAN RC PIPE-ARCH APRON	EACH
2501.602	___" SPAN RC SAFETY APRON	EACH
2501.602	TRASH GUARD FOR ___" PIPE APRON	EACH
2501.602	SAFETY GRATE FOR ___" RC APRON	EACH
2501.602	TRASH GUARD FOR ___" SPAN PIPE APRON	EACH
2501.602	SAFETY GR FOR ___" SPAN RCP-A APR	EACH

**2502 SUBSURFACE DRAINS**

The provisions of MnDOT 2502 are modified and/or supplemented as follows:



## 2502.1 DESCRIPTION

The location and alignment of the subsurface drains and outlets are shown in a general manner on the Plans. Modifications to the proposed alignment may be made by the Engineer in the field to ensure that the drain properly collects groundwater and infiltration water that may accumulate in the bottom of granular base material.

Perforated corrugated thermoplastic (TP) pipe or perforated corrugated PE pipe as designated, shall be installed in accordance with the requirements for subcut drains, (MnDOT 2502.3.F) **except that perforated pipe drains shall be bedded on coarse filter aggregate (MnDOT3149.2.H). Trenches shall also be backfilled with coarse filter aggregate.**

## 2502.2 MATERIALS

Delete MnDOT 2502.2.A1 and replace with the following:

### A.1 Thermoplastic (TP)

Provide thermoplastic pipe and fittings (for use as pipe sewers or subsurface drains) meeting the requirements of the Contract. If pipe is not specified in the Contract, use pipe meeting the applicable application, i.e. use perforated pipe for drainage application and unperforated pipe for outlet into ditch, etc.

1. AASHTM M278, Class PS 46, Polyvinyl Chloride (PVC) Pipe (perforated and unperforated)
2. Blank
3. ASTM D3034, Type PSM PVC Sewer Pipe, SDR 35, (unperforated only)
4. ASTM F758, Smooth-Wall PVC, Type PS 46 (perforated and unperforated)
5. ASTM F949, PVC Corrugated Sewer Pipe (perforated and unperforated)
6. ASTM D17885, Schedule 40 pipe (perforated & unperforated as applicable) with one of the following:
  - a. Perforated: Slotted with maximum slot width of  $\frac{1}{16}$  in and minimum slot area of  $1\frac{1}{2}$  sq. in/linear ft for 4 in diameter pipe and greater than 1 sq. in/linear ft for pipe having a diameter less than 4 in.
  - b. Perforated: Circular holes with two to four rows of holes. Hole diameter equal to  $\frac{3}{16}$  in to  $\frac{3}{8}$  in, and minimum area of holes  $1\frac{1}{2}$  sq. in/linear ft for 4 in diameter pipe and greater and 1 sq.in/linear ft for pipe having a diameter less than 4 in.
  - c. Unperforated.
7. AASHTO M252, Corrugated Polyethylene (CP) dual-wall, Type "S" (unperforated) or "SP" (perforated) pipe, PS 50.

If perforated pipe is specified, provide pipe with perforations in accordance with the applicable specification. Create all perforations at manufacturer's plant; no field perforations are allowed.

Unless otherwise specified in the applicable specifications, plans, or special provisions, the Contractor may choose the joint type.

Submit to the Engineer a manufacturer's Certificate of Compliance with each pipe shipment.

## 2502.5 BASIS OF PAYMENT

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2502.502	4" PRECAST HEADWALL	EACH
2502.503	4" PERF PVC PIPE DRAIN	L F
2502.503	4" PERF TP PIPE DRAIN	L F
2502.602	4" PVC PIPE DRAIN CLEANOUT	EACH

## 2503 (CEAM 2621) PIPE SEWERS

The provisions of MnDOT 2503 shall apply, in addition to the provisions of CEAM 2621, Sanitary Sewer and Storm Sewer Installation, which are modified and/or supplemented as follows:

### 2503.2 (CEAM 2621.2) MATERIALS

The provisions of CEAM 2621.2 are modified and/or supplemented with the following:

#### A.2 Ductile Iron Pipe and Fittings

Fittings shall be mechanical joint, unless otherwise specified.

Ductile iron pipe for pressure sewer applications shall be in accordance with CEAM 2611 for watermain.

#### A.3 Reinforced Concrete Pipe and Fittings

Reinforced arch pipe shall conform to ASTM C 506. Elliptical pipe shall conform to ASTM C 507. The joint shall conform to Federal Specification 55 5 00210, Kent Seal No. 2, bitumastic joint sealant or approved equal.

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 pre-lubricated pipe seal systems. See MnDOT Standard Plate 3006.

#### A.4 Corrugated Steel Pipe and Fittings

Corrugated steel pipe and fittings shall conform to the requirements of Mn/DOT 3226 Corrugated steel pipe for the type, size and sheet thickness specified. Piping shall be circular, 2-2/3 x 1/2-inch corrugations, in accordance with Mn/DOT Plate 3040F, unless indicated otherwise.

<u>Size</u>	<u>Gage</u>	<u>Thickness</u>
12-24 Inch	16	.0635 Inches
30-36 Inch	14	.0785 Inches
42-54 Inch	12	.1084 Inches

#### A.5 Polyvinyl Chloride Pipe and Fittings

Sanitary sewer polyvinyl chloride (PVC) pipe and fittings shall conform to the CEAM requirements. Polyvinyl Chloride Pipe used for storm sewer installations shall conform to the requirements outlined in MnDOT 2503. Submit a manufacturer's Certificate of Compliance with each pipe shipment including date manufactured, nominal and actual inside pipe diameters.

Sanitary sewer polyvinyl chloride (PVC) pipe and fittings shall be SDR 26 and SDR 35 for sanitary sewer mains as shown on the plans and SDR-26 and Schedule 40 for sanitary sewer services.

Joints shall be elastomeric gasket joints (ASTM D-1869). Gasket joints must be approved by the Engineer on the basis of data furnished by the manufacturer.

When allowed by the Engineer for connections to existing pipe, couplings shall conform to ASTM C 1173 and shall be Fernco Strong Back RC Series Repair Couplings or approved equal.

Polyvinyl chloride (PVC) pipe and fittings for pressure sewer applications shall be in accordance with CEAM 2611 for watermain.

#### A.8 Corrugated Polyethylene Pipe

Submit a manufacturer's Certificate of Compliance with each pipe shipment including date manufactured, nominal and actual inside pipe diameters.

Delete CEAM 2621.2.A.11 and replace with the following:

#### **A.11 Polypropylene Pipe**

Provide corrugated polypropylene (PP) dual-wall pipe with couplings and fittings meeting the requirements of the following:

1. AASHTO M330 dual wall Type "S" pipe, and
2. Section 12 of the AASHTO LRFD Bridge Design Specifications, and
3. Gasketed integral bell and spigot joint meeting the requirements of ASTM F2881, for respective diameters, and
4. Watertight joints that meet a 10.8 psi laboratory test per ASTM D3212 with a gasket that meets the requirements of ASTM F477, and
5. Protect polypropylene compounds from ultraviolet (UV) degradation with UV stabilizers or carbon black meeting the requirements and testing in AASHTO M330 and ASTM D3895.

Provide laboratory certification that the pipe connection for each size of pipe meets or exceeds these requirements. Submit shop drawings of each pipe coupler and any additional mechanical connections required by the plans. Mitered end sections are not to be constructed of polypropylene.

Provide polypropylene (PP) pipe and fittings manufactured from high-density polypropylene (PP) virgin compounds. Clean, reworked PP materials from the manufacturer's own production may be used if the pipe fittings produced meet the requirements of this section.

Store and handle polypropylene (PP) pipe as recommended by the manufacturer. Provide pipe manufactured no more than six months prior to installation. Do not use damaged pipe.

Polypropylene (PP) pipe is considered to be plastic pipe and must be installed according to MnDOT 2501.3.C.4 and must pass deflection testing for acceptance.

Submit a manufacturer's Certificate of Compliance with each pipe shipment including the date manufactured, nominal and actual inside pipe diameters.

Polypropylene (PP) manufacturing facilities are required to participate and be in compliance with AASHTO's National Transportation Product Evaluation Program (NTPEP) for producers of AASHTO M330 polypropylene (PP) pipe. The Engineer confirms the plant where the pipe is manufactured is in compliant status by checking the NTPEP website, a link is provided through the Approved Products List.

Add the following new paragraph to MnDOT 2503.2:

#### **E. Steel Casing Pipe**

Steel casing pipe for jack boring shall have a wall thickness of 0.375" for casing pipe up to 24" in diameter, and a wall thickness of 0.500" for casing pipe 26" to 36" in diameter. The casing pipe shall be welded steel pipe (new material) with a minimum yield strength of 35,000 psi.

### **2503.3 (CEAM 2621.3) CONSTRUCTION REQUIREMENTS**

The provisions of CEAM 2621.3 are modified and/or supplemented with the following:

The Engineer shall receive notice 24 hours in advance for testing of sewers.

When the Contractor uses laser beam control for grade and alignment, the Contractor shall check into the grade stakes provided. Any discrepancies found between the laser beam elevation and grade stake elevation, or the line and grade shown on the plans, shall be immediately brought to the Engineer's attention before continuing pipe installation. Failure to check into grade stakes provided or to notify the

Engineer of discrepancies shall put the full responsibility on the Contractor for any removal and reinstallation of pipe necessary to conform to the line and grade as shown in the Drawings.

## **A.2 Pipe Laying Operations**

Dewatering to maintain pipe trenches free of water shall be considered incidental, unless a bid item has been included for Dewatering.

Install pipe to the alignment, grade, and location as shown in the drawings and/or staked in the field. No deviation from the drawings and/or staked alignment, grade, or location is allowed.

## **A.4 Bulkheading Open Pipe Ends**

Mark end of sewer stubs with a wooden 4 in x 4 in marker. The marker shall extend adjacent to the plug and to a depth 6 in below and shall extend 2 ft above the ground line. The marker shall be continuous without any breaks and shall be vertical and plumb.

## **G. Televising**

All new sanitary sewer main shall be jetted clean and televised after the services are installed, as applicable, and prior to wear course paving. Televising shall include panning the camera up to the sanitary sewer wyes and service lines so that it is visible. The Contractor shall supply two videos and two detailed reports within 15 days of the televising being complete. One set shall be supplied to the Engineer and one set to Owner. A digital copy of the report shall also be delivered to the Owner.

Prior to placement of wear course paving, the Engineer must review all sewer televising reports and conclude there are no subsurface deficiencies requiring excavation to correct.

The Contractor will be responsible for television inspection of the sanitary sewer after it has been constructed. The Owner reserves the right to view these television inspection records prior to final project acceptance and at any time within the warranty period.

Add the following new paragraph to CEAM 2621.3:

## **H. Sanitary Sewer By-Pass Pumping**

The Contractor shall furnish, install, maintain, and remove temporary pumps, pipes, automatic controls, and related appurtenances to allow continuous operation of sanitary sewer facilities whenever necessary to ensure service will be maintained during construction. Sanitary sewer facilities shall include, but are not limited to gravity sanitary sewer main, sanitary sewer force mains, sanitary sewer services, sanitary sewer lift stations, and/or sanitary sewer grinder pumps.

Sanitary sewer pipe sizes are shown on the Plans. The Contractor shall be responsible for verifying all sanitary sewer pipe sizes and locations within the project limits to determine the most appropriate manner to provide sanitary sewer bypass pumping.

The Contractor shall submit copies of the proposed pumping, piping, and control systems for sanitary sewer bypass pumping to the Engineer a minimum of seven days in advance of installing the sanitary sewer bypass pumping system.

The Contractor shall have one standby pump available on-site for each pumping location to use in the event of a pump failure. The standby pump shall be adequately sized to handle the rates of sanitary sewer flow being bypasses.

## **2503.5 (CEAM 2621.5) BASIS OF PAYMENT**

The provisions of CEAM 2621.5 are modified and/or supplemented with the following:

Sewer connections shall be paid per each connection of new sewer to existing sewer. All necessary labor, materials, and work required to make the connection shall be included in the price per each as provided in the Bid Form.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2503.503	___" SPAN RC PIPE-ARCH SEWER CL IIA	L F
2503.503	___" RC PIPE SEWER DES 3006 CL III	L F
2503.503	___" RC PIPE SEWER DES 3006 CL V	L F
2503.601	SANITARY SEWER BYPASS PUMPING	LS
2503.602	CONNECT TO EXISTING SANIARY SEWER	EACH
2503.602	CONNECT TO EXISTING STORM SEWER	EACH
2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH
2503.602	CONNECT INTO EXISTING MANHOLE (SAN)	EACH
2603.602	CONNECT TO EXISTING SANITARY SEWER SER	EACH
2503.602	8"X4" PVC02 WYE	EACH
2503.603	CLEAN PIPE SEWER	L F
2503.603	TELEWISE SANITARY SEWER	L F
2503.603	4" PVC PIPE SEWER	L F
2503.603	___" PVC PIPE SEWER SDR 26	L F
2503.603	___" PVC PIPE SEWER SDR 36	L F
2503.603	4" PVC RISER PIPE	L F
2503.603	___" DUCTILE IRON PIPE SEWER	L F
2503.603	___" STEEL CASING PIPE (JACKED)	L F

## 2504 (CEAM 2611) WATERMAIN

The provisions of CEAM 2611, Standard Specifications for Watermain and Service Line Installation are modified and/or supplemented as follows:

### 2504.2 (CEAM 2611.2) MATERIALS

The provisions of CEAM 2611.2 are modified and/or supplemented as follows:

All watermain materials, including but not limited to ductile iron pipe and fittings, hydrants, valve boxes, gate valves, and retainer glands and bolts shall be manufactured and produced in the United States.

#### A.1 Ductile Iron Pipe and Ductile Iron and Gray Iron Fittings

Ductile iron pipe shall be mechanical joint, Class 51 for 12 in and larger diameter, and Class 52 for 10 in and smaller diameter.

All fittings for watermain shall be mechanical joint, Class 350, Ductile Iron Compact Fittings in accordance with AWWA C153. Fittings shall be furnished with fusion bonded epoxy external coating and interior lining in accordance with AWWA C550 and C116, 6 mil to 8 mil nominal thickness.

All fittings shall be wrapped in polyethylene.

Carbon steel couplings and sleeves shall not be used.

Tapping Sleeves shall be Smith-Blair 622 or 662, stainless steel, or Engineer approved equal, as indicated in the table below:

Branch Pipe Size	Existing Pipe Size						
	6"	8"	10"	12"	16"	20"	24"

<b>6"</b>	662	662	662/622	662/622	622	622	622
<b>8"</b>	662	662	662/622	662/622	622	622	622
<b>10"</b>	662/622	662/622	662	662	622	622	622
<b>12"</b>	662/622	662/622	662	662	622	622	622

Ductile Iron Pipe three inches (3") in diameter or greater shall have push-on joints. Fittings shall have Mechanical Joints.

Pipe joints shall be "Fastite" (American Cast Iron Pipe Company), "Bell Tite" (James B. Clow and Sons, Inc.) or "Tyton" (U.S. Pipe and Foundry Company), except that mechanical joint, shore body fittings, cement lines, Class 250, shall be used for stub ends and all fittings.

All nuts and bolts shall be stainless steel T-head bolts. All tie rod restraints and corresponding nuts shall be stainless steel or coated with Dynatron™ Dyna-Pro® Paintable Rubberized Undercoating by 3M or an Engineer approved equal material.

### **A.2 Polyvinyl Chloride (PVC) Pressure Pipe and Fittings**

All PVC watermain pipe shall conform to AWWA C900 (DR 18). Trace wire shall be laid with all PVC watermain in accordance with the Rural Water Association specification.

All fittings for watermain shall be mechanical joint, Class 350, Ductile Iron Compact Fittings in accordance with AWWA C153. Fittings shall be furnished with fusion bonded epoxy external coating and interior lining in accordance with AWWA C550 and C116, 6 mil to 8 mil nominal thickness.

### **B. Fire Hydrants**

Hydrants shall be Waterous Pacer, WB67-250 Traffic type and shall be in accordance with the Standard (American Water Works Association) Specifications C-502 latest revision and the following:

- (1) Five inch (nominal diameter) main valve opening of the type that opens against water pressure with a pentagonal operating nut with one-inch sides (nominal 1.5 inches from point of pentagon to opposite side) and opening counterclockwise (left).
- (2) Barrels shall be two-piece, non-jacket type, with bottom of traffic flange set 2" above finish grade, 24 inch-nozzle height above finish grade (16 inch-break off extension, center of nozzle 22" above bottom of traffic flange), and with mechanical joint connection at the base for connecting to a 6 inch-ductile iron pipe hydrant lead.
- (3) Hydrant bury depth, measured from the top of the branch pipe connection to the finished ground line at the hydrant, shall be 8' 0".
- (4) The hydrants shall have two, 2 1/2" hose connections (thread size 3 2/32" O. D. 701.2 T.P.I.) and one 4 1/2" pumper connection (thread size 5 24/32" O.D. 701.2 T.P.I.) (National Standard Thread. Nozzle caps shall be nut type with chain.
- (5) All hydrants shall have a six-inch mechanical joint inlet for connecting to a six inch ductile iron lead from the main. There shall be a gate valve between the hydrant and the watermain or lateral. Hydrant bury length shall be 8'6" with heavy duty operating rod. The hydrants shall have all working parts of bronze and shall be designed for 250 psi working pressure and 300 psi hydrostatic pressure.
- (6) All hydrants shall be given one additional coat of paint after installation. All abraded surfaces shall be cleaned and primed red prior to application of the final field coat. Paint shall be as recommended by the hydrant manufacturer as compatible with the shop coating.

(7) Fire hydrants shall conform to the Standard Detail Plate. The CONTRACTOR shall supply two hydrant locators with each hydrant, one installed and one delivered to OWNER'S Public Works garage. Hydrant locators shall be 5-foot Hydrafinder High Visibility Locating Device by Rondon Inc. or approved equal. One hydrant wrench per ten (10) hydrants installed with a minimum of two (2) per project. One "Out of Order" tag per hydrant, installed after backfill, becomes the property of the OWNER.

### **C.1 Valve Housings**

Valve boxes shall be Tyler 6860 or approved equal, screw type for 5 1/4" diameter shaft, cast iron, American made, with "Stay-Put" Lid, marked with "Water", or Engineer approved equal. Box to be adjustable a minimum of 6" up and down from the specified depth of pipe bury.

Valve box extensions shall be the same as the specified valve box and is used only when the difference in the surface profile exceeds the extension limitations of the existing valve box, requiring additional gate valve box sections. Valve box extension applies only to existing gate valves boxes.

Valve operator extension is the extension of the operating nut by means of a ductile iron or stainless-steel heavy-duty operating rod. The extension stem must survive a torque test to 1000 ft-lb without failure. Connection to the gate valve operating rod shall be by stainless steel connection pin or bolt to the valve nut. Valve operator extension applies only to existing gate valves.

### **C.2 Gate Valves**

Gate valves shall be either American, Mueller, Kennedy, US Pipe, or approved equal and be compression resilient seated in accordance with AWWA C509 (latest revision) Specifications. All valves shall be for buried service. For every 10 valves installed provide one key (2 minimum) to the OWNER's Public Works Department.

- (1) Working pressure rating of 250 psi for all sizes.
- (2) Two-inch square operating nut opening counterclockwise (left).
- (3) Double "O" ring stem seal, one above and below the stem seal.
- (4) Weather seal on bonnet cover.
- (5) Non-rising stem.
- (6) Mechanical joints for typical installation. Tapping sleeve assemblies require flange by mechanical joint.
- (7) Adjustable gate valve extension stem.

### **D. Water Service Pipe and Fittings**

Water service pipe with inside diameter larger than 2 1/2" shall conform to the requirements of Ductile Iron Pipe or Polyvinyl Chloride Pipe.

Water service pipe shall be 1" CTS HDPE SDR 9 unless otherwise approved by the City Engineer.

Corporation stops shall be 1" inlet and outlet unless approved by the City Engineer. Ball valve with the inlet threaded with standard AWWA taper thread as indicated in the table below and compressions (CTS) outlet. Water service taps made directly to PVC or PE watermain pipe shall require stainless steel saddles. Saddles shall be included in the cost of the corporation stop.

Curb stops shall be 1" inlet and outlet unless approved by the City Engineer. Ball valve with compression (CTS) on both ends, Minneapolis pattern. They shall be full size inlet and outlet for the respective services and as indicated in the table below.

Curb boxes shall be in accordance with the table below and shall have Minneapolis pattern base, 78 to 81-inch stationary rod, 12 inch-box adjustment from 7 to 8 feet lid with pentagon plug, and 1 1/4 inch-I.D. upper section, base tapped 1-1/2". Curb boxes located in a driveway or parking lot shall be covered with a Ford A-1 Meter Box Casting or Engineer approved equal. At final adjusted height, all curb stop extension rods shall be within 36"-48" of finish grade. For curb stops 10' or deeper, the curb stop extension rod will

need to be extended to meet this requirement. No additional compensation will be paid for any adjustments required to match final grade elevations.

	<b><u>Manufacturer's Number</u></b>
<b><u>Appurtenance</u></b>	<b><u>Ford (or approved equal)</u></b>
<b>Corporation Stop</b>	FB-1000-4Q-NL
<b>Curb Stop</b>	B44-444M-Q-NL-1"
<b>Curb Box</b>	1"- EM2--80-56-TW with 2 terminals
<b>Shutoff Rod</b>	SROD-78
<b>Pentagon Key</b>	KEY-CB
<b>Saddle</b>	
<b>DIP</b>	FCD202
<b>PVC-C900</b>	FS323-920-IP4

#### **E. Polyethylene Encasement Material**

All iron pipe, fittings, hydrant barrels, valves, and valve boxes shall be wrapped with polyethylene encasement. Polyethylene encasement material shall conform to the requirements of AWWA C-105 for tube type installation and 8 mil nominal film thickness. All seams shall be taped with 10 mil 6" wide black pipe wrap tape.

#### **F. Mechanical Joint Restraints**

All restraints shall be fusion bonded epoxy coated on the inside and outside according to ANSI/AWWA C550 and C116/A21.16. All bolts, fasteners, and restraining rods are to be stainless steel or Cor-Blue t-head bolts.

Retainer glands shall be ductile iron designed to withstand the same pressures as the watermain pipe and fittings. Retainer glands shall be by American, US Pipe or EBBA Iron (Megalug) and shall be used at all changes in direction and at all fittings and valves. This shall be considered included to the cost of the watermain pipe.

Restrained mechanical joints shall be Series 2000PV Megalug retainer glands by EBAA Iron or Engineer approved equal.

When using threaded rods as restraints they shall be stainless steel and sized as listed below.

<b><u>Pipe Size</u></b>	<b><u>Number of Rods</u></b>	<b><u>Rod Size</u></b>
<b>4"</b>	2	$\frac{3}{4}"$
<b>6"</b>	2	$\frac{3}{4}"$
<b>8"</b>	4	$\frac{3}{4}"$
<b>10"</b>	4	$\frac{3}{4}"$
<b>12"</b>	6	$\frac{3}{4}"$
<b>16"</b>	8	$\frac{3}{4}"$



20"	10	3/4"
24"	12	3/4"

Add the following to CEAM 2611.2.I:

**I. Tracer Wire**

Tracer Wire shall be 10 gage and placed in accordance with the Minnesota Rural Water Association Trace Wire Specification.

Tracer wire splices shall be made using Drycon by King Manufacturing cast kits or approved equal.

Add the following new paragraph to CEAM 2611.2:

**J. Polystyrene Insulation**

Insulation board shall be rigid expanded polystyrene, conforming to the material requirements of CEAM 2600.2B. Placement of insulation shall be in accordance with the requirements of CEAM 2600.3.D.

Add the following new paragraph to CEAM 2611.2:

**K. Temporary Water Distribution System**

A temporary water distribution system shall be required when existing users will be out of water service for a period exceeding eight hours, or as required at the discretion of the Engineer. All piping including hoses used for water service shall be ANSI/AWWA rated. All piping and fittings shall meet current NSF standards and shall be rated for residential or commercial use. The minimum pipe size shall be 2 in for mainlines and 3/4 in for individual service connections. Larger pipe sizes may be required based on zoning or Contractor's phasing plans. No additional compensation will be granted for pipe sizes larger than the specified minimum.

Add the following new paragraph to CEAM 2611.2:

**L. Steel Casing Pipe**

Steel casing pipe for jack boring shall have a wall thickness of 0.375" for casing pipe up to 24" in diameter, and a wall thickness of 0.500" for casing pipe 26" to 36" in diameter. The casing pipe shall be welded steel pipe (new material) with a minimum yield strength of 35,000 psi.

**2504.3 (CEAM 2611.3) CONSTRUCTION REQUIREMENTS**

The provisions of CEAM 2611.3 are modified and/or supplemented with the following:

Dewatering to maintain pipe trenches free of water shall be considered incidental.

Notify the Engineer and the Owner at least 72 hours prior to connecting to existing watermain. The Public Works Department will supply notices of the water shut down to the Contractor for delivery by the Contractor to the affected residents. All residents who will be affected by shutting off water service shall be given a minimum of 48 hours' notice in writing as to when, and for how long, service will be interrupted. Temporary water shutoffs shall not exceed four hours in duration and shall only occur between the hours of 9:00 a.m. and 3:00 p.m. Monday through Friday, unless otherwise specified in the Contract. The Contractor shall coordinate this work with the Engineer and the Owner.

When replacement of existing watermain with new watermain, service shall be maintained to all properties. It may be necessary to maintain temporary pipes on the surface with connections to outside hose bibs. The temporary connections must be made according to Department of Health standards and approved by the Engineer. New watermain installations shall be coordinated so that no home or business is on temporary water service for more than 14 days unless prior arrangements have been made. The Contractor shall be responsible for any improvements to homes or businesses necessary to facilitate the temporary water connections.

Add the following to CEAM 2611.3.A.3

### A3 Aligning and Fitting of Pipe

Wherever it is necessary to deflect the pipe from a straight line either in the vertical or horizontal plane, to avoid obstructions, plumb stems, or produce a long radius curve when permitted, the amount of deflection allowed at each joint shall not exceed the allowable limits for maintaining satisfactory joint seal as given in AWWA C600 for mechanical joints and push-on joints, or as otherwise allowed by the pipe manufacturer.

<b><u>MECHANICAL JOINT</u></b>					
<b><u>Pipe Size</u></b>	<b><u>Deflection Angle</u></b>	<b><u>Offset Inch</u></b>		<b><u>Radius Feet</u></b>	
<b><u>Inch</u></b>	<b><u>Degrees/Minutes</u></b>	<b><u>18'</u></b>	<b><u>20'</u></b>	<b><u>18'</u></b>	<b><u>20'</u></b>
3-4	8-18	31	35	125	140
6	7-07	27	30	145	160
8-12	5-21	20	22	195	220
14-16	3-35	13.5	15	285	320
18-20	3-00	11	12	340	380
24-30	2-23	9	10	450	500

<b><u>PUSH-ON JOINT</u></b>					
<b><u>Pipe Size</u></b>	<b><u>Deflection Angle</u></b>	<b><u>Offset Inch</u></b>		<b><u>Radius Feet</u></b>	
<b><u>Inch</u></b>	<b><u>Degrees/Minutes</u></b>	<b><u>18'</u></b>	<b><u>20'</u></b>	<b><u>18'</u></b>	<b><u>20'</u></b>
3-12	5	19	21	205	230
14-36	3	11	12	340	380

### A4 Blocking and Anchoring of Pipe

Mechanical restraining devices shall be used unless other suitable reaction blocking is indicated or is approved by the ENGINEER.

Retainer glands shall be used for joint restraint on all horizontal and vertical bends 22-1/2 degrees and greater, caps, tees, crosses, valves at the end of a line, four inch and larger service line valves, hydrant valves, and hydrants.

Restrained joints as provided by the pipe manufacture as a part of the pipe joint such as Lok-Fast by American, TR Flex by U.S. Pipe, and Push-On Restrained Joint by Clow shall be considered equivalent to the use of an independent restraining device.

Tees and crosses in the run of the main do not require restraint. The plugs of tees and crosses and the branch of tees shall be restrained.

Service lines and valves, four inch and larger, shall be restrained from the main to the end of the service or a minimum of 20' to allow future excavation and connection to the service stub without shutting down the main line water.

Hydrants and leads shall be restrained from the main to the hydrant or a minimum of 20 feet.

Joint restraint on four inch and larger service lines shall be provided from the main to the end of the service.

The following table indicates the required linear feet of pipe to be restrained on each side of a bend. The minimum length value is based on:

Test pressure of 150 psi  
 Bury depth of 8 feet from ground surface to top of pipe  
 A safety factor of 1.5:1  
 Pipe bedded in native soil

<b>PIPE RESTRAINING REQUIREMENTS</b>												
<b>Ductile Iron Pipe</b>												
	<b>Sand</b>				<b>Clay</b>				<b>Silt</b>			
<b>Pipe Size</b>	<b>Elbow</b>			<b>Valve Tee</b>	<b>Elbow</b>			<b>Valve Tee</b>	<b>Elbow</b>			<b>Valve Tee</b>
<b>Inch</b>	<b>22<sup>1</sup>/<sub>2</sub></b>	<b>45</b>	<b>90</b>	<b>End</b>	<b>22<sup>1</sup>/<sub>2</sub></b>	<b>45</b>	<b>90</b>	<b>End</b>	<b>22<sup>1</sup>/<sub>2</sub></b>	<b>45</b>	<b>90</b>	<b>End</b>
Minimum Length to be Restrained on Each Side of Fitting - Feet												
<b>4</b>	1	2	5	9	1	3	7	11	1	3	7	13
<b>6</b>	1	3	7	13	2	4	10	16	2	4	10	18

<b>Ductile Iron Pipe with Polyethylene Wrap</b>												
	<b>Sand</b>				<b>Clay</b>				<b>Silt</b>			
<b>Pipe Size</b>	<b>Elbow</b>			<b>Valve Tee</b>	<b>Elbow</b>			<b>Valve Tee</b>	<b>Elbow</b>			<b>Valve Tee</b>
<b>Inch</b>	<b>22<sup>1</sup>/<sub>2</sub></b>	<b>45</b>	<b>90</b>	<b>End</b>	<b>22<sup>1</sup>/<sub>2</sub></b>	<b>45</b>	<b>90</b>	<b>End</b>	<b>22<sup>1</sup>/<sub>2</sub></b>	<b>45</b>	<b>90</b>	<b>End</b>
Minimum Length to be Restrained on Each Side of Fitting - Feet												
<b>4</b>	2	3	8	26	2	4	10	28	2	4	10	28
<b>6</b>	2	5	11	37	3	6	14	40	3	6	15	40
<b>8</b>	3	6	14	48	4	8	19	53	4	8	19	53
<b>12</b>	4	8	21	69	5	11	27	76	5	11	27	76
<b>16</b>	5	11	26	90	7	14	35	98	7	15	35	98
<b>20</b>	6	13	32	110	8	18	42	120	9	18	43	120

24	8	16	38	130	10	21	50	142	10	21	50	142
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PVC Pipe												
Pipe Size Inch	Sand				Clay				Silt			
	Elbow			Valve Tee	Elbow			Valve Tee	Elbow			Valve Tee
	22 <sup>1</sup> / <sub>2</sub>	45	90	End	22 <sup>1</sup> / <sub>2</sub>	45	90	End	22 <sup>1</sup> / <sub>2</sub>	45	90	End
Minimum Length to be Restrained on Each Side of Fitting - Feet												
4	1	3	14	14	2	4	10	21	2	4	10	23
6	2	4	20	20	3	6	14	30	3	6	13	32
8	2	5	26	26	4	8	19	39	4	7	18	43
12	3	7	37	37	5	11	27	57	5	10	25	61
16	4	9	49	49	7	14	35	74	6	14	33	80
20	5	11	60	60	8	18	42	92	8	16	40	98
24	6	13	70	70	10	21	50	109	9	19	47	116

**B Connection and Assembly of Joints**

All jointing of push-on and mechanical joint pipe shall be in accordance with AWWA C600.

When pipes are cut in the field, the cut or straight end shall have all sharp or rough edges removed before assembly.

Either copper straps or approved conductive gaskets with copper inserts shall be installed throughout the system to provide conductivity. Copper straps between pipes shall be not less than 1/16" by 3/4" and be bolted to shop welded pipe straps of the same size. Bolts shall be five-sixteenth inch-diameter bronze. Where shop welded straps are not provided, field welds shall be made using the Cadweld method with size thirty-two (32) cartridge. Each field weld shall be properly made after filing the surface of the pipe to a clean bare metal over the entire area of the weld. Straps bolted to mechanical joint fittings shall be not less than 1/16" by 1 1/2 inch. All straps shall be securely fastened and backfilled so as to not damage the conductivity.

The provisions of CEAM 2611.3.B.4 are modified and/or supplemented with the following:

**B.4 Tracer Wire for Non-conductive Pipe**

Tracer wire shall be placed in accordance with the Minnesota Rural Water Association Sewer/Water Utility Trace Wire specifications, available at on the MRWA website at: <https://www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf> .

Tracer wire shall be installed no more than 6-inches above and centered along the top of the pipe during the initial backfilling operations. Care shall be taken to not damage the wire. Splices shall not occur more frequently than one per 250' of pipe.

At each hydrant, and at mainline valve and valve box, the tracer wire shall be securely fastened to the appurtenance on an approved stand-off readily visible. On hydrants the wire shall be fastened to the hydrant with an above ground trace wire access box per Minnesota Rural Water Sewer/Water Utility Trace Wire Specification. The installation shall be in a manner to protect the wire integrity from damage, such as a PVC sleeve. At mainline valves the wire shall be secured to the valve body to enable locator contact utilizing a valve wrench on the valve nut. The wire shall be connected to the appurtenances to allow a low voltage circuit locator to be attached without excavation. It is recommended that during construction, the Contractor periodically test the trace wire being installed, to ensure continuity.

Prior to installation of curb and pavement, the contractor shall test the tracer wire system using a low voltage circuit in the presence of the Engineer. The test shall consist of a continuous above ground trace of the piping and appurtenances installed. All areas failing the location test shall be corrected at the contractors expense.

The provisions of CEAM 2611.3.C are modified and/or supplemented with the following:

### **C Water Service Installation**

The water service lines between the watermain and the curb boxes shall have a minimum of 8.0-feet of cover in the street pavement area and 7.5-feet of cover in the boulevard area. Service lines shall be placed (incidental to the project) beneath any obstruction which would prohibit the required cover if the service line was placed on top of said obstruction. The method of tunneling under an obstruction shall be as approved by the Engineer.

Corporation stops shall be turned into the pipe until tight and shall not be turned back to facilitate placement of the operating nut on top.

The Contractor shall keep an accurate Location Service Record showing the location, size and depth of each service.

Saddles are required on all water services.

The water services shall be installed as shown on the Standard Plate 502. The curb stop and box shall be located on the drainage and utility easement line. The top of the curb box shall be set to proper grade with the extension at the midpoint. Pipe terminals at the easement line shall be marked on the ground surface with a suitable wood timber 4 by 4 inch, 6 to 8 feet long set vertically into the ground at least 4 feet, with the top 2 feet painted blue.

The provisions of CEAM 2611.3.C.2 are modified and/or supplemented with the following:

### **C2 Tapped Service Lines**

Tap service piping shall be HDPE of the size and type specified. Pipe size for tap service installations shall be from 1- inch to 2½ inch-nominal inside diameter.

HDPE tap service piping shall be laid in with granular bedding and granular encasement as defined in CEAM 2600.

Tap service piping shall be installed in one piece without intermediate joint couplings between the corporation stop at the watermain tap and the curb stop. All pipe and appurtenances shall be joined by means of approved compression couplings.

Connection of tap service lines to the watermain shall be made with an approved corporation stop, with the watermain tap being made from horizontal to an angle of not more than 15 degrees from the horizontal. (2:30 and 9:30). Expansion loops shall be directed horizontally, not vertically from the tap.

All tap service lines to PVC watermain require the use of a saddle.

Unless otherwise indicated, tap service lines shall be installed on a straight line at right angles to the watermain or property line. The service line shall be terminated with a curb stop and box at the property line.

The service pipe and curb stop coupling depth shall be such as to maintain not less than 8-foot minimum cover, or in locations where conflict may occur with storm sewer, service pipe shall be placed at least 3' below the storm sewer invert or shall be insulated in accordance with the Plans, Specifications, and Special Provisions to prevent freezing. The Contractor shall provide for a standard depth service box installation.

The service box shall be screwed onto the curb stop coupling and be firmly supported on a concrete block. Service boxes shall be installed plumb and be braced effectively to remain vertical during and after completion of backfilling. The service boxes shall be brought to final surface grade when the final ground surface has been established.

Add the following new paragraphs to CEAM 2611.3:

### **C2.1 Temporary Water Service**

The Contractor shall furnish and install temporary water services to each home or business affected by the replacement of existing watermains as noted on the plans.

Typically, the main distribution line should be a minimum of 2" in diameter and the connection to each house a minimum of 1" in diameter and can be made at the house hose bib. The pipe and fittings may be polyethylene in accordance with AWWA C901, or other pipe materials allowed by the local building code. Pipe shall be installed with a minimum bury of 1' to help prevent interruption of service, unless other means of protection are approved by the Engineer. Prior to installation of any temporary water service, the Contractor shall submit a plan showing details of distribution, connections, operations and other details to the Engineer for review and approval.

Each service connection must include a vacuum break, back flow preventer and wye installed at the house connection, unless other means are approved by the Engineer. All provisions of the Minnesota Department of Health and local building code must be followed. Minimum pressure at the house connection for any temporary service is 60 psi. The temporary water service pipes must be disinfected in accordance with the watermain specification prior to connection to the houses. Temporary water services shall be maintained by the Contractor for the time they are required, and promptly removed when the new watermain is approved for operation.

The Contractor is solely responsible for protection of water heaters, softeners or other systems in buildings being served by temporary water. If necessary, a licensed plumber shall be used for this work. It will also be required that the Contractor have a designated person with availability 24 hours per day, seven days per week to repair any breaks or other problems that may occur with temporary water services. The Designated person must be responsive and make repairs immediately when contacted.

The provisions of CEAM 2611.3.D are modified and/or supplemented with the following:

### **D Setting Valves, Hydrants, Fittings and Specials**

Hydrants shall be installed per Standard Plate Number 500, with reaction blocking to undisturbed ground.

Hydrant extensions are to be used only when approved by the Engineer. Vertical bends are to be used to achieve the planned elevation unless otherwise approved by the Engineer.

All hydrants shall be given one additional coat of manufacturer's paint after installation. All abraded surfaces shall be **cleaned with degreaser, prepared with the manufacturer's epoxy primer and polyurethane topcoat system on external surfaces. Touch-up paint shall be approved by the Engineer prior to painting and shall be spray applied. Contractor shall notify the Engineer of the proposed painting schedule at least 2 business days prior to painting hydrants.**

All fittings, hydrants and valves shall be tied to the main line **with 3/4-inch rods or Megalug restraints.** All rods shall be stainless steel or Engineer approved equal.

### **D.1 Adjust Gate Valve & Box**

Gate valve boxes are to be adjusted to the ½" to ¼" below the finished surface. Adjustment for new gate valve and box is incidental to the new gate valve. Adjustment of an existing gate valve box is incidental to the construction unless a separate bid item is provided. **Adjustment of existing gate valve boxes includes cleaning the valve box of all debris and straightening the valve box to provide unobstructed access to the valve operating nut.** Use of inserts rings to adjust gate valve boxes to the planned elevation is only allowed at the final lift of pavement.

## **D.2 Adjust Curb Box**

Curb boxes are to be adjusted to the finished surface. Adjustment for new curb box is incidental to the new curb box. Adjustment of an existing curb box is incidental to the construction unless a separate bid item is provided.

## **D.3 Wet-Tap with Valve and Box**

The tapping sleeve and gate valve assembly shall be installed on the watermain pipe after thoroughly cleaning the pipe to be tapped. The sleeve shall be assembled on the pipe and the bolts tightened per the manufacturer's recommendations. Joint restraints shall be provided in accordance with these specifications.

Shell cutters shall be the maximum size allowed for the tap being made. Size on size taps shall utilize a ½ inch undersized shell cutter.

Electrical conductivity straps shall be provided to bypass the tapping sleeve assembly.

The entire tapping sleeve and valve assembly shall be polyethylene encased.

## **E. Disinfection of Watermains**

After construction has been completed, all new mains and services shall be disinfected prior to being placed in service. Such disinfection shall consist of a uniform dosage of chlorine equivalent to **twenty-five (25)** parts per million which shall be retained in the system for at least twenty-four (24) hours. **Only at the conclusion** of the minimum 24-hour retention period, the system shall be flushed by City personnel.

Chlorine Residual or Bacteriological Tests shall be conducted at all hydrant locations 24 hours after completion of flushing. The tests will be witnessed and approved by an authorized representative of the CITY. The chlorine residual at all test locations shall be at least twenty-five (25) parts per million and the bacteriological test shall be negative. A second test shall be taken 24 hours after the first bacterial test negative result. Number of tests required shall be in accordance with current MDH requirements. Two consecutive negative test results shall be required.

The CONTRACTOR shall hire an independent testing company to perform all water quality testing. If retesting is required, the cost of this additional testing shall be at the CONTRACTOR'S expense.

The AWWA C651 provisions for disinfection of watermains shall apply. The AWWA C651 provisions for disinfection of watermains are reproduced for informational purposes as follows (CONTRACTOR is responsible for verifying the AWWA C 651 provisions for updates):

**Tablet Method:** Tablet Method may be used only when scrupulous cleanliness has been practiced excluding all foreign materials and ground water during pipe installation. If ground water has entered pipe during pipe installation, the watermain shall be flushed and the Chlorine-Water solution method shall be used.

**Placing Calcium Hypochlorite Granules:** During construction, calcium hypochlorite granules shall be placed at the upstream end of the first section of pipe, at the upstream end of each branch main, and at 500 foot-intervals along the main. The quantity of granules shall be in accordance with the following table:

Ounces of Calcium Hypochlorite Granules to be placed at beginning of main and at each 500-foot interval:

<u>Pipe Diameter (inch)</u>	<u>Calcium Hypochlorite Granules (oz.)</u>
4	1.7
6	3.8
8	6.7
10	10.5
12	15.1
14 and larger	$D^2 \times 15.1D$

Placing Calcium Hypochlorite Tablets: Attach tablets on the top of the main using an adhesive such as Permatex No. 1, product of Loctite Corp, or equal. If tablets are not attached to the top and water contacts them, they will react prior to the disinfection period. The table below gives tablets required per pipe size and length to achieve 25 mg/l:

Number of 5-g Hypochlorite Tablets Required for Dose of 25 mg/l					
Pipe Diameter  (Inch)	Length of Pipe in Feet				
	<u>13 or less</u>	<u>18</u>	<u>20</u>	<u>30</u>	<u>40</u>
4	1	1	1	1	1
6	1	1	1	2	2
8	1	2	2	3	4
10	2	3	3	4	5
12	3	4	4	6	7
16	4	6	7	10	16

Number of 5-g tablets =  $.0012 d^2L$

d = pipe diameter, inches

L = pipe length, feet

Based on 3.25 grams (65%) available chlorine per tablet

The main shall be filled with water at a rate no greater than 1 fps. Precautions shall be taken to assure that air pockets are eliminated. The use of additional curb stops to bleed air through at high points may be necessary.

Chlorination Residual of 25 mg/L chlorinated water shall be retained in the pipe for a minimum of 24 hours, 48 hours when the water temperature is below 41°F. Valves and hydrants shall be operated to ensure disinfection.



**Continuous Feed Method:** Continuous feed method consists of completely filling the main, removing all air pockets, flushing to remove particulates, then filling the main with potable water chlorinated so that after a 24-hour holding period in the main there will be a free chlorine residual of not less than 10 mg/L. Flushing velocity shall not be less than 3.0 fps, see table below.

Required Flow and Openings to Flush Pipelines*				
(40 psi residual pressure in watermain)				
Pipe Diameter Inch	GPM Flow for 3.0 fps Velocity in Watermain	Size of Tap on Watermain/Number of Taps Required	Number of Outlets	Outlet Size (Inch)
4	120	1 / 1	1	2 ½
6	260	1 ½ / 1	1	2 ½
8	470	1 ½ / 2	1	2 ½
10	730	1 ½ / 3 or 2 / 2	1	2 ½
12	1,060	2 / 3	2	2 ½
16	1,880	2 / 5	2	2 ½

\* With a 40-psi pressure in the watermain with the hydrant flowing to atmosphere, a 2½ inch-hydrant outlet will discharge approximately 1000 gpm and a 4½ inch-hydrant nozzle will discharge approximately 2500 gpm.

\*\* Size of tap on watermain with no significant length of discharge pipe.

Water from the existing system or other approved source shall be made to flow at a constant measured rate in the new main. At a point not much more than 10 feet downstream from beginning the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. Measure the chlorine concentration at regular intervals in accordance with Standard Methods, AWWA M12, or using appropriate chlorine test kits.

The following Table gives the amount of chlorine required for various pipes:

Chlorine Required to Produce 25 mg/L

Concentration in 100 ft of Pipe - by Diameter

Pipe	100 Percent	1 Percent

Diameter	Chlorine	Chlorine Solutions
<u>Inch</u>	<u>Lb.</u>	<u>Gal.</u>
4	.013	0.16
6	.030	0.36
8	.054	0.65
10	.085	1.02
12	.120	1.44
16	.217	2.60

1% chlorine solution requires 1 lb. of calcium hypochlorite in 8 gallons of water.

Strong chlorine solution in the main being treated shall not flow into mains in service. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants shall be operated in order to disinfect the appurtenances. At the end of the 24 hour period the treated water in all portions of the main shall have a residual of not less than 10 mg/L free chlorine.

Preferred equipment for applying liquid chlorine is a solution feed vacuum operated chlorinator in combination with a booster pump for injecting the chlorine gas solution water into the main to be disinfected.

Flushing: After the applicable retention period, heavily chlorinated water shall not remain in prolonged contact with the pipe. Chlorinated water shall be flushed from the main until chlorine concentration is no higher than generally in the system for domestic use.

The environment to which the chlorinated water is to be discharged shall be inspected. The CONTRACTOR shall be responsible to ensure that the receiving area is not damaged by the chlorinated water and shall use a reducing agent for neutralization when necessary.

Samples shall be at a rate of one per every 1000 feet of pipe. A higher rate of sampling may be required to include all branch line. If water in the pipe does not meet the Minnesota Department of Health requirements, disinfection procedure shall be repeated until meeting the requirements. Acceptance forms from the governing agency shall be furnished to the ENGINEER.

### **G. Hydrostatic Testing of Watermains**

The Engineer shall receive at least 24 hours' notice for all testing. The Contractor shall perform all testing in the presence of the Engineer in the field. Watermain testing shall be completed in each valve to valve segment of the watermain with hydrant valves and service valves open.

Delete the fifth paragraph of 2611.3.G and replace with the following:

The gauge pressure shall be checked after a minimum of two hours. A pressure drop of 2 psi or less over the 2 hour test period shall be considered acceptance for the test section. Once this portion of the test is completed, the valve on the hydrant leads and dead-end water lines shall be closed and hydrants opened. The specified test pressure shall be applied and the test repeated for 15 minutes to establish the condition of the hydrant lead valves.

The Contractor will be required to expel air from the test segments, including providing testing corporations and service pipe temporarily to the surface at highpoints, if necessary. Removal of the test piping to the satisfaction of the Engineer is required and is incidental to the watermain construction.

After an unsatisfactory pressure test, and if authorized in writing by the Engineer a leakage test shall be performed on each valved section of watermain to determine the quantity of water that must be supplied into the section to maintain a test pressure of 150 psi, after the air in the pipeline has been expelled and the pipe has been filled with water. The water added shall be recorded to the nearest fluid ounce.

After filling the pipe with water and expelling all air in the line, a pressure of 150 psi shall be applied in the same manner as prescribed for the pressure test, and sufficient water shall be measured and supplied into the pipe section to maintain the pressure for a test duration of 2 hours.

Each pipe section tested will be accepted if the leakage does not exceed the quantity determined by the formula as shown in the table below, based on an allowable leakage of 11.65 gpd/mile/nominal diameter inch at 150 psi.

$$L = \frac{SD\sqrt{P}}{133,200}$$

L = Maximum permissible leakage in gallons per hour

S = Length of pipe tested in feet

D = Nominal diameter of pipe in inches

P = Average test pressure during the test, in pounds per square inch, gauge pressure.

<u>ALLOWABLE LEAKAGE PER 1000 FEET OF PIPE</u>										
GALLONS PER HOUR										
Avg. Test Pressure	<u>Nominal Pipe Diameter – in.</u>									
	<u>psi</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>	<u>20</u>
200	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	1.91	2.55
175	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38
150	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21
125	0.34	0.50	0.67	0.84	1.01	1.28	1.34	1.51	1.68	2.01
100	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80
70	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.26	1.51

If the pipe section under test contains pipe of various diameters, the allowable leakage will be the sum of the computed leakage for each size.

When requested, the CONTRACTOR shall furnish a written report of the results of leakage tests, which shall identify the specific test section, the average pressure, the duration of test, and the amount of leakage.

The OWNER does not guarantee that existing valves will maintain the leakage test requirements. As an alternate, the CONTRACTOR will be required to plug newly installed lines and test each segment separately. All wet taps and/or cut-ins shall be tested separately and immediately prior to backfilling. Where hydrants are installed on service stubs, the hydrant can be used in the leakage test.

Add the following new paragraphs to CEAM 2611.3:

**I. Temporary Water Distribution System**

The temporary water distribution system shall be designed to meet a pressure requirement of 30 psi to 60 psi when in operation.

Prior to installing the temporary water distribution system, a detailed plan of the temporary water distribution shall be provided by the Contractor and approved by the Engineer. The Contractor shall allow one week for review and acceptance by the Engineer. The plan shall detail connection points, valves, redundancy measures, back feed ports, materials, mainline and service sizes, sampling points, emergency procedures, and other related information about the temporary water system including installation methods at all street crossings and driveways. The Contractor shall demonstrate that the level of service to the water users will not be significantly impacted and that the temporary system will supply water demands at pressures normal to the existing system. The Contractor shall identify large or exceptional water users and incorporate their needs into the temporary water distribution system.

### **I.1 Location**

All above ground piping shall be installed with appropriate ramping or burial such that the piping will:

- Not be endangered by equipment or vehicular traffic;
- Not pose a hazard for pedestrians (tripping, etc.);
- Provide a barrier-free access; and
- Be constructed to safeguard against vandalism and tampering.

All driveway and street crossings must be buried.

The proposed phasing for the temporary water distribution system shall be planned such that no sleeves will be required to construct the new permanent water distribution system.

### **I.2 Source Water Connection**

Source water connections to fire hydrants are discouraged unless the Contractor can demonstrate that the hydrant has been disinfected and thoroughly flushed. The Owner and Engineer assume no responsibility for the quality of water obtained from a hydrant. After disinfection, the hydrant shall be pressurized at all times in which it serves as a source of potable water. Isolation valves are required at the source water connection, branches (two on 3-way, three on 4-way) and at every service.

### **I.3 Reduced Pressure Zone (RPZ)**

The Minnesota State Plumbing Code required protection of potable water. A Reduced Pressure Zone (RPZ) backflow preventer must be installed at each point of connection. That RPZ must be tested annually and rebuilt on a five-year operating cycle, in accordance with the State Plumbing Code. The Contractor shall provide certification of such for each RPZ utilized with the project. Installation of RPZs shall be included with the cost of the temporary water distribution system.

### **I.4 Pressure Testing and Leakage**

All above ground piping shall be regularly inspected to ensure leak tight connections at the beginning and during the period that the temporary water distribution system is in use. At the discretion of the Engineer, buried temporary water distribution piping shall satisfy hydrostatic pressure testing.

The Contractor shall make its own determination about water pressure maintained by the temporary water distribution system and shall determine if a pressure reduction valve(s) (PRV) is necessary. If so, the PRV shall be include with the cost of the temporary water distribution system.

### **I.5 Chlorine Residual and Bacteriological Testing**

After the temporary water distribution system is installed (both mainlines and services) in its final location, but before service piping is connected to the water users, the temporary water distribution system shall satisfy the chlorine residual and bacteriological testing standards and protocols for the commissioning of new watermain. Disinfection materials and procedures, and the collection and testing of water samples, shall be in accordance with the provisions of AWWA C-651.

### **I.6 Service Connections**

The service connection piping shall be installed and disinfected at the same time as the main line in order that disinfection is accomplished on the service piping. The final connection to the water user shall not be made until the chlorine residual and bacteriological testing requirements have been satisfied. A check valve shall be installed on the service connection between the mainline and the connection to the water user. Prior to connection to water users, individual service lines shall be thoroughly flushed. The final connectors shall be spray-disinfected and swabbed with a minimum 1 percent and maximum 5 percent sodium hypochlorite (bleach) solution to disinfect the fittings. The Contractor shall arrange for the plumbing system to be flushed to remove any elevated chlorine residuals. A typical service connection to a private building shall be at an outside hose bib, requiring the water valve at the meter to be shut-off. It is the responsibility of the Contractor to determine how to provide temporary water service to the satisfaction of the property Owner and the Engineer. The Contractor is responsible to provide an appropriate connection to the water user. The property Owner is under no obligation to allow the temporary water system to be connected to their internal system at any location other than on the public side of the curb stop. If a property Owner will not permit an above ground connection as typical, it shall be the Contractor's responsibility to make alternate arrangements to service the property. In lieu of making aboveground temporary servicing, the Contractor has the option to connect the temporary distribution system to the public side of the existing curb stop.

### **I.7 Operation**

The temporary water distribution system shall be continually pressurized after the bacteriological testing is completed and be capable of supplying normal water demands throughout its installation. In the event of a main or service break, the Contractor shall take immediate steps to minimize water loss and to avoid system contamination. Each end of the broken pipe shall be elevated in a manner to avoid backflow into the pipe. All fittings used in the repair and the pipe ends shall be spray-disinfected and swabbed with a minimum 1 percent and maximum 5 percent sodium hypochlorite (bleach) solution to disinfect the connection. At the discretion of the Engineer, a round of chlorine and bacterial samples may be taken to ensure the integrity of the system.

### **I.8 Off-Hours Corrective Action**

If corrective action is needed to the temporary water distribution system outside of normal working hours, the Engineer or Owner will attempt to contact the Contractor to take corrective actions. At the preconstruction meeting for the project, the Contractor shall provide the name and 24-hour contact information for the person(s) responsible for repairs. If, in the sole opinion of the Owner, the Contractor is unable to make the corrections in a timely manner, the Owner may direct their own forces to take corrective steps. The Contractor will be responsible for any costs incurred by the Owner.

### **I.9 Relocation of the Temporary Water Distribution System**

The relocation of the temporary water distribution system either in whole or in parts by any means without conducting and passing the chlorine residual and bacteriological requirements shall not be permitted. Relocation is defined as depressurizing and moving the pipe work to service other water users.

Add the following new paragraph to CEAM 2611.3:

### **J. Irrigation System Repair**

The Engineer shall attempt to field verify any existing irrigation systems in the project area prior to construction. The Engineer shall notify the Contractor of such known systems. The Contractor shall avoid or minimize disturbance to existing irrigation systems during construction. Homeowners must be notified by the Contractor of any disturbances or disruptions of existing systems. Existing private irrigation systems (of all types and designs) impacted by construction are to be repaired and/or replaced. New components used in the repair/replacement shall be consistent with existing system components. The existing system and its components shall be salvaged and reinstalled where possible.

### **2504.4 (CEAM 2611.4) METHOD OF MEASUREMENT**

The provisions of CEAM 2611.4 are modified and/or supplemented with the following:

## H. Ductile and Gray Iron Fittings

Ductile Iron compact fittings (AWWA C-153) shall be measured by the pound. (See Appendix for Fitting Weights table.)

Add the following new paragraph to CEAM 2611.4:

## K. Insulation

Insulation shall be measured on a square yard basis installed to the specified thickness, and shall include all materials, equipment, and labor required for placement.

### 2504.5 (CEAM 2611.5) BASIS OF PAYMENT

Payment at the lump sum unit price for Temporary Water Service shall include all costs of furnishing, installing, testing and removing the temporary water distribution system as required by the plans and specifications.

Irrigation System Repair: Payment at the bid unit price per each sprinkler system repair shall include all labor and materials required to satisfactorily repair each existing irrigation system impacted by construction, including but not limited to salvaging, repairing, or replacing the system and/or its components. If the Contractor damages an existing system unnecessarily or is otherwise negligent, the Owner reserves the right to require payment of the resulting excessive repair costs by the Contractor.

Payment for Valve Box Extension, if a bid item is provided, includes the additional gate valve box sections to meet an increase in vertical profile that exceeds the existing box gate valve adjustment limitations.

Payment for Valve Operator Extension, if a bid item is provided, includes the addition or extension of an existing gate valve operating nut to provide no more than 7 feet from the top of the operating nut to the surface.

Payment for the Corporation Stop includes the service saddle specified for HDPE pipe.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2504.601	TEMPORARY WATER SERVICE	LS
2504.602	CONNECT TO EXISTING WATER MAIN	EACH
2504.602	CONNECT TO EXISTING WATER SERVICE	EACH
2504.602	HYDRANT	EACH
2504.602	ADJUST HYDRANT	EACH
2504.602	ADJUST GATE VALVE & BOX	EACH
2504.602	VALVE BOX EXTENSION	EACH
2504.602	VALVE OPERATOR EXTENSION	EACH
2504.602	___" CORPORATION STOP	EACH
2504.602	___" GATE VALVE & BOX	EACH
2504.602	___" CURB STOP & BOX	EACH
2504.602	ADJUST CURB BOX	EACH
2504.602	IRRIGATION SYSTEM REPAIR	EACH
2504.603	___" TYPE PE PIPE	L F
2504.603	___" WATERMAIN DUCTILE IRON CL 52	L F
2504.603	___" PVC WATERMAIN	L F
2504.603	___" STEEL CASING PIPE	L F
2504.604	4" POLYSTYRENE INSULATION	S Y
2504.608	DUCTILE IRON FITTINGS	LB

**2505 UTILITY COORDINATION**

**2505.1 DESCRIPTION**

The Contractor shall coordinate its activities with the activities of all "private" utility (natural gas, power, phone, etc.) owners present within the project limits. Coordination will include any delays associated with scheduling conflicts, fees charged by utility owners for construction services, and all time necessary to communicate and work with utility owners within the project limits.

The plans show only known underground utilities (including public utilities) and the locations are approximate. No assurance is given that additional underground facilities do not exist. The Contractor shall make its own investigation to determine to what extent existing utilities shall affect the Contractor's work.

In the event a private or public utility is to be relocated by Others, the Contractor shall coordinate their work directly with the private or public utility.

**2505.4 METHOD OF MEASUREMENT**

No measurement will be made of the various items that constitute Utility Coordination.

**2505.5 BASIS OF PAYMENT**

All such work shall be considered incidental to the Project, with no additional compensation.

Payment shall be made at the lump sum unit price bid and shall be compensation in full for all labor, equipment, and materials necessary to complete the work as specified.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2505.601	UTILITY COORDINATION	LS

**2506 (CEAM 2621) MANHOLES AND CATCH BASINS**

The provisions of MnDOT 2506 shall apply, in addition to the provisions of CEAM 2621, Sanitary Sewer and Storm Sewer Installation, which are modified and/or supplemented as follows:

**2506.2 (CEAM 2621.2) MATERIALS**

The provisions of CEAM 2621.2 are modified and/or supplemented with the following:

**B. Metal Sewer Castings**

Metal Sewer Castings shall conform to the Standard Detail Plates. All castings shall be Class 35B or better, in accordance with MnDOT 3321. The words "SANITARY SEWER" or "STORM SEWER" shall be cast on top of each manhole cover in 2 in letters as applicable.

Castings shall be Neenah or approved equal as listed below:

<u>Type</u>	<u>Diameter</u>	<u>Casting and Grate</u>
<b>Manhole</b>	27", solid	R-1733 (7 inch standard
<b>Manhole</b>	27", solid	R-1733-1 (4 inch, adjust MH, when approved by OWNER)
<b>Manhole</b>	27", grate	R-1733-Type C grate

<b>Catch Basin</b>	24" x 36"	R-3067-V
<b>Catch Basin</b>	24" x 36"	R-3290-A (in driveway)
<b>Stool Grate</b>		R-4342
<b>Beehive</b>		R-2561-A

Cast iron adjusting rings for manholes shall be in accordance with Mn/DOT Plate 4108F or Neenah R-1979.

### C. Precast Concrete Manhole and Catch Basin Sections

Adjusting rings for round structure openings and castings shall be high density polyethylene (HDPE) and shall be sealed with the product recommended by the manufacturer. Adjusting rings for rectangular and square structure openings and castings shall be reinforced concrete meeting MnDOT 3622 in 2", 4" or 6" ring thickness.

Manhole steps shall be ½ inch-diameter grade 60 steel reinforcing rod encapsulated in copolymer polypropylene, PS 1 or PS 1 PF as manufactured by M.A. Industries, or Engineer equal.

Delete CEAM 2621.2.C, Item 3 and replace with the following:

- (3) Sanitary sewer inlet and outlet pipes shall be joined to the manhole with a watertight joint consisting of a rubber boot with a non-magnetic, corrosion resistant steel coupling band or equal.

Add the following new item to CEAM 2621.2.C:

- (7) The base of sanitary manholes shall be cast integral with the bottom barrel section of the manholes unless noted otherwise.
- (8) Pipe connections for new and existing manholes shall be core-drilled and watertight. Connections will be with Press-Seal, KOR-N-SEAL, or Engineer approved equal.
- (9) Pipe connections to the manhole with an outside diameter of 21" or less shall be Kor-N-Seal or Engineer approved equal, with bands of 300 series nonmagnetic corrosion resistant steel. Connections to manholes with pipe diameter larger than 21 inches, the bell and spigot inlet and outlet shall be cast integral with the bottom section of the manhole.

Add the following new paragraph to CEAM 2621.2:

#### F. Inside Drop

Inside drops shall be IntraFlow low-profile drop system as manufactured by Royal Environmental Systems, Inc. or approved equal.

#### G. Chimney Seal

The adjusting rings and castings of each sanitary sewer and storm sewer manhole located within the project area shall be sealed with internal I & I barrier. Rectangular and square frame and ring castings shall have external chimney seal, Infi-Shield or approved equal, meeting the material and installation requirements of the manufacturer.

Strike Force Products I & I Barrier shall be used on all 27" diameter (round) castings. Use Infi-Shield or approved equal on all 24"x36" castings.

### 2506.3 (CEAM 2621.3) CONSTRUCTION REQUIREMENTS

The provisions of CEAM 2621.3 are modified and/or supplemented with the following:



## **B. Appurtenance Installations**

It is the Contractor's responsibility to verify the type and quantity of casting assemblies prior to ordering materials.

The final surface elevation of the frame or ring casting shall be ½ in below the adjacent pavement surface elevation and at-grade in turf areas unless noted otherwise.

Add the following new paragraph to CEAM 2621.3.B:

### **B.1 Chimney Seal**

All chimney seal installation shall be performed in accordance with the manufacturer's recommendations. The Contractor shall be required to perform the installation of the first chimney seal in the presence of the Engineer to verify that the installation is acceptable and in accordance with the manufacturer's recommendations.

## **D. Manhole and Catch Basin Structures**

For shallow structures, the Contractor may furnish precast structures with additional depth as necessary for pre-casting, not to exceed a maximum of 2 ft deeper than the plan design build. The additional depth of manhole shall be filled with concrete to match elevations of proposed pipe inverts.

Steps shall be aligned over the downstream side of the manhole and be:

- 1 in plus or minus horizontal alignment
- 1 in plus or minus vertical alignment with 16 in spacing

Catch basins under curb and gutter shall be installed to an alignment deviation of less than 0.20 ft with the top slab centered over the base. Deviations greater than 0.2 ft shall be corrected by the Contractor by moving the base to its proper location. All grade stakes involved must be saved by the Contractor. If a catch basin location must be adjusted and the grade stake shows the Contractor to be in error or the grade stake has been destroyed, the Contractor must make the correction at their expense.

All manholes must be protected or covered with plates, castings, or other approved materials at all times during construction to prevent sediment from entering the system. Sanitary manholes shall be covered to also prevent rainwater from entering the sanitary sewer system. This is included in the construction of the structure.

When installing a new structure within an existing pipe network, the Contractor shall verify the structure location, invert elevation and line of any existing opening to ensure the installation of the proposed sewer facility can be constructed according to the plan requirements. The Contractor shall immediately inform the Engineer of any deviation from the plan requirements necessitated by existing conditions. The Contractor shall ensure that upon completion of the connection that the area of the connection be watertight. The Contractor shall ensure smooth even flow from the newly connected pipe to the invert of the existing structure.

The Contractor shall not backfill adjusting rings until the Engineer observes and approves the installation.

### **2506.4 (CEAM 2621.4) METHOD OF MEASUREMENT**

The provisions of CEAM 2506.4 are modified and/or supplemented with the following:

Delete CEAM Paragraph 2621.4.B and replace with the following:

### **B. Manholes**

Manholes will be measured by length in accordance with MnDOT 2506.4.A unless noted otherwise. Where manholes are measured by length, the casting assembly will be measured separately by each, in accordance with MnDOT 2506.4.C

Delete CEAM Paragraph 2621.4.C and replace with the following:

### **C. Catch Basins**

Drainage structures of each design designation will be measured in accordance with MnDOT 2506.4.A unless noted otherwise.

In accordance with MnDOT 2506.4.C, where drainage structures are measured by length, the casting assembly will be measured separately by each. No separate measurement for casting assemblies will be made where drainage structures are measured as a unit.

### **H. Appurtenant Items**

Chimney seals shall be measured by the number of each chimney seal provided and installed.

Add the following new paragraph to CEAM 2621.4:

### **I. Adjust Frame and Ring Casting**

Measurement for adjustment of frame and ring castings shall be for existing castings that are adjusted in preparation for bituminous wear course placement or curb and gutter placement. Initial casting placement after base course construction, installation of new castings on catch basins or structures, or installation of any castings in areas outside of the bituminous roadway surface shall be considered included with the casting and/or manhole structure pay item.

## **2506.5 (CEAM 2621.5) BASIS OF PAYMENT**

The provisions of CEAM 2621.5 are modified and/or supplemented with the following:

Add the following new paragraphs to CEAM 2621.5:

### **A. Casting Assembly**

Payment for both sanitary sewer and storm sewer castings shall be made under the casting assembly pay item. This item shall include furnishing, installing, and adjusting each new casting assembly and be compensation in full for all materials, labor, and equipment required to set the furnished and install castings on new or existing structures to the required elevation for new pavement surface, including multiple adjustments to suit pavement lifts.

### **B. Chimney Seal**

The bid unit price for chimney seal by the each shall be compensation in full for all materials, labor and equipment necessary to perform the work.

### **C. Construct Sanitary Manhole**

The bid unit price for construct sanitary manhole by linear foot, shall be compensation in full for all materials, labor, equipment, casting adjustments, excavation, and backfilling necessary to construct the manhole, including integral base for outside drop manhole noted on the plans. A separate bid item shall be provided for the casting assembly.

The bid unit price for construct outside drop by linear foot, shall be compensation in full for all materials, labor, equipment, horseshoes, grout and piping as detailed, complete in place, measured from the invert of the drop elbow to the invert of the upper tee for each drop (manholes may have more than one outside drop).

The bid unit price for construct inside drop by linear foot, shall be compensation in full for all materials, labor, equipment, and piping as detailed, complete in place, measured from the invert of the upper tee to bottom invert of the inside drop pipe.

### **D. Construct Drainage Structure**

The bid unit price for construct drainage structure design special (2 ft x 3 ft) by each, shall be compensation in full for all materials, labor, equipment, casting, casting adjustments, base slab, excavation, and backfilling to install the catch basin. The casting assembly shall be considered included with the drainage structure.

The bid unit price for construct drainage structure by linear foot of each structure design and size, shall be compensation in full for all materials, labor, equipment, casting adjustments, base slab, excavation, and backfilling to install the drainage structure. A separate bid item shall be provided for the casting assembly.

No separate payment shall be made for connecting to a new drainage structure.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2506.502	CASTING ASSEMBLY	EACH
2506.502	ADJUST FRAME & RING CASTING	EACH
2506.503	CONST DRAINAGE STRUCTURE DESIGN SD-48	L F
2506.503	CONST DRAINAGE STRUCTURE DES 48-4020	L F
2506.602	CONST DRAINAGE STRUCTURE DESIGN SPEC (2'X3')	EACH
2506.602	CHIMNEY SEAL	EACH
2506.602	CASTING ASSEMBLY (SANITARY)	EACH
2506.602	RECONSTRUCT DRAINAGE STRUCTURE	EACH
2506.602	RECONSTRUCT MANHOLE (SANITARY)	EACH
2506.603	CONSTRUCT 48" DIA SAN MANHOLE	L F
2506.603	CONSTRUCT 8" OUTSIDE DROP	L F
2506.603	CONSTRUCT 8" INSIDE DROP	L F

## **2511 RIPRAP**

The provisions of MnDOT 2511 are modified and/or supplemented with the following:

### **2511.4 METHOD OF MEASUREMENT**

Delete MnDOT 2511.4.B and replace with the following:

#### **B. Filter Materials**

No separate measurement shall be made for filter material/geotextile fabric. Filter materials and geotextile fabric shall be considered included with the installation of the riprap.

### **2511.5 BASIS OF PAYMENT**

The bid unit price for riprap of each type and class includes the cost of providing the materials, excavating, and preparing the foundations, placing the riprap stone, and providing and placing the filter materials as required by the contract.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2511.507	RANDOM RIPRAP CLASS I	C Y
2511.507	RANDOM RIPRAP CLASS II	C Y
2511.507	RANDOM RIPRAP CLASS III	C Y

## 2521 WALKS

The provisions of MnDOT 2521 are modified and/or supplemented with the following:

### 2521.3 CONSTRUCTION REQUIREMENTS

Where private utilities are to be installed within the public right-of-way and drainage and utility easements, and are on the same side as the walk, the private utility work shall be coordinated with all applicable private utility companies such that all construction of private utilities will be completed prior to construction of the walk. The Contractor shall be responsible for coordination his/her schedule with the private utilities, Engineer, and Owner to ensure that the private utilities are constructed prior to the walk. The Contractor shall give a minimum of two weeks notification to private utilities for the estimated completion date of curb, gutter, grading, and erosion control stabilization. No additional compensation from the Owner shall be provided to the Contractor for any claims of crews being delayed because of scheduling issues with private utility companies resulting from inadequate notification of curb, gutter, grading, and erosion control completion dates.

### 2521.5 BASIS OF PAYMENT

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2521.518	4" CONCRETE WALK	S F
2521.518	6" CONCRETE WALK	S F

## 2531 CONCRETE CURBING

The provisions of MnDOT 2531 are modified and/or supplemented with the following:

### 2531.1 DESCRIPTION

This work also consists of furnishing and installing Truncated Dome Systems (detectable warning surfaces) at pedestrian curb ramps in compliance with the Public Rights-of-Way Accessibility Guidelines (PROWAG). Truncated domes shall provide a visual contrast to the concrete ramp of either dark on light or light on dark. This work shall be performed in accordance with the applicable MnDOT Standard Specifications, Special Provisions, and the details in the Plan.

### 2531.3 CONSTRUCTION REQUIREMENTS

All valley gutters shall be constructed with staged pours, in which half the width of the valley gutter is constructed at a time using a keyway to connect the two halves. This shall be done to maintain access to adjacent properties, with no additional compensation.

The letters "S" and "W" shall be stamped in the face of the curb directly over sewer and water crossings. Any sewer and water stamps missed during the installation of curb require the removal and replacement of curb.

#### C. Placing and Finishing Concrete

For concrete curb and gutter, including curb fill-ins, mechanical vibration of the concrete will be required to produce a smooth curb face.

#### D. Slipform Machine Placement

Where existing driveways are being protected, or do not need to be removed, the Contractor shall hand pour the concrete curb along these driveways. No additional compensation will be granted the Contractor for this work.

#### H. Backfill Construction

Backfilling of the curb and gutter shall be completed prior to bituminous surfacing of the roadway.

#### **I. Workmanship and Finish**

Unacceptable work shall be removed and replaced with acceptable work as ordered by the Engineer.

Add the following new paragraph to MnDOT 2531.3:

#### **J. Truncated Domes**

The Contractor, with approval of the Engineer, shall select a truncated dome product from the approved products list online at <http://www.dot.state.mn.us/products/detectablewarningsurfaces/detectablewarningsurfaces.html>. The truncated domes shall be placed in concrete and shall be pressed firmly into the concrete to the point that concrete fills the vent holes on the truncated dome plates. No cutting of truncated domes will be allowed unless approved by the Engineer. No more than one cut dome per pedestrian ramp is allowed and any cut sections used shall not be less than 2 sq. ft of surface area. All cut edges shall be ground to a smooth surface leaving no sharp edges or burrs. If using coated colored truncated domes, they shall not be cut. Any swelling of the concrete that occurs around the truncated domes must be screeded off and the surrounding concrete shall be finished flush with the truncated dome plate edge. The finished installation of the truncated domes plates and the ramp surface plan shall have no surface deviations over  $\frac{3}{16}$  in. To ensure that the truncated domes are well seated in concrete, the Contractor should provide a 3 in minimum border around the edges of the truncated domes.

The Contractor will be allowed to interchange 9 ft 5 in and 10 ft radial truncated domes when either is called for in the Plan. If the Contractor does make a substitution, the Contractor will be required to modify the curb line radius to match the truncated domes and meet the detectable edge requirements shown on MnDOT Standard Plan No. 5-297.250. The Contractor will be allowed to adjust plan locations of zero-height curb up to 6 in laterally to make field fit adjustments for radial truncated domes placement.

### **2531.4 METHOD OF MEASUREMENT**

#### **A. Length**

Concrete valley gutter shall be measured per linear foot installed as measured through the flow line. No separate measurement shall be taken for any apron space necessary to connect the valley gutter to the adjacent curb and gutter.

#### **B. Area**

Square or rectangular truncated dome area will be measured by square foot. Radial truncated domes will be measured along the long chord and multiplied by two feet to compute square footage.

### **2531.5 BASIS OF PAYMENT**

Payment for concrete curb and gutter shall be limited to 80 percent of the actual footage installed until all curbing has been backfilled and topsoil placed.

Aggregate base material required beneath concrete driveway pavement shall be considered included in the cost of the concrete driveway pavement.

Payment for truncated domes will be made at the bid unit price per square foot, which shall be compensation in full for furnishing and installing truncated domes. Where required, radial domes shall be allowed at no additional cost to the Owner.

The Contractor shall designate a responsible person (ADA Compliance Supervisor) in accordance with the requirements of Division 1 (1804) Prosecution of Work. No measurement will be made of the various duties of the ADA Compliance Supervisor, but all such work shall be construed to be included in the lump sum payment for ADA Compliance Supervisor, which shall be compensation for all included costs.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2531.503	CONCRETE CURB & GUTTER DESIGN _____	L F
2531.504	6" CONCRETE DRIVEWAY PAVEMENT	S Y
2531.601	ADA COMPLIANCE SUPERVISOR	LS
2531.603	CONCRETE CURB & GUTTER DES SURMOUNTABLE	L F
2531.603	CONCRETE RIBBON CURB	L F
2531.603	7" CONCRETE VALLEY GUTTER	L F
2531.618	TRUNCATED DOMES	S F

## **2540 MAIL BOX**

### **2540.1 DESCRIPTION**

The provisions herein shall be applicable to all labor, materials, and equipment associated with managing and maintaining mail service for the duration of the project as herein.

### **2540.2 MATERIALS**

When new mail boxes or standards are required, the design (size, color, material, etc.) of the mail box and standard shall be approved by the Owner prior to installation.

### **2540.3 CONSTRUCTION REQUIREMENTS**

The Contractor shall be required to carefully remove each existing mail box and standard as necessary for construction (including any attached distribution box and/or sign). The mail box and standard shall be delivered to the homeowner for storage during construction. During construction, the Contractor shall furnish temporary mail boxes for all residents at an accessible location for interim mail delivery as approved by the Postmaster. Each box shall be clearly labeled and mounted on a stable standard. Upon completion of construction, the Contractor shall be required to reinstall the original box and standard as directed by the Engineer.

Temporarily relocate the mail boxes in collaboration with the Engineer and the Post Office.

If the existing mail box or standard is in such a condition that removal and reinstallation is not feasible, the homeowner shall be provided a new mail box or standard for installation by the Contractor as directed by the Engineer. The Contractor may request to be relieved of their responsibility for reinstallation by the Engineer, and notification of such relief of responsibility shall only be granted in writing from the Engineer.

In rural areas when addresses are removed with mail boxes, or in any situation when temporary addresses are required, the Contractor shall provide reflective address labels visible for emergency vehicles.

If a concrete base existed prior to construction, a new concrete base shall be installed for the mail box support. The bid item for new mail box support shall include the placement of concrete at the support base.

### **2540.4 METHOD OF MEASUREMENT**

#### **A. Temporary Mail Box**

Measurement for temporary mail box shall be per each temporary mail box furnished and installed.

#### **B. Mail Box**

Measurement for mail box shall be per each new mail box furnished and installed, as directed by the Engineer.

### **C. Mail Box Support**

Measurement for mail box support shall be per each new mail box support furnished and installed, as directed by the Engineer.

#### **2540.5 BASIS OF PAYMENT**

Payment shall be at the bid unit price per each temporary mail box. This shall include the salvage of existing mail box and standard, coordination of temporary mail delivery with the Postmaster, reinstallation of salvaged mail box and standard, and removal of temporary mail boxes as specified.

Payment shall be at the bid unit price per each mail box. This shall include furnishing and installing a new mail box, as directed by the Engineer. Disposal of the existing mail box which was unsuitable for reinstallation shall be at the Contractor's expense.

Payment shall be at the bid unit price per each mail box support. This shall include furnishing and installing a new mail box support, as directed by the Engineer. Disposal of the existing mail box support which was unsuitable for reinstallation shall be at the Contractor's expense.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2540.602	TEMPORARY MAIL BOX	EACH
2540.602	MAIL BOX	EACH
2540.602	MAIL BOX SUPPORT	EACH

### **2557 FENCING**

The provisions of MnDOT 2557 are modified and/or supplemented with the following:

#### **2557.4 METHOD OF MEASUREMENT**

Add the following new paragraph to MnDOT 2557.4:

##### **F. Repair Dog Fence**

Measurement will be made of each underground fencing system (per parcel, lot or address) that is to be repaired. Additional compensation shall not be made for repairing the same underground fencing system on multiple occasions or at multiple locations on the same parcel, lot or address. If an underground fencing system is damaged causing the need for repair, repairs beyond the initial repair to that same system will be incidental. Use only an approved epoxy splice kit for underground wire repair. If damage occurs more than once along the property's street frontage, the entire front footage adjacent to the curb shall be replaced.

Compensation will not be made for damage to underground fencing systems that have been identified on the plans or in the field by the Engineer. It is the Contractor's responsibility to protect fencing systems previously identified at no additional compensation.

#### **2557.5 BASIS OF PAYMENT**

Add the following new paragraphs to MnDOT 2557.5:

##### **A. Repair Dog Fence**

Payment for Repair Dog Fence shall be compensation in full for all labor, materials, and equipment necessary to complete the specified work for the identified parcel, regardless of the number of locations or occasions that the identified system requires repair.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2557.602	REPAIR DOG FENCE	EACH

## **2563 TEMPORARY TRAFFIC MANAGEMENT**

### **2563.1 DESCRIPTION**

Furnish, install, maintain, and remove all traffic control devices required to provide safe movement of traffic and pedestrians through the Project at all times from commencement of the Work until project acceptance. Do not close streets or pedestrian facilities, except as authorized. The Engineer may modify the requirements for traffic control as deemed necessary.

All temporary traffic management must conform to and be installed in accordance with:

- the “Minnesota Manual on Uniform Traffic Control Devices” (MN MUTCD);
- the “Minnesota Temporary Traffic Control Field Manual” (Field Manual);
- the “Speed Limits in Work Zone Guidelines”;
- the “Minnesota Flagging Handbook”;
- the “MnDOT Standard Signs and Markings Manual”;
- the Plan;
- and all applicable standard specifications and special provisions.

Manuals listed above may be found at: <http://www.dot.state.mn.us/trafficeng/publ/index.html>.

### **2563.2 MATERIALS**

#### **A. Temporary Signs and Devices**

Reflectorize all signs, paddles, and other traffic control devices including those used for daytime operations. Fabricate temporary rigid signs and devices with retroreflective sheeting material of the appropriate color listed on the Approved/Qualified Products List (APL/QPL) for either “Sheeting for Rigid Temporary Work Zone Signs, Delineators, and Markers (Type IX and XI)” or “Sheeting for Rigid Permanent Signs, Delineators, and Markers (Type IX and XI)”. The sheeting materials APL/QPL is located at the following link: <http://www.dot.state.mn.us/products/signing/sheeting.html>.

In place signs that still apply during temporary operations need no change in sign sheeting.

#### **B. Vehicle Conspicuity Tape**

The Approved Products List for “Conspicuity Vehicle Sheeting (Type VII)” is found at <http://www.dot.state.mn.us/products/signing/sheeting.html>.

#### **C. Truck/Trailer Mounted Attenuators**

The Approved Products List for “Mobile Crash Attenuators” is found at: <http://www.dot.state.mn.us/products/temporarytrafficcontrol/mobilecrashattenuators.html>.

#### **D. Drum Sheeting**

On Projects requiring drums per MnDOT Standard Plate 8000 (Channelizers – Type B), provide all drums with six inch fluorescent orange and white sheeting material with no gap between sheeting layers.



## **E. Crashworthy Signs, Traffic Control Devices, and Ballast**

Signs and traffic control devices must meet the crash testing requirements of NCHRP 35 as specified in the MN MUTCD or the Manual for Assessing Safety Hardware (MASH). The Owner may require a letter of compliance stating that all signs and traffic control devices comply with NCHRP 350 or MASH requirements. The Letter of Compliance must include drawings of the different signs and devices along with a copy of their FHWA eligibility letter.

The approved ballast system for signs and devices mounted on temporary portable supports is sandbags, unless it is designated, and approved for the specific device. Add a deicer during freezing conditions to prevent the sand from freezing. Place sandbag at the base of the sign or traffic control device. Do not use any ballast that causes a sign or traffic control device to become hazardous to motorists or workers.

### **2563.3 CONSTRUCTION REQUIREMENTS**

#### **A. Traffic Control Plan, Maintenance, and Inspection**

Submit a proposed traffic control plan to the Engineer for acceptance, at least seven days before implementation. If Field Manual layouts are used, specify layout number(s) but do not submit the layouts from the Field Manual. Do not implement the proposed traffic control until accepted by the Engineer.

Immediately repair or replace all traffic control devices that become damaged, moved, or destroyed, and all ballasts that are damaged, destroyed, or otherwise fail to stabilize the device.

Meet the traffic control device quality standards as required in the Field Manual. Immediately replace unacceptable traffic control devices. Signs that are dirty and result in a noticeable loss of reflectivity at night are considered unacceptable and must be cleaned or replaced. Respond promptly to any call from the Engineer concerning the notification of unacceptable traffic control devices.

Provide the names, address, and phone numbers of at least two individuals responsible for placing and maintaining traffic control devices to the Engineer at the preconstruction conference. These individuals will be "on call" 24 hours per day, seven days per week during the times any temporary traffic control devices are in place.

Inspect all traffic control devices daily, including one nighttime inspection per week. Verify that the devices are placed in accordance with the Traffic Control Plan, these Special Provisions, and the MN MUTCD. Immediately correct discrepancies between the actual placement and the required placement. Respond immediately to any call from the Engineer concerning any request for improving or corrective traffic control devices.

#### **B. Traffic Control Signs and Devices**

The Engineer may require extra traffic control devices in addition to the traffic control devices shown on the Plan or in the Field Manual.

Roll-up signs are not allowed unless authorized by the Engineer.

Cover, modify, or remove all signs that are not consistent with traffic operations. Cover the entire sign or that part of the legend that is inappropriate. Sign covers must conform to the Typical Temporary Sign Covering Detail sheet found in the Plan or online:

<http://www.dot.state.mn.us/trafficeng/workzone/wz-templates/pdf/layout%2020A.pdf>

Maintain street identification signage at all times. Signs may be installed on temporary supports if the permanent sign structures are affected by operations. This is necessary to maintain the 911 emergency system.

Post mount all signs that will remain in the same location for more than 30 consecutive days as shown on the Typical Temporary Sign Framing and Installation Detail Sheet found in the Plan or online: <http://www.dot.state.mn.us/trafficeng/workzone/wz-templates/pdf/layout%2020.pdf>. This does not include portable signs which are set up and taken down at the beginning and end of each work shift.

When the proper location of a sign is on pavement, do not core through the surface. If there is a conflict with underground utilities, attempt to move the sign while maintaining its visibility to traffic. If it is not possible to drive posts into the ground, mount signs on portable supports as approved by the Engineer.

When signs are removed, the sign posts and stub posts must also be removed from the right-of-way. Posts left in place for future use or removal at a later date must be properly delineated with tubular markers, flags, or other delineation as approved by the Engineer at no additional cost.

All in place signs and delineators that interfere with the Contractor's normal operation may be temporarily relocated by the Contractor at the direction of the Engineer. Store salvaged signs in such a manner as to protect the sign from scratching, fading, or other harmful effects until the signs are reinstalled. After completing work at each sign location, or at the direction of the Engineer, replace the signs as near to their original location as possible or to a location designated by the Engineer. Reinstall sign structures according to the Type C & D Sign Structural Details Sheet online:  
<http://www.dot.state.mn.us/trafficeng/signing/plansheets/groundmounted.pdf>

Signs and structures damaged by the Contractor shall be replaced at the Contractor's Expense.

### **C. Traffic Safety**

Do not suspend material, equipment, tools or other personnel over lanes or pedestrian facilities open to traffic.

Protect traffic and pedestrians from excavations, drop-offs, falling objects, splatter or other potential construction hazards.

Do not store materials or equipment in the clear zone unless approved by the Engineer. If materials or equipment must be stored within the clear zone, provide Type channelizers, barricades or barriers, and place near the object to warn and protect traffic.

Do not park vehicles or construction equipment in the clear zone or any location that obstructs traffic control devices. Workers are not allowed to park their private vehicles within the Project limits unless approved by the Engineer.

### **D. High Visibility Apparel**

During night work or low light conditions, all workers must wear high visibility Class E long pants and retro-reflective headgear in addition to the ANSI Class 2 or 3 vest, shirt, or jacket.

All high visibility apparel must be worn in the manner for which it was designed. All apparel worn on the torso must be closed in the front to provide 360-degree visibility. A worker's high visibility apparel must be removed from service and replaced if it becomes faded, worn, torn, dirty, or defaced, reducing the conspicuity of the apparel.

### **E. Night Work**

Night work is not permitted on this project without prior approval of the Engineer.

### **F. Vehicle Warning Light Specification**

All vehicles and equipment operating within the right-of-way must have operable warning lights that meet the appropriate SAE specification. The SAE specification requirements are as follows:

- Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles – SAE Specification J845.
- Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles – SAE Specification J595.

Details regarding SAE Specifications can be found online:  
<http://www.dot.state.mn.us/const/wzs/lighting.html>.

## **G. Lane Closure Requirements**

Temporary lane closures or other traffic restrictions by the Contractor, during work hours and consistent with any time restrictions, will be permitted only during those hours and at those locations approved by the Engineer. Request temporary lane closures at least two business days prior to such closures.

Temporary lane closures will be permitted in accordance with the hours and number of lanes allowed as indicated in the Metro Lane Closure Manual; <http://www.dot.state.mn.us/metro/trafficeng/laneclosure/index.html>. Lane closures that cross segments as defined in the Manual shall follow the more restrictive limits.

Place traffic control devices in any temporary lane closure that is adjacent to traffic and extends beyond 1000 ft as shown on Layout 61 of the Field Manual. When the lane closure is in place three days or longer, use only Type III barricades.

Use Drum Channelizers in all lane closure tapers and in any shifts in traffic alignment.

Maintain a minimum of two miles between temporary lane closures.

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

## **H. Truck/Trailer Mounted Attenuators (TMAs) for Mobile/Short Duration Operations**

Truck/Trailer Mounted Attenuators (TMAs) must be used on all shadow and protection vehicles operating totally or partially in a traffic lane if any temporary traffic control zone is defined as "Mobile/Short Duration" by the Field Manual. All references to "should" in the Field Manual in regards to TMA use for Mobile/Short Duration layouts are hereby changed to "shall." This requirement applies to all operations utilizing Field Manual layouts 9, 12, 13, 36, 41, 49, 50, 51, 54, 55, 63, 76, 77, 78, and 79. Providing TMAs for "Mobile/Short Duration" work zones is incidental.

## **I. Flagging Operations**

Flaggers must attend a training session taught by a MnDOT-Qualified Flagger Trainer. The trainer must have completed a "MnDOT Flagger Train the Trainer Session" within the last five years and be on file as a qualified Trainer with MnDOT. Provide the Flagger Trainer's name and qualification number at the preconstruction meeting. Provide all flaggers with the MnDOT Flagging Handbook. Flaggers must be in possession of the handbook while flagging on the Project. Furnish the signed "Checklist for Flagger Training" or "Flagger Qualification Card" to the Engineer any time a new flagger reports to work on the Project. The "Checklist for Flagger Training" and other forms and information is available online: <http://www.dot.state.mn.us/const/szs/flagger.html>.

All signs associated with the flagging operation must be removed or covered when flagging operations are not present.

Coordinate the flagging operations in a manner that causes minimum delay to the traveling public.

The maximum delay time is **10 minutes**. If the operation exceeds the maximum delay time, the operation must be discontinued until a new traffic control plan is developed which meets the maximum delay requirement.

## **J. Milling, Sealcoating, and Paving Operations**

Traffic will be allowed on the milled surface.

When traffic is allowed to drive on the milled and newly paved surfaces, install interim striping and provide appropriate warning signs such as "GROOVED PAVEMENT" and "BUMP" with "Advisory Speed" plaques as shown on Layouts 35 and 66 of the Field Manual.

Taper and/or chamfer any drop-off where traffic will cross from or to the in-place surface, or from or to the milled surface, so as to provide the safe passage of traffic.

Schedule construction operations to minimize traffic exposure to uneven lanes, milled edges, and edge drop-offs. If these conditions cannot be avoided, provide and maintain the appropriate traffic control in accordance with the "DROP OFF GUIDELINES" in the Field Manual.

Do not mill any notches for surfacing tapers until immediately prior to paving. The Engineer may allow notches if temporary bituminous is installed and maintained to provide for the safe passage of traffic until the surfacing is completed. Constructing and milling tapes and/or chamfers is incidental.

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

Intersecting streets, other than intersections controlled by signals or all-way stop signs, may be closed during milling and paving operations in the intersection if there are adequate alternate routes for the intersecting street traffic. Do not close adjacent intersecting streets to traffic concurrently. Notify the local road authorities of the schedule to close intersecting streets 48 hours in advance of the closure.

When traffic is allowed to drive on the sealed surface, provide and install "LOOSE GRAVEL" and "FRESH OIL" signs with "Advisory Speed" plaques as shown on Layouts 35 and 66 of the Field Manual.

#### **K. Maintenance and Staging of Traffic Control**

Pedestrian traffic must be maintained and guided through, **or around**, the Project.

Submit plans for access to and from the project site for approval by the Engineer at least one week before implementation.

#### **2563.4 METHOD OF MEASUREMENT**

All traffic control required to complete the project as shown in the Plans and as specified will be made as a lump sum payment under item 2563.601 (Traffic Control). Payment includes all costs associated with furnishing, installing, maintaining, relocating and subsequently removing traffic control devices (including flaggers) as required. No additional measurement for payment will be made for individual activities and devices that constitute Traffic Control, except for other traffic control Bid items specifically listed on the Bid Form.

If the Contractor fails to properly provide, install, maintain, or remove any of the required traffic control devices, the Owner may correct the deficiency and deduct the costs from any moneys due or becoming due to the Contractor in accordance with the General Conditions.

#### **2563.5 BASIS OF PAYMENT**

Partial payments for lump sum item 2563.601 (Traffic Control) will be made as follows:

<b>Table 2563-1 Traffic Control Partial Payments</b>	
<b>Percent of Original Contract Completed</b>	<b>Pay this Percentage of Traffic Control</b>
5	50
10	75
50	95
All work completed and all traffic control removed	100

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2563.601	TRAFFIC CONTROL	LS

**2564 TRAFFIC SIGNS AND DEVICES**

The provisions of MnDOT 2564 are modified and/or supplemented with the following:

**2564.3 CONSTRUCTION REQUIREMENTS**

**A. General**

Unless designated otherwise, or directed by the Engineer, all existing sign panels salvaged and not designated to reinstall, shall be delivered to the Owner.

**2564.5 BASIS OF PAYMENT**

Add the following new paragraphs to MnDOT 2564.5:

**A. Sign Panel Type Special**

The bid unit price for each Sign Panel Type Special (street name sign) shall include the cost of providing and installing the sign panels, the sign post, brackets, and all mounting hardware necessary for sign panel attachment. Each installation of Sign Panel Type Special shall include two blades of each street name (four blades total.) Multiple sign panels may be installed on the same sign post as directed by the Engineer.

**B. Install Salvaged Sign**

The bid unit price for each salvaged sign to be reinstalled shall include the cost of re-installing the salvaged sign panels on a new sign post(s), using new brackets and mounting hardware. Multiple sign panels may be installed on the same sign post as directed by the Engineer.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2564.518	SIGN PANELS TYPE C	S F
2564.602	SIGN PANELS TYPE SPECIAL	EACH
2564.602	INSTALL SALVAGED SIGN	EACH

**2572 PROTECTION AND RESTORATION OF VEGETATION**

The provisions of MnDOT 2572 are modified and/or supplemented with the following:

**2572.3 CONSTRUCTION REQUIREMENTS**

**A. Protecting and Preserving**

Any trees or shrubs not designated for removal shall be fully protected by the Contractor during construction. Any trees or shrubs removed or damaged by the Contractor, which were not designated for removal, will be replaced at the Contractor's expense.

**2572.5 BASIS OF PAYMENT**

All work under this section shall be considered incidental to the contract with no additional compensation allowed unless provided for in the Bid Form.

**2573 STORM WATER MANAGEMENT**

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

### 2573.1 DESCRIPTION

The Contractor will be required to comply with NPDES General Storm Water Permit regulations and applicable Construction Storm Water Permit to prevent erodible materials from leaving the site, even if such permit is not required due to the project scope, size or location.

### 2573.2 MATERIALS

BMP devices shall be a MnDOT approved product. The Contractor shall verify with the Engineer prior to installation that the proposed BMP device is suitable for prevention of soil and sediment erosion in the field.

### 2573.3 CONSTRUCTION REQUIREMENTS

The Contractor shall be responsible for the maintenance of all-temporary erosion and sediment control measures. These measures shall be repaired, replaced, or supplemented as set forth in the NPDES General Storm Water Permit.

If the Contractor fails to provide maintenance of the temporary erosion and sediment control measures as set forth in the NPDES permit requirements, the Engineer shall have the authority under the terms of this contract to hire the work done and deduct the costs incurred from the amounts due to the Contractor.

The Contractor shall be assessed liquidated damages for each specified area for which the Contractor has not installed or repaired erosion and sediment control devices (including sod) within 48 hours after receiving written notice.

### 2573.5 BASIS OF PAYMENT

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2573.501	STABILIZED CONSTRUCTION EXIT	LS
2573.501	EROSION CONTROL SUPERVISOR	LS
2573.502	STORM DRAIN INLET PROTECTION	EACH
2573.502	CULVERT END CONTROLS	EACH
2573.503	SILT FENCE, TYPE ____	L F
2573.503	FLOTATION SILT CURTAIN TYPE _____ WATER	L F
2573.503	SEDIMENT CONTROL LOG TYPE _____	L F
2573.607	ROCK DITCH CHECK	C Y

## 2574 SOIL PREPARATION

The provisions of MnDOT 2574 are modified and/or supplemented with the following:

### 2574.3 CONSTRUCTION REQUIREMENTS

#### C. Topsoil

The topsoil shall be free from roots, stick, chunks of miscellaneous debris, rocks larger than 1 in, and garbage. Topsoil placement shall be approved by the Engineer prior to installation.

### 2574.4 METHOD OF MEASUREMENT

#### E. Topsoil Borrow

Topsoil borrow shall be imported only at the direction of the Engineer. Load tickets will be required for payment.

## 2574.5 BASIS OF PAYMENT

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2574.507	COMMON TOPSOIL BORROW	C Y
2574.507	BOULEVARD TOPSOIL BORROW	C Y
2574.507	ORGANIC TOPSOIL BORROW	C Y
2574.508	FERTILIZER TYPE _____	LB

## 2575 ESTABLISHING TURF AND CONTROLLING EROSION

The provisions of MnDOT 2575 are modified and/or supplemented with the following:

### 2575.1 DESCRIPTION

All disturbed areas within the project shall be either seeded or sodded to an equal or better condition to that which was in place prior to construction and as directed by the Engineer. All exposed areas of the site shall receive seed and mulch, sod or rolled erosion prevention product within two weeks after final grade on slopes flatter than 1(V):3(H) and one week on slopes steeper than 1(V):3(H). Restoration may include areas outside of the construction limits as determined by the Engineer. If bituminous base is placed, the final turf establishment shall be installed within two weeks of bituminous placement.

Failure to install final turf establishment within two weeks of the bituminous base being placed will result in penalty of \$100 per calendar day to be deducted from any monies due or coming due to the Contractor.

All areas adjacent to the roadway disturbed by construction shall be excavated to a depth as specified to allow for placement of topsoil. The Contractor shall import topsoil as necessary to provide for a minimum depth of topsoil specified. All rock, Class 5, debris, and excess concrete shall be removed from the area behind the curb to the satisfaction of the Engineer prior to the placement of topsoil. The Contractor shall cut a clean, square edge and install sod or seed in areas as directed by the Engineer.

Where boulevard sodding is identified by the plans, sod shall be placed in the boulevard area adjacent to curb and gutter installation/replacement. A minimum of 4 ft and maximum of 6 ft of sod shall be placed along curb unless the extended area is directed by the Engineer.

### 2575.2 MATERIALS

#### C. Sod

Sod shall meet the requirements of MnDOT 3878.2.D. The sod type shall be a Kentucky bluegrass blend, highland stock, densely rooted and locally grown.

#### G. Rolled Erosion Control Products

Rolled erosion control products shall contain natural netting unless otherwise indicated on the plans or specified herein.

### 2575.3 CONSTRUCTION REQUIREMENTS

#### A. General

Permanent turf establishment shall commence within seven days after finish grading has been completed, unless the NPDES permit requirements specify a more stringent timeline.

Delete MnDOT 2575.3.A.4 and replace with the following:

#### A.4 Substitutions

The Engineer may allow substitutions for the following materials: Plastic, Geotextile, Mulch, Rolled Erosion Prevention, and Hydraulic Erosion Control Products. The Engineer may authorize requested substitutions for specific locations shown in the plans. Provide substitutions equal to or better than initially specified material.

Delete MnDOT 2575.3.B.6 and replace with the following:

### **B.6 Permanent Seeding into Temporarily Mulched/Blanketed Areas**

Permanently seed areas previously temporarily mulched. Without performing additional tillage or site prep work, the Contractor may use an interseeding drill to drill seed directly into temporarily mulched or temporarily seeded areas. In lieu of using an interseeding drill, Contractor may lightly disk the mulched areas before seeding. Apply fertilizer within 24 hours before interseeding or light disking. Leave the existing cover in place to serve as mulch. Permanently seed into areas with Rolled Erosion Prevention Products using the hydro-seeding application as described in MnDOT 2575.3.B.4 but with the following modification. Hydro-seed into the installed Rolled Erosion Prevention Product with the nozzle 6 ft from installed surface cover, forcing the seed and water through the product.

Delete MnDOT 2575.3.C.3 and replace with the following:

### **C.3 Type 4 Mulch**

Apply Type 4 mulch as a dual operation with the Type 1 mulch blown on the soil surface at 1½ ton per acre and immediately overspray with Hydraulic Stabilized Fiber Matrix per MnDOT 3884 at 750 lb per acre.

### **H. Placing Sod**

In areas where there will be sidewalk construction, a bio-roll may be placed behind the back of curb until the sidewalk work is completed. The entire boulevard area must receive sod within two weeks following sidewalk construction. No additional compensation will be allowed for the additional mobilization required to complete the work as specified.

While laying or immediately after completing the sod placement on each area, the sod shall be watered and compressed into the underlying soil by rolling or tamping in the presence of the Engineer. If, after rolling, the surface of the sod is not free of bumps or depressions, the Contractor shall make suitable corrections to the topsoil and/or subgrade, replace the sod and roll the sod at no additional cost to the Owner. New sod shall be level with existing adjacent sod and the thatch or base soil shall be approximately one inch below the top of adjacent curb, gravel shoulder, or sidewalk. The Engineer reserves the right to have sod re-laid in areas where this specification is not met without any cost to the Owner.

Leftover sod and topsoil material shall be removed from the street immediately after installation.

Delete MnDOT 2575.3.G in its entirety and replace with the following:

### **G. Placing Rolled Erosion Control Products**

For products without a Plan defined Detail Sheet, submit Manufacturer's Recommendations of Installation prior to any changes proposed by the Contractor.

#### **G.1 Blank**

#### **G.2 Temporary Rolled Erosion Prevention Products**

##### **G.2.a Straw and Wood Fiber Based Products**

Prepare the soil according to MnDOT 2574. Place the Rolled Erosion Prevention Products within 24 hours after sowing the seed on that area. Products with netting on two sides, place the side with the majority of thread stitching on the bottom. Roll out Rolled Erosion Prevention Product without stretching, allowing the fibers to come in direct contact with the soil over the entire area. Shingle and overlap the



edges parallel to water flow by at least 4 in. Shingle and overlap the edges perpendicular to water flow by at least 7 in. Anchor overlaps on slopes at 1½ ft intervals and elsewhere using types and depths defined in Tables 3885-1 and 3885-2.

At the tops of slopes and at the beginning of each Rolled Erosion Prevention Product in ditch bottoms, bury the upgrade end of the blanket in a check slot 6 in wide by 6 in deep. Insert the product end to the full depth of the check slot. Backfill and compact the check slot. For slopes longer than 100 ft, dig a second check slot perpendicular to the slope gradient one-third of the slope length measured from the bottom of the slope. Place the Rolled Erosion Prevention Product to the full depth of the check slot. Backfill, and compact the check slot. Anchor Rolled Erosion Prevention Product using types and depths defined in Tables 3885-1 and 3885-2 with the number of staples according to Table 2575-2 or manufacturer recommendations:

<b>Table 2575-2 Stapling of Blankets</b>	
<b>Slope (V:H)</b>	<b>Minimum Number of Staples per 100 S Y</b>
Flatter than 1:2	120
1:2 – 1:1	170
Channel or ditch applications	350

**G.2.b Extended Duration Open Weave Textile Products**

Place the Rolled Erosion Prevention Products concurrent with sowing of specified seed on that area. Provide overlap and anchor systems for Open Weave Textile Products as shown in the Plans, or according to manufacturer’s recommendations.

**G.2.c Winter Installation**

Install Rolled Erosion Prevention Products over frozen ground and use anchors as shown in Table 3885-1 or 3885-2 for winter utilization.

**G.3 Permanent Rolled Erosion Prevention Products**

Shape and prepare the site according to MnDOT 2574. Provide Permanent Rolled Erosion Prevention Products meeting the requirements of the Categories as shown on the Plans.

**G.3.a Surface Applied Products**

Seed and install per MnDOT 2573.G.2, but with overlaps, shingling, and trenching according to manufacturer’s recommendations. Provide anchor type and depth shown in Table 3885-4. Fill voids in product and cover product surface using MnDOT 3884.3.B.5, “Reinforced Fiber Matrix (RFM),” at the rate defined by the manufacturer.

For steep slopes, 1(V):2(H) or greater, hydraulically fill the cells of the product with a blend of seed, fertilizer, and Reinforced Fiber Matrix (RFM) at a rate of 3,900 lb per acre or to completely fill the product surface and void spaces below.

**G.3.b Soil Filled Products**

Place the seed at the full seeding rater, half of the fertilizer, and soil/organic amendments. Install the Rolled Erosion Prevention Product immediately afterward. Roll out or lay the product parallel to the direction of water flow. Evenly spread the product without stretching, allowing the synthetic fibers to come in direct contact with the soil over the entire area. Do not allow any voids to remain between the product and the soil surface. Bury and anchor the beginning edge of each product in a check slot 6 in wide by 6 in deep. Overlap adjacent strip edges by at least 4 in. Provide anchor type and depth shown in Table 3886-6 and install to provide 3.5 anchors per sq. yd or to manufacturer’s recommendations, whichever is greater.

Fill the surface of the installed product using one of the following methods:

- 1) Soil-filled: Spread Sandy Clay Loam Topsoil per MnDOT 3887 on top of the installed product at a targeted rate of 135 cu. yd per acre. Apply additional seed at the full seeding rate and the other half of the fertilizer on top of the soil.
- 2) Compost-filled: Spread Grade 2 Compost per MnDOT 3890 on top of the installed product at a targeted rate of 135 cu. yd per acre. Apply additional seed at the full seeding rate and the other half of the fertilizer on top of the compost.
- 3) Organic Fiber Matrix-filled: Blend additional seed at the full seeding rate and the other half of the fertilizer with MnDOT 3884.2.B.1, "Organic Fiber Matrix (OFM)," in the hydroseeder. Do not allow the seed to remain in the hydroseeder tank mixture for more than one hour. Hydraulically apply the mixture on top of the installed product at a targeted dry weight rate of 4,000 lb Organic Fiber Matrix (OFM) per acre.

Adjust actual application rate of soil, compost, or Organic Fiber Matrix as needed to achieve a layer ½ in to 1 in deep and to ensure all voids on the product surface are covered and the high points of the product surface are barely visible. Use only rubber-tired equipment if equipment must operate on the product. Do not allow tracked equipment or sharp turns on the product.

Install Temporary Rolled Erosion Prevention Product Category 35 per MnDOT 2575.3.G.2 on top of the seeded topsoil, compost, or organic fiber matrix.

#### **G.4 Blank**

#### **G.5 Placing Permanent Ultra High Performance Products**

##### **G.5.a Category 80**

Shape and prepare the site according to MnDOT 2574, "Soil Preparation," or as shown in the plan. Prepare, shape and smooth the subgrade and ensure soils are free of all rocks, stones, sticks, roots, other protrusions, or debris of any kind. The prepared smooth surface shall provide a firm unyielding foundation for the product with no sharp or abrupt changes or breaks in the grade, and contain the water flow profile. For Category 80A only, apply seed directly to the prepared soil prior to installation of the product. Furnish and install products at the locations and to the line and grade specified on the plans. Follow the standard specifications, Table 3885-6, and manufacturer's directions for installation, including head and side trenching, shingle overlap, and anchor spacing.

##### **G.5.b Category 90**

Provide product at the thickness shown in the plans. Shape and prepare soil appropriate to the intended use. Unless otherwise specified, bury the upgrade end and sides of the product in a check slot 6 in wide by 6 in deep. Install anchoring and fastening pins following the manufacturer's recommendations. Overlap all edges by at least 4 in and secure with anchoring or fastening pins. Apply a bonding seal agent to the seams for a water tight seal. Apply sufficient water to allow proper saturation and hydration and setting of mats and cover as per manufacturer recommendations. Apply additional water one hour later on fabrics thicker than 0.5 in, ditch grades greater than 2 percent, slopes greater than 1(V):3(H), and temperatures greater than 80°F to complete the hydration process. Product has a working time of between one and two hours after hydration.

#### **G.6 Blank**

Delete MnDOT 2575.3.K.2 and replace with the following:

#### **K.2 Rolled Erosion Prevention Products**

Maintain the product installation for 45 calendar days if required by the contract or if substituting product and seed for sod, as approved by the Engineer. Water the blankets and mat systems immediately after placement at a metered application rate of at least 3,000 gal per acre and thereafter as needed to furnish appropriate vegetation. Control erosion and establish a permanent vegetative cover as approved by the Engineer until contract acceptance. Restore areas with seeding failure or erosion during the maintenance period at no additional cost to the Owner.

### K.3 Seed

The Contractor shall be responsible for maintaining seeded areas until accepted by the Owner and the requirements of MnDOT 2575.3.L are met. The Contractor shall be solely responsible for replacement and/or repair of any seeded areas that may wash out, erode, or fail to grow prior to acceptance with no additional compensation therefore.

Delete MnDOT 2575.3.L in its entirety and replace with the following:

#### L. Turf Establishment

Turf Establishment by a lump sum is for establishing permanent vegetation on small areas of 2½ acre or less per Contract. Such work shall include soil bed preparation, fertilizer, sod or mulch, rolled erosion prevention products, seed and repair of erosion rills of 3 in or greater in width or depth.

Unless otherwise shown on the plans, establish vegetative cover by sodding or by seeding and mulching. Fertilize the areas with a Type 3, slow release fertilizer in accordance with MnDOT 3881.2.B.3 at a rate derived from a topsoil fertility test. If seeding, provide and place seed Mixture 25-141 as specified in MnDOT 3876, and provide MnDOT 3882 Type 3 mulch with disc anchoring or Rolled Erosion Prevention Product Category 25 on slopes 1(V):3(H) and steeper, and ditch bottoms.

The Engineer will accept the area after the perennial seed germinates, vegetation is at least 4 in high, and cover is uniform. If the seeding fails to germinate, correct and reseed failed areas to establish turf. If using sod, place and maintain sod in accordance with MnDOT 2575.3.F and MnDOT 2575.3.K. The Engineer will accept sod in accordance with MnDOT 2575.3.N.

#### L.1 Subsurface Drain Outlets

As per MnDOT 2502, place seed Mixture 25-141 in accordance with MnDOT 3876 or the seed mixture as shown in the Plans. Place Rolled Erosion Prevention Product Category 25 or as shown in the Plans, for that area. Center the headwall along the width of the temporary product. Extend the temporary product 3 ft above the headwall, and 6½ ft below the headwall or to the toe of slope, whichever is the shorter distance. Place product anchors at intervals no greater than 1½ ft apart of the type and depth defined in Table 3885-2. If placing a headwall at a location that will be sodded as required by the contract, delete the seed and Rolled Erosion Prevention product.

Delete the first paragraph of MnDOT 2575.3.M and Table 2575-3 and replace with the following:

#### M. Rapid Stabilization

Perform rapid stabilization at any time when work is stopped temporarily and there is a risk that sediment will enter the resource waters due to stormwater runoff. Provide the materials of rapid stabilization in accordance with Table 2575-3:

Table 2575-3 Rapid Stabilization	
Method	Materials
1	Type 1 mulch placed at a rate of 2 ton per acre with disk anchoring.
2	Type 3 mulch placed at a rate of 1.5 ton per acre. 3884 Stabilized Fiber Matrix, placed at a rate of 750 lb per acre.
3	3884 Stabilized Fiber Matrix, placed at 350 lb per 1,000 gal of slurry mix. Seed Mixture 22-111 placed at a rate of 10 lb per 1,000 gal of slurry mix. Type 3 Slow Release Fertilizer 10-10-10 placed at a rate of 50 lb per 1,000 gal of slurry mix. Water placed at a rate of 875 gal per 1,000 gal of slurry mix. Apply mixture at a rate of 6,000 gal per acre.
4	Rolled Erosion Prevention Product, Category 25 (natural net). Seed Mixture 22-11 placed at a rate of 2 lb per 100 sq. yd. Type 3 Slow Release Fertilizer 10-10-10 placed at a rate of 8 lb per 100 sq. yd.
5	Rip Rap Class II. Geotextile Type III.

Delete MnDOT 2575.3.M.1.d and replace with the following:

**M.1.d Method 4**

Use Method 4 to place fertilizer, seed, and Rolled Erosion Prevention Product on a coverage area from 100 sq. yd to 1,000 sq. yd. Bury the upgrade end of each blanket strip at least 6 in deep in a vertical check slot. Place anchors at seams and throughout the blanket spaced no greater than 2 ft apart, following type and depth defined in Table 3885-2.

Delete MnDOT 2575.3.N.4 and replace with the following:

**N.4 Rolled Erosion Prevention Products**

Maintenance shall be required, unless indicated otherwise.

Delete MnDOT 2575.3.O and replace with the following:

**O. Restoration**

After the Engineer accepts the turf establishment in an area, restore areas damaged by erosion and sedimentation beyond the Contractor's control as directed by the Engineer. Scarify, grade, shape, excavate, and till to restore eroded areas and clean up sedimentation as directed by the Engineer. Shape, fill, and compact depressions and washouts resulting from erosion with suitable topsoil borrow meeting MnDOT 3877 as approved by the Engineer. Remove deposited sedimentation as directed by the Engineer. Spread or dispose of sediment removal as approved by the Engineer. Use seed, mulch, rolled erosion prevention products, and sod in the restoration as approved by the Engineer.

Add the following new paragraph to MnDOT 2575.3:

**R. Water (Turf Establishment)**

Watering will become the responsibility of the homeowner only after the maintenance period (in accordance with MnDOT 2575.3.K) has expired AND final acceptance of the turf (in accordance with MnDOT 2575.3.N) has been obtained.

The Engineer may direct the Contractor to water portions of the project after final acceptance of the turf at the bid unit price. When so directed, the Contractor shall be responsible for notifying the Engineer, and keeping a log of watering hours and meter readings when they are on the project watering the turf establishment area.

For sod placed late enough in the season such that watering cannot be completed in the Phase year, the Engineering and the Contractor shall agree on a date as to when watering operations will cease in a specific Phase year, and again when they will resume in year following the Phase year, such that all sod placed in conjunction with the project will be watered for the required maintenance period.

**2575.4 METHOD OF MEASUREMENT**

Delete MnDOT 2575.4.I and replace with the following:

**I. Rolled Erosion Prevention Products**

Measure each Category separately by the area covered. Do not include those portions buried in trenches or covered by required overlaps along seams. For Blanket Checks installed according to MnDOT Standard Plan 5-297-404, add an additional 4 ft of length, multiply by the width, and convert to square yards of blanket for each blanket check installed.

Measure the seed and fertilizer separately. Measure any soil or soil amendments installed before placement of Rolled Erosion Prevention Products separately. Any soil, compost, or Organic Fiber Matrix applied on top of Soil Filled Products is incidental.

Measure Category 90 by the surface area covered and cured in place.

## **J. Rapid Stabilization**

Delete the third paragraph of MnDOT 2575.4.J and replace with the following:

Measure Method 4 rapid stabilization by the square yard of Rolled Erosion Prevention Product acceptably installed. Minimum measure is 100 sq. yd and in 25 sq. yd increments per area measured.

Delete MnDOT 2575.4.L in its entirety.

Delete MnDOT 2575.4.M in its entirety.

## **2575.5 BASIS OF PAYMENT**

Add the following new paragraph to MnDOT 2575.5:

### **M. Water (Turf Establishment)**

Payment at the bid unit price per MGal shall be compensation in full for all mobilizations, water, labor, and equipment necessary to complete the work. Watering shall be considered incidental throughout the maintenance period but will be paid for at the bid unit price during the turf establishment period at the rates specified.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2575.504	SODDING TYPE MINERAL	S Y
2574.504	ROLLED EROSION PREVENTION PRODUCT, CAT. ___	S Y
2575.504	RAPID STABILIZATION METHOD 4	S Y
2575.505	DISK ANCHORING	ACRE
2575.505	SEEDING	ACRE
2575.508	SEED MIXTURE XX-XXX	LB
2575.509	MULCH MATERIAL TYPE 1	TON
2575.523	WATER	MGAL
2575.523	RAPID STABILIZATION METHOD 3	MGAL

## **2582 PAVEMENT MARKINGS**

The provisions of MnDOT 2582 are modified and/or supplemented with the following:

### **2582.1 DESCRIPTION**

The Contractor shall be responsible for the layout of all temporary and permanent pavement markings (striping). The Owner will check and approve layout before application of pavement markings is allowed.

All striping shall be completed within 48 hours after placement of the final lift.

### **2582.2 MATERIALS**

For pavement marking installations between the dates of October 15 and April 15, provide and use pavement marking materials listed on the Late Season pavement marking materials Approved/Qualified Products List.

### **2582.3 CONSTRUCTION REQUIREMENTS**

#### **B. Application**

The Engineer's involvement in the application of the material shall be limited to field consultation and inspection. The Contractor will place necessary 'spotting' at appropriate points to provide horizontal control for striping and to determine necessary starting and cutoff points. Longitudinal joints, pavement edges and existing marking may serve as horizontal control when so directed.

### 2582.5 BASIS OF PAYMENT

Layout is incidental with no additional compensation allowed therefore.

Payment will be made based on the following schedule:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
2582.503	___" SOLID LINE PAINT	L F
2582.503	4" BROKEN LINE PAINT	L F
2582.503	4" DBLE SOLID LINE PAINT	L F
2582.503	___" SOLID LINE MULTI COMP	L F
2582.503	4" BROKEN LINE MULTI COMP	L F
2582.503	4" DBLE SOLID LINE MULTI COMP	L F
2582.518	PAVT MSSG PAINT	S F
2582.518	PAVT MSSG MULTI COMP	S F
2582.518	CROSSWALK PAINT	S F
2582.518	CROSSWALK MULTI COMP	S F

### 3137 COARSE AGGREGATE FOR PORTLAND CEMENT CONCRETE

The provisions of MnDOT 3137 are modified and/or supplemented with the following:

Delete MnDOT 3137.2.D and replace with the following:

#### D. Quality

Provide coarse aggregate in accordance with 3137.2.D.1, 3137.2.D.2 and 3137.2.D.3 and the following:

For fractions greater than or equal to 1 in, base quality requirements on the individual result.

For fractions that have 100 percent passing the 1 in sieve:

- (1) When using a single aggregate, base quality requirements on the individual result.
- (2) When proportioning aggregates, base quality requirements on the composite result. Prior to proportioning, each individual fraction must meet the requirements of 3137.2.D.1.
  - If proportioning for 3137.2.D.2, each individual fraction must also meet 3137.2.D.2(g) and 3137.2.D.2(i).
  - If proportioning for 3137.2.D.3, each individual fraction must also meet 3137.2.D.3.(a) and 3137.2.D.3(b) modified to a maximum percent carbonate by weight of 35 percent.

The Concrete Engineer may reject the proposed aggregate proportions if the composite result is of borderline quality in accordance with the General Requirements.

Refer to Tables 2461-5, 2461-7 and 2462-6 to determine the coarse aggregate quality specification for the intended use.

**E. Gradation**

Delete MnDOT Table 3137-4 and replace with the following:

<b>Table 3137-4</b>					
<b>Coarse Aggregate Designation for Concrete</b>					
<i>percent by weight passing square opening sieves</i>					
	<b>Coarse Aggregate Designation</b>				
	<b>2</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>8</b>
<b>Sieve Sizes</b>	<b>ASTM #67*</b>	<b>ASTM #7*</b>	<b>ASTM #89</b>	<b>CA-70</b>	<b>CA-80</b>
<b>2 in</b>	-	-	-	-	-
<b>1 ½ in</b>	-	-	-	-	-
<b>1 in</b>	100	-	-	-	-
<b>¾ in</b>	90 – 100	100	-	-	-
<b>5/8 in</b>	-	-	-	100	-
<b>½ in</b>	-	90 – 100	100	85 – 100	-
<b>3/8 in</b>	20 – 55	40 – 70	90 – 100	50 – 100	100
<b>No. 4</b>	0 – 10	0 – 15	20 – 55	0 – 25	55 – 95
<b>No. 8</b>	-	-	5 – 30	-	-
<b>No. 16</b>	-	-	0 – 10	-	-
<b>No. 50</b>	-	-	0 – 5	-	0 – 5

\* ASTM #67 and ASTM #7 Gradations are MnDOT Modified.

**3885 ROLLED EROSION PREVENTION PRODUCTS**

MnDOT 3885 is deleted in its entirety and replaced with the following:

**3885 ROLLED EROSION PREVENTION PRODUCTS**

**3885.1 SCOPE**

Provide erosion prevention blankets, turf reinforcement mats, and other products to prevent erosion, stabilize soils, reinforce vegetation, and aid in the establishment of vegetation, where applicable. Ensure that net openings are small enough to retain uniformly distributed fill material but large enough to allow seedling emergence and reduce animal entanglement.

**3885.2 REQUIREMENTS**

**A. Temporary Erosion Prevention Blanket**

Use only natural fibers in the manufacture of netting and fill material for temporary products. Provide blankets that conform to the general requirements listed in Tables 3885-1, 3885-2, and 3885-3.

<b>Table 3885-1 Temporary, Straw-based Products</b>				
<b>Criteria</b>	<b>ASTM Number</b>	<b>Category 10</b>	<b>Category 20</b>	<b>Category 30</b>
Net Number (upper/lower)		1	2	2
Fiber Fill Material		100% Straw	100% Straw	70% Straw, 30% Coconut/hemp
Mass* (lb per sq. yd) minimum	D6475	0.43	0.43	0.42
Fiber Length (in), 80% greater than		3	3	3
Functional Longevity, 75% remaining (months)		3	4.5	9
Target Service Life (months)		4	9	12
Permissible shear (psf), unvegetated	D6460	1.50	1.75	2.00
Flow (fts) probable maximum	D6460	4.5	6	8
MD Tensile Strength (lb/ft), minimum	D6818	130	170	200
TD Tensile Strength (lb/ft), minimum	D6818	80	130	150
Permissible anchor Type		Wood or plant based plastic barbed, glue (ASTM D5338), U or round head metal, 11-13 ga.	U or round head metal, 11-13 ga., Washer/60D (6 in) Nail**	Helical twist pin, Washer/60D (6 in) Nail**
Minimum anchor embedment length (in)		4	6	8
* Dry mass at time of manufacture following ASTM protocols				
** Winter Utilization				



**Table 3885-2  
Temporary, Wood Fiber Based Products**

<b>Criteria</b>	<b>ASTM Number</b>	<b>Category 15</b>	<b>Category 25</b>	<b>Category 35</b>	<b>Category 45</b>
Net Number (upper/lower)		Netless	2	2	2
Fiber Fill Material		100% Cellulose, Agricultural products, hemp, wood	100% Wood <sup>A</sup> Fiber	100% Wood <sup>A</sup> Fiber	100% Wood <sup>A</sup> Fiber
Mass* (lb per sq. yd) minimum	D6475	0.40	0.57	0.76	1.25
Fiber Length (in), 80% greater than		Varies, 0.5 to 6	6	6	6
Functional Longevity, 75% remaining (months)		1.5	6	12	24
Target Service Life (months)		43	12	24	36
Permissible shear (psf), unvegetated	D6460	1.00	2.10	2.50	3.25
Flow (ft/s) probable maximum	D6460	2	7	8	11
MD Tensile Strength (lb/ft), min	D6818	4	170	220	280
TD Tensile Strength (lb/ft), min	D6818	4	130	150	200
Permissible anchor Type		Wood or plant based plastic barbed, glue (ASTM D5338), U or round head metal, 11-13 ga.	U or round head metal, 11-13 ga., Washer/60D (6 in) Nail**	Helical twist pin, Washer/60D (6 in) Nail**	Helical twist pin, Washer/60D (6 in) Nail**
Minimum anchor embedment length (in)		4	6	8	10

\* Dry mass at time of manufacture following ASTM protocols

\*\* Winter Utilization

<sup>A</sup> Derived from hardwood (Aspen spp.) or softwoods (pine)

<b>Table 3885-3</b>				
<b>Temporary, Extended Duration Open Weave Textile Based Products**</b>				
<b>Criteria</b>	<b>ASTM Number</b>	<b>Category 37</b>	<b>Category 47</b>	<b>Category 57</b>
Textile Fiber Material		100% Coir or Hemp Fiber	100% Coir or Hemp Fiber	100% Coir or Hemp Fiber
Mass* (lb per sq. yd) minimum	D5261	0.75	1.2	1.7
Water Absorbency, %, minimum	D1117	160	165	130
Light Penetration, %, minimum	D6567	38	35	18
Open Area, %, minimum	Calculated	60	40	35
Functional Longevity, 75% remaining (months)	Reported	36	36	48
Target Service Life (months)	Reported	60	72	72
Permissible shear (psf), unvegetated	D6460	3	4.5	5
Flow (ft/s) probable maximum, unwegetated	D6460	8	11	16
Tensile Strength, Dry (lb/ft), minimum, MDxTD	D6818	500x480	1200x900	1600x1100
Tensile Strength, Wet (lb/ft), minimum, MDxTD	D6818	450x360	920x680	1200x930
Elongation at Failure, % maximum, MDxTD	D6818	36x32	45x40	50x40
* Dry mass at time of manufacture following ASTM protocols				
** Anchoring to be done according to manufacture recommendations				

## **B. Permanent Products**

Provide turf reinforcement mats and other permanent products that conform to the general requirements listed in Tables 3885-4, 3885-5, and 3885-6.

<b>Table 3885-4 Permanent, Synthetic Based, Surface Applied Products</b>				
<b>Criteria</b>	<b>ASTM Number</b>	<b>Category 50</b>	<b>Category 55</b>	<b>Category 60</b>
Net Number (upper/lower)		Stitched 2 or 3 layer, synthetic	Stitched 2 or 3 layer, synthetic	Stitched or Bonded 2 or 3 layer, synthetic
Fiber Fill Material		Bio-composite of natural agricultural products, HECF- RFM, coconut, hemp, and synthetic elements	Wood <sup>A</sup> Fiber	Synthetic elements
Mass* (lb per sq. yd) minimum	D6475	0.64	0.75	0.5
Fiber Length (in), 80% greater than		3	6	DNA
Functional Longevity, 75% remaining (months)		12 biological > 36 synthetic	24 biological > 36 synthetic	> 36
Target Service Life (months)		> 36	> 36	> 36
Permissible shear (psf), unvegetated	D6460	3.00	3.25	2.50
Flow (ft/s) probable maximum	D6460	10	11	6
MD Tensile Strength (lb/ft), minimum	D6818	370	800	290
TD Tensile Strength (lb/ft), minimum	D6818	180	800	190
Permissible anchor Type		Helical twist, Hooked #3 rebar, or cable	Helical twist, Hooked #3 rebar, or cable	Helical twist, Hooked #3 rebar, or cable
Minimum anchor embedment length (in)		12	12	12
* Dry mass at time of manufacture following ASTM protocols				
<sup>A</sup> Derived from Hardwoods (Aspen spp.) or softwoods (pine)				

**Table 3885-5  
Permanent, Synthetic Based, Soil or Organic Fiber Media Filled Products**

<b>Criteria</b>	<b>ASTM Number</b>	<b>Category 70</b>	<b>Category 72</b>	<b>Category 74</b>	<b>Category 76</b>
Net Number*		TRM	TRM	TRM	TRM
Fill Material 3877.2.C, 'Sandy Clay Loam Topsoil Borrow'		0.5 in. Topsoil	0.5 in. Topsoil	0.5 in. Topsoil	0.5 in. Topsoil
Mass* (lb per sq. yd) minimum	D6475	0.40	0.57	0.76	1.25
Fiber Length (in), 80% greater than		Varies, 0.5 to 6	6	6	6
Functional Longevity, 75% remaining (months)		1.5	6	12	24
Target Service Life (months)	D4355	Permanent	Permanent	Permanent	Permanent
Permissible shear (psf), unvegetated	D6460	4.00	6.00	8.00	10.00
Flow (ft/s) probable maximum	D6460	10	12	14	16
MD Tensile Strength (lb/ft), minimum	D6818	150	240	1400	3000
TD Tensile Strength (lbs/ft), min	D6818	130	200	1100	3000
Permissible anchor Type		Helical twist metal hooks, Hooked #4 rebar, tension cable	Helical twist metal hooks, Hooked #4 rebar, tension cable	Tension cable per manufacturer specification	Tension cable per manufacturer specification
Minimum anchor embedment length (in)		18	18	18	18
* Provide mats with cells at least 3/8 – 3/4 in. in depth to allow soil filling and retention, composed of nylon, polypropylene, polyolefin, polyester, or rust inhibited metal					

Table 3885-6 Permanent, Ultra High Performance Products			
Criteria	ASTM Number	Category 80	Category 90
Net Number (upper/lower)		Multilayered, Bonded Geogrid <sup>1</sup>	Bonded synthetic layer
Fiber Fill Material		Concrete <sup>2</sup> units (D6684), with bottom attached <sup>A</sup> (80A) Category 25 with Category 60, or (80B) 3733 Geotextile Type 5	Concrete Polymer <sup>3</sup> 90A 0.20 inch 90B 0.30 inch 90C 0.50 inch
Topsoil infilling, 3877.2.C, 'Sandy Clay Loam Topsoil Borrow'		Yes	No
Mass* (lb per sq. yd) minimum	D6475	0.64	0.5
Fiber Length (in), 80% greater than		Varies based on subcategory	DNA
Functional Longevity, 100% remaining (months)	D4355	> 36	> 36
Target Service Life (months)	D4355	> 36	> 36
Permissible shear (psf), unvegetated	D6459/6460	24	25
Flow (ft/s) probable maximum	D6460	30	35
MD Tensile Strength (lb/ft), minimum	D6637	2055	1200
TD Tensile Strength (lb/ft), minimum	D6637	2055	440
Permissible anchor Type		Bent #4 rebar, tension cable	Per Manufacturer
Minimum anchor embedment length (in)		24	Per Manufacturer
<sup>A</sup> Functional equivalent for shear, flow and functional longevity <sup>1</sup> Geogrid, see Table 3885-7 <sup>2</sup> Concrete, see 3885.2.B.2 below <sup>3</sup> Concrete Fabric Mat, see 3885.2.B.3 below			

### B.1 Bonded Geogrid

Provide bonded geogrid with the physical characteristics shown in Table 3885-7.

Table 3885-7 Geogrid Characteristics		
Mass/Unit Area (minimum)	ASTM D5261	0.43 lb/yd <sup>2</sup>
Aperture Size (minimum)	Measured	1.6 x 1.6 inch
Wide Width Tensile Strength		
Elongation at Break (maximum)	ASTM D6637	6%
Tensile Strength @ 2%		
Machine Direction (MD) (minimum)	ASTM D6637	822 lb/ft

### B.2 Concrete

Provide wet cast blocks meeting MnDOT 2461, "Structural Concrete," and the following:

- (1) Manufactured in a plant with a MnDOT approved quality control plan,

- (2) Design air content of 6.5 percent,
- (3) Absorption no greater than 7.0 percent when tested in accordance with ASTM C140, and
- (4) Minimum Design Strength of 4,000 psi at 28 days when tested in accordance with ASTM C140.
- (5) The Contractor shall inspect the flexible concrete mats upon delivery. Flexible concrete mats missing more than four concrete blocks per 80 square feet section shall be rejected.

### B.3 Concrete Fabric Mat

Provide Concrete Fabric Mat (CFM) that is a cement impregnated fabric that hardens when hydrated to form a water-resistant mat. It can be installed underwater and has a working time of several hours after hydration. It shall meet the following requirements of Tables 3885-8 and 3885-9.

Type	Thickness (in)	Dry Weight (lb per sq. ft)	Hydration, min. water volume (gal per sq. ft)
A	0.20	1.43	0.2
B	0.30	2.42	0.3
C	0.50	3.78	0.5

Freeze Thaw	ASTM C1185	3,400 lb
Working Strength	ASTM D5035	Length = 60 lb per sq. ft Width = 20 lb per sq. ft
Puncture Resistance	ASTM D6241	350 lb
Manning's N	ASTM D6460	0.011
Taber Abrasion	ASTM C1353	7 times greater than 2,500 psi OPC
Compressive Strength (10-day psi)	ASTM C473-07	5,800

Provide rolls capable of handling from spreader beams or bars. Provide proper storage and handling methods capable of dry storage until placement. Provide means capable of cutting into structure configurations and openings prior to hydration and again after placement as necessary for proper fit and transport of flowing water.

#### B.3.a Overlap and Lap-Joint Bonding Agents

Provide appropriate sealant capable of bonding to both the PVC backing and fiber surface of the Concrete Fabric Mat. The sealant must work in both wet and dry conditions prior to hydration and remain functional during hydration.

#### B.3.b Hydration Water

Provide water to the Concrete Fabric capable of surface saturation when no longer applying water for two minutes. Provide sufficient water one hour later on fabrics thicker than 0.5 in, ditch grades greater than 2 percent, slopes greater than 1(V):3(H), and temperatures greater than 80°F to complete the hydration process.

### 3885.3 SAMPLING AND TESTING

All approved products must be current in the NTPEP Program, with a testing cycle of every 3 years. Approved products for this specification are shown on the MnDOT Approved Products List website.

Provide documentation of the following for all products:

- (1) A published C-Factor appropriate to each category following requirements of ECTC Method 2 Rainfall, extrapolated to a 3 in per hour rainfall or ASTM 6459.

- (2) Proof that the product enhances plant growth according to ASTM C7322.
- (3) Evidence that the product meets ECTC smolder resistance guidelines.

Target Service Life is the estimated time period that a product can be anticipated to prevent erosion, independent of vegetation, under environmental conditions occurring in Minnesota. These conditions include variations in temperature, moisture, light, soils, biological activity, vegetation establishment, etc.

Functional Longevity is the proxy for measuring Target Service Life (due to a lack of standard test methods). Seventy five percent of the product must remain in place for the specified duration under normal environmental conditions. This will be evaluated based on a combination of experience, field observations, and composting potential as shown by ASTM D5338 testing.

No field substitutions are permitted between Categories unless following the requirements of MnDOT 1401, "Intent of Contract."

## SUPPLEMENTARY CONDITIONS

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# SUPPLEMENTARY CONDITIONS

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## INTRODUCTION

These Supplementary Conditions amend or supplement EJCDC® C 700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC 4.05."

## ARTICLE 1 DEFINITIONS AND TERMINOLOGY

### SC 1.01 Defined Terms

Modify the definition of *Change Order*, Paragraph 1.01.A.8 by adding the following:

At the direction of the Owner, where the revision to the Contract involves minor changes to the Work or a change in Contract Time, the Contract may be revised by a Work Order as defined in MnDOT 1103.

Modify the definition of *Engineer*, Paragraph 1.01.A.22 by replacing the language to read as follows:

*Engineer* shall mean WSB & Associates, Inc., a Minnesota business corporation.

Modify the definition of *Owner*, Paragraph 1.01.A.30 by replacing the language to read as follows:

*Owner* shall mean the City of Prior Lake, a Minnesota municipal corporation.

Modify the definition of *Technical Data*, Paragraph 1.01.A.46 by amending the first sentence of Paragraph 1.01.A.46.b to read as follows:

If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

*Observer* – The individual or entity by with whom the Owner and Engineer is represented in the observation and construction of the Project.

*Project Manual* – The written documents prepared for, or made available for, procuring and construction the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing condition information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

## ARTICLE 2 PRELIMINARY MATTERS

**SC 2.01 DELIVERY OF PERFORMANCE AND PAYMENT BONDS; EVIDENCE OF INSURANCE**

Delete paragraph 2.01.B. of the General Conditions and insert the following:

Before any work at the site is started, Contractor shall deliver to Owner, with a copy to Engineer, certificates (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with paragraphs 5.03.B. and 5.04.

**SC 2.03 Before Starting Construction**

Modify the beginning of the first sentence of Paragraph 2.03.A to read as follows:

*Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents) and prior to the preconstruction conference, Contractor shall submit to Engineer for timely review:

Delete Paragraph 2.03.A.3 in its entirety.

**SC 2.04 Preconstruction Conference; Designation of Authorized Representative**

Delete Paragraph 2.04.A in its entirety and replace with the following:

- A. Before any work at the Site is started, Engineer will arrange a preconstruction conference attended by Owner, Contractor, Engineer, third-party utility owners, and others as appropriate to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

**SC 2.05 Acceptance of Schedules**

Delete the first sentence of Paragraph 2.05.A.

Delete Paragraph 2.05.A.3 in its entirety.

**SC 2.06 Electronic Transmittals**

Add the following new paragraphs to Paragraph 2.06:

- D. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- E. Electronic Documents that are exchanged may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitation, and restrictions, set forth in the Contract Documents.
- F. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for project purposes.

**ARTICLE 3 DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

**SC 3.02 Reference Standards**

Add the following new paragraph immediately after Paragraph 3.02.A:

- B. The Work shall be performed in accordance with:
  - 1. the Project Manual;
  - 2. the City of Prior Lake General Specifications and Standard Detail Plates for Street and Utility Construction dated January 2020.
  - 3. the 2018 Edition of the Minnesota Department of Transportation (MnDOT) Standard Specifications for Construction; and
  - 4. the 2018 Edition of the City Engineers Association of Minnesota (CEAM) Standard Specifications.

**ARTICLE 4 COMMENCEMENT AND PROGRESS OF THE WORK**

**SC 4.04 Progress Schedule**

Amend the first sentence of Paragraph 4.04.A to read as follows:

Contractor shall adhere to the Progress Schedule submitted in accordance with Paragraph 2.03 as it may be adjusted from time to time as provided below.

Amend the first sentence of Paragraph 4.04.A.1 to read as follows:

- 1. Contractor shall submit to Engineer for acceptance proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

**ARTICLE 5 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS**

**SC 5.01 Availability of Lands**

Add the following language at the end of Paragraph 5.01.A:

If the Contractor believes that there has been delay by Owner in furnishing land, right-of-way, or easements, Contractor's sole remedy shall be an extension of Contract Time, for which the Contractor may make a claim therefore as provided in Article 12.

**SC 5.03 Subsurface and Physical Conditions**

Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. Copies of reports and drawings identified in SC 5.03.E are included with the Bidding Documents for reference only, and are not part of the Contract Documents.
- F. Under no circumstances may Contractor rely upon the data contained in reports of explorations or tests, regarding the amounts, elevations, or locations of subsurface groundwater.

**SC 5.06 Hazardous Environmental Conditions at Site**

Delete Paragraph 5.06.A in its entirety and replace with the following:

- A. *Reports and Drawings:* There are no reports or drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site.

## **ARTICLE 6 BONDS AND INSURANCE**

### **SC 6.01 Performance, Payment and Other Bonds**

Add the following new paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C 610, Performance Bond, or as acceptable to the Owner.
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C 615, Payment Bond, or as acceptable to the Owner.

Add the following paragraphs immediately after Paragraph 6.01.B:

1. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be two years after the date the Owner formally accepts the project.
2. After the Owner formally accepts the project, Contractor shall furnish a maintenance bond in a bond amount of 100 percent of the final Contract Price. The maintenance bond period will extend to a date two years after the Owner formally accepts the project. Contractor shall deliver the fully executed maintenance bond no later than 10 days after the Owner formally accepts the project.
3. The maintenance bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.

### **SC 6.02 Insurance – General Provisions**

Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

### **SC 6.03 Contractor's Insurance**

Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provision of Paragraph 6.03.C of the General Conditions, the required policies, including but not limited to the commercial general liability, automobile liability, umbrella or excess policies, must include as additional insureds the following: Spring Lake Township, Stantec as the Spring Lake Township Engineer.
- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

<b>Worker's Compensation and Related Policies</b>	<b>Policy limits of not less than:</b>
<b>Workers' Compensation</b>	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
<b>Employer's Liability</b>	
Each accident	\$500,000
Each employee	\$500,000
Policy limit	\$2,000,000

- F. *Commercial General Liability – Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
  2. damages insured by reasonably available personal injury liability coverage, and,
  3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability – Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
    - a. Such insurance must be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
  4. Underground, explosion, and collapse coverage.
  5. Personal injury coverage.
  6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
  7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability – Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
  2. Any exclusion for water intrusion or water damage.
  3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
  4. Any exclusion of coverage relating to earth subsidence or movement.
  5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
  6. Any limitation or exclusion based on the nature of Contractor's work.

7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability – Minimum Policy Limits*

<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
General Aggregate	\$2,000,000
Products – Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage – Each Occurrence	\$1,000,000

- J. *Automobile Liability*: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

<b>Automobile Liability</b>	<b>Policy limits of not less than:</b>
<b>Bodily Injury</b>	
Each Person	\$1,000,000
Each Accident	\$1,000,000
<b>Property Damage</b>	
Each Accident	\$1,000,000
<b>or</b>	
<b>Combined Single Limit</b>	
Combined Single Limit (Bodily Injury and Property Damage)	\$2,000,000

- K. *Umbrella or Excess Liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above.

<b>Excess or Umbrella Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence	\$1,000,000
General Aggregate	\$1,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements*: Contractor may meet the policy limits specified for employer’s liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy’s policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein.

- M. *Contractor’s Pollution Liability Insurance*: Contractor is not required to provide Pollution Liability Insurance under this Contract.

**SC 6.04 Builder’s Risk and Other Property Insurance**

Delete Paragraph 6.04.A and insert the following in its place:

- A. *Builder’s Risk*: Contractor is not required to purchase and maintain builder’s risk insurance under this Contract. However, any damage or loss to property shall be the sole responsibility of the Contractor until the Owner’s final acceptance of the Work.

Supplement Paragraph 6.04 of the General Conditions with the following provision:

- F. *Builder's Risk and Other Property Insurance Deductibles*: The purchaser of any required builder's risk, installation floater, or other property insurance will be responsible for costs not covered because of the application of a policy deductible.

## ARTICLE 7 CONTRACTOR'S RESPONSIBILITIES

### SC 7.07 Concerning Subcontractors and Suppliers

Add the following new paragraph to Paragraph 7.07:

- N. In accordance with Minnesota Statutes, section 471.425, Contractor shall pay any subcontractor within 10 days of the Contractor's receipt of payment from the Owner.

### SC 7.11 LAWS AND REGULATIONS

Amend Paragraph 7.11 of the General Conditions by adding a new subparagraph D to read as follows:

- D. DATA PRACTICES ACT: The Contractor must comply with the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as it applies to (1) all data provided by the Owner pursuant to this Agreement, and (2) all data, created, collected, received, stored, used, maintained, or disseminated by the Contractor pursuant to this Agreement. The Contractor is subject to all the provisions of the Minnesota Government Data Practices Act, including but not limited to the civil remedies of Minnesota Statutes Section 13.08, as if it were a government entity. In the event the Contractor receives a request to release data, the Contractor must immediately notify the Owner. The Owner will give the Contractor instructions concerning the release of the data to the requesting party before the data is released. Contractor agrees to defend, indemnify, and hold the Owner, its officials, officers, agents, employees, and volunteers harmless from any claims resulting from Contractor's officers', agents', owners', partners', employees', volunteers', assignees' or subcontractors' unlawful disclosure and/or use of protected data. The terms of this paragraph shall survive the cancellation or termination of this Agreement.

### SC 7.13 SAFETY AND PROTECTION

Add a new paragraph immediately after 7.13.J. of the General Conditions, which is to read as follows:

- K. The Contractor shall provide all necessary temporary barricades, fences and other protection as required for the proper execution of the work and for the protection of his employees, employees of the Owner, other construction personnel, and the general public according to all federal, state, and local regulations. This may include increased signing as necessary. The Contractor may need to furnish, erect, and maintain lights to provide a safe work environment according to all state and federal codes. All utility trenches shall be backfilled at the end of each working day. ***The Contractor shall immediately call "911" if a gas utility line is struck or damaged.***

### SC 7.16 Submittals

Amend Paragraph 7.16.B.1.a to read as follows:

Contractor shall submit as a minimum, one electronic copy or as required in the Specifications. Add the following new paragraph immediately after Paragraph 7.16.B.1.b:

- c. Detailed, dimensions manufacturer's drawings shall be submitted for all materials, apparatus and machinery, and for such fittings and devices as the Engineer may direct, including but not limited to: manhole/catch basin structures, castings, sewer pipe, watermain, lift stations, and waterworks brass.

Amend Paragraph 7.16.B.3 by striking out the following words:



and approval

Amend the second sentence of Paragraph 7.16.C.1 by striking out the following words:

and approval

Amend Paragraph 7.16.C.2 by striking out the following words:

and approval

Amend Paragraph 7.16.C.3 to read as follows:

Engineer's review of a separate item as such will not indicate acceptance of the assembly in which the item functions.

Amend the first sentence of Paragraph 7.16.C.4 by striking out the following words:

and approval

Amend Paragraph 7.16.C.5 by striking out the following words:

and approval

Amend Paragraph 7.16.C.6 by striking out the following words:

and approval

Amend Paragraph 7.16.C.7 to read as follows:

Neither Engineer's receipt, review or acceptance of a Shop Drawing or Sample will result in such item becoming a Contract Document.

Amend Paragraph 7.16.C.8 to read as follows:

Contractor shall perform the Work in compliance with the requirements and commitments set forth in accepted Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

Amend the first sentence of Paragraph 7.16.D.1 by striking out the following words:

and approval

Amend the first sentence of Paragraph 7.16.D.2 to read as follows:

Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required acceptance of an item with no more than two resubmittals.

Amend Paragraph 7.16.D.3 to read as follows:

If Contractor requests a change of a previously accepted Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

Amend Paragraph 7.17.D.5 by striking out the following words:

and approval



**ARTICLE 8 OTHER WORK AT THE SITE**

**SC 8.01 Other Work**

Add the following language at the end of Paragraph 8.01.C:

Contractor shall cooperate with all parties to facilitate the prompt completion of all contracts for work at or adjacent to the Site.

**SC 8.02 Coordination**

Add the following new paragraph immediately following paragraph 8.02.B:

- C. Contractor is hereby advised that the following work may be performed at or adjacent to the Site by others during the Contract Time:
  - 1. The individual lot owners or their agents may be site grading and/or constructing buildings on the lots adjacent to the proposed streets.
  - 2. Third-party utility owners may be installing and/or relocating underground facilities

**SC 8.03 Legal Relationships**

Add the following sub-paragraph to Paragraph 8.03.B:

- 3. If Owner performs work for the Contractor, the Contractor must pay Owner for such work with no deduction in Contract amount.

**ARTICLE 10 ENGINEER'S STATUS DURING CONSTRUCTION**

**SC 10.02 Visits to Site**

Add the following new paragraph immediately following paragraph 10.02.B:

- C. Throughout the construction phase, regular weekly meetings will be held by the Engineer on site to review progress and to discuss items necessary for an orderly completion of the project. This weekly construction meeting shall include the Owner, Engineer, and Contractor. Contractor's representative must be able to make decisions for the Contractor pertaining to the project. All project Disputes shall be brought to these meetings, including requests for additional payment, but this provision shall not be construed to alter the Contractor's obligation to submit a change proposal under 11.09 or any party's obligation to follow the claims process in Section 12.01. Meeting minutes will be provided to all participants as a record of the meeting.

**SC 10.03 Resident Project Representative**

Add the following new subparagraph immediately after Paragraph 10.03.A:

- 1. On this Project, by agreement with the Owner, the Engineer will not furnish a Resident Project Representative. Rather, the Engineer will furnish an Observer to represent both the Owner and the Engineer at the Site and to assist Engineer in observing the progress and quality of the Work.

Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Observer's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. Observer's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The Observer will:
  - 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other project-related meetings

(but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.

2. *Safety Compliance*: Comply with Site safety programs, as they apply to Observer, and if required to do so by such safety programs, receive safety training specifically related to Observer's own personal safety while at the Site.
3. *Liaison*:
  - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
  - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations.
  - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
4. *Review of Work; Defective Work*
  - a. Conduct on-site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
  - b. Observe whether any Work in place appears to be defective.
  - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
5. *Inspections and Tests*
  - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
  - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
6. *Payment Requests*: Review Applications for Payment with Contractor.
7. *Completion*
  - a. Participate in Engineer's visits regarding Substantial Completion.
  - b. Assist in the preparation of a punch list of items to be completed or corrected.
  - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
  - d. Observe whether items on the final punch list have been completed or corrected.

D. The Observer will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Owner, Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Authorize Owner to occupy the Project in whole or in part.

**SC 10.07      Limitations on Engineer's Authority and Responsibilities**

Add the following new sub-paragraph to paragraph 10.07.A:

1. Insofar as the subject matter of any pertinent claim, dispute, or other matter falls within the realm of the technical expertise of Engineer, Engineer shall not render any decision on any claims, disputes, or other matters the subject matter of which, at Engineer's sole discretion, requires legal, rather than technical interpretation.

Add the following new paragraph immediately following paragraph 10.07.E:

- F. Paragraph 10.07 pertains to the Engineer's responsibilities to the Contractor and its subcontractors, suppliers, and other agents. Nothing in this paragraph shall be construed to limit the Engineer's responsibilities to the Owner, if any, under the Engineer's contract with the Owner.

## **ARTICLE 11 CHANGES TO THE CONTRACT**

### **SC 11.06 Unauthorized Changes in the Work**

Add the following new paragraph immediately following paragraph 11.06.A:

- B. Except as specifically authorized in writing by the Engineer at the time additional work is done beyond the original scope of the Contract Documents, the Contractor shall make no claims for additional compensation. The Contractor's plea of ignorance of foreseeable conditions which create difficulties or hindrances in the execution of the Work will not be acceptable to the Owner as an excuse for any failure of the Contractor to fulfill the requirements of the Contract Documents, and shall not be a basis for the Contractor's claim for additional compensation.
- C. Any discrepancies in or conflicts between the items described in these Contract Documents must be submitted in writing to the Engineer for adjustment prior to proceeding with the Work as any claims for additional compensation to achieve compliance with the requirements of those items will not be allowed or considered.

## **ARTICLE 12 CLAIMS**

### **SC 12.01 Claims**

Amend the first sentence of paragraph 12.01.B to read as follows:

The party submitting a Claim shall deliver it directly to the other parties to the Contract promptly (but in no event later than 10 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 10 days of the decision under appeal.

## **ARTICLE 13 COST OF WORK; ALLOWANCES, UNIT PRICE WORK**

### **SC 13.03 Unit Price Work**

Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. *Adjustments in Unit Price:* There will be no adjustment in unit price for increased or decreased quantities. In addition, the Owner reserves the right to reduce certain quantities or delete certain items from the Bids as the Owner sees fit, either before or after the Award of Contract. There will be no additional compensation for remobilization of equipment as necessary to complete punch list items or other items not completed by the Contractor. There will be no additional compensation due to restocking charges for materials not used on the Project.

## **ARTICLE 14 TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

### **SC 14.02 Tests, Inspections, and Approvals**

Add the following sub-paragraphs to paragraph 14.02.A:

1. The Contractor shall provide a minimum 48-hour notice to the Observer for any testing that must be observed or accomplished by someone other than the Contractor's personnel. All final tests and inspections shall be performed in the presence of the Observer.

2. Signed copies of all reports on tests shall be sent at once to the Owner, Engineer, and Contractor
3. Inspection and testing shall in no way relieve the Contractor or supplier from the responsibility of furnishing materials and workmanship in accordance with the Contract Documents.

## **ARTICLE 15 PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD**

### **SC 15.01 Progress Payments**

Amend paragraph 15.01.A to read as follows:

*Basis for Progress Payments:* The Contractor's Bid will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period provided that the quantities shall be determined by the Engineer in accordance Paragraph 13.03.

Delete paragraph 15.01.D.1 in its entirety and insert the following:

1. Thirty days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor, unless extenuating circumstances exist which would preclude such payment by Owner to Contractor. If such extenuating circumstances exist, then payment shall be made within 45 days after Owner received the Application for Payment.

### **SC 15.03 Substantial Completion**

Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

### **SC 15.05 Final Inspection**

Add the following language at the end of the second sentence of Paragraph 15.05.A:

If, after such measures are taken, subsequent inspections by the Engineer reveal that any of the previously identified construction items remain incomplete or defective, the Engineer will again notify the Contractor in writing of the remaining construction items. All costs associated with any subsequent inspections in which said remaining particulars are revealed, will be documented by the Engineer and paid by the Contractor to the Owner.

### **SC 15.06 Final Payment**

Add the following new sub-paragraphs to Paragraph 15.06.A:

4. Before final application for payment is made for the Work, the Contractor must make satisfactory showing of compliance with MINN. STAT. 290.92, which requires the withholding of state income taxes for wages paid to employees on this project. Receipt by the Engineer of a certificate of Compliance from the Commissioner of Taxation to the Owner will satisfy this requirement. The Contractor understands that before such certificate can be issued, the Contractor must first place on file with the Commissioner of Taxation an affidavit that the Contractor has complied with the provisions of MINN. STAT. 290.92. The required affidavit form will be supplied by the Commissioner of Taxation, Centennial Building, St. Paul, Minnesota, on request.

5. Final payment will not be made until the Contractor has filed with the Engineer evidence in the form of an affidavit or such other evidence as may be required that all claims against the Contractor by reason of the Contract have been fully paid or satisfactorily secured. This shall be in the form of IC134 forms, paid-in-full final lien waivers from the Contractor, subcontractors, and major suppliers, and a Consent of Surety. Such evidence shall precede or accompany the final application for payment. If evidence is not furnished, the Owner may hold as retainage any monies due said Contractor sums sufficient to cover all lienable claims unpaid.

**SC 15.08      Correction Period**

Add the following new paragraphs to Paragraph 15.08:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC 6.01.B.1.
- H. With regard to any surface concrete work, including but not limited to sidewalks, curb, gutter, and driveway aprons within the project area, the Contractor shall assume full responsibility for any warranty work unless written approval is provided by the Owner releasing the Contractor for the responsibility for damages. The intent of this provision is to release the Contractor from accepting monetary losses for destruction of surface concrete work due to damages and circumstances beyond control of the Contractor. At no point during the two-year correction period shall this relieve the Contractor's responsibility for correction of the defective work as states above, or as caused by poor construction and defective materials on surface concrete work within the project area. The Owner or engineer shall make the final determination of what work is defective within the project area at any point within the two-year correction period.

**ARTICLE 17    FINAL RESOLUTION OF DISPUTES**

**SC 17.02      Mediation**

Add the following new paragraphs immediately after Paragraph 17.01.

17.02    *Mediation*

- A. To resolve any conflicts that arise during the design or construction of the project or following the completion of the project, the Contractor and the Engineer agree that all disputes between them arising out of or relating to this agreement shall be resolved, if possible, at the lowest possible staff level. If the individuals with full settlement authority for the Contractor and the Engineer are unable to achieve a resolution, the dispute shall be submitted to non-binding mediation.
- B. The rights and remedies available to the Contractor shall be limited to breach of Contract, and no other cause of action, including, without limitation, negligence, misrepresentation or other tort theory. The Owner or Contractor may assert any such breach of contract claim in any court of competent jurisdiction. Neither the Owner nor the Contractor shall be entitled to a jury trial in any such action.
- C. The rights and remedies to the Owner hereunder shall be in addition to and shall not be constructed in any way as a limitation of any rights and remedies available to the Owner, which is otherwise available by law or contract, by special warranty or guarantee, or by other provision of the Contract Documents.
- D. The provision of Paragraph 17.02 shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which it may apply. All representations, warranties and guarantees made in the Contract Documents shall survive final payment, termination, or completion of this agreement.

- E. No waiver or failure to enforce any part of provision of the Contract Documents, including but not limited to the change order process, shall be deemed to be waiver by the Owner of any subsequent default or breach of the same or any other part of provision contained herein, or right to enforce the same or any other part or provision contained herein.