Contract 02-2020

Lincoln County

Commonly Overlooked Items
OR
Items of Special Interest

(This sheet is not part of the proposal)

Below is a list of commonly overlooked items or items of special interest. The purpose of this list is to bring attention to some of these items. This list shall not be considered an all-inclusive list. The Contractor shall review the entire set of plans and Special Provisions.

- Bids will be opened at the Lincoln County Courthouse located at 319 N. Rebecca, Ivanhoe, MN on July 14, 2020 at 9:30 am.
- Return the entire proposal with your bid (see Special Provision 1209)
- Items of interest in the Plans and/or Special Provisions
  - Contract completion date of September 30, 2020. (see Special Provision 1806)
  - Working Days for completion of work on each of the four (4) areas. (see Special Provision 1806)
  - Signature waived on Partial Payments. (see Special Provision 1906)
  - Removed concrete and bituminous may be hauled to the Sook Pit. Concrete containing steel reinforcement shall be hauled to an approved site for demolition materials. (see Special Provision 2104)
  - Mix shall be placed using Ordinary Compaction and shall meet MnDOT surface requirements listed in table 2360-27. (see Special Provision 2360)
  - The County will supply 288 pieces of #6 Epoxy Coated Rebar to be placed by the Contractor. (see Special Provision 2461 and Detail Attachments)

Lincoln County
221 North Wallace Avenue
Ivanhoe, MN 56142

*************PROPOSAL*************

FOR PARKING LOT IMPROVEMENTS AT
LINCOLN COUNTY HIGHWAY DEPARTMENT & COURTHOUSE WITH
BIDS RECEIVED UNTIL 9:30 O'CLOCK A.M. ON TUESDAY, JULY 14th, 2020
AT THE LINCOLN COUNTY COURTHOUSE, 319 N REBECCA, IVANHOE, MN 56142
BIDS WILL BE OPENED IMMEDIATELY FOLLOWING

PROPOSAL OF _____
(NAME OF FIRM)

_____
(ADDRESS)

_____
(AREA CODE) TELEPHONE NUMBER

TO FURNISH AND DELIVER ALL MATERIALS AND TO PERFORM ALL WORK IN ACCORDANCE WITH THE CONTRACT, THE PLANS AND THE APPROVED DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION", 2018 EDITION, EXCEPT AS STATED OTHERWISE IN THE SPECIAL PROVISIONS WHICH ARE PART OF THIS PROPOSAL, FOR

CONTRACT NO. **02-2020**

LOCATION: LINCOLN COUNTY HIGHWAY DEPARTMENT &
LINCOLN COUNTY COURTHOUSE

TYPE OF WORK: PARKING LOT IMPROVEMENTS – CONCRETE PAVING, STORM SEWER, SIDWALK

LENGTH: N/A

STARTING DATE: See Special Provisions

COMPLETION DATE: September 30, 2020

NOTICE TO BIDDERS: In submitting a bid, YOU MUST RETURN THIS COMPLETE PROPOSAL. You must initial changes made in the Schedule of Prices in the Proposal and acknowledge addenda on the back-cover sheet.

I certify that this Proposal was prepared by me or under my direct supervision, and that I am a licensed professional engineer under the laws of the State of Minnesota.

Joseph M Wilson: Joseph M Wilson

License Number 54947 Date: 7-7-20

****

BID RIGGING IS A SERIOUS CRIME. IF YOU HAVE ANY INFORMATION CONCERNING COLLUSIVE BIDDING, EVEN A REQUEST TO SUBMIT A COMPLIMENTARY BID, PLEASE CALL THE MINNESOTA ATTORNEY GENERAL'S OFFICE AT TELE. NO. 651-296-1796

SPECIAL PROVISIONS FOR
Parking Lot Improvements

LINCOLN COUNTY
INDEX TO SPECIAL PROVISIONS

DIVISION S

ATTACHMENTS

To Lincoln County Board of Commissioners:

According to the advertisement of Lincoln County inviting proposals for the improvement of the County owned parking lots, and in conformity with the Contract, Plans, Specifications and Special Provisions pertaining thereto, all on file in the office of the Auditor of Lincoln County:

(I)(We) hereby certify that (I am)(we are) the only person(s) interested in this proposal as principal(s); that this proposal is made and submitted without fraud or collusion with any other person, firm or corporation at all; that an examination has been made of the site of the work and the Contract form, with the Plans, Specifications and Special Provisions for the improvement.

(I)(We) understand that the quantities of work shown herein are approximate only and are subject to increase or decrease; that all quantities of work, whether increased or decreased within the limits specified in Mn/DOT 1903, are to be done at the unit prices shown on the attached schedule; that, at the time of opening bids, totals only will be read, but that comparison of bids will be based on the correct summation of item totals obtained from the unit prices bid, as provided in Mn/DOT 1301.

(I)(We) propose to furnish all necessary machinery, equipment, tools, labor and other means of construction and to furnish all materials specified, in the manner and at the time prescribed, all according to the terms of the Contract and Plans, Specifications, and the Special Provisions forming a part of this.

(I)(We) further propose to do all Extra Work that may be required to complete the contemplated improvement, at unit prices or lump sums to be agreed upon in writing before starting such work, or if such prices or sums cannot be agreed upon, to do such work on a Force Account basis, as provided in Mn/DOT 1904.

(I)(We) further propose to execute the form of Contract within 10 days after receiving written notice of award, as provided in Mn/DOT 1306.

(I)(We) further propose to furnish a payment bond equal to the Contract amount, and a performance bond equal to the Contract amount, with the aggregate liability of the bond(s) equal to twice the full amount of the Contract if the contract is less than or equal to five million dollars ($5,000,000.00), or if the contract is in excess of five million dollars ($5,000,000.00) the aggregate liability shall be equal to the amount of the contract, as security for the construction and completion of the improvement according to the Plans, Specifications and Special Provisions as provided in Mn/DOT 1305.

(I)(We) further propose to do all work according to the Plans, Specifications and Special Provisions, and to renew or repair any work that may be rejected due to defective materials or workmanship, before completion and acceptance of the Project by Lincoln County.

(I)(We) agree to all provisions of Minnesota Statutes, Section 181.59.

(I)(We) further propose to begin work and to prosecute and complete the same according to the time schedule set forth in the Special Provisions for the improvement.

(I)(We) assign to Lincoln County all claims for overcharges as to goods and materials purchased in connection with this Project resulting from antitrust violations that arise under the antitrust laws of the United States and the antitrust laws of the State of Minnesota. This clause also applies to subcontractors and first tier suppliers under this Contract.

Notice to Bidders

The following specifications are required by this contract and are available by request at Lincoln County Highway Department, via the internet on the Lincoln County Highway Department web site http://www.co.lincoln.mn.us/Departments/Highway.htm and at the sites listed below:

Equal Employment Opportunity (EEO) Special Provisions (revised 7/12) **38 pages**
This contract requires strict adherence to the EEO Special Provisions. It is the contractor's responsibility to make himself/herself familiar with it. EEO Special Provisions are available by request from Lincoln County Highway Department or via the internet at: **http://www.co.lincoln.mn.us/Departments/Highway/eeo-specprov.pdf**

2019 SALT Schedule of Materials Control – Local Government Agency (Dated: 2019) 35 pages
This contract requires strict adherence to the Schedule of Materials Control. It is the contractor's responsibility to make himself/herself familiar with it. Copies of the Schedule of Materials Control are available by request from Lincoln County Highway Department or via the internet at
http://www.co.lincoln.mn.us/Departments/Highway/2019-salt-smc-lga.pdf

As bidder of this contract, I acknowledge that I(we) am(are) familiar with the above documents and that we will adhere to the requirements of same for this contract.

_____
Signed Date

for: _____

NOTICE TO ALL BIDDERS

Bid Rigging

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

AFFIRMATIVE ACTION STATEMENT

I, we, fully intend to comply with the standards of equal employment and anti-discrimination as cited in the Civil Rights Act of 1964, as amended in 1972 by the Equal Employment Opportunity Report.

Signed:_____

Title:_____

EQUAL EMPLOYMENT OPPORTUNITY POLICY

This is to affirm _____'s policy of providing Equal Opportunity to all employees
Employer's Name

and applicants for employment in accordance with all applicable Equal Employment Opportunity/Affirmative Action laws, directives and regulations of Federal, State and Local governing bodies or agencies thereof, specifically Minnesota statutes 363.

_____ will not discriminate against or harass any employee or applicant for
Employer's Name
employment because of race, color, creed, religion, national origin, sex, sexual orientation, disability, age, marital status, or status with regard to public assistance.

_____ will take Affirmative Action to ensure that all employment practices
Employer's Name
are free of such discrimination. Such employment practices include, but are not limited to, the following: hiring, upgrading, demotion, transfer, recruitment or recruitment advertising, selection, layoff, disciplinary action, termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

_____ will commit the necessary time and resources, both financial and
Employer's Name
human, to achieve the goals of Equal employment Opportunity and Affirmative Action.

_____fully supports incorporation of non-discrimination and Affirmative
Employer's Name
Action rules and regulations into contracts.

_____ will evaluate the performance of its management and supervisory
Employer's Name
personnel on the basis of their involvement in achieving these Affirmative Action objectives as well as other established criteria. Any employee of this organization, or subcontractor to this employer, who does not comply with the Equal Employment Opportunity Policies and Procedures as set forth in this statement and Plan will be subject to disciplinary action. Any subcontractor not complying with all applicable Equal Employment Opportunity/Affirmative Action laws, directives and regulations of the Federal, state and Local governing bodies or agencies thereof, specifically Minnesota Statutes 363 will be subject to appropriate legal sanctions.

_____ has appointed _____ to manage the Equal Employment
Employer's Name Name
Opportunity Program. His/Her responsibilities will include monitoring all Equal employment Opportunity activities and reporting the effectiveness of this Affirmative Action Program, are required by Federal, State and Local agencies. The Chief Executive Officer of
_____ will receive and review reports on the progress of the program.
Employer's Name
If any employee or applicant for employment believes he/she has been discriminated against, please contact _____, _____; or call
Name address

_____.
Phone

_____ _____
Name, Title of CEO Date

I DO HEREBY CERTIFY THAT I AM IN COMPLIANCE

MINNESOTA STATUTES SECTION 363, AS AMENDED BY

LAWS OF 1969.

DATE_____

SIGNED_____

REPRESENTING_____

TELEPHONE NO._____

SPECIAL PROVISIONS

DIVISION S

SPECIAL REQUIREMENTS

S-1 CONTACT INFORMATION

Direct questions about this Project, including pre-bid questions, shall be directed to the following:

Joe Wilson, County Engineer, Ph. 507-694-1124, email jwilson@co.lincoln.mn.us

Or

Dustin Hauschild, Engineer's Assistant, Ph. 507-694-1493, email dhauschild@co.lincoln.mn.us

Lincoln County Highway Dept.
221 N Wallace
P.O. Box 97
Ivanhoe, Minnesota 56142
Phone (507) 694-1464
Fax (507)694-1101

S-2 GOVERNING SPECIFICATIONS

The 2018 Edition of the Minnesota Department of Transportation "Standard Specifications for Construction", shall apply on this Contract except as modified or altered in the following Special Provisions.

S-3 COMPLIANCE WITH COUNTY AND CITY ZONING ORDINANCES

All bidders shall familiarize themselves and shall comply with the County's zoning ordinance for conditional use of land pertaining to gravel and borrow pits. Copies of the ordinance may be examined at the County Zoning Office, located at 221 N Wallace, Ivanhoe, MN 56142, PH # (507) 694-1344 or at **http://www.lincolncounty-mn.us/Departments/Environmental.htm**

Contact City of Ivanhoe at 401 N. Harold St, Ivanhoe, MN 56142, PH #: (507) 694-1738, or e-mail: cityivan@frontiernet.net.

S-4 PROTECTION OF PUBLIC CONTRACT

Bidders are hereby given notice of and must abide by the provisions of M.S. 161.315 in performing contracts with Lincoln County.

S-4.1 Out-of-state bidders are hereby given notice of the provisions of M.S. 290.9705, pertaining to withholding on payments by government entities to out-of-state Contractors.

S-5 RESPONSIBLE CONTRACTOR
REVISED 06/04/15

The Department cannot award a construction contract in excess of $50,000 unless the Bidder is a "responsible contractor" as defined in Minnesota Statutes §16C.285, subdivision 3. A Bidder submitting a Proposal for this Project must verify that it meets the minimum criteria specified in that statute by submitting the "Responsible Contractor Verification and Certification of Compliance" form. A company owner or officer must sign the "Responsible Contractor Verification and Certification of Compliance" form under oath verifying compliance with each of the minimum criteria. THE COMPLETED FORMS MUST BE SUMITTED WITH THE BID PROPOSAL.

A bidder must obtain a verification from each subcontractor it will have a direct contractual relationship with. At the Department's request, a bidder must submit signed subcontractor verifications. A contractor or subcontractor must obtain an annual verification from each motor carrier it has a direct contractual relationship with. A motor carrier must give immediate written notice if it no longer meets the minimum responsible contractor criteria. The requirement for subcontractor verifications does not apply to:

- Design professionals licensed under Minnesota Statutes §326.06; and
- A business or person that supplies materials, equipment, or supplies to a subcontractor on the Project, including performing delivering and unloading services in connection with the supply of materials, equipment, and supplies. But, a business or person must submit a verification if it delivers mineral aggregate such as sand, gravel, or stone that will be incorporated into the Work by depositing the material substantially in place, directly or through spreaders, from the transporting vehicle.

A bidder or subcontractor who does not meet the minimum criteria specified in the statute, or who fails to verify compliance with the criteria, is not a "responsible contractor" and is ineligible to be awarded the Contract for this Project or to work on this Project. Submitting a false verification makes the bidder or subcontractor ineligible to be awarded a construction contract for this Project. Additionally, submitting a false statement may lead to contract termination. If only one bidder submits a bid, the Department may, but is not required to, award a contract even if that bidder does not meet the minimum criteria.

S-6 COMPLIANCE WITH TAX LAW REQUIREMENTS

The Department cannot make final payment to the Contractor until the Contractor demonstrates that it and all its subcontractors have complied with the Income Tax withholding requirements of Minnesota Statutes, section 290.92 for wages paid for work performed under the contract. To establish compliance, the Contractor must submit a "Contractor Affidavit" either online or in paper form (IC134) to the Minnesota Department of Revenue. The contractor will receive written certification of compliance when the Department of Revenue determines that all withholding tax returns have been filed and all withholding taxes attributable to the work performed on the contract have been paid. The Contractor must then provide this written certification to the Department to receive final payment.

Every subcontractor working on the Project must submit an approved "Contractor Affidavit" from the Minnesota Department of Revenue to the Contractor before the Contractor can file its own Contractor Affidavit. **The Contractor is advised to obtain the certification from each subcontractor as soon as the subcontractor completes work on the Project. Experience has shown that waiting until the project is complete to obtain the forms from all subcontractors is likely to result in significant additional work for the Contractor as it will be difficult or impossible to collect all forms.**

The Department of Revenue, in association with the Department of Employment and Economic Development, offers a free seminar to help contractors understand tax law requirements. The Department strongly urges the Contractor and all subcontractors to attend the "Employment Taxes & Employer Responsibilities Seminar" or similarly offered classes. You can find a schedule and more information on the Department's website at: :

https://www.revenue.state.mn.us/sites/default/files/2019-05/Employment%20Taxes%20Seminar%20Flyer.pdf.

Complying with this requirement is considered part of the Work under this contract. The Department will enforce this requirement equally with all other Contract requirements. Contractor delay in complying with this requirement will cause the Department to delay final payment and Contract Acceptance. The Department may also report non-compliance to the Department of Revenue, which may result in enforcement action by the Department of Revenue.

Contractor Affidavit requirements and Form IC134 can be found here:
https://www.revenue.state.mn.us/contractor-affidavit-requirements

S-7 (1203) ACCESS TO PROPOSAL PACKAGE

MnDOT 1203 is hereby deleted from the MnDOT Standard Specifications.

S-8 (1206) PREPARATION AND DELIVERY OF PROPOSAL

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

S-8.1 MnDOT 1206.1 is hereby deleted from the MnDOT Standard Specifications.

S-8.2 MnDOT 1206.2 is hereby deleted from the MnDOT Standard Specifications and replaced with the following:

1206.2 ALLOWABLE SUBSTITUTIONS
For all Proposals the Bidder shall use the following method:

(1) Submit a Proposal on the Bid Schedule forms provided by the Department. The Bidder shall:
(1.1) Submit a Unit Price in numeric figures for each Pay Item for which a quantity is shown. Assume a numeric quantity of "1" for each "Lump Sum" Pay Item, except as not required in the case of alternate Pay Items,
(1.2) Show the extensions resulting from Unit Prices multiplied by the shown quantities in the specified column, and
(1.3) Add the extended Pay Item amounts to show the total amount of the Proposal.

The Bidder shall write the figures in ink or provide typed or computer printed figures. In the case of a discrepancy between a Unit Price and extension in a Proposal, the Unit Price will govern.

If a Bidder fails to provide a Unit Price for any Pay Item on the Bid Schedule, except for "Lump Sum" Pay Items, the Department will reject the Proposal.

If a Pay Item in the Proposal requires the Bidder to choose an alternate Pay Item, the Bidder shall indicate its choice in accordance with the Specifications for that Pay Item.

An authorized representative of the Bidder must sign the Proposal.

S-9 **(1208) PROPOSAL GUARANTY**

No proposal will be considered unless it is accompanied by a guaranty complying with these requirements and providing a penal sum of at least equal to 5% of the total amount of the bid. (Under all circumstances and without exception) as provided in the Specification 1208. This may be submitted as a Bidder's Bond or a Certified Check made out to the Lincoln County Treasurer.

S-10 **(1209) DELIVERY OF PROPOSALS**

The provisions of MnDOT 1209 are modified with the following:

S-10.1 The following items in MnDOT 1209:
(1) Proposal title sheet;
(2) The complete "Schedule of Prices," with all changes made in ink and initialed;
(3) Form 21126D, "Proposal Signature Page" attached to the back of the Proposal, with signatures and all Addenda acknowledged;
(4) Form CM 32-34. "EEO Clause;"
(5) Non-collusion affidavit;
(6) Form 21816, "Bid Bond Form," cashier's check, or certified check; and
(7) Any other forms included in the Proposal Package.

is hereby deleted from the MnDOT Standard Specifications and replaced with the following:

S-10.2 **Proposals shall be submitted in their entirety to be considered as an acceptable bid.**

S-11 **(1210) REVISION OF PROPOSAL PACKAGE OR WITHDRAWAL OF PROPOSALS**

The provisions of MnDOT 1210 are deleted and replaced with the following:

When submitting a Proposal in accordance with 1206.2, "Allowable Substitutions," of these Special Provisions, the Bidder may revise or withdraw its Proposal after delivery to the Department if the Department receives the Bidder's written request for withdrawal or revision before the date and time for opening Proposals.

The Department reserves the right to revise the Proposal Package at any time before the date and time for opening Proposals. The Department will issue a numbered and dated Addendum for any revision of the Proposal Package. The Department will post each Addendum as announced in an e-mail or other method of notification to each Bidder on the Department's list of Bidders.

The Department will include each Addendum with all Proposal Forms issued to the Bidder after the date of the Addendum.

If revisions made by an Addendum require change to Proposals or reconsideration by the Bidder, the Department may postpone opening Proposals. If the Department postpones opening Proposals, the Department will specify the new date and time for opening Proposals in the Addendum.

The Bidder shall acknowledge receipt of each Addendum in the proposal.

S-12 **(1212) OPENING OF PROPOSALS**

The provisions of MnDOT 1206 are modified with the following:

S-12.1 MnDOT 1212 is hereby deleted from the MnDOT Standard Specifications and replaced with the following:

1212 OPENING OF PROPOSALS
The Department will open Proposals at the time, date, and place defined in the Proposal Package and the Advertisement for Bids.

S-13 **(1305) REQUIREMENT OF CONTRACT BOND**

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

The successful bidder shall furnish a payment bond equal to the contract amount and a performance bond equal to the contract amount as required by Minnesota Statutes, section 574.26. The surety and form of the bonds shall be subject to the approval of the contracting authority.

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

S-14 **(1404) MAINTENANCE OF TRAFFIC, (1707) PUBLIC CONVENIENCE AND SAFETY, AND (2564) TRAFFIC CONTROL SIGNS AND DEVICES**

The provisions of 1404 are supplemented as follows:

S-14.1 The Contractor shall furnish, install, maintain, and remove all traffic control devices required to provide safe movement of vehicular and/or pedestrian traffic passing through the work zone during the life of the Contract from the start of Contract operations to the final completion thereof. The Engineer will have the right to modify the requirements for traffic control as deemed necessary due to existing field conditions.

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

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

1.	**Lincoln County Highway Department**	**(507) 694-1464**
2.	**Lincoln County Sheriff's Department**	**(507) 694-1664**
3.	**Fire Department**	**911**

The Contractor shall, at the pre-construction conference, designate a Work Zone Safety Coordinator who shall be responsible for safety and traffic control management in the Project work zone. The Work Zone Safety Coordinator shall be either an employee of the Contractor such as a superintendent or a foreman, or an employee of a firm which has a subcontract for overall work zone safety and traffic control management for the Project. The responsibilities of the Work Zone Safety Coordinator shall include, but not be limited to:

- Coordinating all work zone traffic control operations of the Project, including those of the Contractor, subcontractors and suppliers.
- Establishing contact with local school district, government, law enforcement, and emergency response agencies affected by construction before work begins.
- Maintaining a record of all known crashes within a work zone. This record should include all available information, such as: time of day, probable cause, location, pictures, sketches, weather conditions, interferences to traffic, etc. These records shall be made available to the Engineer upon request.

The Contractor shall inspect, on a daily basis, all traffic control devices, which the Contractor has furnished and installed, and verify that the devices are placed in accordance with the Traffic Control Layouts, these Special Provisions, and/or the MN MUTCD. Any discrepancy between the placement and the required placement shall be immediately corrected. The person performing the inspection shall be required to make a daily log. This log shall also include the date and time any changes in the stages, phases, or portions thereof go into effect. The log shall identify the location and verify that the devices are placed as directed or corrected in accordance with the Plan. All entries in the log shall include the date and time of the entry and be signed by the person making the inspection. The Engineer reserves the right to request copies of the logs as he deems necessary.

S-14.2 Measurement and Payment:

Item 2563 "Traffic Control" is exempt from the overrun/underrun provision of 1903.

No measurement will be made of the various Items that constitute Traffic Control but all such work will be construed to be included in the single Lump Sum payment under Item 2563.601 (Traffic Control).

Partial payments for traffic control of the various stages will be made as follows: 50% will be paid for at the placement of traffic control devises. The remaining 50% will be paid upon the removal of traffic control devises.

S-15 (1505) COOPERATION BY CONTRACTORS

S-15.1 The Contractor shall coordinate their work and cooperate with all other agencies and forces as may be performing concurrent work within the limits of this project, or on sections of roadway adjacent thereto, in a manner consistent with the Provisions of MN/DOT 1505. No additional compensation will be made to the Contractor for any costs incurred, or because of any delays to forces or equipment that may be caused by the operations of the other Contractors. This includes coordination with home building contractors or utility work that may begin work during this Contract.

S-15.2 **The Contractor is also hereby made aware that the Contract 01-2020 will be let on July 7th, 2020 for construction in 2020. Work to include seal coat on various streets in Ivanhoe.**

S-16 (1506) SUPERVISION BY CONTRACTOR

The provisions of MnDOT 1506 are supplemented as follows:

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

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

S-17 (1507) UTILITY PROPERTY AND SERVICE

Construction operations in the proximity of utility properties shall be performed in accordance with the provisions of Mn/DOT 1507, except as modified below:

S-36.2 All utilities that relate to this Project are classified as "Level D," unless the Plans specifically state otherwise. This utility quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guidelines for the Collection and depiction of existing subsurface utility data."

S-36.3 The Contractor is responsible for contacting all utilities within the project limits by way of the "Gopher State One-Call" service, 1-800-252-1166.

See http://www.dot.state.mn.us/tecsup/utility/ for utility company information.

S-36.4 The Contractor shall notify the Owner and Engineer in advance of the date he/she intends to start work and he/she shall furnish information as may be necessary to permit the responsible authorities to make suitable arrangements relative thereto.

S-36.5 The Contractor shall coordinate his/her work and cooperate with existing utility owners and their forces in a manner consistent with the provisions of Mn/DOT 1507 and the applicable provisions of Mn/DOT 1505.

S-18 (1515) CONTROL OF HAUL ROADS

Control of haul roads shall be in accordance with the provisions of 1515 except as modified below:

The Contractor shall make all necessary arrangements concerning the use of all roads and shall be fully responsible to the road authority in control for any damages caused by hauling operations, as well as for any other conditions created or imposed. The Contractor shall provide a list of all haul roads to the Department prior to work commencing.

The Contractor shall safely maintain all public and private accesses affected by work on the Contract.

The Engineer can require the Contractor to furnish any material or equipment the Engineer determines is needed for the safe use of haul roads, both on or off the project. This shall include dust control at the expense of the Contractor.

Dust control of haul roads will be incidental work and no direct compensation will be made therefore.

Failure to promptly control dust may result in the project being shut down.

S-19 (1602) NATURAL MATERIAL SOURCES

Aggregates shall be furnished in accordance with the provisions of Specifications 1602, 3138, 3139, 3149, 3601 and the following:

S-19.1 Aggregate, for the purpose of this Contract, shall be furnished by the Contractor from sources selected by the Contractor. The Contractor will be required to make their own arrangements with the owner for the material, and any payment that is required of the Contractor shall be made directly to the owner.

S-20 (1603.2) SAMPLING AND TESTING

Sampling and Testing of material shall be in accordance with the provisions of specification 1603.2 Sampling and Testing and the following:

S-20.1 The first paragraph of specification 1603.2 Sampling and Testing is hereby deleted and replaced with the following:

Sampling and testing of materials for this project will be in accordance with the State Aid for Local Transportation (SALT) "Schedule of Materials Control – Local Government Agency" (SMC-LGA). This schedule establishes the size of samples and the minimum rate of testing, but in no way affects Specification requirements for the material. The County reserves the right to reduce testing.

S-20.2 If material is deemed unacceptable by these tests and additional tests are needed, Lincoln County will charge the Contractor the cost incurred to do so plus $100.00 per additional sample that is tested.

S-21 **(1701) LAWS TO BE OBSERVED (PROMPT PAY AND RETAINAGE)**
NEW WRITE-UP 04/20/18

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

S-21.1 Prompt payment of subcontractors is required by Minnesota Statutes §16A.1245.
The Contractor must pay a subcontractor within ten days of receiving payment from the Department for undisputed work provided by that subcontractor. If the Contractor fails to pay a subcontractor on time, then the Contractor must pay interest, at the rate of 1.5% per month, to the subcontractor on the undisputed amount not paid on time. For an unpaid amount under $100, the Contractor must pay the actual interest penalty (calculated at 1.5% per month). For an unpaid amount over $100, the Contractor must pay the actual interest penalty (calculated at 1.5% per month) or $10, whichever is greater.

Minnesota Statutes §16A.1245 also provides that a subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

S-21.2 Withholding of retainage is limited by Minnesota Statutes §337.10.
The contractor may not withhold more than 5% in retainage from a subcontractor, as provided by Minnesota Statutes §337.10 subd. 4 (b).

State law does not require retainage to be withheld.

S-22 **(1706) EMPLOYEE HEALTH AND WELFARE**

The provisions of MnDOT 1706 are supplemented with the following:

S-22.1 The Contractor must not use motor vehicle equipment that has an obstructed rear view unless:

(A) The vehicle has a reverse alarm that is audible above the surrounding noise level; or

(B) An observer signals to the operator that it is safe to reverse.

S-22.2 **The Department may assess a monetary deduction $500 per incident for a violation of safety standards that could result in death or dismemberment.**

S-22.3 The areas of special concern include, but are not limited to, excavation stability protection, fall protection, protection from overhead hazards, vehicle backup protection (see S-25.1 above), confined space safety, blasting operations, and personal safety devices.

S-22.4 The Contractor cannot avoid complying with safety standards by paying the deduction.

S-23 **(1712) PROTECTION AND RESTORATION OF PROPERTY**

Protection and restoration of property will be performed in accordance with the provisions of 1712, except as modified below:

The County will not be held responsible for damages done by the Contractor to property located below the ground surface within the Right of Way, even though the existence of such property is not shown on the plans, indicated in the Special Provisions or otherwise brought to his/her attention before the damage is done.

S-24 **(1801) SUBLETTING OF CONTRACT**
REVISED 6/4/15

The provisions of MnDOT 1801 are modified as follows:

For Projects in excess of $50,000, the Contractor may sublet work only to subcontractors that meet the definition of "responsible contractor" in Minnesota Statutes §16C.285, subdivision 3. The Contractor shall obtain verifications of compliance with §16C.285 from subcontractors using a form provided by the Department. The Contractor must provide such verifications to the Department upon the Department's request.

S-24.1 The third paragraph of MnDOT 1801 is modified to read:

On Contracts with Disadvantaged Business Enterprise (DBE), the Contractor's organization shall perform Work amounting to not less than 30 percent of the total original Contract Amount. The Department will deduct specialty items from the total original Contract Amount before calculating the amount of Work that the Contractor shall perform.

S-25 **(1803) PROSECUTION OF WORK**

Section 1803.1 (pertaining to bar chart and critical path diagram requirements) is hereby deleted.

S-25.1 The Contractor shall give the Engineer definite written notice of their intention to start work at least 7 calendar days in advance of beginning construction and at least 48 hours in advance of beginning each subsequent major construction operation.

S-26 **(1804) PROSECUTION OF WORK (ADA)**
REVISED 10/25/18

The provisions of MnDOT 1804 are supplemented and/or modified with the following:

S-26.1 SPECIAL PROJECT ADA REQUIREMENTS

All pedestrian facilities on this Project must be constructed according to 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) 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, with in the past 3 years. For class dates and locations please refer to the following link at: http://www.dot.state.mn.us/ada/training.html. A minimum of one person per project must possess a valid ADA Construction Certification card anytime ADA work is being performed on the project. If work on electrical components is the only ADA work taking place on the project the electrician must have in their possession a current MNDOT Signals and Lighting Certification.

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.

These requirements shall be effective as of May 1, 2019. Any time work the Contractor is performing concerns pedestrian facilities, the Contractor's ADA Certified person shall be on site.

(B) Pedestrian facilities must be constructed to meet the following criteria:

(1) Pedestrian Access Routes (PAR) must be constructed to meet the following:
- Minimum 4 feet width.
- A maximum cross slope of 2.0%.
- Vertical discontinuities must be less than 0.25 inches.
- Must provide positive drainage without allowing any ponding and maintain existing drainage flow patterns unless indicated otherwise in the Plan.
- All grade breaks shall be constructed perpendicular to the path of travel.
- Maximum 5% running slope unless adjacent roadway profile exceeds 5%.

(2) Landings are part of the PAR and must be constructed to meet the following:
- 4 feet by 4 feet minimum width and shall match full width of incoming PAR.
- Maximum slope of 2.0% in all directions.
- Required at all locations where the PAR changes directions or inverse running slopes are >2%.
- Must be connected to the PAR.
- 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:
- Longitudinal slopes less than 5% in the direction of travel requires no landing at the top of the ramp (unless the PAR changes direction).
- Longitudinal slopes between 5 - 8.3% in the direction of travel require a landing at the top of the ramp.

(C) The Contractor and the Engineer shall work together to construct all pedestrian facilities set forth in the plans and in the above Section 26.B.

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 (up to 24 hours), 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, do not meet the above requirements in Section 26.B, 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 feet 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.

(2A) **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". 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% inflow around the radius or at a minimum distance of 10 feet 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.

(2B) **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 Section 26.B will be achieved.

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 leg, landing, 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.

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 (>2% 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 2 inch minimum concrete cover.

When not accounted for in the Plan, payment for these bars will be made under Item 2301.602 (Drill & Grout Reinforcement Bar (Epoxy Coated) by the Each at the Predetermined Price of $10.00 per bar furnished and installed. 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) 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 this Special Provision, the Contractor shall follow the process listed in Section 26.C. This layout work shall be incidental.

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

(F) The Contractor will round all joints and edges with a 1/4 inch radius grooving or edging tool within the PAR. This requirement includes all curb and gutter joints at zero inch 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 inch wide contraction joints within the PAR, including all curb and gutter joints at zero inch height curb sections. When greater than 50 feet 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 1/4 inch.

In sections where concrete boulevard is placed between the back of curb and the sidewalk, the 1/2 inch 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 1/2 inch 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 1/2 inch preformed joint filler 1/2 inch lower than top of walk whenever possible. Furnish and install Backer Rod of appropriate diameter when joints are 1/4 inch 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 1/8 inch width and place between the sidewalk and boulevard to prevent contraction joints from migrating into the adjacent concrete panels.

(G) The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4.0 feet. All new or reconstructed sidewalk widths shall match or exceed in place sidewalk and in no case shall it be less than 5.0 feet 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%, 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.

S-27 **(1806) DETERMINATION AND EXTENSION OF CONTRACT TIME**

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

S-27.1 Contractor must complete all Work to meet the requirements of 1516.2 (Project Acceptance) under this Contract before **September 30, 2020**.

S-27.2 In addition to the other Contract Time requirements, the Contractor may divide the project into small "components" so long as each "component" is completed and final clean-up/restoration is performed. The following "components" and working days to complete would be acceptable by the engineer:

(A) Courthouse Parking Lot Extension – this component would include the removal of the existing ADA ramp and sidewalk along with the proposed ADA ramp. **Thirty (30) working days** once work begins on this component.

(B) Courthouse 2' x 5' sidewalk extension. **Fifteen (15) working days** once work begins on this component.

(C) Highway Department concrete driveway. **Fifteen (15) working days** once work begins on this component.

(D) Highway Department concrete pavement replacement, ADA ramp, sidewalk replacement and extension, drain tile installation, and miscellaneous bituminous patching, valley gutter and curb and gutter replacement. **Twenty (20) working days** once work begins on this component.

S-27.3 Final clean-up – upon completion of each project "component" outlined in section 13.2, the Engineer will furnish the Contractor with a "Punch List". The "Punch List" shall be completed within five (5) Working Days or the Contractor shall be subject to a daily charge assessed at a rate of $100 per Calendar Day.

S-28 **(1807) FAILURE TO COMPLETE THE WORK ON TIME**

The provisions of Mn/DOT 1807 are supplemented as follows:

S-28.1 Liquidated damages will be assessed in accordance with the provisions of Mn/DOT 1807. Lincoln County may reduce the liquidated damages to $100 per day when the only remaining items are maintenance or Final Cleanup.

S-29 **(1809) TERMINATION OF CONTRACT**

The first paragraph of 1809 is revised to read:

S-29.1 The Department may, by written notice, terminate the Contract or any portion thereof when it is deemed in the best public, County, State, or national interest to do so; or after finding that for reasons beyond the Contractor's control they are prevented from proceeding with or completing the Contract work within a reasonable period of time.

S-30 **(1901) MEASUREMENT OF QUANTITIES**

The following shall be added to MN/DOT 1901:

S-30.1 ALLOWABLE LEAGAL GROSS WEIGHT
The allowable legal gross weight is defined as the vehicle license gross weight plus the tolerance provided in Minnesota Statutes 168.013 or the gross legal weight provided by Minnesota Statutes 169.825, whichever is less. In no case will the allowable legal gross weight exceed 80,000 pounds without a valid Special Road Construction Materials Permit issued by Lincoln County. No payment will be made for any material in excess of the allowable legal gross weight.

S-30.2 The Contractor shall be familiar with weight restricted bridges in Lincoln County. A map of restricted bridges is located in the attachments for the Proposal.

S-31 **(1903) COMPENSATION FOR ALTERED QUANTITIES**

Lincoln County reserves the right to increase or decrease the quantities of any item without adjustments in the contract unit prices and the provisions of 1903 shall not apply.

S-32 **(1905) ELIMINATION OF WORK**

Work shall be accomplished in accordance with the Provisions of 1905, except as modified below:

S-32.1 Lincoln County has the right to delete all or part of the Contract Items with no adjustment in Contract Price.

S-33 (1906) PARTIAL PAYMENTS

Partial payments will be made in accordance with the Provisions of 1906, except as modified below:

S-33.1 From the amounts ascertained as payable on each partial payment, five (5) percent retainage for in-state contractors and eight (8) percent retainage for out-state contractors until all work is completed and accepted.

S-33.2 Payment for materials on hand will not be made under this contract.

S-33.3 **By signing the Proposal, The Contractor authorizes the Lincoln County Highway Department to make partial payments without the Contractor's signature. The Contractor will receive a copy of the payment voucher at the time the payment is issued. The Contractor may submit a written request to sign the Partial Estimate Payment Vouchers prior to payment.**

S-34 (1908) FINAL ESTIMATE AND FINAL PAYMENT

The following provisions shall apply to preparation of the Final Estimate and execution of Final Payment under this Contract:

S-34.1 Before final payment is made for this project, the Contractor and all Sub-Contractors shall make a satisfactory showing that they have complied with the Provisions of Minnesota Statutes 290.92, requiring the withholding of State Income Tax for wages paid employees on this project. Receipt of a certificate of compliance from the Commissioner of Taxation an affidavit that they have complied with the Provisions of 290.92. The required affidavit form will be supplied by the Commissioner of Taxation, Centennial Building, St. Paul, MN, on request.

S-34.2 Before final payment is made for work on this project, the Contractor shall make a satisfactory showing that they have made settlement with the owner or owners of the gravel, sand, binder soil, borrow soil, sod or rock deposits for which that Contractor selects the source of material.

S-35 (2104) REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

MnDOT 2360 is modified and/or supplemented with the following:

All concrete curb, walk, valley gutter, pavement, and bituminous pavement removed may be hauled to the Sook Pit located in the northeast quarter of section 15, T111N, R44W in Lake Stay Township. Disposed concrete shall be free of excess topsoil and any reinforcement steel prior to disposal at the stockpile location. Bituminous and concrete going to Sook Pit shall be hauled and stockpiled separately.

S-36 (2360) PLANT MIXED ASPHALT PAVEMENT (MSCR)

MnDOT 2360 is modified and/or supplemented with the following:

S-36.1 Mix Designation Number for the bituminous mixture on this Project is as follows:

Type SP 12.5 Wearing Course SPWEB240C

S-36.2 **No production testing will be required of the Contractor. The County may obtain samples as determined by the Engineer.**

S-36.3 **Mix shall be placed using Ordinary Compaction and shall meet MnDOT surface requirements listed in table 2360-27.**

S-37 (2461) STRUCTURAL CONCRETE
REVISED 04/09/20
MnDOT 2461 is modified as follows:

S-37.1 **The dowel bar shown on Sheet No. G-106 of the plans are removed and replaced by #6 Epoxy Coated Reinforcement Bars as shown on the detail pages in the Attachments of this proposal. Lincoln County will supply and deliver 288 pieces of 20-foot length #6 Epoxy Coated Reinforcement Bars at no cost to the Contractor. Contractor shall supply and include in the price of the "Place Concrete Pavement" (Item 2301.504) the cutting, placement, epoxy sealant for cuts and other abrasions in the epoxy coating, ties, 2 1/4 inch spacers to go under the reinforcement bars, #4 dowel bars to tie the concrete pavement to the curb and gutter as shown on Sheet No. G-106.**

The County reserves the right to remove or reduce testing at the direction of the Engineer.

S-37.2 MnDOT 2461.2.F.1.c shall be deleted and replaced with the following:

F.1.c Slump Designation
The Department will designate the maximum slump as defined by the Grade Designation in accordance with Table 2461-6 and Table 2461-7.

S-37.3 Table 2461-3 of MnDOT 2461.2.F.1.d shall be deleted and replaced with the following:

Table 2461-3
Coarse Aggregate Gradation Designation for Concrete

Designation	Coarse Aggregate Gradation
1	2301, "Concrete" Pavement Only
2	ASTM #67
3	ASTM #7
4	ASTM #89
7	CA-70
8	CA-80

S-37.4 Table 2461-5 of MnDOT 2461.2.F.2.a(2) shall be deleted and replaced with the following:

Table 2461-5
Concrete Mix Design Requirements for Grout and Lean Mix Backfill Mixes

Mix Number	Maximum w/c ratio	Water Content (pounds)	Cement Content (pounds)	Fly Ash Content (pounds)	Fine Aggregate Calculation (pounds)	Coarse Aggregate Calculation (pounds)	%Air Content	Slump Range	Minimum 28-day Compressive Strength, f'c
1AGROUT *	0.50	379	758	0	100% †	0	3.0%	As needed	4000 psi
3AGROUT *	0.44	379	865	0	100% †	0	10.0%	As needed	4000 psi
Lean Mix ‖	1.00	375	125	250	50% †	50% †ǂ	N/A	10 inch ± 1 inch	#

* Do not provide grout containing coarse aggregate or fly ash.
‖ Coarse Aggregate Quality meets requirements of 3137.2.D.1, "Coarse Aggregate for General Use."
† After adding the specified quantities of cement, fly ash, and water, provide the remaining aggregate to an absolute volume 27.00 – 27.27 cubic feet
ǂ Meeting ASTM #67 gradation as shown in Table 3137-4
Maximum 28-day compressive strength of 1500 psi

S-37.5 Table 2461-6 of MnDOT 2461.2.F.2.b(1) shall deleted and replaced with the following:

Table 2461-6
Concrete Mix Design Requirements (Not applicable to Mass Concrete)

Concrete Grade	OLD Mix Number	NEW Mix Number	Intended Use *	Maximum w/c ratio ‖	Maximum Cementitious Content (lbs/yd^3)	Maximum %SCM (Fly Ash/ Slag/Ternary)	Slump Range	Minimum 28-day Compressive Strength, f'c	3137 Spec.
B Bridge Substructure	3Y43	3B52	Abutment, stems, wingwalls, paving brackets, pier columns and caps, pier struts	0.45	750	30/35/40	2 - 5"	4000 psi	2.D.1
F Flatwork	3A22 3Y22	3F32	Curb and gutter	0.42	750	30/35/0	½ - 3" #	4500 psi	2.D.1
	3A32 3Y32 3A34	3F52 3F57EX † 3F52CO ‡	Sidewalk, curb and gutter, slope paving, median sidewalk, driveway entrances, ADA pedestrian sidewalk	0.45	750	25/30/0	2 - 5"	4500 psi	2.D.1
G General Concrete	1A43	1G52	Footings and pilecap	0.55	750	30/35/40	2 - 5"	4500 psi	2.D.1
	3A43 3B42 3Y43	3G52	Footings, pilecap, walls, cast-in-place manholes and catch basins, fence posts, signal bases, light pole foundations, erosion control structures, cast-in-place box culverts, culvert headwalls, open flumes, cast-in-place wall stems	0.45	750	30/35/40	2 - 5"	4500 psi	2.D.1
M Median Barrier	3Y12	3M12	Slipform barrier, Median barrier, non-bridge	0.42	750	30/35/40	½ - 1" #	4500 psi	2.D.1
	3Y32	3M52	Barrier, Median barrier, non-bridge	0.45	750	30/35/40	2 - 5"	4500 psi	2.D.1
P Piling	1A43	1P42	MSE and gravity wall leveling pad	0.63	750	30/35/40	2 - 4"	3000 psi	2.D.1
	1C62	1P62	Piling, spread footing leveling pad	0.63	750	30/35/40	3 - 6"	3000 psi	2.D.1
R Pavement Rehabilitation	3A32 3B42	3R52	CPR - Full depth concrete repairs, concrete base	0.45	750	30/35/40	2 - 5"	4000 psi	2.D.3
S Bridge Superstructure	3Y16	3S12	Slipform bridge barrier, parapets, end post	0.42	750	30/35/40	½ - 1" #	4000 psi	2.D.2
	3A32 3A42 3Y43 3Y46 3Y46A	3S52	Median barrier, raised median, pilaster, curb, sidewalk, approach panel, formed bridge barrier, parapet, end post, collar	0.45	750	30/35/40	2 - 5"	4000 psi	2.D.2

Table 2461-6

Concrete Mix Design Requirements (Not applicable to Mass Concrete)

Concrete Grade	OLD Mix Number	NEW Mix Number	Intended Use *	Maximum w/c ratio ‖	Maximum Cementitious Content (lbs/yd^3)	Maximum %SCM (Fly Ash/ Slag/Ternary)	Slump Range	Minimum 28-day Compressive Strength, f'c	3137 Spec.
X Miscellaneous Bridge	1X62 1X46	1X62	Cofferdam seals, rock sockets, drilled shafts	0.45	750	30/35/40	3 - 6"	5000 psi	2.D.1
	3X46	3X62	Drilled shafts above frost line	0.45	750	30/35/40	3 - 6"	5000 psi	2.D.1
Y Bridge Deck	3Y33 3Y33A 3Y36 3Y36A	3Y42-M § 3Y42-S §	Bridge decks, integral abutment diaphragms, pier continuity diaphragms, expansion joint replacement mix	0.45	750	30/35/40	2 - 4"	4000 psi	2.D.2
	3A37 3Y37	3Y47 **	Deck patching mix	0.45	750	30/35/40	2 - 4"	4000 psi	2.D.2

* If the intended use is not included elsewhere in the Specification or Special Provisions, use mix 3G52, unless otherwise directed by the Engineer.

‖ The minimum water/cement (w/c) ratio is 0.30.

† Mix 3F57EX requires the use of Coarse Aggregate Designation "7", "2" or "3" for the 4th digit in accordance with Table 2461-3.

‡ Identify specific color used on the certificate of compliance. Colored concrete is only allowed when specified in the plans or the Contract.

Adjust slump in accordance with 2461.3.G.7.a for slipform concrete placement.

§ The "-S" indicates a bridge deck with a structural slab and "-M" indicates a monolithic bridge deck.

** Mix 3Y47 requires the use of Coarse Aggregate Designation "7" or "3" for the 4th digit in accordance with Table 2461-3.

S-37.6 Table 2461-7 of MnDOT 2461.2.F.2.b(3) shall be deleted and replaced with the following:

Table 2461-7
High-Early (HE) Concrete Requirements
(Not applicable to Bridge Superstructure or Mass Concrete)

Mix Number	Concrete Grades Allowed	Minimum Time to Opening	Maximum w/c ratio	Maximum Cementitious Content (lbs/ yd^3) *	Slump Range	Minimum Strength to Opening	Minimum 28-day Compressive Strength, f'c	3137 Spec.
1PHE62 ‖	P	-	0.63	750	3 - 6"	-	3000 psi	2.D.1
3HE32	F	48 hrs	0.42	750	1 – 3" †	3000 psi	4500 psi	2.D.1
3HE52	B, F, G	48 hrs	0.42	750	2 – 5"	3000 psi	4500 psi	2.D.1
3YHE52	Y (Repairs Only)	48 hrs	0.42	750	2 – 5"	3000 psi	4000 psi	2.D.2
3RHE52	R (Repairs Only)	48 hrs	0.42	750	2 – 5"	3000 psi	4000 psi	2.D.3

* Supplementary Cementitious Materials allowed.
‖ Used only for placing concrete in piles during freezing temperatures, provide 30 percent additional cement to the concrete mix for concrete 10 feet below the ground line or water line in accordance with 2452.3.D.6, "Cast-in-Place Concrete Piles."
† Adjust slump in accordance with 2461.3.G.7.a,"Concrete Placed by the Slip-form Method."

S-37.7 Table 2461-8 of MnDOT 2461.2.F.2.b(3) shall be deleted and replaced with the following:

Table 2461-8
Project Specific Contractor Designed Mixes

Concrete Grade	Intended Use	Specification	3137 Spec.
A	Concrete Pavement	2301	2.D.3
M, V, W, Z	Precast Concrete	2462	Varies
HPC	High Performance Concrete	Special Provision 2401	2.D.2
MC	Mass Concrete	Special Provision 2401	Varies
SCC	Self-consolidating Concrete	Special Provision 2401	Varies
CLSM	Cellular Concrete Grout	2519	None
All concrete grades	Delivery time is > 90 minutes	2461.3.G.3.a	Varies

S-37.8 MnDOT 2461.2.F.3 shall be deleted and replaced with the following:

F.3 Submittal Requirements
At least 21 calendar days before initial placement of the concrete, submit the appropriate *General*

Concrete Mix Design Submittal form to the Concrete Engineer for approval. Always use the most current forms available from the MnDOT Concrete Engineering Website.

Design the concrete mix to an absolute volume of 27.00 – 27.27 cu. ft.

The Concrete Engineer will:

(1) Provide specific gravity and absorption data using oven dry (OD) weights for mix design calculations.

(2) Review the mix design submittal and approve the materials and mix design for compliance with the Specifications.

Table 2461-9 defines the mix design submittal requirements for Level 1 and Level 2 Mixes.

S-37.9 Table 2461-9 of MnDOT 2461.2.F.3 shall be deleted and replaced with the following:

Table 2461-9
Mix Design Submittal Requirements

	SCM Substitution Limits	Fine Aggregate Limit	Gradation Requirements	Preliminary Test Data Requirements	Submittal Package
Level 1 Mixes *	Fly Ash: 0 – 15% Slag: 0 – 35%	40 – 45% of total aggregate by volume ‖	3126 and 3137	None	General Concrete Mix Design
Level 2 Mixes	Fly Ash: > 15% Ternary: Any	None	Use Either: • 3126 and 3137 • Job Mix Formula (JMF)	2461.2.F.3.a	Use Either: • General Concrete Mix Design • General Concrete Mix Design (JMF)

* High Early concrete in accordance with Table 2461-7 is defined as a Level 1 Mix.
‖ Fine aggregate limit does not apply to exposed aggregate concrete mixes.

S-37.10 The second paragraph of MnDOT 2461.2.F.3.a(1) shall be deleted and replaced with the following:

The Concrete Engineer considers a suitable experience record to have the following characteristics as compared to the proposed mix:

(A) A required average strength (f'cr) no greater than 1000 psi above the required 28-day compressive strength,
(B) Same type or grade of cementitious materials,
(C) Same class of coarse aggregate,
(D) Same supplementary cementitious proportion,
(E) Individual aggregate weights within 10% of the proposed,
(F) Water/Cement ratio no greater than 0.45,
(G) Total cementitious weight within 5% of proposed, and
(H) Batching conditions and testing procedures similar to those expected for the proposed work.

S-37.11 Table 2461-10 of MnDOT 2461.2.F.3.b shall be deleted and replaced with the following:

Table 2461-10 **Required Average Strength (f'cr) Equations***	
	Required Average Strength
f'c ≤ 5000 psi*	f'cr = f'c + 1.34S **OR** f'cr = f'c + 2.33S – 500
f'c > 5000 psi	f'cr = 0.90f'c + 2.33S
*When f'c ≤ 5000 psi, f'cr is the larger value computed from the equations.	

S-37.12 Table 2461-11 of MnDOT 2461.2.F.4 shall be deleted and replaced with the following:

Table 2461-11 **Mix Design Adjustments Requirements**		
	Type of Change or Adjustment	Mix Design Resubmittal Requirements
Level 1 Mixes	• Cementitious Sources • Admixture Sources • Admixture Dosage Rate	No resubmittal required
	• Aggregate Sources • Aggregate Proportions • Any cementitious proportion (≤ 15% max fly ash)	Resubmittal of Mix Design
	• Any cementitious proportion (> 15% max fly ash)	Resubmittal in accordance with 2461.2.F.3.a
Level 2 Mixes	• Cementitious Sources • Admixture Dosage Rate	No resubmittal required
	• Aggregate Source, no change in Aggregate Class • ≤ 5% Total Cementitious • ≤ 10% Individual Aggregate Weights	Resubmittal of Mix Design
	• Aggregate Source and Class of Coarse Aggregate • Supplementary Cementitious Proportion • > 5% Total Cementitious • > 10% Individual Aggregate Weights • Admixture Sources	Resubmittal in accordance with 2461.2.F.3.a
* Only one (1) increase in total cementitious allowed per mix design, next adjustment requires resubmittal in accordance with 2461.2.F.3.a, "Preliminary Test Data Requirements for Level 2 Mixes"		

S-37.13 MnDOT 2461.3.D shall be deleted and replaced with the following:

D Batching Requirements

The Concrete Engineer will allow only Large Capacity Scale companies authorized by the Minnesota Department of Commerce, Weights and Measures Division to calibrate weighting equipment and meters for MnDOT projects. A list of authorized companies is available from the MnDOT Concrete Engineering Unit website.

Calibration of weighing equipment is required within three months prior to plant certification each

calendar year. Calibrate weighing equipment and perform spot checks in accordance with the Concrete Manual.

S-37.14 The second paragraph of MnDOT 2461.3.D.1.c shall be deleted and replaced with the following:

Calibration of the water meter is required within three months prior to plant certification each calendar year. Calibrate the water meter and perform spot checks in accordance with the Concrete Manual.

S-37.15 MnDOT 2461.3.F through MnDOT 2461.3.F.5.f shall be deleted and replaced with the following:

F Certified Ready-Mix Concrete

Provide concrete from a certified ready-mix plant listed on the MnDOT Concrete Engineering Unit website. Ensure the Producer performs quality control of concrete production and complies with the MnDOT Certified Ready-Mix Plant Program.

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

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

F.1 Certified Ready-Mix Plant Program

The Producer will perform Quality Control (QC) under the certification program for ready-mix concrete plants in accordance with 2461.3.F.4, "Contractor Quality Control." The Engineer will perform Quality Assurance (QA) as part of the acceptance process in accordance with 2461.3.F.5, "Agency Quality Assurance."

F.1.a Plant Certification

Prior to the production of Department concrete each construction season, a MnDOT Certified Concrete Plant Technician, representing the Department, shall perform a thorough on-site inspection of the concrete plant with a MnDOT Certified Concrete Plant Technician, representing the Producer.

In order to obtain certification, complete the following:

(1) The Producer will complete MnDOT Form 2163, *Concrete Plant Contact Report,* prior to the on-site inspection with the Department Representative.
  (1.1) A MnDOT Certified Concrete Plant Technician, representing the Producer, signs the *Concrete Plant Contact Report* certifying compliance with the Certified Ready Mix requirements and continual maintenance of the plant to assure that the plant can produce concrete meeting MnDOT Specifications.
  (1.2) A MnDOT Certified Concrete Plant Technician, representing the Department, signs the *Concrete Plant Contact Report* signifying that the plant complies with all requirements prior to concrete production.

(2) Identify persons responsible for testing and overseeing plant operations on MnDOT Form 2163, *Concrete Plant Contact Report.* Provide their email, cell phone number, and MnDOT Technical Certification number.

(3) Include a site map showing stockpile locations identified with the MnDOT pit number.

(4) Provide cementitious and admixture samples.

(5) Provide a computerized batching system capable of meeting the requirements of 2461.3.F.2, "Certificate of Compliance."

(6) Provide continuous access on-site to the Concrete Manual available from MnDOT's website.

(7) Supply a working email address, including an active internet connection, at the certified ready-mix plant.

(8) Provide calibrated electronic scales for weighing materials.

(9) Provide facilities in accordance with 1604, "Plant Inspection – Commercial Facility," for the use of the plant technician in performing tests.

The Department Representative will submit the completed Contact Report and current Certificate of Compliance to the MnDOT Concrete Engineer for final determination of certification.

F.1.b Maintaining Plant Certification

The Producer will maintain plant certification by:

(1) Displaying the current Contact Report and site map in plain sight at all times.
(2) Updating the Contact Report with any material or equipment changes and submitting to the Department.
(3) Making Producer Plant QC Workbook and QC charts available electronically at all times.
(4) Performing the responsibilities identified in 2461.3.F.4, "Contractor Quality Control."
(5) Supplying the following information at the request of the Engineer:
  (5.1) Approved mix design sheets,
  (5.2) Agency cementitious and admixture test results,
  (5.3) Agency verification gradation test results,
  (5.4) Aggregate quality test results.
(6) Keeping plant reports, charts, and supporting documentation on file at the plant site for 5 calendar years.

F.1.c Certified Ready-Mix Plant Decertification

The Concrete Engineer, with coordination from the Engineer, may decertify the plant and halt production of concrete under any of the following conditions:

(1) Unauthorized procedural, material, or equipment changes made after the completion of the Concrete Plant Contact Report,
(2) Failure to meet the required testing rates,
(3) Failure to complete required documents,
(4) Failure to provide competent MnDOT Certified Plant Technicians,
(5) Disregard of any of the requirements of 2461.3.F, "Certified Ready-Mix Concrete," or
(6) Falsification of test records or certificates of compliance.

F.2 Certificate of Compliance

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

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

Provide a computerized Certificate of Compliance that includes all of the following information:

(1) Name of the ready-mix concrete plant,
(2) Name of the Contractor,
(3) Date,
(4) State Project Number (SP) or (SAP),
(5) Bridge Number (if applicable),
(6) Time concrete was batched,
(7) Truck number,
(8) Quantity of concrete in this load,
(9) Running total of each type of concrete, each day for each project,
(10) Type of concrete (MnDOT Mix Designation Number),
(11) Cementitious materials using MnDOT Standard Abbreviations,
(12) Admixtures using MnDOT Standard Abbreviations,
(13) Aggregate sources using 5 digit State Pit Numbers,
(14) Admixture quantity in fluid ounces per 100 lb of cementitious materials or ounces per cubic yard,

(15) Batch weights in columns in accordance with Table 2461-12:
- (15.1) Print in order a through k.
- (15.2) Use formula to calculate weights.
- (15.3) Head columns with Standard Labels.

Table 2461-12
Standard Certificate of Compliance Labels

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

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

(16) Total Water (Batch Water + Free Moisture) in pounds,

(17) Water available to add [(Mix Design Water × Batch Size) – Total water] in gallons,

(18) Space to note the water adjustment information, including:
- (18.1) Water in gallons added to truck at plant (filled in by Producer, enter zero if no water is added),
- (18.2) Water in gallons added to truck at the jobsite (filled in by Producer or Engineer, enter zero if no water is added), and
- (18.3) Total actual water in pounds (Total Water from Certificate of Compliance plus any additions).

(19) The following information printed with enough room beside each item to allow the Engineer to record the test results:
- (19.1) Air content,
- (19.2) Air temperature,
- (19.3) Concrete temperature,
- (19.4) Slump,
- (19.5) Cylinder number,
- (19.6) Location or part of structure,
- (19.7) Time discharge, and
- (19.8) Signature of Inspector.

(20) Location for the Producer signature,

(21) For colored concrete, final color.

F.3 Definitions

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

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

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

Table 2461-13 defines commonly used certified ready-mix terms.

Table 2461-13
Certified Ready-Mix Terminology

Term	Definition
Mix design water	The maximum allowable water content for 1 cu. yd of concrete.
Total moisture factor	Factor used to determine total amount of water carried by a given wet aggregate.
Absorption factor	Factor used to determine the water contained within the pores of the aggregate and is held within the particles by capillary force.
Free moisture	The water that is carried on the surface of the aggregate that becomes part of the total water.
Batch water	Water actually batched into the truck by the batcher. Batch water includes potable water and clarified water.
Total water	Batch water added to free moisture. Total water may also include the water used in diluting admixture solutions.
Temper water	Water added in mixer to adjust slump.
Total actual water	The water in the concrete mixture at the time of placement from any source other than the amount absorbed by the aggregate. It includes all batch water placed in the mixer, free moisture on the aggregate and any water added to the ready mix truck prior to placement.
Ready-Mix Producer or "Producer"	Party that is producing the concrete for the Contract. It is understood that the Ready-Mix Producer is the agent of the Contractor.
Water/Cement (w/c) Ratio	W/C ratio is defined as the ratio of the total water weight to the total cementitious weight, which includes cement and supplementary cementitious materials.
Real time	The actual time during which something takes place.

F.4 Contractor Quality Control (QC)

The Producer's daily responsibilities include the following:

(1) Provide qualified personnel.
(2) Maintain laboratory equipment within allowable tolerances.
(3) Randomly spot check concrete batching to verify batch weights and tolerances.
(4) Check the bins and piles for segregation, contamination, or interblending of the aggregates.
(5) Check that mix trucks are clean, blades are not worn, and revolution counters are working properly.

F.4.a Personnel

The Producer will provide the following personnel:

(1) Quality Control Plant Technician(s) to perform all testing and QC requirements of 2461. The QC Plant Technician shall hold a current MnDOT Concrete Plant Certification.
(2) Quality Control Supervisor responsible for oversight of all QC testing and daily plant operations. The Quality Control Supervisor shall hold a current MnDOT Concrete Plant Certification and is required to remain on-site during concrete production or have cellular phone availability.
(3) Quality Control Manager responsible for oversight of the Quality Control Supervisor and the certified ready-mix plant program.

F.4.b Sampling and Testing

Take aggregate, cementitious, and admixtures samples in accordance with ASTM D 3665, Section 5, at a rate defined in the Schedule of Materials Control. Perform sampling and testing in accordance with the Concrete Manual. The Engineer may oversee the QC sampling and testing process.

Perform gradation and moisture testing at the certified ready-mix plant site. Use mechanical shakers for sieve analysis.

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

(1) AASHTO T 27, "Sieve Analysis of Fine and Coarse Aggregates,"
(2) AASHTO T 255, "Total Moisture Content of Aggregate by Drying,"
(3) AASHTO M 92, "Wire-cloth Sieves for Testing Purpose," and
(4) AASHTO M 231, "Weighing Devices Used in the Testing of Materials."

F.4.c Aggregate Gradations

Complete the *Concrete Aggregate Worksheet* for each aggregate size and source.

If a QC gradation fails, retest immediately documenting both results. If an additional QC test is required for that week, the Engineer will not allow a retest gradation as a substitute for a QC gradation. The Engineer will not allow a verification companion gradation as a substitute for a QC gradation.

Identify QC companion samples with the following information:

(1) Date
(2) Test number
(3) Time
(4) Type of material
(5) Plant
(6) Sampling location

F.4.d Moisture Content

Determine the moisture content using the oven-dry method in the Concrete Manual. Moisture probes to determine moisture content in the aggregates are not allowed without the approval of the Concrete Engineer.

Complete the *Batching Report* for each aggregate size and source.

Observe the batch person enter moisture contents into the batching system. Verify the moisture contents were entered correctly on the Certificate of Compliance.

F.4.e Concrete Ready-Mix Plant QC Workbook

Complete the *Concrete Ready-Mix Plant QC Workbook* which includes all of the following documents:

(1) Diary
(2) Batching Report
(3) Concrete Aggregate Worksheet
(4) Weekly Concrete Aggregate Report
(5) JMF Concrete Aggregate Worksheet
(6) JMF Weekly Concrete Aggregate Report

The Producer will maintain the *Concrete Ready-Mix Plant QC Workbook* in real time using their full name for the diary and each test performed.

The Producer's designated Quality Control Supervisor will review and submit to the Engineer and the Concrete Engineering Unit by the Tuesday immediately following the previous week's production.

F.4.f Aggregate Gradation Control Charts and Sample Log

Complete the *Aggregate Gradation Control Charts* in real time for each aggregate size and aggregate

source by recording Producer QC gradation and Verification Companion gradation results. These results are included in the moving average calculation.

Complete *Sample Log* in real time for all samples taken as follows:

(1) Record all aggregate samples taken by the Agency.

(2) Record cementitious and admixture samples taken by the Producer and picked up by the Agency.

F.4.g Signing the Certificate of Compliance

The Producer's MnDOT Certified Concrete Plant Technician will:

(1) Review the first Certificate of Compliance for each mix type, each day, for accuracy; and

(2) Legibly hand sign the Certificate of Compliance at a location designated for Producer signature signifying agreement to the terms of this program and to certify that the materials comply with the requirements of the Contract; and

(3) Print their name and write their MnDOT Technical Certification Number next to their signature.

F.5 Agency Quality Assurance (QA)

The Engineer's responsibilities each time the plant is visited include the following:

(1) Confirm the *Concrete Ready-Mix Plant QC Workbook* and *Aggregate Gradation Control Charts* are accurate and up-to-date.

(2) Check Certificate of Compliance for completeness and accuracy.

(3) Spot check concrete batching to verify batch weights and tolerances.

(4) Check the bins and stockpiles for segregation, contamination, and interblending of the aggregates.

(5) Obtain aggregate samples per Schedule of Materials Control.

(6) Observe Producer's Certified Technician obtain aggregate samples and run gradation and moisture tests when possible.

(7) Verify cementitious and admixtures are certified and approved.

(8) Collect cementitious and admixtures samples per the Schedule of Material Control.

(9) Provide the following Agency test results to the Producer in a timely manner:

- (a) Cementitious Materials
- (b) Admixtures
- (c) Gradations
- (d) Coarse Aggregate Quality

(10) If any equipment malfunctions, testing procedures or test results are questionable, or unusual activity is occurring during the plant visit perform the following:

- (a) Continue monitoring at the plant and document observations in the diary.
- (b) Investigate to determine the origin of the concern and document the resolution.
- (c) Contact Independent Assurance Inspector, Project Engineer or Concrete Engineering Unit when necessary.

F.5.a Personnel

The Department will provide MnDOT Certified Concrete Plant Technicians to perform all of the duties of 2461.3.F.5, "Agency Quality Assurance."

F.5.b Sampling and Testing

The Engineer will:

(1) Take all samples randomly in accordance with ASTM D 3665, Section 5, at a rate defined in the Schedule of Materials Control.

(2) Perform all sampling and testing in accordance with the Concrete Manual.

(3) Use mechanical shakers for sieve analysis.

F.5.c Aggregate Gradations

The Engineer will:

(1) Complete the *Weekly Ready-Mix Plant Report* for each aggregate size and source.

(2) Compare the Agency results with the Producer's companion gradation result for compliance with

lab/field tolerance in accordance with 2461.3.F.6.b, *Lab Field Tolerance.*

F.5.d Batch Weight Verification

Each time the Engineer visits the plant, they will observe the actual water batched in a single load of concrete in accordance with the following:

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

The Engineer will document the actual water batched on the *Weekly Ready-Mix Plant Report.*

F.5.e *Concrete Ready-Mix Plant* QA Workbook

The Engineer will complete the *Concrete Ready-Mix Plant QA Workbook* in real time which includes all of the following documents:

(1) Diary
(2) Weekly Certified Ready-Mix Plant Report
(3) Concrete Aggregate Worksheet if gradation testing performed in the field
(4) JMF Concrete Aggregate Worksheet if gradation testing performed in the field

Submit to the Engineer and the Concrete Engineering Unit by the Thursday immediately following the previous week's production.

F.5.f Non-compliance with Certified Ready-Mix Plant Program

If the Engineer observes the Producer not complying with the requirements of the Certified Ready-Mix Plant Program, the Engineer will perform the following:

(1) Verbally notify and promptly email the Producer and the Concrete Engineer the list of observed deficiencies and provide a deadline to correct the non-compliance.
(2) If non-compliance is not corrected by the deadline, notify the Contractor and Producer that concrete production is unauthorized in accordance with 1512, "Unacceptable and Unauthorized Work."

The Concrete Engineer will determine if the severity of the non-compliance results in decertification of the plant in accordance with 2461.3.F.1.c, "Certified Ready-Mix Plant Decertification."

S-37.16 MnDOT 2461.3.G.3.a shall be deleted and replaced with the following:

G.3.a Delivery Time Beyond 90 Minutes

If the haul time does not facilitate mixing and placing the concrete within 90 minutes, perform the following for each proposed concrete mix to extend the delivery time to 120 minutes. Extending the delivery time beyond 120 minutes will require additional testing at 30-minute intervals up to the maximum desired delivery time as directed by the Concrete Engineer.

The Concrete Engineer will allow trial batching at an AASHTO accredited laboratory to pre-qualify the concrete mix in accordance with 2461.3.G.3.a(1), "Lab Trial Batching."

The Concrete Engineer may waive the lab trial batching requirement and allow only field trial batching of the proposed mix to extend the delivery time on an individual project in accordance with 2461.3.G.3.a(2), "Field Trial Batching."

Upon completion of the trial batching, provide the trial batching test results and proposed mix design to the Concrete Engineer. Submit the Contractor mix design in accordance with 2461.2.F.2.b, "Contractor Designed Concrete Mixes." Final approval of the mixture is based on satisfactory field placement and performance.

G.3.a(1) Lab Trial Batching

Contact the MnDOT Concrete Engineering Unit a minimum of 2 days before trial batching.

Ensure the admixture manufacturer's technical representative is present during the trial batching.

Laboratory trial batch and test the proposed mix in accordance with the following:

(1) After adding all admixtures to the concrete mixture, measure the slump, air content, unit weight, and temperature immediately after batching, at 90 minutes, and at 120 minutes

(2) Fabricate concrete cylinders for compressive strength at 90 minutes and at 120 minutes (sets of 3). Test all of the cylinders for compressive strength at 28 days

(3) Fabricate concrete cylinders for hardened air content testing at 90 minutes and at 120 minutes (sets of 5). Determine the hardened air content (ASTM C457) at a minimum of 7 days on 2 samples representing 90 minutes and 2 samples representing 120 minutes. Provide MnDOT with the other 6 samples for testing at their discretion. Retain any hardened concrete test specimens for a minimum of 90 days for MnDOT to examine at their discretion.

Once accepted by the Concrete Engineer, the Department will consider the laboratory trial batching acceptable for use for five (5) years; unless the Concrete Engineer determines the material sources have changed significantly since the initial laboratory testing and acceptance.

G.3.a(2) Field Trial Batching

Submit a QC Plan for extending the delivery time beyond 90 minutes for review and approval to the Concrete Engineer a minimum of 2 days before field trial batching.

The QC plan includes the proposed materials, batching sequences, anticipated timeline for admixture and/or water adjustments at the project site, delivery method and anticipated typical travel time to project site.

The Contractor must demonstrate to the Engineer the ability to properly mix, control, and place the concrete in accordance with the proposed QC plan and the Contract.

Perform field trial batching on the proposed mix in the presence of the Engineer in accordance with the following:

(1) Batch a minimum 5 cubic yards of concrete utilizing the same materials and methods intended for use when supplying concrete placed into the permanent work

(2) Maintain the ready-mix truck in transit; by either driving around the yard or on the roadway; and maintain the drum speed at 5 to 7 revolutions per minute for the entire 120 minutes

(3) Measure the slump, air content, unit weight and temperature after making all admixtures and water adjustments to the concrete mixture at 90 minutes and 120 minutes

(4) Fabricate concrete cylinders for compressive strength at 90 minutes and at 120 minutes (sets of 3). Test all of the cylinders for compressive strength at 7 days

(5) Fabricate concrete cylinders for hardened air content testing at 90 minutes and at 120 minutes (sets of 2). Determine the hardened air content (ASTM C457) at a minimum of 7 days on 1 sample representing 90 minutes and 1 sample representing 120 minutes. Provide MnDOT with the other 2 samples for testing at their discretion. Retain any hardened concrete test specimens for a minimum of 90 days for MnDOT to examine at their discretion

(6) Incorporate the trial batched concrete into other work with the approval of the Engineer

S-37.17 MnDOT 2461.3.G.5 through MnDOT 2461.3.G.5.d shall be deleted and replaced with the following:

G.5 Concrete Strength

G.5.a Concrete Cylinder Requirements

The Contractor and Engineer will perform random sampling and testing in accordance with ASTM C172, C31, C39 and the Schedule of Materials Control.

Anyone performing concrete strength testing of cylinders is required to hold one of the following current certifications:

(1) ACI Concrete Strength Testing Technician Certification
(2) MnDOT Strength Testing Technician Certification
(3) WisDOT Strength Testing Technician Certification

Anyone fabricating concrete cylinders or beams is required to hold either a current ACI Field 1 Technician Certification or a MnDOT Field 1 Technician Certification.

G.5.b Standard Strength Cylinders

All standard strength cylinders have a minimum 28-day compressive strength requirement unless modified elsewhere in the Contract.

The Engineer will perform the following for standard strength cylinders:

(1) Cast cylinders (sets of 3) for testing in accordance with the Schedule of Materials Control or as modified in the Contract
(2) Mark cylinders for identification of the represented unit or section of concrete in accordance with the following: (1.1, 1.2, 1.3/ 2.1, 2.2, 2.3/ 3.1, 3.2, etc.). In order to differentiate between portions of a project, prefixes and suffixes are allowed
(3) Complete the MnDOT Concrete Cylinder Identification Card including the results for air content, slump (if required), concrete, and air temperature testing from the same load

G.5.b(1) Curing Standard Strength Cylinders

Properly cure standard strength cylinders during each specified curing period in accordance with the following:

(1) Initial curing period as immediately after final finishing for a period of up to 48 hours
(2) Intermediate curing period as the time between specimen pickup from the initial curing site and delivery to the laboratory for final curing, Intermediate curing period is up to 7 days from the day of casting. Cure the standard strength cylinders in the Contractor provided moist curing environment
(3) Final Curing Period as the time when cylinders are cured in the laboratory lasts a minimum of 21 days

G.5.b(2) Moist Curing Environment

At least 24 hours before concrete placement, provide moist curing environment(s) of adequate size and number, including ancillary equipment and materials, necessary to maintain moist curing environment(s) in accordance with ASTM C31, 2031, "Field and Office Laboratory," and the following:

For each separate moist curing environment:

(1) Provide a calibrated waterproof digital temperature recording device that records the daily maximum and minimum ambient temperatures for the previous 7 days.
(2) During the initial curing period, maintain the standard strength cylinders or beams in an ambient temperature range from 60°F to 80°F.
(3) During the intermediate curing period, fully immerse the cylinders with lids in water maintained at a temperature from 60°F to 80°F.

The Engineer will monitor the daily temperatures of the curing environments. Agency monitoring does not relieve the Contractor of the responsibility to maintain the water temperature as specified herein.

If the Contractor fails to comply with the requirements shown here-in, the Engineer may delay

concrete placement and will consider any concrete incorporated into the work as unauthorized in accordance with 1512.2, "Unauthorized Work." The Engineer will consider any delays to the Contract resulting from unauthorized work as non-excusable in accordance with 1806.2.C, "Non-Excusable Delays."

All costs related to providing and maintaining moist curing environments is considered incidental.

G.5.b(3) Transporting Cylinders

After the initial curing period, the Engineer will both transport and further cure the cylinders using intermediate curing or final curing conditions.

The Engineer will transport the cylinders from the initial curing site in accordance with the following:

(1) Transport all grades of concrete except mass concrete (Grade MC) a minimum of 16 hours after casting
(2) Transport mass concrete a minimum of at least 24 hours after casting
(3) Transport high early strength concrete a minimum of at least 12 hours after casting
(4) With securely placed tight fitting plastic caps on plastic molds, or by other methods to prevent moisture loss
(5) Protected from jarring, bouncing, and freezing
(6) No greater than 4 hours, unless cylinders are maintained in the moistened condition at ambient temperature of 60°F to 80°F

G.5.b(4) Testing Cylinders

The Engineer will perform compressive strength testing on the standard strength cylinders in accordance with ASTM C39 during the Departments normal laboratory operating hours. The Department will report the results in accordance with the *Laboratory Manual*.

G.5.c Field Control Strength Cylinders

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

In lieu of field control cylinders, the Engineer will allow the Contractor to submit a strength-maturity relationship curve for use in accordance with 2461.3.G.6, "Estimating Concrete Strength by the Maturity Method."

The Engineer will perform the following for field control strength cylinders:

(1) Cast up to 3 field control cylinders per structure; the Contractor is responsible for any additional field control cylinders
(2) Mark field control cylinders for identification of the represented unit or section of concrete in accordance with 2461.3.G.5.b, "Standard Strength Cylinders," Note (2)
(3) Complete the MnDOT Concrete Cylinder Identification Card including the results for air content, slump (if required), concrete, and air temperature testing from the same load

G.5.c(1) Curing Field Control Cylinders

Cure field control concrete cylinders in the same location and under the same conditions as the concrete structure or unit involved.

The Engineer will allow "Match Curing of Concrete Test Specimens" method in accordance with AASHTO R72 modified as follows:

(1) Provide an apparatus that consist of a monitoring and heating system capable of maintaining concrete cylinders at a temperature no greater than 5°F above the temperature of the concrete at a specific location in the member. A satisfactory system to

continually monitor the concrete temperatures may include a temperature sensor in the concrete structure or unit involved, a controller, special insulated cylinder molds with built-in heating systems, and a temperature sensor in the molds.

(2) When the temperature exceeds 5°F or the temperature monitoring system fails, the Engineer will not accept field control cylinder results.

G.5.c(2) Testing Cylinders

The Engineer will perform compressive strength testing on the field control cylinders in accordance with ASTM C39 during the Departments normal laboratory operating hours.

If Project scheduling requires testing outside of the Departments' laboratories normal operating hours or the Department's nearest laboratory is greater than 30 miles from the project; Provide certified and calibrated hydraulic cylinder-testing machine within 30 miles of the project and at a location approved by the Engineer. Test the field control cylinders in the presence of the Engineer in accordance with ASTM C39.

G.5.d Strength Specimens for Concrete Paving

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

Cast standard beams or cylinders for testing at 28 days.

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

Cure the standard beams or cylinders in accordance with 2461.3.G.5.b(1), "Curing Standard Strength Cylinders," and 2461.3.G.5.b(2), "Moist Curing Environment," except standard beams are cured in intermediate curing conditions until broken at 28 days.

Cure the field control beams or cylinders in the same location and under the same conditions as the concrete pavement.

The Engineer will test the flexural beams and record the results on MnDOT Form 2162, Concrete Test Beam Data.

If using cylinders, the Engineer will submit cylinders and a completed identification card to the Department's Laboratory.

S-37.18 MnDOT 2461.3.G.5.e shall be deleted and replaced with the following:

G.5.e.....Concrete Compressive Strength

The Concrete Engineer defines a **strength test** as the average strength of three (3) cylinders fabricated from the same sample of concrete and cured in accordance with the 2461.3.5.a and 2461.3.G.5.d.

The maximum allowable range between the individual cylinders in a strength test is 350 psi. The Concrete Engineer will remove all individual cylinder strengths that are more than 350 psi below the highest individual cylinder strength and recalculate the strength.

The Engineer will review standard strength test results for acceptance in accordance with Table 2461-17 and 2461.3.G.5.f.

Table 2461-17 Acceptance Criteria for Standard Strength Cylinders		
	Strength Test	**Moving average of 3 consecutive strength tests ***
f'c ≤ 5000 psi	> (f'c – 500 psi)	≥ f'c
f'c > 5000 psi	> 0.90 * f'c	≥ f'c
* If a project does not establish a moving average of 3 consecutive strength tests, use the average of 2 strength tests to determine acceptance. If there is only a single strength test, contact the Concrete Engineer for recommendation.		

S-37.19 MnDOT 2461.3.G.5.f shall be deleted and replaced with the following:

G.5.f ..... Non-Conforming Material

If the Contractor places concrete not meeting the strength requirements of 2461.3.G.5.e, "Concrete Compressive Strength" into the work, the Engineer may not accept nonconforming concrete at the contract unit price. The Engineer will evaluate non-conforming strength results in accordance with the following:

G.5.f(1) ..... Strength Test ≤ 500 psi Below f'c

If any strength test result shows a strength ≤ 500 psi below f'c and is not deficient due to erroneous/invalid strength tests as defined in 2461.3.G.5.f(4), "Moving Average Below f'c", no additional investigation will occur and the Engineer will include the low strength test result in the moving average.

G.5.f(2) ..... Strength Test > 500 psi Below f'c

If any strength test result shows a strength > 500 psi below f'c and is not deficient due to erroneous/invalid strength tests as defined in 2461.3.G.5.f(4), "Moving Average Below f'c", the Engineer, in conjunction with the Concrete Engineer, will investigate to determine if the concrete has attained the critical load-carrying capacity.

The investigation may consist of, but is not limited to reviewing the following:

(A) Sampling and testing plastic concrete
(B) Handling of cylinders
(C) Cylinder curing procedures
(D) Compressive strength testing procedures
(E) Certificate of Compliances
(F) Evaluation using Rebound Hammer (ASTM C803), Penetration Resistance (ASTM C805), or other method approved by the Concrete Engineer
(G) Review of the design calculations for the concrete in question

If it is determined that the concrete represented by the standard strength test has attained the critical load carrying capacity, the Engineer will include the strength test in the moving average calculation.

If it is determined that the concrete has not attained the critical load carrying capacity, the Engineer will direct the Contractor to remove and replace concrete in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work." The Contractor may dispute the remove and replace order within 7 days of written notification by the Engineer. If the Contractor disputes the order, follow the dispute resolution coring procedure in accordance with 2461.3.G.5.f(3), "Dispute Resolution Coring for a Strength Test Failure."

G.5.f(3) ..... Dispute Resolution Coring for a Strength Test Failure

The Engineer and Contractor will mutually agree on an Independent Third Party to core and test the concrete in accordance with ASTM C42 and the following:

(A) The Engineer will identify a minimum of three (3) locations for the Independent Third Party to

core.

(B) The Independent Third Party will take one (1) core at each location.

(C) The Independent Third Party will complete all coring within 14 days of notification of the low strength concrete.

(D) The Contractor is responsible for ensuring the core holes are repaired.

The Engineer, in conjunction with the Concrete Engineer, will review the core test results and evaluate in accordance with Table 2461-18, providing all other concrete tests meet requirements.

Table 2461-18
Evaluation of Core Test Results

Core (average of 3 cores) Test Results:	Engineer considers concrete:	Cost of Coring and Testing:	Resolution:
≥ 85% of f'c and No individual core is < 75% of f'c	Acceptable to remain in place	Agency	No monetary reduction for single strength test failure.
< 85% of f'c	Unacceptable	Contractor	Remove and replace concrete in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work," as directed by the Engineer, in conjunction with the Concrete Engineer.

G.5.f(4) Moving Average Below f'c

If the moving average of three (3) consecutive strength tests is less than the required f'c, the Concrete Engineer will review the strength test results and determine if a new mix design is required.

The Concrete Engineer, in conjunction with the Engineer, will remove any strength test results from the moving average if the following occurs:

(A) After investigation, the deficient concrete strength is found to be caused by improper handling, curing, or testing of the cylinder;

(B) Cylinders kept in the field longer than 7 days that negatively impact the moving average calculation;

(C) The suspect concrete was removed and replaced;

(D) Dispute resolution coring identified the concrete acceptable to remain in place.

For the quantity of non-conforming concrete not meeting the moving average of three (3) consecutive strength tests, the Engineer will make determinations regarding the disposition, payment, or removal of the concrete in accordance with Tables 2461-19.

Table 2461-19 All Concrete Grades	
Moving average of 3 consecutive strength tests	**Monetary Reduction for Moving Average Failure ***
> 98.0% of f'c	No deductions for the materials placed as approved by the Engineer.
93.0% to 98.0% of f'c	$20.00 per cubic yard or 10% of the Contractor-provided invoice for quantity represented by test that brought moving average into non-conformance
87.5% to < 93.0% of f'c	$50.00 per cubic yard or 25% of the Contractor-provided invoice for quantity represented by test that brought moving average into non-conformance
< 87.5% of f'c	Remove and replace concrete in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work," as directed by the Engineer. If the Engineer, in conjunction with the Concrete Engineer, determines the concrete can remain in place, the Engineer will adjust the concrete at a reduction of $100.00 per cubic yard or 50% of the Contractor-provided invoice for quantity represented by test that brought moving average into non-conformance.

S-37.20 MnDOT 2461.3.G.6 through 2461.3.G.6.e shall be deleted and replaced with the following:

G.6 Estimating Concrete Strength by the Maturity Method

The Engineer will allow the maturity method to determine development of concrete strength to open to traffic loading or form removal. Use of this method requires the establishment of a relationship between concrete strength and the computed maturity index (using the Nurse-Saul method) for a specific concrete mixture. Use this method, in accordance with this Specification and the "Estimating Concrete Strength by the Maturity Method" procedure available from the MnDOT Concrete Engineering website to estimate the in-place strength of the concrete.

G.6.a Development of Strength-Maturity Relationship

The Engineer will allow development of the maturity curve in a laboratory, at the concrete plant or at the project site.

Determine the strength development criteria based on the type of concrete in accordance with the following:

(1) For concrete pavement: 2301.3.O, "Opening Pavement to Traffic"
(2) For concrete pavement repairs: 2302.3.B.4, "Opening to Construction Equipment and Traffic"
(3) For concrete structures: 2401.3.G, "Concrete Curing and Protection"
(4) For sidewalks, driveway entrances and curb and gutter, a minimum of 3000 psi is required

Until an acceptable strength-maturity relationship (maturity curve) is established and approved by the Engineer, use concrete beams or cylinders to open to traffic loading or form removal.

G.6.a(1) Procedure

Develop the strength-maturity relationship (maturity curve) to estimate concrete strength in accordance the "Estimating Concrete Strength by the Maturity Method" procedure available from the MnDOT Concrete Engineering Website and the following:

(A) Cast and cure 12 beams or 15 cylinders, plus 2 additional beams or cylinders to embed temperature sensors

(B) Establish the maturity curve using the Concrete Maturity-Strength Development form.

(C) Test three (3) strength specimens at testing ages specified in Table 2461-20 for the type of concrete work.

Table 2461-20
Chronological Testing Ages of Strength Specimens

Type of Concrete	Testing Ages *
Concrete Pavement as defined in 2301, "Concrete Pavement"	Test at least two (2) sets of strength specimens before and the remaining sets after the anticipated opening strength
Normal Strength Concrete as defined in 2461, "Structural Concrete"	1, 3, 7, 14 and 28 days
High-Early (HE) Concrete as defined in 2461, "Structural Concrete"	12 hours, 1, 2, 7 and 28 days
Ultra High-Early (UHE) Concrete per Contract	3, 4 and 8 hours, 1 and 14 days
* The Contractor may adjust the testing ages if approved by the Engineer, in conjunction with the Concrete Engineer.	

G.6.a(2) Equipment

Provide the following equipment for determining the maturity:

(1) Maturity meter or temperature sensor and data logger with a secure means of collecting, measuring, recording and storing temperature data that is unalterable

(2) Beam or cylinder molds for development of the maturity curve and other concrete making and testing equipment

G.6.a(3) Estimating In-Place Strength Using Maturity

Place concrete maturity meters or temperature sensors within the concrete in accordance with Table 2461-21.

Table 2461-21 Maturity Meter or Temperature Sensor Placement and Frequency		
Maturity Application	**Placement**	**Frequency**
Concrete Paving	Embed at approximately mid-depth and approximately 18 (but no less than 12) inches from the edge of the pavement.	Place one for each day within the last hour of placement. Place additional sensors as necessary.
Full Depth Concrete Pavement Repairs	Embed at approximately mid-depth and approximately 18 (but no less than 12) inches from the edge of the pavement.	Place one for each day within the last hour of placement. Place additional sensors as necessary.
Partial Depth Concrete Repairs	Embed at least 2 inches from the surface.	Place one for each day within the last hour of placement. Place additional sensors as necessary.
Sidewalk, Driveway Entrances, Curb and Gutter	Embed at approximately mid-depth and approximately 18 (but no less than 12) inches from the edge of the pavement.	Place one for each day within the last hour of placement. Place additional sensors as necessary.
Concrete Structures	Attach to the reinforcing steel near the edge of the exposed surface using a non-metallic fastener.	Place at least two for each concrete element.

The computed maturity results from each sensor will only apply to concrete placed under the following conditions:

(1) The same mix designation and the same project as the test location
(2) Placed on the same day and on, before, or within 50 feet after placement of the sensor
(3) Cured under conditions similar to those of the test location

Record the maturity index (or temperature readings and calculate the maturity index) on the Maturity-Field Data form or as approved by the Concrete Engineer.

G.6.b Opening to Traffic Loading or Form Removal

Prior to opening the concrete to traffic loading or removal of the forms, submit the maturity index results to the Engineer. The Engineer will review and verify the maturity index has reached the required TTF of the maturity curve developed for that concrete mix.

G.6.c Validation of Strength-Maturity Relationship for Continued Use

When utilizing the maturity method on the project, perform a strength-maturity test for each mix used to ensure the concrete strength correlates with the current maturity-strength relationship (maturity curve) as follows:

(1) Notify the Engineer at least 24 hours in advance of the specimen casting for the validation testing.
(2) The Contractor or their Representative is responsible for casting, curing and testing three (3) beams or cylinders plus one additional beam or cylinder to embed the sensor. Cast the validation specimens at the concrete plant or at the project site.
    (a) If the maturity curve was initially developed in a laboratory, perform a validation strength-maturity test on the first day of concrete placement.
    (b) For slipform concrete paving utilizing a dedicated portable batching plant, perform a validation strength-maturity test once every fifteen (15) calendar days during plant production.
    (c) For all other concrete, if the maturity curve was developed greater than thirty (30) calendar days before the start of construction or has not been validated for thirty (30) calendar days, perform a validation strength-maturity test on the first day of concrete placement. The Concrete Engineer will allow a single validation strength-maturity test

fabricated at the concrete plant to validate a maturity curve used on multiple projects. Validation strength-maturity tests fabricated at the project site only validate the maturity curve for that project.

(3) The Contractor or representative is responsible for providing the curing environment for the specimens in accordance with the "Estimating Concrete Strength by the Maturity Method" procedure available from the MnDOT Concrete Engineering website.

(4) Perform the validation testing as close as practically possible to the maturity value determined to represent the opening, loading or form removal strength criteria. Record the results of the tests on the Concrete Maturity-Strength Validation form and provide to the Engineer within 24 hours of the test completion.

(5) If a specimen is obviously defective (i.e., out of round, not square, damaged due to handling), discard the specimen. If an individual specimen is greater than 10 percent for cylinders or 15 percent for beams outside the average of three specimens, consider the specimen defective and discard. When two of the specimens are defective, evaluate a new batch, unless additional acceptable specimens are available.

The Engineer may direct additional validation testing as necessary.

The Engineer will review the validation strength-maturity test results and determine if the validation testing confirms the maturity curve in accordance with Table 2461-22.

Table 2461-22
Evaluation of Validation Strength-Maturity Test Results

If the actual strength-maturity test falls:	Result	Action
Within the 10% limits of the maturity curve	Maturity curve verified	Continue using the current maturity curve
> 10% higher than the maturity curve	The Department will not consider the maturity curve verified, but will continue to allow use of the maturity curve.	Develop a new maturity curve at the discretion of the Contractor.
> 10% lower than the maturity curve	The maturity curve will no longer be acceptable.	1. Develop a new maturity curve. 2. The Engineer will not allow the maturity method for that concrete mix until a new maturity curve is developed.

G.6.d Changes in Concrete Mixture

Perform a validation strength-maturity test in accordance with 2461.3.G.6.c, "Verify Strength-Maturity Relationship," if any of the following changes occur:

(1) Change in mixture proportions greater than 5% by weight
(2) Increase in the water-cementitious materials ratio by more than 0.02
(3) Change in the cementitious source
(4) Change in the class of coarse aggregate material

Evaluate validation strength-maturity test results in accordance with Table 2461-22.

G.6.e Maturity Meter Calibration

Calibrate maturity meters yearly to ensure proper operation and temperature sensing in accordance with the "Estimating Concrete Strength by the Maturity Method" procedure available from the MnDOT Concrete Engineering website.

S-37.21 The first paragraph of MnDOT 2461.3.G.8 has been deleted and replaced with the following:

Maintain the air content of Type 3 general concrete at the specified target of 6.5 percent (+2.0 percent and −1.5 percent) of the measured volume of the plastic concrete in accordance with 1503, "Conformity with Contract Documents," unless otherwise modified in the Contract. Maintain the air content of Type 3AGrout at the specified target of 10.0 percent (-2.0 percent and no maximum).

S-38 (2471) STRUCTURAL METALS

REVISED 12/05/18

S-38.1 The entire section of MnDOT 2471.3.B.3, "Submittal for Engineer's Review and Approval," is deleted and replaced with the following:

(C) Submit shop drawings from the Fabricator directly to Lincoln County Highway Department at:

jwilson@co.lincoln.mn.us

Submit two sets of prints of required shop detail drawings, meeting 2471.3.B.2, "Format," from the fabricator to the Engineer for review and release for fabrication. Shop drawings must comply with the contract documents. Provide written authorization from the design EOR (Engineer of Record) for any deviation from the contract documents. Incorporate all contractor comments into shop drawings prior to submittal to reviewer. The reviewer will return one set of prints of the shop detail drawings to the Fabricator with comments.

Submit only checked drawings, in complete collated sets, from the fabricator for review. The Contractor may submit details such as ice-breakers, anchorages, bearing plates, and castings, separately to facilitate the work.

Fabricator may submit the shop drawings to the Contractor. Stamp these drawings with "For Contractor Use Only". Do not forward these stamped drawings to MnDOT.

Submit a schedule showing the submission dates of shop drawings and anticipated dates for shop fabrication from the fabricator, as directed by the Engineer. Arrange the schedule to avoid delay in completing the work. If constructing a structure composed of several units, consider submitting shop detail drawings of the separate units in proper order to expedite the review and release for fabrication of the details.

If the Engineer requests changes to the submitted drawings or if the fabricator makes additional changes not required by the Engineer, provide revised drawings, with revision control, from the fabricator with circles, underscores, or other marks to distinguish the changes from unchanged details or dimensions.

The Engineer will release shop detail drawings for fabrication after corrections are completed. Provide six sets of corrected drawings and additional copies as required by the contract or requested by the Engineer from the fabricator at no additional cost to the Department. Mark the corrected drawings as Revision 0 and remove all comments and marks to make clean drawings for approval, stamping and distribution for use.

The shop drawings approved by the Engineer will become part of the Contract. Do not make changes on approved drawings unless otherwise approved by the Engineer in writing. Mark changes approved by the Engineer on the approved shop drawings with revision version in number sequence next to all changes and resubmit them for approval, stamping as revised sheet and distributing to replace the superseded version of drawings.

The Engineer's approval of shop drawings will not relieve the Contractor of full responsibility for submission of complete and accurate drawings and for the accurate assembly and fitting of all structural members.

S-38.2 The entire section of MnDOT 2471.3.M.1.d, "Radiographic Testing (RT)," is deleted and replaced with the following:

Provide Computed Radiography (CR) or Digital Radiography (DR) in lieu of conventional radiography. The Department will retain ownership of radiographic images provided by the Contractor. Name image files with bridge number and weld identification shot number.

Electronic Radiography method(s) consist of CR utilizing Storage Phosphor Imaging Plate (SPIP) or DR utilizing a Digital Detector Array (DDA).

Ensure CR complies with ASTM E2033, "Standard Practice for Computed Radiology (Photostimulable Luminescence Method)," and ASTM E2445, "Standard Practice for Performance Evaluation and Long-Term Stability of Computed Radiography Systems". Ensure DR complies with ASTM E2698, "Standard Practice for Radiological Examination Using Digital Detector Arrays," and ASTM E2737, "Standard Practice for Digital Detector Array Performance Evaluation and Long-Term Stability".

Ensure SPIP and DDA widths are sufficient to depict all portions of the weld joint, including the HAZs, and provide sufficient additional space for the required hole-type or wire-type IQIs and radiograph identification without infringing upon the area of interest.

Ensure all radiographs radiographic images are free from mechanical, chemical, or other blemishes to the extent that they cannot mask or be confused with the image of any discontinuity in the area of interest in the radiograph. Such blemishes include, but are not limited to the following:

(1) False indications due to defective plates or internal faults; and
(2) Artifacts due to non-functional pixels.

Ensure the contrast and brightness range that demonstrates the required sensitivity be considered valid contrast and brightness values for interpretation. When multiple IQIs are utilized to cover different thickness ranges the contrast and brightness range that demonstrates the required IQI image of each IQI is determined. Intervening thicknesses may be interpreted using the overlapping portions of the determined contrast and brightness ranges. When there is no overlap, additional IQI(s) are to be used.

When performing CR or DR, ensure a measuring scale is utilized to serve as a length reference. The scale is to be attached to the SPIP holder or DDA prior to exposure. As an alternative, when using SPIPs a transparent scale with opaque gradations may be placed on the SPIP prior to processing. In any case, the reference comparator cannot interfere with interpretation of the image.

Provide a work station monitor for evaluating images equipped with a display resolution with a pixel count which is at least equal to the pixel count of the direct imaging plate.

Archive images using a reproducible electronic medium. Provide data file format and storage that comply with ASTM E2339, "Standard Practice for Digital Imaging and Communication in Nondestructive Evaluation (DICONDE)" format. Documented and prove the image archival method (at system installation). Include the image file nomenclature to enable the retrieval of images at a later date. Archived image files must maintain the bit depth and spatial resolution of the original image. Image data compression is not allowed. Preserve (store) the initial image presented by the CR or DR system without altering the original spatial resolution and pixel intensity. Preserve (store) the final image used for disposition when additional image processing is applied (excluding window/level and digital image zoom) to achieve the required image quality level. Store annotations made to the image in a manner which will not mask or hide diagnostic areas of the image.

S-39 (3105) BAGGED PORTLAND CEMENT CONCRETE PATCHING MIX GRADE 3U18 AND 3U18M

MnDOT 3105 is deleted and replaced with the following:

3105 BAGGED PORTLAND CEMENT CONCRETE PATCHING MIX GRADE 3U18 AND 3U58M

3105.1 SCOPE

Provide dry, bagged concrete patching mix 3U18 for repairing Portland cement concrete pavement and 3U58M for repairing portland cement concrete bridge decks, bridge deck overlays and approach panels.

3105.2 REQUIREMENTS

A Materials

Provide materials for patching mix meeting the following requirements:

A.1 ..... **Cement** **3101**

A.2 ..... **Fine Aggregate** **3126**

A.3 ..... **Coarse Aggregate** **3137**

A.4 Blank

A.5 ..... **Admixtures** **3113**

Mix 3U58M utilizes air entraining and water reducing admixtures. Provide the manufacturer's Technical Data Information Sheet and the Materials Safety Data Sheet (MSDS) for the proposed dry admixtures when submitting the Quality Plan for approval.

B Quality Control (QC) Program

Prior to producing concrete patching mix each construction season, a Department Representative shall perform a thorough on-site inspection of the plant with a MnDOT Certified Plant Level 1 or Level 2 Technician representing the Producer.

Maintain an approved Quality Control Program, including a Quality Plan, for the production of Bagged Portland Cement Concrete Patching Mix.

The Producer will perform Quality Control (QC) as part of the production of Grade 3U18 concrete.

The Engineer will perform Quality Assurance (QA) as part of the acceptance process.

B.1 Quality Plan Requirements

Submit a quality control plan to the Concrete Engineer for review and approval prior to producing Grade 3U18 and Grade 3U58M. The Quality Plan includes the following QC Procedures:

(a) Moisture Content
(b) Batch Weight Verification
(c) Aggregate Gradation Testing
(d) Blending
(e) Addition of dry admixtures to 3U58M
(f) Documentation and Submittals

B.2 MnDOT Certified Personnel

Provide a MnDOT Concrete Plant 1 or Concrete Plant 2 Technician to perform moisture content and aggregate gradation testing. Provide a MnDOT Concrete Plant Level 2 Technician to review batch tickets, test results, and oversee all quality control requirements of 3105 and the QC Program.

B.3 Daily Production Requirements

Each day Grade 3U18 or 3U58M is produced:

(a) Perform moisture content and gradation testing on all aggregates and complete MnDOT's *Bagged Mix Quality Control Worksheet.*

(c) The Producer's Plant Level 1 or Plant Level 2 Technician will review and sign the *Bagged Quality Control Worksheet.*

(d) Electronically submit all *Bagged Quality Control Worksheets* and batch tickets to MnDOT the day following production.

C Mix Proportioning

Proportion the mix in accordance with Table 3105-1. Use of any other size bag requires approval of the Concrete Engineer.

Table 3105-1
Mix Proportions

		Weight, *lb.*		
Material	**Gradation Requirements**	**50 lb. bag**	**75 lb. bag**	**3000 lb. bag**
Type I Cement	-	11.9	17.8	712
Coarse Aggregate	CA-80	18.9	28.3	1132
Fine Aggregate	MnDOT 3126	19.3	28.9	1156

D Blending

Dry the coarse and fine aggregates as approved by the Engineer before blending with the cement. Blend all materials completely before bagging the mix.

Provide a blending device meeting the following characteristics and requirements:

(1) Capable of producing the required mix proportions within ±2 percent,

(2) Equipped with a warning device to indicate when the system is out-of-tolerance,

(3) Capable of stopping the flow of cement to allow sampling of the blended coarse and fine aggregate, and

(4) Designed to allow cement and aggregate to discharge separately for checking material weights.

E Bags and Batch Identification

Provide moisture-proof bags resistant to tearing.

Print the following on the bags:

(1) The phrase, "MnDOT 3U18 CONCRETE PATCH MIX" or "MnDOT 3U58M CONCRETE PATCH MIX"

(2) Weight of the bag in pounds [kilograms]

(3) Mix date

(4) Mixing instructions

3105.3 SAMPLING AND TESTING

The Producer and Engineer will sample and test in accordance with the Schedule of Materials Control.

S-40 **(3131) INTERMEDIATE AGGREGATE FOR PORTLAND CEMENT CONCRETE**

NEW WRITE-UP 04/09/20

MnDOT 3131 is modified with the following:

S-40.1 MnDOT 3131.1 is deleted and replaced with the following:

Provide intermediate aggregate for use in portland cement concrete.

S-40.2 Delete the first sentence from MnDOT 3131.2.B and replace with the following:

The Concrete Engineer classifies intermediate aggregate as 100 percent of the material passing the 1/2 inch sieve meeting the requirements of 3137.2.B.

S-40.3 MnDOT 3131.2.D, 3131.2.D.1, 3131.2.D.2 and 3131.2.D.3 are deleted and replaced with the following:

D Quality

Provide CIA in accordance with 3137.2.D.

Provide FIA, CS and FS in accordance with 3126.2.B.

S-40.4 MnDOT 3131.2.E is deleted and replaced with the following:

E Gradation

Proportion intermediate aggregates with other aggregate fractions to comply with a specification requirement. Intermediate aggregates do not have individual sieve gradation requirements.

S-40.5 MnDOT 3131.3.B is deleted and replaced with the following:

B Intermediate Aggregate Test Methods

When proportioning CIA with a coarse aggregate to meet the specified limits of ASTM #67 gradation, sample and test CIA in accordance with Table 3137-6 using a minimum sample size equivalent to CA-70 per the Schedule of Materials Control. Sample and test all other CIA intermediate aggregates in accordance with Table 3126-5.

Sample and test FIA, CS and FS in accordance with Table 3126-5.

S-41 **(3137) COARSE AGGREGATE FOR PORTLAND CEMENT CONCRETE**

REVISED 04/09/20

MnDOT 3137 is modified as follows:

S-41.1 MnDOT 3137.2.D shall be deleted and replaced with the following:

D Quality

Provide coarse and CIA intermediate aggregate in accordance with 3137.2.D.1, 3137.2.D.2 or 3137.2.D.3 and the following:

For fractions greater than or equal to 1 in, base quality requirements on the individual result for the intended use.

For fractions that have 100 percent passing the 1 in sieve:

(1) When using a single aggregate, base quality requirements on the individual result for the intended use.

(2) When proportioning aggregates from a single source, base quality requirements on the composite

result for the intended use.

(3) When proportioning aggregates from multiple sources, base quality requirements on the composite result for the intended use, except as modified by the following:

(3.1) For 3137.2.D.1, each individual fraction must meet the requirements of 3137.2.D.1

(3.2) For 3137.2.D.2, each individual fraction must meet the requirements of 3137.2.D.1, except the percent absorption by weight of Class B aggregate is modified to a maximum of 1.75% and the percent carbonate by weight of the Class C aggregate is modified to a maximum of 30.0%.

(3.3) For 3137.2.D.3, each individual fraction must meet the requirements of 3137.2.D.3, except the percent carbonate by weight of the Class C aggregate is modified to a maximum of 35.0%.

The Concrete Engineer may reject the proposed aggregate proportions if the composite result is of borderline quality in accordance with 1503, Conformity with Contract Documents.

Refer to Tables 2461-5, 2461-6, 2461-7, 2461-8 and 2462-4 to determine the coarse aggregate quality specification for the intended use.

S-41.2 Table 3137-4 shall be deleted and replaced with the following:

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

	Coarse Aggregate Designation				
	2	**3**	**4**	**7**	**8**
Sieve Sizes	**ASTM #67***	**ASTM #7***	**ASTM #89**	**CA-70**	**CA-80**
2 in	-	-	-	-	-
1½ in	-	-	-	-	-
1 in	100	-	-	-	-
¾ in	90 – 100	100	-	-	-
5/8 in	-	-	-	100	-
½ in	-	90 – 100	100	85 – 100	-
⅜ in	20 – 55	40 – 70	90 – 100	50 – 100	100
No.4	0 – 10	0 – 15	20 - 55	0 – 25	55 – 95
No.8	-	-	5 – 30	-	-
No.16	-	-	0 – 10	-	-
No.50	-	-	0 - 5	-	0-5

*ASTM #67 and ASTM #7 Gradations are MnDOT Modified.

S-42 (3138) AGGREGATE FOR SURFACE AND BASE COURSES
REVISED 12/05/18

MnDOT 3138 is hereby modified as follows:

S-42.1 Replace Table 3138-1 with the following:

Table 3138-1
Quality Requirements for Virgin Materials

Requirement	Class			
	1 and 2	3 and 4	5 and 5Q	6
Max Shale, if No. 200 ≤ 7% by mass	NA	10.0%	10.0%	7.0%
Max Shale, if No. 200 > 7% by mass	NA	7.0%	7.0%	7.0%
Minimum Crushing Requirements *	NA	NA	10%	15%
Maximum Los Angeles Rattler (LAR) loss from carbonate quarry rock	40%	40%	40%	35%
Maximum Insoluble residue for the portion of quarried carbonate aggregates passing the No. 200 sieve	10%	10%	10%	10%
Maximum amount of Brick	1.0% #			
Maximum amount of other objectionable materials including but not limited to: wood, plant matter, plastic, plaster, and fabric	0.3% #			

* Material crushed from quarries is considered crushed material.

\# 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.

S-42.2 Replace Table 3138-3 with the following:

Table 3138-3
Base and Surfacing Aggregate
(containing less than 25 percent recycled aggregates)
Total Percent Passing *

Sieve Size	Class 1 (Surfacing £)	Class 2 (Surfacing β)	Class 3 (Subbase)	Class 4 (Subbase)	Class 5 (Base)	Class 5Q (Base)	Class 6 (Base)
2 in	—	—	100	100	—	100	—
1½ in	—	—	—	—	100	—	100
1 in	—	—	—	—	—	65 - 95	—
¾ in	100	100	—	—	70 - 100	45 - 85	70 - 100
⅜ in	65 – 95	65 - 90	—	—	45 - 90	35 - 70	45 - 85
No. 4	40 – 85	35 - 70	35 - 100	35 - 100	35 - 80	15 - 52	35 - 70
No. 10	25 – 70	25 - 45	20 - 100	20 - 100	20 - 65	10 - 40	20 - 55
No. 40	10 – 45	12 - 35	5 - 50	5 - 35	10 - 35	5 - 25	10 - 30
No. 200	8.0 - 15.0	5.0 - 16.0	5.0 - 10.0	4.0 - 10.0	3.0 - 10.0	0.0 - 10.0	3.0 - 7.0

* If product contains recycled aggregate, add letters in parentheses for each aggregate blend designating the type of recycled products included in the mixture.
(B) = Bituminous, (C) = Concrete, (G) = Glass
(BC) = Bituminous and Concrete, (BG) = Bituminous and Glass
(CG) = Concrete and Glass, (BCG) = Bituminous, Concrete, and Glass
£ Recycled concrete when used for surfacing is only allowed for shoulders
β Class 2 must be composed of 100% crushed quarry rock per 3138.2.B.2.

S-42.3 Replace Table 3138-4 with the following:

Table 3138-4
Base and Surfacing Aggregate
(containing 25% or more recycled aggregates & 75% or less recycled concrete)
Total Percent Passing *

Sieve Size	Class 1 (Surfacing £)	Class 3 (Subbase)	Class 4 (Subbase)	Class 5 (Base)	Class 5Q (Base)	Class 6 (Base)
2 in	—	100	100	—	100	—
1½ in	—	—	—	100	—	100
1 in	—	—	—		65 - 95	
¾ in	100	—	—	70 - 100	45 - 85	70 - 100
⅜ in	65 - 95	—	—	45 - 90	35 - 70	45 - 85
No. 4	40 - 85	35 - 100	35 - 100	35 - 80	15 - 52	35 - 70
No. 10	25 - 70	20 - 100	20 - 100	20 - 65	10 - 40	20 - 55
No. 40	10 - 45 † 5 - 45	5 - 50	5 - 35	10 - 35	5 - 25	10 - 30
No. 200	5.0 - 15.0 † 0 - 15.0	0 - 10.0	0 - 10.0	0 - 10.0	0 - 10.0	0 - 7.0

* Add letters in parentheses for each aggregate blend designating the type of recycled products included in the mixture.
(B) = Bituminous, (C) = Concrete, (G) = Glass
(BC) = Bituminous and Concrete, (BG) = Bituminous and Glass
(CG) = Concrete and Glass, (BCG) = Bituminous, Concrete, and Glass
† Note: For Class 1, if the bitumen content is ≥ 1.5%, the gradation requirement is modified to 5-45% for the #40 sieve and 0 – 15.0% for the #200 sieve.
£ Recycled concrete is only allowed for shoulders

S-42.4 Add the following to MnDOT 3138.2.E:

(6) The Contractor may substitute reclamation material (recycled bituminous and aggregate) for class 3, 4, 5, or 6, if used for base, subbase, stabilizing aggregate, or fine aggregate bedding. Meet the gradation in Table 3138-6, and the all other requirements of 3138.

Table 3138-6

Reclamation Material Permitted as a Substitute for Class 3, 4, 5, or 6

Total Percent Passing

Sieve Size	Class 3	Class 4	Class 5	Class 6
3" *	100	100	100	100
¾"	---	---	70 - 100	70 - 100
#3/8"	---	---	45 - 90	45 - 85
#4	35 - 100	35 - 100	35 - 80	35 - 70
#10	20 - 100	20 - 100	20 - 65	20 - 55
#40	5 - 50	5 – 35	10 - 35	10 - 30
#200	0 - 10.0	0 - 10.0	0 - 10.0	0 - 7.0

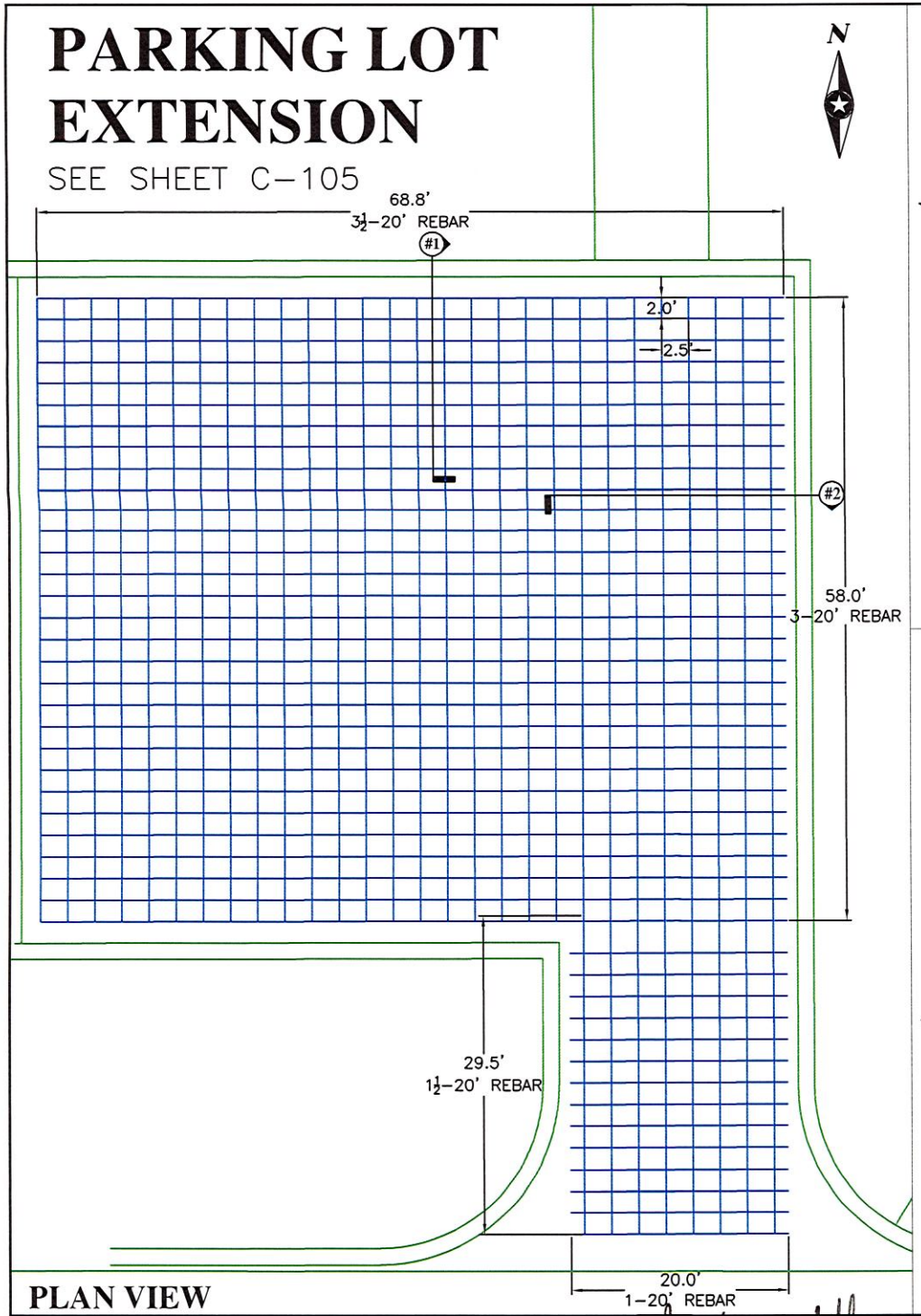
* Note for bedding within 2 feet of plastic pipe the requirement is 100% passing the 1" sieve.

S-43 **FINAL CLEANUP**

All disturbed areas shall be worked to a reasonably smooth surface. All rocks and debris shall be disposed of in accordance with governing specifications. All final cleanup shall be completed within 10 working days.

PARKING LOT EXTENSION

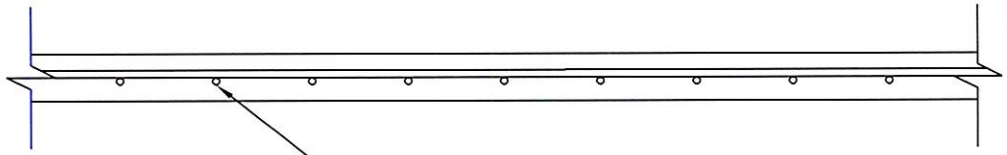
SEE SHEET C-105



PLAN VIEW

#1 REBAR DETAIL - ELEVATION VIEW

NORTH ⟷ SOUTH



#6 BARS SPACED AT 2.0' ON CENTER.
PLACE IN CENTER OF SLAB.

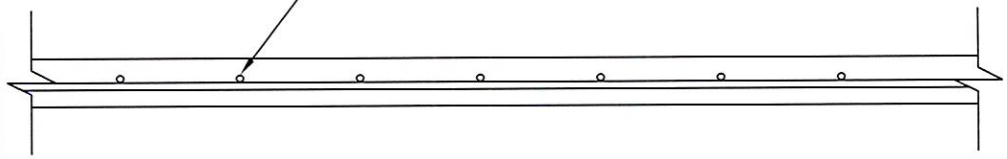
NOTE: 1.) REQUIRED #4, MIN. 18" LONG, 2'6" SPACING, DOWEL BARS TO CONNECT 6" CONCRETE TO CURB AND GUTTER (NOT SHOWN).

2.) SAW JOINTS TO 1½" DEPTH AND TAKING CAUTION TO NOT CUT INTO EPOXY BARS.

#2 REBAR DETAIL - ELEVATION VIEW

WEST ⟷ EAST

#6 BARS SPACED AT 2.5' ON CENTER.
PLACE IN CENTER OF SLAB.



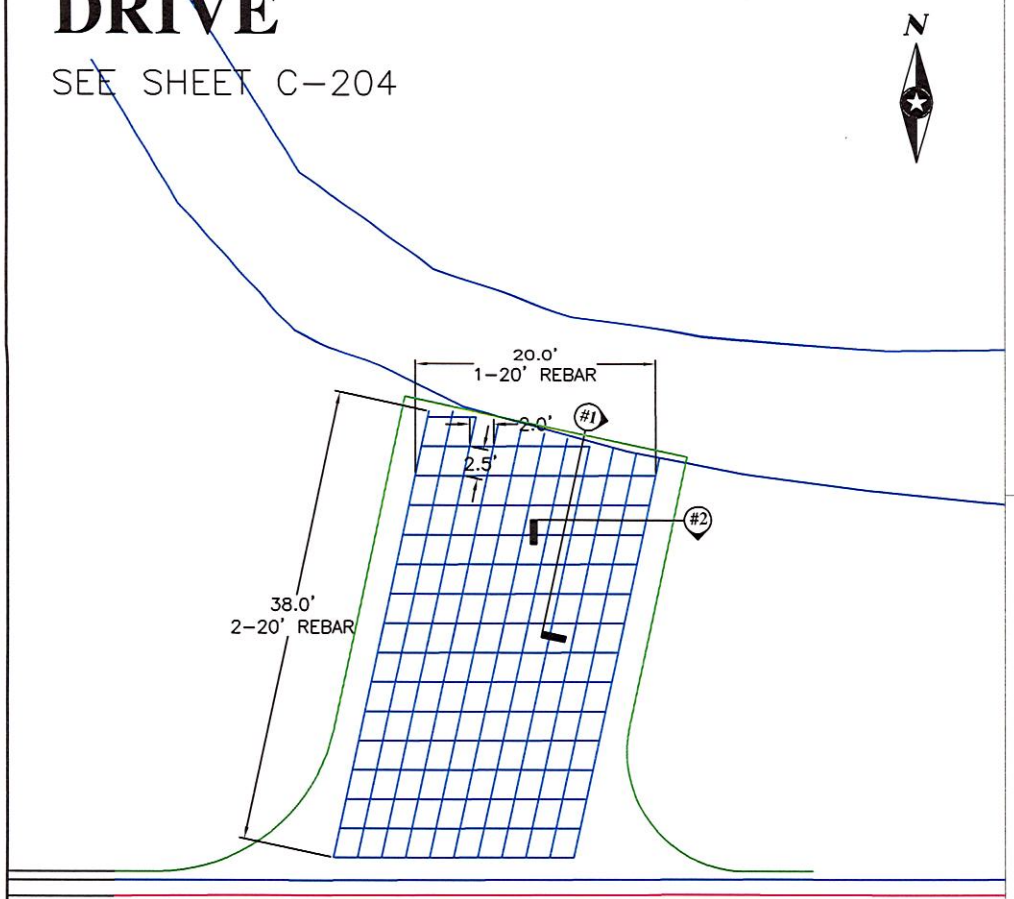
LINCOLN COUNTY PARKING LOT IMPROVEMENTS
LINCOLN COUNTY, MN
CITY OF IVANHOE

CERTIFIED BY Joseph M Hutton LICENSED ENGINEER LIC. NO. 54947 DATE: 7-2-20

APPENDIX
SHEET NO. 1 OF 3 SHEETS

PROPOSED DRIVEWAY FROM EXISTING GRAVEL DRIVE

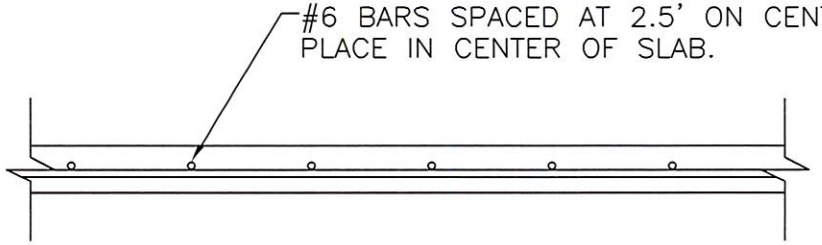
SEE SHEET C-204



PLAN VIEW

#1 REBAR DETAIL - ELEVATION VIEW

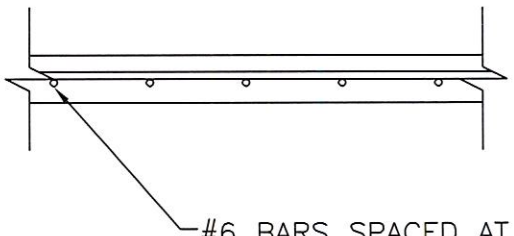
NORTH ⟷ SOUTH



NOTE: 1.) SAW JOINTS TO $1\frac{1}{2}$" DEPTH AND TAKING CAUTION TO NOT CUT INTO EPOXY BARS.

#2 REBAR DETAIL - ELEVATION VIEW

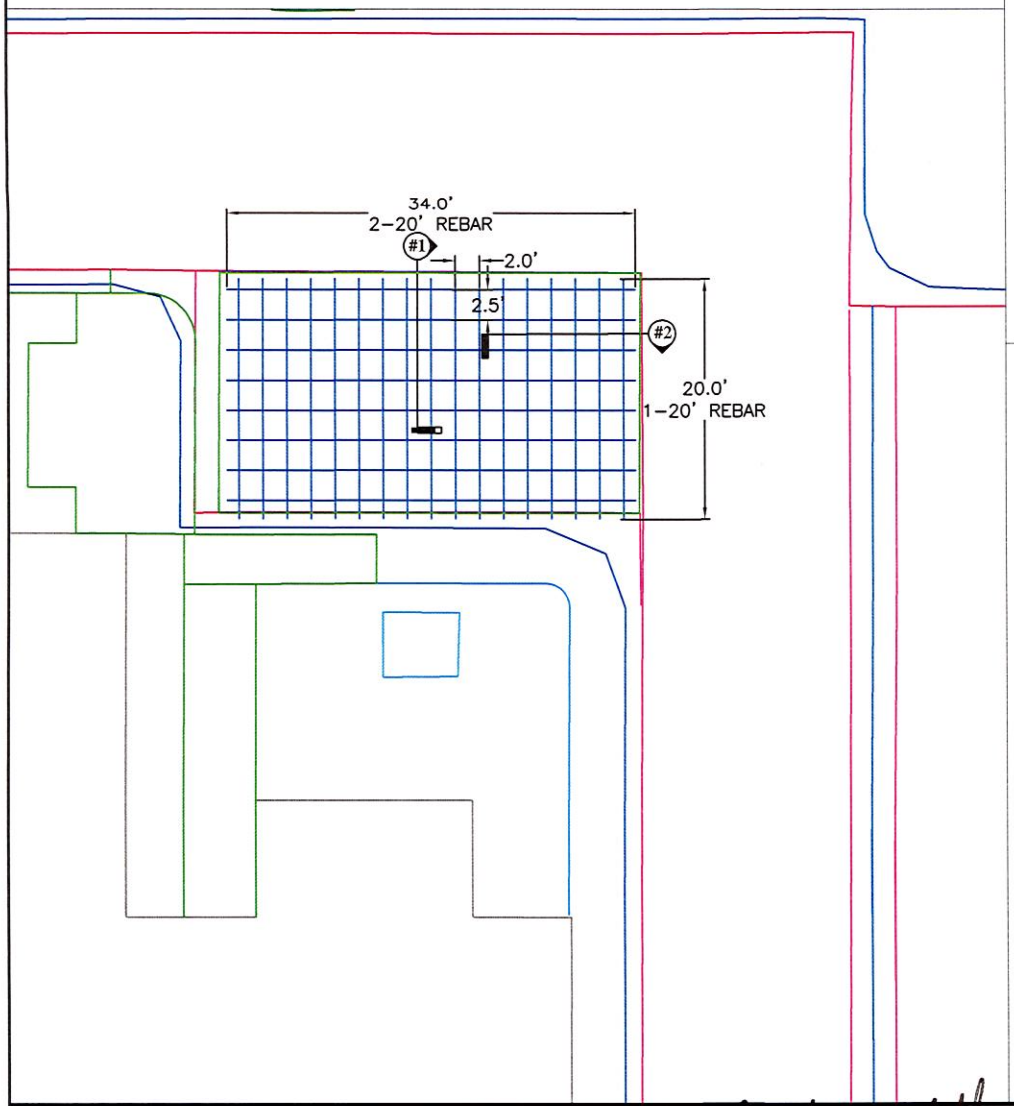
WEST ⟷ EAST



LINCOLN COUNTY PARKING LOT IMPROVEMENTS LINCOLN COUNTY, MN CITY OF IVANHOE	CERTIFIED BY Joseph M White LICENSED ENGINEER LIC. NO. 54947 DATE: 7-2-20	APPENDIX SHEET NO. 2 OF 3 SHEETS

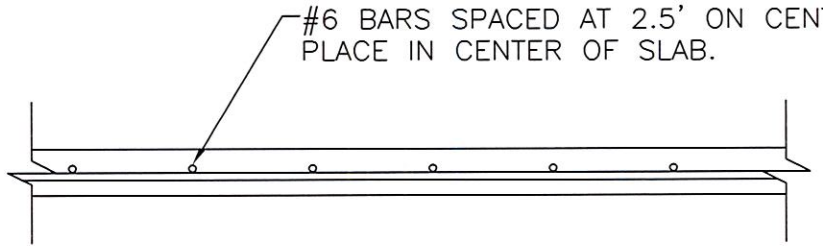
HANDICAP PARKING AREA IN FRONT OF THE HWY. DEPARTMENT

SEE SHEET C-205



#1 REBAR DETAIL - ELEVATION VIEW

NORTH ⟷ SOUTH

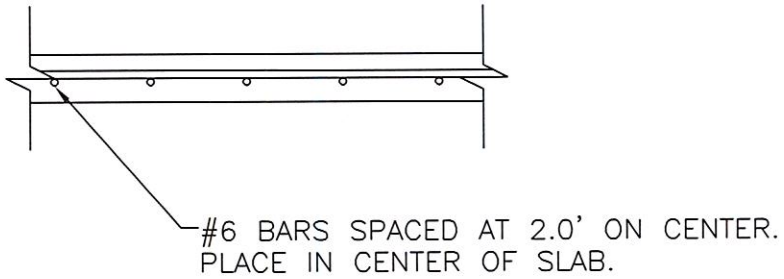


NOTE: 1.) REQUIRED #4, MIN. 18" LONG, 2'6" SPACING, DOWEL BARS TO CONNECT 6" CONCRETE TO CURB AND GUTTER (NOT SHOWN).

2.) SAW JOINTS TO $1\frac{1}{2}$" DEPTH AND TAKING CAUTION TO NOT CUT INTO EPOXY BARS.

#2 REBAR DETAIL - ELEVATION VIEW

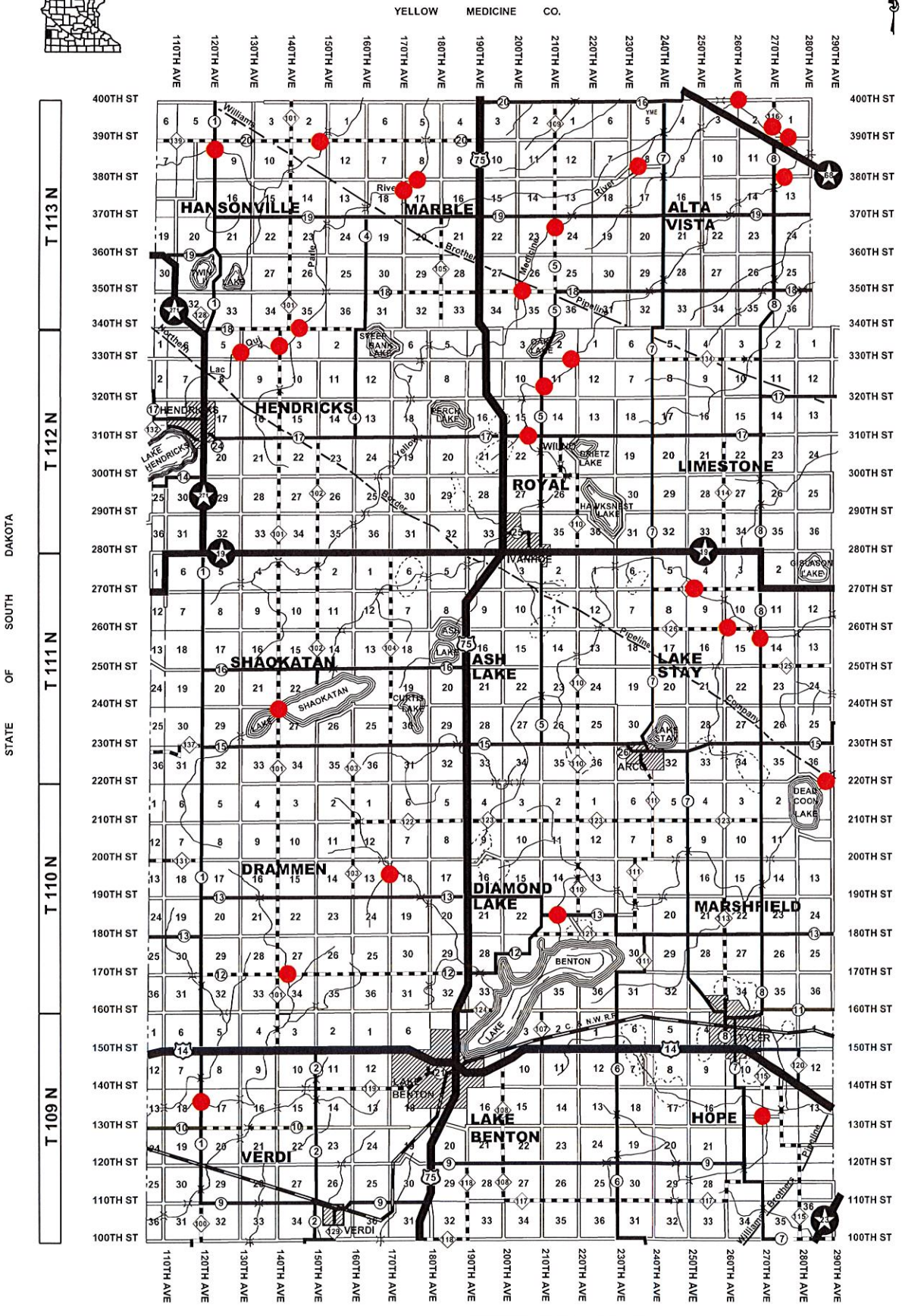
WEST ⟷ EAST



LINCOLN COUNTY PARKING LOT IMPROVEMENTS LINCOLN COUNTY, MN CITY OF IVANHOE	CERTIFIED BY Joseph M Whitten LICENSED ENGINEER LIC. NO. 54947 DATE: 7-2-20	APPENDIX SHEET NO. 3 OF 3 SHEETS

LINCOLN COUNTY MN

BRIDGES THAT REQUIRE ENGINEER STUDY TO CROSS WITH OVERWEIGHT LOADS
(APPLICANT PAYS FOR THE ENGINEERING STUDY)



MAY 2019 - DWH

NON-COLLUSION DECLARATION

The following Non-Collusion Declaration shall be executed by the bidder:

State Project No. _____

Federal Project No. _____

State of Minnesota _____)
) ss
County of _____)

I, _____, do state under penalty of
(name of person signing this declaration)

perjury under 28 U.S.C. 1746 of the laws of the United States:

(1) that I am the authorized representative of _____

_____
(name of person, partnership or corporation submitting this proposal)

and that I have the authority to make this declaration for and on behalf of said bidder;

(2) that, in connection with this proposal, the said bidder has not either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding;

(3) that, to the best of my knowledge and belief, the contents of this proposal have not been communicated by the bidder or by any of his/her employees or agents to any person who is not an employee or agent of the bidder or of the surety on any bond furnished with the proposal and will not be communicated to any person who is not an employee or agent of the bidder or of said surety prior to the official opening of the proposal, and

(4) that I have fully informed myself regarding the accuracy of the statements made in this declaration.

Signed: _____
(bidder or his authorized representative)

SWPPP (All Projects)

SWPPP Narrative

1. The Contractor shall identify an Erosion Control Supervisor who will oversee the SWPPP in accordance to 1506 Supervision by Contractor.
2. The Erosion Control Supervisor shall be responsible for implementation of the SWPPP for all operators on site in accordance with 1717.2 Erosion control A2 During Construction
3. The installation timing for all ESC BMPs as necessary for site conditions shall be in accordance with 2573.3 Construction requirements A2&A3
4. The Contractor shall contact the Engineer in the field prior to the establishment of additional temporary ESC BMPs necessary for site conditions.

Permanent Stormwater Management

Grassed Swales will be used for permanent stormwater management.

Construction Activities Requirements:

1. The project are drains into the Yellow Medicine River which has been identified as an impaired water for E. coli, mercury in fish tissue, and turbidity.
2. All exposed soil of the project that drains to a point that is within 1 mile of an impaired water must be stabilized as soon as possible to limit soil erosion but in no case later than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased. All other exposed soil must be stabilized within 14 days.
3. The wetted perimeters of ditches within 200 ft of surface water will be stabilized within 24 hrs.

Sediment Control Measures:

1. Slopes with a 3:1 grade will be broken up into lengths less than 75 feet.
2. Stockpiles shall have sediment control and placed in areas away from surface waters.

Inspections and Maintenance:

1. The Erosion Control will oversee the BMP inspection and maintenance.
    - Inspections will be performed once every 7 days
    - Inspections will be performed within 24 hrs of a rain event greater than 0.5 in/24 hr
    - The inspection and Maintenance records will include
        - Date and time of inspection
        - Name of person(s) conducting inspections
        - Finding of inspections and recommendations for corrective actions
        - Date and amount of rainfall events greater than 0.5 in 24 hr
3. Silt fences will be repaired/replaced/supplemented when nonfunctional or ⅓ full; within 24 hours in accordance with 2573.3 Construction Requirements M2
4. Please either specify that sediment will be removed from surface waters within 7 days in accordance with 1717.2 Erosion Control A4 Sediment Removal

Pollution Prevention:

1. Solid waste shall be disposed properly; in compliance with MPCA requirements.
2. Hazardous waste shall be stored (secondary containment, restricted access) and disposed in compliance with MPCA requirements
3. External washing of vehicles will be limited so that runoff is contained and waste is properly disposed of.
4. No engine degreasing will be allowed on site.

Final stabilization:

All temporary synthetic and structural BMPs will be removed as directed in 1717.2 Erosion Control O Removal of Temporary Devices 1717.2 Erosion Control C Quality Control 2573.3 Construction Requirements

ATTACHMENT A
PRIME CONTRACTOR RESPONSE

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

STATE PROJECT NUMBER: _____

This form includes changes by statutory references from the Laws of Minnesota 2015, chapter 64, sections 1-9. This form must be submitted with the response to this solicitation. A response received without this form, will be rejected.

Minn. Stat. § 16C.285, Subd. 7. **IMPLEMENTATION.** ... any prime contractor or subcontractor or motor carrier that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project...	
Minn. Stat. § 16C.285, Subd. 3. **RESPONSIBLE CONTRACTOR, MINNIMUM CRITERIA**. "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:	
(1)	The Contractor: (i) is in compliance with workers' compensation and unemployment insurance requirements; (ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees; (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and (iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
(2)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity: (i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of $25,000 or more within the three-year period, provided that a failure to pay is "repeated" only if it involves two or more separate and distinct occurrences of underpayment during the three-year period; (ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final; (iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees; (iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27; (v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or (vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;*

(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;*
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;*
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;*
	* Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions that have authority to debar a contractor; and
(7)	All subcontractors and motor carriers that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. **SUBCONTRACTOR VERIFICATION.**

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Subd. 5a. **Motor carrier verification.** A prime contractor or subcontractor shall obtain annually from all motor carriers with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each motor carrier. A prime contractor or subcontractor shall require each such motor carrier to provide it with immediate written notification in the event that the motor carrier no longer meets one or more of the minimum criteria in subdivision 3 after submitting its annual verification. A motor carrier shall be ineligible to perform work on a project covered by this section if it does not meet all the minimum criteria in subdivision 3. Upon request, a prime contractor or subcontractor shall submit to the contracting authority the signed verifications of compliance from all motor carriers providing for-hire transportation of materials, equipment, or supplies for a project.

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**
A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3, with the exception of clause (7), at the time that it responds to the solicitation document. A contracting authority may accept a signed statement under oath as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. A prime contractor, subcontractor, or motor carrier that fails to verify compliance with any one of the required minimum criteria or makes a false statement under oath in a verification of compliance shall be ineligible to be awarded a construction contract on the project for which the verification was submitted. A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor or motor carrier that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria. A verification of compliance need not be notarized. An electronic verification of compliance made and submitted as part of an electronic bid shall be an acceptable verification of compliance under this section provided that it contains an electronic signature as defined in section 325L.02, paragraph (h).

CERTIFICATION	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: **1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285, and** **2) if my company is awarded a contract, I will submit Attachment A-1 prior to contract execution, and** **3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT PRIOR TO EXECUTION OF A CONTRUCTION CONTRACT

STATE PROJECT NUMBER: _____

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

FIRST TIER SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	**Name of city where company home office is located**

*Attach additional sheets as needed for submission of all first-tier subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: **All first-tier subcontractors listed on attachment A-1 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

STATE PROJECT NUMBER: _____

This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Minn. Stat. § 16C.285, Subd. 5. ... If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors. ...

ADDITIONAL SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	**Name of city where company home office is located**

*Attach additional sheets as needed for submission of all additional subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: **All additional subcontractors listed on Attachment A-2 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

THE SCHEDULE OF PRICES AND BACK COVER SHEET HAS BEEN INTENTIONALLY LEFT OUT OF THE "PDF" PRINT OF THIS PROPOSAL. PLEASE VISIT OUR WEBSITE AT, WWW.CO.LINCOLN.MN.US, OR CONTACT THE LINCOLN COUNTY HIGHWAY DEPARTMENT AT 507-694-1464 FOR INSTRUCTIONS ON HOW TO REQUEST THE SCHEDULE OF PRICES AND BACK COVER SHEET. THESE SHEETS WILL BE EMAILED TO YOU FOR INSERTION INTO THE PROPOSAL TO MAKE IT COMPLETE.