GENERAL
5-393.000

5-393.001 INTRODUCTION

This manual has been prepared for the purpose of guiding Project Engineers and their inspectors while engaged in the construction of bridges and related items. It is not intended as a substitute for the General Specifications, nor does it cover all phases of the Specifications; it does, however, cover some sections of the Specifications in considerable detail, primarily for the purpose of promoting more uniformity of interpretation and inspection.

What is a Contract? A contract is a written mutual agreement between two or more parties and, as such, governs the relationship between the contracting parties. Each party to the contract has certain rights and corresponding obligations to fulfill and neither party has the right to deviate from the scope of the terms or requirements of the contract without the written consent of the other party.

A contract executed between the State and the Contractor for construction of a bridge or a highway provides that the performance of the work, including furnishing of labor and materials and fulfillment of other obligations, shall be in accordance with requirements of the Plans, Specifications and other terms and requirements set forth in the contract.

It is of utmost importance that the Specifications, the Plans, and the Special Provisions be studied carefully, first for general aspects of the job, and then repeatedly for each phase of the operations as the job progresses. Mn/DOT 1504 defines the order of priority in the event of a discrepancy between the Plans, Specifications and Special Provisions.

Nothing in this manual should be interpreted contrary to the Specifications, Plans, and Special Provisions, since the manual is not part of the contract agreement, and is not binding upon the Contractor except thru the Plans and Specifications.

The following excerpts from an article by Frank A. Howard, former District Engineer for the Virginia Highway Department contains good advice for all Transportation Department employees who deal with contractors. Mr. Howard's advice has been updated in the following information:

"The field engineer and the Contractor have a definite personal relationship to work out. The young engineer on a project wants to be right, liked, sociable and friendly.

Above all, the engineer wants the job to run smoothly and efficiently.

One of the most difficult problems the field engineer has to face is personal relations with the Contractor when he or she is the engineer-in-charge of a project. It is very hard to strike just the right note in personal relations.

Some people are born with this knack of leadership. They never have to argue. They never shout. They say "let's do this" and it is done. They command the respect of their associates and run a job well.

Conversely, some engineers do not have this knack, and never learn it. They find it very hard to get contractors to carry out their suggestions and recommendations.

Just what should be the attitude of the engineer toward the Contractor? How can a balanced, harmonious relationship be attained, and maintained? There are no hard-and-fast rules, individuals vary, as do jobs.

The Contractor is in business to make money. The engineer's task is to see that the job gets done and done right. These different viewpoints are not necessarily incompatible.

It is necessary for both the engineer and the Contractor to realize that all job forces are on the same team. The Transportation Department wants the best job it is entitled to, at the earliest possible time. The engineer and the inspectors are there to get this job done.

But the engineer also is an arbiter and must resist any attempt by the Contractor to avoid contract responsibilities. The engineer must be equally diligent in resisting pressure on the Contractor by the Transportation Department to do more than the contract calls for or do extra work without fair compensation. We find that most contractors want to build and maintain a reputation for good work.

In the interest of better engineer-Contractor relations, the following points are offered for your consideration:

1. ***Be firm. Once you have made up your mind, stick to it until somebody proves you are wrong.***

   Let's assume that you have thoroughly thought out a situation and have made a decision. You tell the other person that you think they should do a certain thing. They start raising the roof. Don't let them scare you. Nine times out of 10 they are yelling for effect-or just to see how serious you really are.

   If you let this noise bother you or change your mind, you are in for a lot of the same treatment every time. Make sure you are right and if you think you are, stick to it. But if you discover you are wrong, admit it and correct your error. You will not lose standing by being fair.

2. ***Don't let anybody rush you. Many times you may be asked for a quick decision. Don't be hurried. It's best to take the situation back to the office with you and***

think it over in all its ramifications. You can be sure that the other person has thought it over.

Ask yourself if this change or decision you have to make affects only what you are doing now, or will affect something else later. Remember that you are setting a precedent. Nothing looks quite as bad as changing your mind once you realize the full implications of a snap decision. You can't tell a Contractor one thing one day and another thing the next...

3. Think ahead. It is taken for granted that the Contractor is thoroughly familiar with what is happening on the project today. But how about what is going to happen tomorrow?

Try to anticipate tomorrow's trouble today. Look ahead. If you spot any trouble, talk it over with the Contractor. Your foresight may save both the Transportation Department and the Contractor some money.

Be diplomatic. A soft answer gets better results than loud talk. Ask or request rather than order or instruct. Engineers and inspectors on the job act somewhat like brokers who try to bring both parties - the Transportation Department and the Contractor - together in harmony; the end result being a job well done."

Be fair to both parties. Your obligation is to the State but only through the use of sound judgement will your efforts to serve the State be most fruitful. Insist on good workmanship, but not on the impossible.

5-393.002 TECHNICAL CERTIFICATION AND DUTIES FOR INSPECTORS

Technical certification is required for construction and testing personnel on all Mn/DOT bridge projects. Extensive program information can be found at www.dot.state.mn.us/const/tcp. The program is made up of two levels of certification.

Level 1 An entry level, which is usually referred to as a "tester" or "field tester." This level is for individuals of limited responsibility who commonly work under the direct supervision of another. Often, materials testing and/or sampling are the sole duty of Level 1 technicians.

and

Level II Advanced certification is usually referred to as an "inspector." This level is aimed at individuals who work more independently and are in roles of a decision making capacity: Chief Inspectors, Mix Designers, etc.

Each level consists of the following:

1. Completion of training course
2. Written Examination with passing score

Upon successful completion of either Level I or Level II requirements, a certification card will be issued. Permanent certification cards are laminated. All cards will be signed by the State Construction Engineer. Cards which include certification in Bridge Construction are also signed by the State Bridge Engineer. The cards show expiration dates for all areas certified. These dates will vary depending on the completion of requirements.

Certification cards should be carried on your person while on the job and should be produced on demand. (Depending on the agency or company of employment, a request for proof of certification may come from a Mn/DOT Independent Assurance Sampler, a Mn/DOT Plant Inspector or field inspector, a Mn/DOT Lab Chief, a local agency inspector, a Federal Highway Administration official, etc.)

Level 1 Bridge Tester is required for all personnel working on bridge construction projects.

Requirements:

1. Completion of the Grading and Base I course along with a passing score of seventy or higher on the written examination and successful completion of the related performance review.

2. Completion of the Concrete Field I course along with a passing score on the written examination.

3. Completion of the Aggregate Production course along with a passing score on the written examination.

Level II Bridge Construction Inspector is required for all personnel acting as chief inspectors on bridge construction projects. A minimum of one certified inspector per project is required.

Requirements:

1. Certified as a Level I Bridge Tester.

2. Completion of the Concrete Field II course with a passing score of seventy or above on the written examination.

3. Completion of the Bridge Construction Inspection II course along with a passing score of seventy or above on each of the (3) parts of the written examination.

Training programs for certification, certification cards, and recertification of inspectors are responsibilities of the Office of Construction and Innovative Contracting. Additional information may be obtained from the Technical Certification Specialist in that office.

The inspector should never become involved in disputes with workers. Orders or instructions about performance of the work should with the Superintendent or a duly appointed representative in the absence of the Superintendent.

The inspector is responsible for seeing that the work is executed in full accordance with the Plans and Specifications. The inspector is responsible for having a thorough understanding of the Specifications and for exercising good judgment. Often the inspector's work is the deciding factor between a good job and an average or poor one.

It is assumed that good and sufficient reasons exist for the design, the Specifications, and all items included in the contract documents. It is the responsibility of the Engineer and the inspector to obtain the results specified in the contract documents.

It is the inspector's job to review all phases of the work periodically including various operations being performed by the Contractor to ensure that his or her instructions are being followed and to keep the Project Engineer well informed of progress, problems, and instructions to the Contractor. Unless field inspection is aggressively carried out and well documented, the completed project may well be of unknown quality, a potential high maintenance structure, and reflect badly on the reputation and the prestige of the Department of Transportation.

A competent inspector is thoroughly conscious of the importance and scope of his or her work and is fully informed in regard to the design and Specifications. Armed with this knowledge and with sound judgment gained through experience, he or she will not only detect faulty construction but will also be in a position to prevent it by requiring proper construction procedures and materials.

5-393.003 FIELD OFFICE AND LABORATORY

Basic requirements for field offices and laboratories are defined under 2031. A number of conveniences which are not required under this specification are included in Special Provisions. It is the responsibility of the District to include additional items in their time and traffic for each job so that offices of desired size and with adequate facilities will be provided for in the contract. When bridges are let separate from grading, this item will be carried in the bridge portion of the contract.

5-393.004 PLAN REVIEW

The importance of comprehensive study and review of the Plans, Specifications and Special Provisions can not be over-emphasized. Never assume that the requirements for this job are the same as for the last project. It is good practice to highlight special requirements in colored pen particularly when they are new to the inspector or different than those normally used. Make certain that each point covered and each detail shown is fully understood. Those points and details which are not clear to you should be discussed with your coworkers or with the Engineer, until there is no longer any question regarding interpretation.

One of the best methods of becoming thoroughly familiar with the Plans is to check the quantities shown on the various material schedules. Since this is required for estimate purposes as well, it serves a dual purpose. In this way, errors in the Plans are sometimes discovered before it is too late to make changes conveniently. You will find that, in order to check the quantities for a structure, you will have to become quite familiar with the Plans.

5-393.005 PRECONSTRUCTION CONFERENCE

In most cases a preconstruction conference will be held to discuss the contractors proposed work schedule and traffic control and to obtain information on material supplies, subcontractors, etc. In addition to this conference, it is of considerable importance that the Engineer and/or inspector view the site with the Contractor prior to starting work to make certain that the Contractor is fully aware of any special requirements which might later cause delays and hardship.

For additional preconstruction conference information see the Contract Administration Manual Section 5-591.310.

5-393.006 CONTROL OF WORK

Control of work is covered in the Contract Administration Manual Section 5-591.300 and will not be repeated here.

5-393.007 CONTROL OF UTILITY WORK

The purpose of this section is to set forth the provisions that should be made and the practices that should be followed to obtain adequate inspection of utility installation and relocation work in connection with trunk highway construction.

"Utility" means all privately, cooperatively or publicly owned communication lines and facilities or systems for the transmission and distribution of electrical energy, oil, gas, water, sewer, steam and other pipe lines, railways, ditches, flumes or other structures which under the laws of this state or the ordinance of any town, village or city may be constructed, placed or maintained along or on trunk highway right-of-way. Dependent upon the meaning intended in the context, "Utility" also may mean the utility company inclusive of any wholly owned subdivision.

Inspection is required to assure that Plans are properly provided and fully understood by all parties, that operations are coordinated, executed and completed economically, that activities and costs are systematically recorded so that bills can be checked against the performance and the record and the state's interests protected and equitable payments made, all in accord with state laws and regulations and in accord with federal laws and regulations, where federal funds are involved.

A written agreement between the state and the utility is required in every case in which reimbursement for utility relocation is involved. This is so that representatives of each involved party will understand the scope of the undertaking and their respective and separate responsibilities connected with the utility relocation.

Utilities presently located on public right of way are required to relocate the utility facility to accommodate highway construction at no expense to the State upon written notice and order from the Commissioner of Transportation or an authorized agent. Original notice and order are issued by the Utilities Agreement Engineer as the authorized agent of the Commissioner of Transportation.

The Utility Agreements and Utility Permits Unit negotiates agreements with each utility entitled to reimbursement for all or part of the relocation of a utility facility prior to the letting of a highway construction project. Upon completion of the agreements and encumbrance of funds, notices and orders are issued by the Utility Agreements Engineer as the authorized agent of the Commissioner of Transportation directing and authorizing the utility to proceed with the required relocations. The Project Engineer will be assigned the utility relocation agreement by a letter from the District Engineer. The Utilities Agreement Engineer will forward the Job Code TC08, the approved utility relocation agreement and the related utility permits to the Project Engineer for use during the progress of utility relocation work. Installations and relocations must conform to the utility relocation agreements and utility permits; however, minor changes can be made by the Project Engineer with prior approval of the Utility Agreements Engineer.

Permits are required in all cases where the utility has facilities on trunk highway right of way except in those instances wherein the utility subordinates its property right to the State.

Any major changes in a utility relocation agreement requires a supplement to the agreement which is negotiated and drafted by the Utility Agreements Unit.

If the utility refuses to remove its facilities from the right of way after being ordered to do so by the Project Engineer, contact the Utility Agreements Engineer or District Engineer.

Utility companies may be held responsible for damages sought by the Contractor which are a result of failure to cooperate.

The Project Engineer is responsible to see that inspection is provided for all utility relocations and installations on the project. The degree of inspection of utility construction will vary considerably with the nature and location of the work as they affect the completed highway construction. The Project Engineer must use judgment in deciding the extent and regularity of the inspection activities. Certain phases of the work may require a very close check to make sure that the highway facility will not be adversely affected and, also, that the required completion certificates, attesting to receipt of goods and satisfactory performance of work in conformance with the terms of the agreement, are properly executed. The degree of inspection may vary from spot checking to continuous and close observation of the relocation work.

The inspector should verify the information given in the Plans regarding the condition of the existing utility prior to any relocation work. Information to be verified may include the size, type and material of mains or conduits and other similar information. Photographs should also be taken if there is any possibility of future disagreement on the condition of the utility.

The inspector should be as familiar with utility adjustments on the highway construction project as he or she is with the highway construction plans, and should be aware of the many facts considered in determining the proposed rearrangement of utility facilities.

It is the inspector's duty to see that the utility carries its relocation construction to completion in accordance with the agreement and in the manner proposed in the Plans. If the work or materials are not in conformity with the agreement, it is the inspector's responsibility to call it to the attention of the Project Engineer and the utility or its contractor. The final solution should be to get all defective work remedied or repaired, or, if necessary, removed and replaced in an acceptable manner by the utility.

It is the inspector's responsibility to take reasonable steps to assure that the utility's operations and the Contractor's operations are coordinated.

Utility relocations should be made in advance of the Contractor's operations when such relocations are not dependent upon highway construction, and all relocations should be performed promptly.

Utilities are usually installed after bridge construction is completed. Inspection is not normally handled by the bridge inspector and detailed procedures therefore are not included in this manual.

Regardless of the type of arrangement under which the utility adjusts its facilities, the Utility's inspector is to keep a separate diary for the activities of each utility. Entries should be made with the realization that these records afford support for reimbursement to the utility company, without which, great difficulty in prompt and equitable payment may be experienced.

It is the Project Engineer's responsibility to see that the utility complies with the notice and order. When conditions warrant, the Project Engineer may grant the utility an extension of time, but this should only be done with the Contractor's knowledge and consent to avoid possible claims for delays.

5-393.008 REMOVAL OF EXISTING STRUCTURES

Caution should be taken when the Plans require removal of existing structures or portions of existing structures.Reinforced concrete structures may require additional shoring if portions of the superstructure are to be removed. Structural steel members that are to be salvaged for the contracting agency should be match marked and properly stored. See 5-393.017 "Surplus and Salvage Materials" for additional information on salvaged materials. The Contract may restrict the type of equipment that can be used when portions of the existing structure are to be reused. Any restrictions will be included in the Special Provisions.

Structural steel and concrete beams that are to remain must be protected from jackhammer notches and gouges as well as from concrete saw cuts. This type of damage results in stress concentrations that could result in fatigue cracking or failure of a member. Should damage occur, contact your Supervisor. No repairs should be undertaken without the recommendations of the Bridge Office.

Extreme caution should be exercised when blasting to prevent damage to underground utilities or other public and private property. Thoroughly discuss the removal plans with the Contractor and your Supervisor. In addition to the requirements of 1711, the use of explosives in conjunction with the removal of bridges shall be subject to approval of the Engineer.

5-393.009 SHOP DRAWINGS

Shop detail drawings are produced for various bridge items and should be used in the inspection, erection and assembly of those items. Structural steel, bearings, ornamental railings and expansion joints are among the common bridge components requiring shop drawings. Any particular bridge may require shop drawings for other items.

Specification 2471.3B contains specific references to the use and understanding of shop drawings.

Shop drawings become a part of the contract and may be used in lieu of the general plans when specific details are needed.

5-393.010 SAFETY

OSHA Safety Standards are lengthy and complex. In addition, they are subject to change by publication in the Federal Register and the enforcement of specific portions may be delayed or postponed. For these reasons, field personnel should cooperate with the enforcing agencies to the fullest extent practicable and be guided by the following policy:

Department of Transportation personnel are expected to be safety conscious and alert to reasonable safety precautions in their daily duties. This has always been true in the past and should continue to be our goal in the future.

The Contractor's responsibility to comply with the applicable safety requirements, as well as all other Federal, State and local laws, shall be discussed at the preconstruction conference and documented in the minutes of the meeting.

Where there are conditions which are obvious hazards or pose an imminent danger to employee safety, the Contractor should be notified immediately. If the condition is not improved by the Contractor, the inspector is to report the problem to the Project Engineer. It is not intended that inspectors "enforce" safety regulations other than to notify Contractor and Project Engineer of potentially dangerous conditions. If a Contractor has been notified of an unsafe condition or operation, the notice should be recorded in the project diary.

The Project Engineer, as supervisor of the inspection staff, has the responsibility of seeing that proper safety clothing, devices and procedures are used by personnel in performance of their duties. These items may include safety vests, hard hats, safety harnesses/lanyards, life vests, respirators, eye and hearing protection, weekly safety meetings, etc (see Specification 1706 and special provisions).

5-393.011 CONSTRUCTION DIARY

Chief inspectors must keep a daily diary of the construction operations, particularly of those for which the inspector is responsible. Make notes in your diary while the information is still fresh in your mind. Illustrate important notations or add detailed information at a later date.

1. It is recommended that the last few minutes of each day be used for writing up the diary. Make this a habit! Comments should include notes on progress of work, size of force, adequacy of equipment, instructions received and given, and on temperatures and weather conditions. See Contract Administration Manual 5-591.390 for additional instructions.

2. Weekly Construction Diary
   Form 2120 - "Weekly Construction Diary and Statement of Working Days" (See Figure A 5-393.011) is used to report progress of bridge construction work. Major bridge items may be listed separately or an entire bridge may be listed as one item on this form. Information on the use of this form is contained in Section 5-591.340 of the Contract Administration Manual. Form 2120 can be found in the CMS (Construction Management System).

5-393.012 PROTECTION OF THE ENVIRONMENT

Specifications 1713 and 1717 provide that the Contractor must take certain precautions for protection of the environment. Forests, fish, wildlife, air and water are specifically mentioned in these Specifications. Plans may contain temporary erosion control measures, limitations on cofferdam construction, restrictions on dewatering or other provisions designed to protect lakes and streams. Earth slopes should be finished,

topsoil placed and seeding or sodding completed at the earliest possible time to provide permanent protection against erosion.

Permits from the Corps of Engineers, Department of Natural Resources, U.S. Coast Guard or Minnesota Pollution Control Agency may have been acquired by Mn/DOT for the project. The Plans and Special Provisions will provide for construction in accordance with the terms of those permits; however,certain Contractor operations (construction of work roads, pumping directly into lakes or streams, etc.) may not be allowable under the terms of the permit. Project personnel should be familiar with the terms of all permits obtained by Mn/DOT for the project. Even if not restricted by permit, Contractor operations may be limited by environmental regulations.

5-393.013 PHOTOGRAPHS

Photographs have played a very important role in verifying the engineer's statements concerning disputed claims. Progress pictures taken at appropriate intervals or of unusual situations may discourage a Contractor from submitting a claim unless there is ample justification.

5-393.014 MATERIALS

Materials Manual 5-691, Structural Metals Manual 5-394 and Concrete Manual 5-694 cover the sampling, testing and inspecting of materials in considerable detail, and no attempt will be made here to repeat the instructions contained therein. The point to bear in mind is that all materials used on our work must be inspected and approved by some authority, whether it be on the job, prior to shipment, or from samples taken at some stage of the operations. Even though materials may have been inspected prior to delivery to the project, they should be "field checked" for possible damage and to ensure conformance with plan dimensions prior to incorporation into the work. Final inspection and acceptance of material will be made only at the site of the work, after all required tests have been met.

Study the manuals thoroughly and refer to them whenever there is a question in your mind concerning a particular item.

Keep a record of all materials received and placed, showing date, source, quantity, by whom sampled, and for whom inspected. At the completion of the project, the original record should be retained in the project file and a copy furnished to the Bridge Construction Unit.

5-393.015 FIELD PLAN CHANGES

Should it become necessary to make a plan change in the field, such as lowering a footing to obtain bearing on rock, the Bridge Construction Unit should be contacted. This unit provides an advisory service on plan changes through three Regional Bridge Construction Engineers who have direct access to Bridge Designers for information on the effect of plan changes. Plan changes which require design changes in structural components or geometrics must be approved in writing by the Bridge Design Unit prior to implementation. A pencil notation on a copy of the plan is a good way to provide plan change information to the Bridge Office. Unless revised plan sheets are issued by the Bridge Design Unit, corrections should be transferred to reproducible copies of the plans by the Project Engineer to provide a permanent "as-built" record (see 5-393.016).

5-393.016 "AS-BUILT" BRIDGE PLANS

With the increased number of bridge repair and reconstruction projects and the number of contractor options and alternatives allowed in bridge plans and special provisions, there is a need for information in Bridge Office files for this info. This need has been expressed by both the Bridge Office and District Bridge Maintenance personnel.

In order to meet the need for additional information and provide a permanent record of bridge construction, Project Engineers, when "finaling" the bridge portion of a project, shall request reproducible copies of bridge Plans from the Bridge Design Unit Leader listed on the plan. Upon receipt of the reproducible copy, the Project Engineer shall revise each plan sheet as necessary to provide the following information:

1. All plan changes (including those approved in writing by the Bridge Office) including revised standard details shown on appropriate plan sheets. Dimensional changes (including elevation changes) should be shown by lining out original dimension and inserting "as-built" dimension.

2. The options or alternates selected by the Contractor where allowed in the Plans or Special Provisions. Check either Concrete Wearing Course or the other (manufacturer's name should be noted). A standard "as-built" plan sheet (addition to original plan) will be provided for this information.

3. The type and/or size and manufacturer's (not fabricator's or supplier's) name for the following items: (1) expansion joints and glands (2) elastomeric bearing pads (3) non-standard hardware items. This information shall be shown on the appropriate plan detail sheet or standard plan sheet.

4. For the finish coats on painted bridges, type of paint, color and manufacturer's name. The standard plan sheet will provide space for this information.

5. Actual rock excavation limits for footings shall be shown on "as-built" plans. Information shall be sufficient to show the extent of footing supported on rock if only part of the footing is on rock.

6. Utilities installed that are not shown on plan sheets.

Mn/DOT TP-02120-02 (10/96) MINNESOTA DEPARTMENT OF TRANSPORTATION

WEEKLY CONSTRUCTION DIARY AND STATEMENT OF WORKING DAYS

REPORT NO. 2 FOR THE WEEK ENDING SATURDAY 08/13/2005 13 Working Day

PROJECT INFORMATION
(LOW) S.P. NO.: 1306-36
CONTRACT NO.: M05115
T.H. NO.TH 95=132
FED. PROJ. NO.: STATE FUNDS
CONTRACTOR: BAUERLY BROS INC
PROJ. ENGR.: JENNIFER READ
CHIEF INSPECTOR: VERN STRENKE
TYPE OF WORK:
BITUMINOUS MILL AND OVERLAY
LOCATION:
TH 95, FROM TH 35 TO CORD 14

CONTRACTORS AND SUBCONTRACTORS WHO WORKED THIS WEEK	
BAUERLY BROTHERS,INC.	GRANITE LEDGE ELEC
PROGRESSIVE CONT.INC.	SAFETY SIGNS,INC.

	PROGRESS CONTROLLING OPERATIONS OR MAJOR TYPES OF WORK	HOURS SCHEDULED
1	MILL BIT.SURFACE	10
2	BIT.PAVING	10
3	STRIPING	10

DAY	DATE	WEATHER CONDITIONS	TEMP HI	TEMP LOW		HOURS WORKED (1)	HOURS WORKED (2)	HOURS WORKED (3)	HOURS DELAYED Av (1) Un	HOURS DELAYED Av (2) Un	HOURS DELAYED Av (3) Un	WORK DAYS CHRD	WORK DAYS PCO
SUN	08/07/2005				S							0.0	
MON	08/08/2005	P/C	95	70	M	12.0						1.0	1
TUE	08/09/2005	CLOUDY	80	65	T	12.0	12.0					1.0	1,2
WED	08/10/2005	P/C	80	60	W		15.0					1.0	2
THU	08/11/2005	CLOUDY	75	60	T		10.0					1.0	2
FRI	08/12/2005	P/C	75	60	F						10.0	0.0	3
SAT	08/13/2005	CLOUDY	75	60	S						10.0	0.0	3

CONTRACT AS A WHOLE (EXPLANATION OF DELAYS AND REMARKS)

COMPLETED MILLING AND PAVING BIT WEAR.STRIPING SCHEDULED FOR NEXT WEEK.

Signed Jennifer Read

Title Project Engineer

WORKING DAY SUMMARY:	
Previous Working Days Remaining	7.0
Working Days Charged This Week	4.0
Total Working Days Remaining	3.0

Distribution: 2 Contract Administration
1 Contractor
1 PE / ADE

See Contract Administration Manual 5-591.340 Series for Instructions Relative to the Preparation of This Report

When the Project Engineer has completed the addition of preceding information to the plans in ink, the “as-built” plan sheets shall be returned to the Regional Bridge Engineer. The Regional Bridge Engineer will arrange for microfilming of “as-built” plans to provide a permanent record in accordance with Mn/DOT policies.

5-393.017 SURPLUS AND SALVAGE MATERIALS

Materials from the project site which the engineer considers of salvage value, and surplus materials which remain after completion of the work, should be properly accounted for when the contract work is completed. The engineer will determine which materials are of salvageable value and their disposition. The Contractor is compensated for the expense of materials delivered for the project but determined as surplus.

Cutoffs and unused pieces of piling for which the Contractor receives payment are salvaged only when the Area Maintenance Engineers express a need for them. Therefore, the engineer should check with the Maintenance Engineer at the start of the project and during the project if the project lasts over a few months, to determine what types and lengths of piling are to be salvaged. The engineer will then notify the Contractor, in writing, of his or her decision.

A determination to salvage an existing bridge or parts of it will generally be made by consulting with the Regional Bridge Construction Engineer during the planning stage. Salvage of steel items is usually based on scrap steel prices.

1. Salvaged Materials

   Form 17119, Inventory of Salvage Bridge Materials, (see www.dot.state.mn.us/const/tools/index.html under "forms") must be prepared upon the completion of each structure from which materials are salvaged. For cost accounting purposes a separate itemization must be made and the total footage shown on Form 17119 for each size and type of steel H or shell pile pieces which are 3 meters (10 ft) or more in length. The original and one copy of Form 17119 are to be submitted with the final.

5-393.018 VERTICAL AND HORIZONTAL CLEARANCE FOR TRAFFIC

Where traffic lanes are open any "temporary" restriction in clearance during construction must be measured and immediately reported to the District Permits Office. Falsework construction, width restrictions due to excavation, construction of a temporary bridge and bridge widening frequently result in temporary or permanent reductions in clearance. The estimated beginning and end dates for "temporary" restrictions should be included with clearance information. The form is available on the Bridge Office website at www.dot.state.mn.us/bridge, click on the "downloads" button and select "Vertical and Horizontal Bridge Clearance Report". Failure to report this information may result in routing of over dimension vehicles through the project with potentially serious safety consequences.

Minimum vertical and horizontal clearances for the completed bridge which may restrict motor vehicle traffic must be recorded on the "as-built" plan. In addition, these measurements should be reported to the District Permit Office and the Bridge Office (Attn: Bridge Management Engineer) prior to opening of the affected roadway for use by the traveling public as per the Contract Administration Manual 5-591.410, under the heading of "Reporting Final Bridge Clearances".

Mn/DOT TP-17119 (3-79)

INVENTORY OF SALVAGED BRIDGE MATERIALS

Sheet No.____ of____

Location of yard:_____

Condition of material or equipment is to be noted for each item listed. Use the following code: N - New G - Good F - Fair P - Poor

Maint. Area No.:_____

No. of Pieces				Description	Wt. Lb./Ft.	Length	Cond.	Remarks

Date

Date

Date

Date

Distribution:
Bridge Construction & Maintenance Engineer (C.O.)
Area Maintenance Engineer
Bridge Maintenance Supervisor
_____
_____

Bridge Crew No.

Bridge Foreman

5.393.018 APPENDIX METRIC INFORMATION

Metric Measurement

Lengths = millimeter (mm), meter (m), kilometer (km)

Areas = square meter (m^2)

Volume = liter (L) or cubic meter (m^3)

Mass (Weight) = kilogram (kg)

Force = Newton ($N=kg \cdot m/s^2$)

Pressure, Stress = Pascal ($Pa = N/m^2$)

Energy, Work = Joule ($J = N \cdot m$)

Torque = Joule ($J = N \cdot m$)

Speed, Velocity = meter/second (m/s), kilometers/hour (km/hr)

Acceleration = meter/second squared (m/s^2)

Density = kilograms/meter cubed (kg/m^3)

Temperature = ºCelsius (ºC)

Power = Watt (J/s)

Conversions	From U.S. Customary	To Metric (SI)	Multiply By
LENGTH/THICKNESS	mil	mm	0.0254
	inch	mm	25.4
	ft	mm	304.8
	ft	m	0.3048
	yd	m	0.9144
	mile	km	1.609344
AREA			
	$inch^2$	mm^2	645.16
	ft^2	m^2	0.092903
	yd^2	m^2	0.836127
VOLUME			
	$inch^3$	mm^3	16390
	$foot^3$	m^3	0.02832
	$yard^3$	m^3	0.7646
	gallon	L	3.7854
	gal/yd^2	L/m^2	4.5273
	gal/yd^3	L/m^3	4.9511
MASS (Weight)			
	ounce	g	28.35
	pound	kg	0.453592
	ton	metric ton	0.907185
FORCE			
	pound	N	4.44822
	kip	kN	4.44822
FORCE/UNIT LENGTH			
	lb/ft	N/m	14.5939
	lb/inch	N/mm	0.1751
PRESSURE/STRESS			
	lbs/ft^2	Pa	47.8803
	$kips/ft^2$	kPa	47.8803

Conversions	From U.S. Customary	To Metric (SI)	Multiply By
	$lbs/inch^2$	kPa	6.89476
	$lbs/inch^2$	Mpa	0.006895
	$kips/inch^2$	Mpa	6.89476
ENERGY			
	foot pound	J = N • m	1.35582
MASS/LENGTH			
	$ounces/yd^2$	kg/m^2	0.0339057
	lbs/ft^2	kg/m^2	4.88243
	lbs/yd^2	kg/m^2	0.5425
	lbs/ft^3	kg/m^3	16.0185
	lbs/yd^3	kg/m^3	0.5933

TEMPERATURE

(°F-32)(5/9) = °C

Quick Conversions

Water freezes	0° C	32° F
Room temperature	20° C	68° F
Beach weather	30° C	86° F
Normal body	37° C	98° F
Water boils	100° C	212° F

Typical dimensions found in the Bridge Construction Manual and the U.S. Customary equivalents are shown below:

LENGTH	
Millimeters	**Inches**
3	0.12 (1/8)
5	0.20 (3/16)
6	0.24 (1/4)
7	0.28
9	0.375 (3/8)
10	0.39
13	0.51 (1/2)
19	0.75 (3/4)
20	0.79 (13/16)
25	0.98
51	2.01
75	2.95
100	3.94
152	5.98
305	12.0

LENGTH	
Meters	**Feet**
0.305	1.0
0.610	2.0
1.0	3.28
1.524	5.0
2.0	6.56
3.0	9.84
3.05	10.0
5.0	16.4
10.0	32.8
15.240	50.0
30.48	100.0
100	328.1
1000	3281

FORCE	
kiloNewton	**Pounds**
4.45	1000
5.0	1124
8.9	2000
10.0	2250
25.0	5620
50.0	11,240
100.0	22,480
200	44,960
222	50,000
445	100,000
500	112,405
890	200,000
1000	224,800

TEMPERATURE	
Celsius	**Fahrenheit**
-40	-40
-20	-4
-10	14
0	32
10	50
20	68
30	86
40	104
75	167
100	212
300	572
500	932
1000	1832