

City of Shakopee

**General Specifications and
Standard Detail Plates
For
Street & Utility Construction**

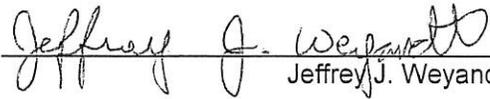


MAY 2010

**City of Shakopee
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Shakopee, Minnesota 55379
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CERTIFICATION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional ENGINEER under the laws of the State of Minnesota.



Jeffrey J. Weyandt, P.E.

Date: May 28, 2010

Lic. No. 41342

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CERTIFICATION

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S.G.R. 01050 INTENT OF THE GENERAL SPECIFICATIONS

The intent of the City of Shakopee General Specifications is to serve as minimum guidelines for private improvements within the City of Shakopee. The City Engineer may impose stricter requirements on any given project. These specifications will serve as a supplement to the project specifications on public improvements. On public improvement projects where there is conflict between these specifications and the project specifications, the project specifications will govern.

It is not the intention of these specifications to dictate to developers how specific items shall be paid for. The basis of payment for work performed shall be agreed upon by the contractor and the developer prior to construction.

S.G.R. 01095 REFERENCE SPECIFICATIONS

Where the Minnesota Department of Transportation specifications are referred to herein and where a reference to the word State is mentioned, it is understood that the word OWNER is substituted. The word OWNER shall refer to the City of Shakopee. All reference to the word ENGINEER shall be interpreted as the City Engineer. Minnesota Department of Transportation (Mn/DOT) Specifications for Highway Construction, the latest edition revisions thereto shall apply except as noted herein. In no case shall any part of Division I (Supplementary General Requirements and Covenants) of the Mn/DOT Specifications apply to this contract unless specifically stated elsewhere in these specifications.

Utility construction shall be accomplished in accordance with applicable sections of the current City Engineer's Association of Minnesota, Standard Utilities Specifications and the City of Shakopee Public Utility Commission Water Policy Manual. All CONTRACTOR crews and subcontractor crews shall have copies of these documents.

S.G.R. 01200 PROJECT MEETINGS

Prior to the start of the work, there will be a preconstruction meeting arranged by the ENGINEER. Representatives of the ENGINEER, OWNER, CONTRACTOR, and public utility companies shall be present at this meeting.

The CONTRACTOR'S project superintendent will be present at the meeting. This person shall be familiar with all phases of the work to be executed and shall oversee the work during its progress. The project superintendent shall represent the CONTRACTOR in his absence, and communications and directions given to him shall be as binding as if given to the CONTRACTOR.

Throughout the construction phase, regular meetings will be held to review progress and discuss items necessary for an orderly completion.

S.G.R. 01300 SUBMITTALS

Prior to the preconstruction conference, the CONTRACTOR shall submit in writing to the ENGINEER for review a schedule of procedure indicating the order in which the CONTRACTOR proposes to perform the various stages of the work, the dates on which he will start the various features thereof, and the contemplated dates for completing the same. The CONTRACTOR shall not deviate from this schedule once approved without written permission of the ENGINEER. An updated monthly work schedule must be included with any partial payment request. The lack of a schedule shall be cause for withholding of progress payments and could result in a work stoppage. If the work is stopped, no credit of working days or payment of down time will be provided.

The CONTRACTOR shall present to the ENGINEER five (5) copies of detailed, dimensioned manufacturer's drawings of all materials, apparatus and machinery, and for such fittings and devices as the ENGINEER may direct. The ENGINEER will keep two copies of each set and return the rest to the CONTRACTOR with the ENGINEER'S approval or notations. In case of lack of approval, the

CONTRACTOR shall submit new drawings, corrected as required by the ENGINEER. All such drawings shall be submitted to the ENGINEER with ample time allowance for consideration. Submittals shall be required for, but not limited to, manhole structures, castings, sewer pipe, watermain and waterworks brass.

The ENGINEER'S approval of such drawings or schedules shall not relieve the CONTRACTOR from the responsibility for errors of any sort in shop drawings or schedule. No work shall be started until the drawings have been approved by the ENGINEER and the CONTRACTOR.

S.G.R. 01400 QUALITY CONTROL

Any person representing federal or state agencies, the ENGINEER, or OWNERS shall have the right-of-entry to inspect the work being performed by the CONTRACTOR. If the case warrants, the CONTRACTOR shall provide proper facilities for such access and inspection.

The CONTRACTOR shall notify the resident observer anytime he anticipates working on this project. No work will be allowed without notifying the observer a minimum of twenty-four (24) hours beforehand.

Testing of materials and/or densities will be paid for by the OWNER. Any retesting due to failures shall be at the expense of the CONTRACTOR.

The OWNER reserves the right to check construction of the sewer by closed circuit television before final acceptance and at any time within the warranty period.

S.G.R. 01402 "OR EQUAL" CLAUSE

Whenever a material or required article is shown on the Plans or in the Specification by using the name of a product or of a particular manufacturer, it is to be understood that other products or materials which will adequately perform the required function may be considered equal and satisfactory in the ENGINEER'S opinion. A comparable product shall not be purchased or installed without the ENGINEER'S approval. A "Contract Change Order" shall be used if the Contract is to be modified.

S.G.R. 01404 MAINTENANCE OF TRAFFIC

Traffic shall be maintained in accordance with the "Minnesota Manual on Uniform Traffic Control Devices" (MMUTCD), the provisions of Mn/DOT Sections 1404 and 1710 and the following:

- (A) The CONTRACTOR shall furnish, install, maintain, and remove all traffic control devices in accordance with the Traffic Control Layouts/Typical Traffic Control Layouts in the Plans, these Special Provisions, and the MMUTCD and the Project Manual, for the life of the Contract or until approved by the ENGINEER, whichever is longer. The ENGINEER will have the right to modify the requirements for traffic control as deemed necessary due to existing field conditions.

Traffic Control

The CONTRACTOR shall be responsible for traffic control on this Project and he/she shall furnish, erect, and maintain all traffic control devices in accordance with the provisions of Mn/DOT 1404, 1710, the "Minnesota Standard Signs Manual," the Plans, and the following:

- (A) The CONTRACTOR shall furnish, erect, and maintain all necessary traffic control devices required to provide safe movement of vehicular traffic around the Project during the entire period from the start of his/her operations to the final completion thereof. Traffic control devices include, but are not limited to, barricades, warning signs, trailers, flashers, cones, drums, pavement markings and flag persons as required and sufficient barricade weights to maintain barricade stability.

- (B) The CONTRACTOR shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged, moved or destroyed, of all lights that cease to function properly, and of all barricade weights that are damaged, destroyed, or otherwise fail to stabilize the barricades. The CONTRACTOR will further provide sufficient surveillance of all traffic control devices at least once every 24 hours.

The CONTRACTOR shall furnish the ENGINEER names, addresses and phone numbers of at least two local persons responsible for all traffic control devices.

- (C) At least five days prior to the start of construction, the CONTRACTOR shall submit his/her proposed traffic control layout to the ENGINEER for approval. At least 24 hours prior to placement, all traffic control devices shall be available on the Project for inspection by the ENGINEER to insure conformance with the Minnesota Manual on Uniform Traffic Control Devices and the State of Minnesota Standard Signs Manual. The CONTRACTOR shall modify his/her proposed traffic control layout and/or devices as deemed necessary by the ENGINEER.
- (D) The CONTRACTOR shall notify the ENGINEER in writing at least 72 hours prior to the start of any construction operation that will necessitate lane closure or internal traffic control signing.
- (E) 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 Lump Sum for which payment is made.

Access to Properties

Access to all residents and businesses shall be maintained throughout the project. The CONTRACTOR Shall restore all driveways and the roadway with Class 5 or millings at the end of each workday to the satisfaction of the ENGINEER. The CONTRACTOR shall coordinate with residents and businesses to provide access for deliveries, etc. during construction.

The CONTRACTOR shall coordinate with the postal service, recycling service, garbage collection service, etc., to maintain continual, uninterrupted service to all residents and businesses. The CONTRACTOR shall temporarily relocate mailboxes, haul recycling and garbage for residents to a designated pick-up location, etc. as required by the subject provider.

The CONTRACTOR shall coordinate notification and construction schedule with the affected property OWNER'S and the ENGINEER prior to paving and placements of curb and gutter and/or driveway entrance aprons to coordinate access during the concrete pouring and curing period. A 3-day notice to residents and business owners affected is required for any concrete construction.

The CONTRACTOR shall accommodate the needs of the elderly in the project area with regards to access.

All equipment, materials and labor required to maintain access to properties shall be considered incidental to the contract.

S.G.R. 01407 CLEANUP

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

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

shall be cleaned just prior to final acceptance of the project.

On or before the completion of work, the CONTRACTOR shall, unless otherwise directed in writing, remove all temporary work, tools and machinery or other construction equipment placed by the CONTRACTOR. The CONTRACTOR shall remove all rubbish from any grounds which the CONTRACTOR has occupied and shall leave all the premises and adjacent property affected by the operation in a neat and restored condition satisfactory to the ENGINEER.

Sweeping of streets and parking lots that are impacted by the construction shall be the responsibility of the CONTRACTOR. The CONTRACTOR shall provide street and parking lot sweeping within 48 hours when requested by the ENGINEER. The sweeper shall be a pick up style sweeper approved by the ENGINEER.

All equipment, materials and labor required for clean up shall be considered incidental to the contract with no direct compensation.

S.G.R. 01507 UTILITY PROPERTY AND SERVICE

It shall be the CONTRACTOR'S responsibility to utilize the One-Call Excavation Notice System at "Gopher State One Call" (1-800-252-1166) as required under Minnesota Statue Chapter 216D at least 48 hours prior to the start of excavation (excluding Saturdays, Sundays and holidays).

Private utility owners may need to replace or relocate existing utilities as part of this project.

The CONTRACTOR shall coordinate all work with private utility owners.

All existing utilities may not be shown on the plans. The utilities that have been noted on the plans are shown in an approximate way only. The CONTRACTOR is required to have all utilities located, and shall coordinate their work with the private utility companies. The CONTRACTOR must use extreme caution when working adjacent to existing public and private utilities. The CONTRACTOR will not be compensated for repair or replacement of utilities damaged during construction.

S.G.R. 01510 STRUCTURE MARKERS

All manholes, gate valves, and storm sewer aprons that are not located within the surfaced right-of-way shall be marked with marker signs. Payment for the sign shall be incidental to the unit price bid for the structure requiring the marker sign.

S.G.R. 01515 CONSTRUCTION WATER

The CONTRACTOR will not be permitted to connect to any City hydrants or use unmetered City water without prior written approval of Shakopee Public Utilities.

S.G.R. 01516 TEMPORARY SANITARY FACILITIES

The CONTRACTOR, at their own expense, shall provide and maintain temporary toilet facilities at the site during the construction period. The location of temporary toilet facilities shall be approved by the ENGINEER prior to placement.

S.G.R. 01546 PROTECT EXISTING UTILITIES

Prior to commencing construction, the CONTRACTOR shall check all existing manholes, catch basins, gate valve boxes, stop boxes, storm sewer lines, and other utilities in the construction zones to determine their condition. The sanitary sewer stubs/manholes immediately downstream of the proposed

construction shall be plugged until construction is approved at no additional compensation. Failure to report deficiencies in writing and have such deficiencies acknowledged in writing by the ENGINEER will be cause for any required repairs and/or cleaning to be charged to the CONTRACTOR.

It may be necessary to relocate existing private utilities to facilitate construction. It is the CONTRACTOR'S responsibility to coordinate his work with the non-municipal utility companies and preserve the existing condition of said utilities. All crossings will be thoroughly backfilled and compacted, using mechanical tampers to prevent any displacement or settlement of the utility lines. No compensation will be allowed the CONTRACTOR for replacement of damaged utilities.

S.G.R. 01547 PROTECT EXISTING PAVEMENTS

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

No additional compensation will be allowed to the CONTRACTOR for replacement of damaged pavements.

S.G.R. 01548 PROTECTING IRRIGATION SYSTEMS

Prior to construction, the CONTRACTOR shall locate all private irrigation systems. The CONTRACTOR shall be responsible for the protection of all irrigation systems during construction. The lump sum bid for Protect Existing Irrigation Systems shall be compensation in full for all equipment, materials and labor required to locate and protect all irrigation systems. Damage to irrigation systems, as a result from this project, shall be repaired at the CONTRACTOR'S expense.

S.G.R. 01550 MAIL SERVICE

The CONTRACTOR shall be required to carefully remove each existing mailbox and standard as necessary for construction. The mailbox and standard shall be delivered to the homeowner for storage during construction. During construction, the CONTRACTOR shall furnish temporary mailboxes at an accessible location for interim mail delivery as approved by the Postmaster. Each box shall be clearly labeled and mounted on a stable standard. Upon completion of construction, the CONTRACTOR shall be required to reinstall the original box and standard as directed by the ENGINEER.

In the event that the existing standard is in such a condition that removal and reinstallation is not feasible, the CONTRACTOR shall protect the existing mailbox.

All equipment, materials and work required to maintain mail service shall be considered incidental to the project cost.

S.G.R. 01551 GARBAGE SERVICE

The CONTRACTOR shall be required to accommodate garbage pickup while the project is under construction. This coordination shall include contact with the garbage companies serving the area and maintaining access to the individual residences. In the event that garbage pickup is not accommodated, the CONTRACTOR shall be responsible for contracting independently to have the garbage removed at no cost to the project.

Unless the proposal includes an item for garbage service, this item shall be considered incidental to the project cost.

S.G.R. 01560 WORKING HOURS

Working hours will be from 7:00 A.M. to 7:00 P.M., Monday through Friday and 9:00 A.M. to 5:00 P.M. on Saturdays. The City must approve requests for extensions of the working hours. The CONTRACTOR shall submit all requests through the field ENGINEER. The CONTRACTOR shall structure the proposed project schedule based on the stated working hours. No equipment shall be started or warmed up prior to 7:00 A.M.

S.G.R. 01561 NOISE CONTROL

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

S.G.R. 01562 DUST CONTROL

The CONTRACTOR shall be responsible for dust control. Dust shall be controlled by the application of water or calcium chloride, as specified in Mn/DOT 2130 and 2131. The CONTRACTOR shall contact Shakopee Public Utilities prior to construction to discuss the availability of water for this use. The CONTRACTOR shall apply water or calcium chloride to control dust within 4 hours of a request by the ENGINEER, including weekends and holidays. Dust control shall be considered incidental to the project cost with no additional compensation allowed therefore.

S.G.R. 01568 EROSION CONTROL

Erosion control shall be placed and maintained by the CONTRACTOR as shown on the plans and as directed by the ENGINEER. The CONTRACTOR shall use the appropriate means of control for individual situations. The erosion control types could include silt fence, fiber blanket, rock construction entrances, diversion ditches, and inlet protection around catch basin, all of which will be considered incidental to the project cost unless a bid item is provided in the Proposal Form. Failure to maintain the erosion control will be sufficient cause to withhold further payments on the project until the maintenance is complete.

The erosion control measures for the project have been identified in the plan set, however, modifications can be made depending on actual site conditions.

All manholes shall be protected from surface water drainage. All storm sewer systems shall be protected from sedimentation, along with downstream ponding areas. All catch basins shall be surrounded with an approved sediment control device or covered with filter fabric immediately following construction.

S.G.R 01590 DEWATERING

The CONTRACTOR shall provide excavation dewatering as necessary to allow for construction on stable foundation, all at the expense of the CONTRACTOR. Dewatering operations may be controlled by permit from the DNR or other agencies. The CONTRACTOR is responsible for application for any necessary permits and compliance with all conditions to permits. The work potentially involves the drawdown of the water table, placement of temporary barriers or other satisfactory types of water control to allow construction and to protect the work. Groundwater elevations shown on borings are those encountered at the time borings were completed. Since elevations are dependent upon hydrologic conditions, the CONTRACTOR is to perform the necessary dewatering operations, irrespective of the actual water table surface water elevation, which prevails at the time the work is accomplished. All pipes shall be constructed in a dry trench as specified in CEAM Standard Utilities Specification, Sections 2611.3-A2 and 2621.3-A2, and accomplished as specified in the applicable section. Dewatering shall be considered incidental to the contract.

The rates of testing to be completed may be adjusted as determined by the City Engineer.

S.G.R. 01710 TRAFFIC CONTROL

All traffic control devices shall conform to, and be installed in accordance with the "Minnesota Manual on Uniform Traffic Control Devices" (MMUTCD) and Part VI, "Field Manual for Temporary Traffic Control Zone Layouts", the "Guide to Establishing Speed Limits in Highway Work Zones", the provisions of Mn/DOT 1404 and 1710, the Minnesota Standard Signs Manuals Parts I, II, and III, the Traffic Engineering Manual (Metric) Chapter 8 Appendixes 8-8.02 and 8-8.03, the Traffic Control Layouts/Typical Traffic Control Layouts in the Plans, and these Special Provisions.

The CONTRACTOR shall furnish, install, maintain, and remove all traffic control devices required to provide safe movement of vehicular traffic through the Project area 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. The roadway shall be open to traffic at the end of each work day.

Traffic Control:

Traffic control shall include furnishing, installing, maintaining, relocating, and removing traffic control devices as required. Traffic control devices include, but are not limited to, barricades, warning signs, trailers, flashers, cones, drums, pavement markings and flagmen as required and sufficient barricade weights to maintain barricade stability, as required to meet the recommendations in the MN MUTCD, or as deemed necessary by the ENGINEER. The ENGINEER may require additional traffic control as conditions warrant.

The CONTRACTOR shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged, moved or destroyed, of all lights that cease to function properly, and of all barricade weights that are damaged, destroyed, or otherwise fail to stabilize the barricades. The CONTRACTOR will further provide inspection of all traffic control devices at least once every 24 hours.

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

At least 24 hours prior to placement, all traffic control devices shall be available on the Project for inspection by the ENGINEER. The CONTRACTOR shall modify his/her proposed traffic control layout and/or devices as deemed necessary by the ENGINEER.

The CONTRACTOR shall notify the ENGINEER in writing at least 72 hours prior to the start of any construction operation that will necessitate lane closure or internal traffic control signing.

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 MMUTCD. Any discrepancy between the placement and the required placement shall be immediately corrected.

All traffic control devices shall have retroreflective sheeting.

Payment:

Payment shall be by the lump sum and shall be compensation in full for all costs of furnishing, installing, maintaining, relocating, and removing the individual traffic control devices (including signing, flaggers, jersey barriers, etc.). This item includes all of the traffic control necessary to complete the project. Payment will be based on the percentage complete as determined by the ENGINEER.

S.G.R. 01760 PROTECTION OF THE PUBLIC

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

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

S.G.R. 01780 PROTECTION OF ADJACENT PROPERTIES

The CONTRACTOR shall take whatever steps necessary to protect adjoining properties and structures from hazards in connection with his performance of the work. The CONTRACTOR is responsible for any and all damages to properties and structures that occur as a result of his operations.

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

S.G.R. 01903 COMPENSATION FOR INCREASED OR DECREASED QUANTITIES

It should be noted that there will be no adjustment in unit price for increased or decreased quantities. In addition, the City reserves the right to reduce certain quantities or delete certain items from each section of the bids as the City sees fit, either before or after the Award of Contract. There will be no additional compensation due to remobilization of equipment as necessary to complete punch list items or other items not completed by the CONTRACTOR. There will be no additional compensation due to restocking charges for materials not used on the project. It is not anticipated that all of the quantity bid for lawn restoration will be needed. Unit prices for seed and sod will not be adjusted, due to a reduction in quantity, regardless of the size of the reduction.

DIVISION 2

SUPPLEMENTARY SPECIAL PROVISIONS

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S.S.P. 02010 MOBILIZATION

Mn/DOT Specification Section 2021 shall apply to mobilization.

S.S.P. 02101 CLEARING AND GRUBBING

02101.1 Description:

Mn/DOT Specification Section 2101 shall apply to clearing and removing trees, stumps and brush, except as modified herein. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to clearing and grubbing trees, stumps and brush as indicated on the drawings or as specified herein. The work shall include but is not limited to: Permits and fees for the disposal of materials and protecting existing improvements from damage.

02101.2 Construction Requirements:

The CONTRACTOR shall remove and dispose all trees, stumps, brush, grass, roots or other undesirable material at an off-site disposal area provided by the CONTRACTOR. No burying of timber or debris will be permitted. Burning, if allowed, must be in accordance with State and City requirements. Re-mobilization for additional clearing and grubbing throughout the project will not be paid. The unit price bid shall include multiple mobilizations. All other trees shall be protected from damage during construction.

S.S.P. 02103 SALVAGE AND REINSTALL SIGNS

The CONTRACTOR shall be responsible for the removal, storage, and replacement of all street name signs, warning signs and regulatory signs, etc., which may have to be moved during the course of his construction. The ENGINEER shall keep an inventory of the condition and location of all signs and the CONTRACTOR will be billed for all signs which are lost or damaged. Installation of salvaged signs shall be in accordance with the Minnesota Manual on Uniform Traffic Control Devices and Mn/Dot Specification 2564.

All signs shall be reinstalled within 14 days of bituminous base construction. Salvage and reinstalling of signs shall be considered incidental to the contract with no direct compensation paid therefore.

S.S.P. 02104 REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

02104.1 Construction Requirements:

Removal Operations: The CONTRACTOR shall be responsible for removal, care of, and replacement of all signs, mailboxes, posts, etc., that may be within the construction limits as directed by the ENGINEER.

The CONTRACTOR shall remove and dispose existing bituminous, curb and gutter, walks, drives, steps and other specified items where shown on the plans or as directed by the ENGINEERS. Sawcut bituminous or concrete surfaces prior to excavation, to produce a clean-cut breakage joint.

Disposal of Materials and Debris: Materials and debris removed from the project site shall be disposed of at a site selected by the CONTRACTOR. Such disposal areas shall be approved landfills or property under the direct control of the CONTRACTOR, in accordance with State and local rules and regulations. No burying of debris on the project site will be permitted.

Abandon Pipe: Pipe that is intended to be abandoned in-place shall be blown full of sand and have each end bulkheaded.

Abandon Manholes: Any manholes to be abandoned in-place shall have the castings removed and shall be filled with sand and then covered up. Castings shall become the CONTRACTOR'S responsibility, including the disposal thereof.

S.S.P. 02105 EXCAVATION AND EMBANKMENT

02105.1 Description:

Mn/DOT Specification Section 2105 shall apply to the excavation and embankment for the site improvements except as modified herein. This work consists of the project grading in accordance with the plans and as directed by the ENGINEER. It also includes the salvaging and placement of topsoil on all project areas where required.

The approximate quantities of common excavation and subgrade excavation shown in the proposal are for informational purposes only. The CONTRACTOR shall determine to his own satisfaction the exact quantities of excavation required to grade the entire site to the elevations shown on the plans prior to bidding the project.

02105.2 Materials:

Common Excavation (P): Common excavation shall consist of all excavation required between the existing surface and the proposed subgrade elevation, including bituminous removal.

Excavation Material: Excavations will not be classified for payment by different classifications of material excavated. All excavations, except rock excavation, are defined as Common Excavation or subgrade excavation.

Borrow Material: Granular borrow shall be used for backfilling below finished subgrade elevations where removal of unsuitable materials is required and directed by the ENGINEER.

Common Borrow: Common borrow shall consist of materials approved by the ENGINEER for use in embankment areas or other specified purposes as the ENGINEER considers suitable.

Topsoil Borrow: Topsoil borrow shall be tested prior to importing to the project and shall be imported from an approved site. Topsoil shall be free from any debris. Minimum depth of topsoil is six inches (6") in all areas where topsoil is required.

02105.3 Construction Requirements:

General: Prior to the commencement of the excavations, topsoil shall be stripped and stockpiled for respreading upon the graded area.

Subgrade Excavation: Subgrade excavation shall be performed, as directed by the ENGINEER for the removal of any unstable soils which may be encountered. Such excavation shall be backfilled with suitable excess common excavation material or granular borrow as directed by the ENGINEER. If the CONTRACTOR proceeds without approval from the ENGINEER, all work and material required to restore the roadbed to the proper grade shall be at the CONTRACTOR'S expense.

Disposition of Excavated Material: Mining of materials for removal from the project area and replacement with less desirable materials by the CONTRACTOR shall not be permitted.

Compacting Embankments: Compaction of all embankments shall be done by the Specified Density Method.

Finishing Operations: Topsoil borrow shall be used only when specifically authorized by the ENGINEER. It is included in the work and bid on the proposal only as a contingency to be used in areas where there may not be sufficient topsoil in place. This work shall not be substituted for the work required of the CONTRACTOR to salvage and replace the existing topsoil.

02105.4 Basis of Payment:

Common Excavation: Common excavation shall be paid for by the unit price bid per cubic yard planned quantity (P). This shall be compensation in full for stripping topsoil, preparing the excavation and embankment areas, excavation, loading, hauling, placing and compacting fill, re-spreading topsoil, temporary stock piling of material as required and removal and disposal of excess material including bituminous pavement. No additional compensation will be allowed for balancing of excavated materials within the project limits.

Subgrade Excavation: Subgrade excavation will be paid for at the contract unit price per cubic yard (excavated volume, EV). This shall be compensation in full for excavation and disposal of unsuitable material, as well as the replacement and compaction of suitable material.

Rock Excavation: Rock excavation shall be paid at the contract unit price per cubic yard. The contract unit price shall be compensation in full for all labor, materials, and equipment necessary to complete the work. All material generated by rock excavation shall become property of the CONTRACTOR and disposed of off site. The removal and disposal of this material shall be incidental to the unit price for rock excavation.

Borrow Material: Borrow material shall be paid for furnishing and placement of the material at the contract unit price per cubic yard (compacted volume). The contract unit price shall be compensation in full for all labor, materials, and equipment necessary to complete the work.

Topsoil Borrow: Topsoil borrow shall be paid for at the contract unit price per Ton (loose volume). The contract unit price shall be compensation in full for all labor, materials, and equipment necessary to complete the job. Weight tickets must be furnished to the project representative for the City no later than 48-hours after being delivered to the site. Tickets submitted after 48-hours will not be paid. Haul tickets will NOT be accepted in lieu of weight Tickets.

S.S.P. 02111 TEST ROLLING

02111.1 Description:

This work shall consist of test rolling the finished subgrade prior to placement of aggregate base and test rolling the aggregate base before placement of pavement. In the event of failure, the CONTRACTOR shall repair the area(s) without compensation. Additional test rolls will be required following the repair of the failed area(s). Approval of the test roll does not constitute acceptance of the street and does not relieve the CONTRACTOR of warranty issues. The rolling of the aggregate base is not required unless otherwise determined in the field by the ENGINEER.

02111.2 Equipment:

A loaded dump truck delivering a 9-ton axle load may be used as test rolling equipment and shall be supplied by the CONTRACTOR. The CONTRACTOR shall supply a weigh ticket to the Engineer prior to the test roll.

02111.3 Construction Requirements:

A representative of the OWNER, ENGINEER and CONTRACTOR shall be present during the operation.

The subgrade will be considered unstable if, under the operation of the test rolling equipment, the surface shows rutting (at the time the test rolling equipment passes over the grade) of more than one inch (1") measured from the top of the constructed grade to the bottom of the rut. The subgrade will also be considered unstable if, under the operation of the test rolling equipment, the surface shows any deflection or yielding (at the time the test rolling equipment passes over the grade). The aggregate base will be considered unstable if, under the operation of the test rolling equipment, the surface shows rutting, deflection or yielding. In addition, the subgrade or aggregate base material shall not roll under the weight of the vehicle.

Once the subgrade has been test rolled and accepted by the ENGINEER, no traffic or construction equipment shall be permitted to operate directly on the subgrade without prior approval of the ENGINEER.

02111.5 Basis of Payment:

Test rolling of the subgrade (including all repairs to unstable sections and retesting) will be considered to be incidental work and no direct compensation will be made therefore.

Test rolling of the aggregate base (including all repairs to unstable sections and retesting) will be considered to be incidental work and no direct compensation will be made therefore.

S.S.P. 02112 SUBGRADE PREPARATION

02112.1 Description:

Mn/DOT specification section 2112 shall apply to the subgrade preparation, except as modified

herein. This work shall consist of shaping and compacting the subgrade prior to the placing of aggregate base or surface course thereon. After the completion of the utility work and prior to the placement of the aggregate base, the CONTRACTOR shall shape and compact the subgrade material to the elevations staked in the field. Any excess granular material should be used first in areas where the subgrade is low, as backfill behind the curb, or other areas as approved by the ENGINEER. If there is still excess material after these operations are completed, the material shall become the property of the CONTRACTOR for proper disposal.

02112.3 Construction Requirements:

The required density shall be 100 percent Standard Proctor Density in the upper three feet (3'). The density will be tested by an approved testing laboratory. A minimum of one test per five road stations will be taken. The location of the test will be at the direction of the ENGINEER. The OWNER shall bear the initial cost of the testing. If, however, sections of the roadway fail and retesting is required, the cost of this additional testing shall be at the CONTRACTOR'S expense.

Upon completion of the subgrade preparation and test rolling, the resident project representative will review the grades with the CONTRACTOR'S representative by the string line method. The CONTRACTOR will furnish the string line and do the string line grade check. The CONTRACTOR will certify that the subgrade is to proper grade prior to the placement of the base.

02112.5 Basis of Payment:

Subgrade preparation will be paid for at the contract unit price per square yard.

S.S.P. 02123 STREET CLEANING/SWEEPING

Prior to the final lift of bituminous, all streets shall be swept and cleaned. Throughout

construction, constructed streets, as well as existing roadways adjacent to the project shall be swept and cleaned as directed by the ENGINEER. Sweeping and cleaning shall be considered incidental to the project.

S.S.P. 02211 AGGREGATE BASE

02211.1 Description:

Mn/DOT specification section 2211 shall apply to the construction of aggregate base, except as modified herein. This work shall consist of the construction of aggregate bases for the project as indicated on the typical sections.

02211.2 Materials:

Aggregate: Aggregate base shall be Mn/DOT Specification 3138 for Class 5, 100% crushed quarry rock. Crushed rock from the Platteville formation is not acceptable.

Prior to placement of any aggregate base, the CONTRACTOR shall submit tests from an approved independent testing laboratory certifying that the materials to be used meet these specifications. All costs associated with testing and certification shall be borne by the CONTRACTOR and considered incidental to the project with no additional compensation allowed therefore.

02211.3 Construction Requirements:

General: The subgrade shall be inspected, checked, test rolled and approved by the ENGINEER prior to placement of aggregate base.

The CONTRACTOR shall install the aggregate base immediately, no more than 48 hours, after completion and approval of the subgrade. If placement of the aggregate base is done forty-eight (48) hours or more after the initial roll test a second roll test will be required and paid for by the CONTRACTOR. The CONTRACTOR shall be responsible to maintain the aggregate base until completion of bituminous surfacing as incidental to the work, with no direct payment therefore. Additional aggregate base required due to erosion, washouts, trench settlements or other similar causes shall be replaced by the CONTRACTOR without additional compensation therefore.

If aggregate base material is being wasted or placed excessively thick, the ENGINEER reserves the right to deduct quantities that are in excess of plan thickness. Said quantities shall be based on aggregate material weighing 105 pounds per square yard of area per inch of thickness.

Spreading and Compacting: Compaction shall be obtained by the Specified Density Method to a minimum of 100% of the Standard Proctor Density. At the time of compaction, the CONTRACTOR shall apply water, if necessary, to ensure the moisture content of the base material is not less than 65 percent of optimum moisture. The density will be tested by an approved testing laboratory. A minimum of one (1) test per five (5) road stations will be taken. The location of the test will be at the direction of the ENGINEER. The OWNER shall bear the initial cost of the testing. If however, sections of the roadway fail and retesting is required, the cost of this additional testing shall be at the CONTRACTOR'S expense.

Workmanship and Quality: Upon completion of the aggregate base installation and test rolling, the resident project representative will review the grades with the CONTRACTOR'S representative by the string line method. The CONTRACTOR will furnish the string line and do the string line grade check. The CONTRACTOR will certify that the aggregate base is to proper grade prior to the placement of the bituminous base.

The CONTRACTOR shall remove, replace and test roll any portion of the aggregate base that becomes contaminated after placement.

02211.4 Basis of Payment:

Aggregate base Class 5 (100% crushed) shall be paid for at the contract unit price per ton. No claim may be made for aggregate not finished or placed. This shall be payment in full for all costs incidental to construction including water added and compaction. Tickets must be furnished to the project representative for the City no later than 48-hours after being delivered to the site. Tickets submitted to the City after 48-hours will not be paid.

The bid quantity on the proposal exceeds the amount of Class 5 needed for the approved removal limits and depths of rock placement specified. The CONTRACTOR will not be compensated for additional Class 5 over the contract amount hauled to the site unless removal limits are changed or thicker rock sections are approved by the ENGINEER prior to construction.

S.S.P. 02215 GEOTEXTILE FABRIC

Stabilizing fabric shall conform to Mn/DOT 3733, Type V. The fabric is to be laid in the direction of construction traffic (longitudinal joint). Fabric panels shall be overlapped both side to side and end to end by 18-inches or sewn. The joints should be sewn four (4) to seven (7) stitches per inch in a "prayer" seam with a sewing machine. Nylon thread shall not be used. Fabric shall extend 1-foot beyond the Class 5 shoulder.

The geotextile fabric shall be paid for at the contract unit price per square yard in place. This shall be compensation in full for furnishing, overlapping or sewing and installing the fabric. The overlapping area shall be considered only one time for payment quantities.

S.S.P.02357 BITUMINOUS TACK COAT

02357.1 Description:

This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the construction of the bituminous tack coat as indicated on the drawings or as specified herein.

02357.2 Specification References:

Mn/DOT Specification Section 2357 shall apply to the construction of bituminous tack coat, except as modified herein.

Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

02357.3 Materials

The bituminous material for tack coat shall be CSS-1 or CSS-1H.

02357.4 Construction Requirements

The material shall be applied at the rate not-to-exceed 0.05 gallons per square yard for undiluted and 0.10 gallons per square yard for diluted. Application rate may be adjusted in the field by the ENGINEER.

The contact surfaces of all fixed structures such as concrete curb edges, the edge of the in-place mixture in all courses at transverse joints, and the wearing course at longitudinal joints shall be given a uniform coating of Liquid Asphalt or Emulsified Asphalt before placing the adjoining mixture. The bituminous material shall be applied by methods that will ensure uniform coating and in no case shall the application be excessive.

02357.5 Basis of Payment:

The unit price bid for tack coat shall include sweeping and cleaning of all debris and dirt from the previous bituminous courses prior to placement of tack coat.

S.S.P. 02360 PLANT MIXED ASPHALT PAVEMENT

02360.1 General:

Mn/DOT 2360 is hereby deleted from the Standard Specifications and replaced with 2360 PLANT MIXED ASPHALT PAVEMENT Gyatory Design specifications. Bituminous shall be constructed in accordance with Mn/DOT Specification Section 2360 except as modified herein. A copy of this specification will be furnished to the CONTRACTOR by the ENGINEER at the request of the CONTRACTOR. Section 2360.7C is deleted from the Mn/Dot Specification.

The bituminous material for the mixture shall be PG58-28 asphaltic cement. A maximum of 20% recycled asphaltic pavement materials (RAP) from a source approved by the ENGINEER will be allowed in the bituminous wearing course. Compaction of all bituminous mixtures shall be by the ordinary compaction method. Incentives will not be paid for meeting or exceeding density requirements. A nuclear density meter and operator shall be provided by the CONTRACTOR at the beginning of each course for each typical section for each street to establish the appropriate rolling patterns.

02360.2 Plant Mixed Asphalt Pavement Thickness Payment Schedule

Asphalt Thickness Payment Criteria: The ENGINEER will take cores to check thickness. Incentives will not be paid for meeting thickness requirements. For work done under pay items measured by the ton, any materials used of any lift (except leveling) constructed to more than the maximum permissible thickness, plus ¼ inch may be excluded from the pay quantities at the discretion of the ENGINEER. The ENGINEER may require removal and replacement, at the CONTRACTOR'S expense, of any part of any lift (except leveling), that is constructed to less than the minimum required thickness

The requirements of **Mn/DOT 2360.7A Thickness** will not apply for work accomplished under Pay Items that are measured by area. The following specification applies to **Mn/DOT 2360.8 Method of Measurement** and Section 2360 (PLANT MIXED ASPHALT PAVEMENT – Basis of Payment) of these Special Provisions.

The specifications for Method of Measurement and Basis of Payment for Asphalt Mixtures as Measured by the Specified (inches) Thickness per Square Yard are modified and supplemented by the following requirements:

The Method of Measurement: This item will be measured based on the Plan dimensions for standard width and/or irregular width paving at the dimensions and thickness specified unless otherwise directed by the ENGINEER. There will be no additional payment for asphalt pavement constructed with a greater thickness or width than required by the Plan. Actual thicknesses of the mixtures will be determined by measurement of the cores required for density testing and additional cores specifically cut for thickness checks.

Changes in Method of Measurement: The ENGINEER shall be allowed to direct the CONTRACTOR to construct Asphalt Pavement in thickness' different than that shown in the Plan for small quantities. The Method of Measurement will be a direct proration from the original thickness to the changed thickness, with payment to be made at Contract unit prices. Changes greater than 10% of the Estimated quantity for any item will be subject to renegotiation of unit prices.

The Basis of Payment: If the specified thicknesses are not obtained, the final payment for each item will be reduced in accordance with the tolerances and deductions shown in the Thickness

Acceptance Schedule applied to each Thickness Sublot using the procedure shown below. The Thickness Acceptance Schedule specification will apply to asphalt mixtures placed over all aggregate base, reclaimed bituminous, and any other unpaved, milled or previously paved surfaces.

A. Thickness Sublot for Measurement: In Maximum Density Projects, the Thickness Sublot will be the same area as the Density Sublot for the final lift of any particular mixture.

In Ordinary Compaction Projects, the Thickness Sublot shall be ½ **mile** long for the final lift of any particular mixture, or portion thereof at the end of each segment of paving. Thickness Sublots shorter than ½ **mile** will require fewer thickness cores on a pro rata basis. The areas measured for full thickness acceptance or for partial thickness acceptance will be determined by computing the area of each Thickness Sublot.

B. Average Measured Thickness: The Average Measured Thickness for each Thickness Sublot will be the average of all the thickness measurements obtained from the core thicknesses of the density cores and the special thickness cores.

For Maximum Density Projects, two (2) special thickness cores for each Thickness Sublot shall be cut by the CONTRACTOR in addition to the regular density cores. For Ordinary Compaction Projects, four (4) special thickness cores shall be cut for each Thickness Sublot. The special thickness cores cut by the CONTRACTOR shall be considered incidental work and the location of the cores shall be taken at random locations selected by the ENGINEER. The thickness cores shall not be taken within **1 foot** of any unsupported edge.

If more than one lift of the same type of mixture is placed to obtain specified thickness, the Average Measured Thickness will be the average of the total thickness of each type of mixture, and will be determined with cores taken after the entire thickness of each type of mixture is placed.

An additional **1/16 inch** tolerance will be added to the Thickness Tolerances shown in the Thickness Acceptance Schedule, for the total thickness of non-wearing course asphalt pavement constructed on aggregate base or reclaimed bituminous surfaces. This additional amount of tolerance also applies to the total thickness of wearing courses paved directly on aggregate base or reclaimed bituminous surfaces.

Thickness Acceptance Schedule	
Thickness Tolerance The percent less than the total specified Pay Item thickness obtained from the Average Measured Thickness for each sublot.	Percent Deduction To be applied to payment for each Thickness Sublot
0 to 5.0 % less than specified	No deduction
5.1 to 17.0 % less than specified	Percent Deduction = 1.0 times the actual Percent less than specified thickness
17.1 to 23.0 % less than specified	Percent Deduction = 1.5 times the actual Percent less than specified thickness
23.1 to 30.0 % less than specified	Percent Deduction = 2.0 times the actual Percent less than specified thickness
In excess of 30.0 % less than specified	Corrective action shall be taken as directed by the ENGINEER

02360.3 Cold Weather Paving Requirements:

Cold Weather Paving Requirements: Paving of the base course where temperatures are less than 40 degrees and rising will not be allowed unless approved by the CITY ENGINEER. Paving of the wear course where temperatures are less than 50 degrees and rising will not be allowed unless approved by the CITY ENGINEER. Paving of wear course for streets and trails will not be permitted after November 1st.

During colder weather paving (minimum 40 degrees Fahrenheit), compaction tests may be required to be taken on site at the time the pavement is being placed in addition to the core tests being taken.

02360.4 Basis of Payment:

The contract unit price bid, per ton, for bituminous materials shall be compensation in full for all equipment, materials and labor required to construct the bituminous lifts in accordance with the plans and as directed by the ENGINEER.

S.S.P. 02632 BITUMINOUS DRIVEWAY PATCH

02362.1 Type SPWEB240B Wearing Course Mixture for Driveways:

Type SPWEB240B wearing course mixture for driveways shall be used for bituminous driveway section repairs. The patching shall include common excavation, subgrade preparation and supplying and placement of the bituminous wear course. The repair section shall have a minimum of six-inches (6") of aggregate base, Class 5 (100% crushed) and three-inches (3") Bituminous Wear Course mixture. If the existing driveway pavement section is thicker, the repair section shall match the existing section at no additional compensation.

S.S.P. 02451 STRUCTURE EXCAVATIONS AND BACKFILLS

02451.2 Materials:

Granular Foundation and/or Bedding: Granular foundation material shall be one and one-half inch (1 ½") clear aggregate. Granular bedding shall meet the requirements of Mn/DOT Specification 3149, Granular Borrow, except that 100 percent, by weight, shall pass the 1-inch sieve.

02451.3 Construction Requirements:

Granular foundation material shall be placed when, in the opinion of the ENGINEER, the in-place soils below proposed pipe inverts are not suitable as a pipe foundation. The CONTRACTOR shall excavate in-place materials as directed by the ENGINEER and place granular foundation material. The granular foundation material shall be used below the pipe invert only. Granular bedding shall be used around the pipe as directed by the ENGINEER.

02451.5 Basis of Payment:

Granular Foundation and/or Bedding: If specified in the proposal, payment shall be by the ton for the material in place and includes excavation and disposal of unsuitable material. No payment will be allowed without prior approval by the ENGINEER. If a specific item for pipe bedding is not included in the proposal, then bedding the pipe in suitable material shall be considered incidental to pipe installation.

S.S.P. 02504 WATERMAIN

All watermain and accessories including but not limited to hydrants, gate valves, fittings, curb stops and service pipe shall be installed in accordance with the Shakopee Public Utilities Commission's Water Policy Manual.

Connect to Existing Watermain or Water Service: The unit price bid per each for connect to existing watermain and connect to existing water service shall be compensation in full for all labor, materials and equipment required to connect to existing watermain or connect to existing water service.

Adjust Gate Valve and Box: Valve boxes shall be raised to street grade within two weeks after the completion of each lift of bituminous. Valve boxes shall be set to have six inches (6") of adjustment up and down from finished grade. The final rim surface elevation of the valve box casting shall be one-half (1/2) inch below the adjacent pavement elevation and at grade in turf.

If the CONTRACTOR breaks a valve box, he shall replace it at NO cost to the City. If the CONTRACTOR finds an existing broken valve box, he shall bring it to the attention of the ENGINEER prior to the start of work in that location.

Relocate Hydrant and Valve: Relocate hydrant and valve shall include all labor, materials and equipment required to disconnect, remove, re-connect to the existing watermain and re-set the hydrant and valve at the new location as designated by the ENGINEER. The six-inch (6") ductile iron pipe leads required to extend and/or replace the existing leads will be paid for separately. The contract unit price shall be compensation in full for all labor, materials and equipment necessary to complete the work.

S.S.P. 02505 TEMPORARY WATER DISTRIBUTION SYSTEM

02505.1 Description:

The provisions of CEAM 2611 shall apply to temporary water distribution system except as modified herein.

02505.2 Materials:

Pipe and Fittings: All piping, including hoses used for water service shall be ANSI/AWWA rated. The minimum pipe size shall be 2-inches for mainlines and .75-inches for individual service connections. All equipment and materials shall be approved on-site by Shakopee Public Utilities prior to hook up.

02505.3 Construction Requirements:

Prior to construction, the CONTRACTOR shall prepare a memo the City can distribute to the residents detailing when temporary water will be installed, how it is installed and how it affects the property owners such as it's affect on sprinkler systems, water pressure and water softeners.

The CONTRACTOR shall also submit a work plan to the City and Shakopee Public Utilities detailing the method proposed to maintain service to affected customers and estimate of the duration of any anticipated interruptions of service.

The plan shall detail connection points, materials, mainline and service sizes, sampling points, emergency procedures and other related information about the temporary water system. The CONTRACTOR shall demonstrate that the level of service to the water users will not be significantly impacted and that the temporary system will supply water demands at pressures normal to the existing system. The CONTRACTOR shall identify large or exceptional water users and incorporate their needs into the temporary water distribution system. The CONTRACTOR shall allow one (1) week for review and approval by Shakopee Public Utilities.

Interruptions in service shall be coordinated with and completed by members of Shakopee Public Utilities. The CONTRACTOR must notify the residents in writing at least 24 hours prior to shutting down water service. Water service cannot be shut down before 10:00 A.M. or after 3:00 P.M. The CONTRACTOR must have City approval prior to shutting down water service.

Temporary meter and possible backflow device shall be required and supplied by Shakopee Public Utilities upon payment of a deposit.

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

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

Source Water Connection: Source water connections to fire hydrants are discouraged unless the Contractor can demonstrate that the hydrant has been disinfected and thoroughly flushed. The Owner or Engineer assumes no responsibility for the quality of water obtained from a hydrant. After disinfection, the hydrant shall be pressurized at all times in which it serves as a source of potable water. Isolation valves are required at the source water connection, branches (2 on 3 way, 3 on 4 way) and at every service.

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

Chlorine Residual and Bacteriological Testing: After the temporary water system is installed (both mainlines and services) in its final location, but before service piping is connected to the water users, the temporary water distribution system shall satisfy the chlorine residual and bacteriological testing standards and protocols for the commissioning of new water mains. Samples must be collected at the end of each branch. All sampler qualification, procedural standards, bacteriological and chlorine residual requirements detailed for commissioning new water main distribution systems apply to testing the temporary water distribution system.

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

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

Off-hours Corrective Action: In the event that corrective action is needed to the temporary water distribution system outside of normal working hours, the Engineer or Owner will attempt to contact the Contractor to take corrective actions. If, in the sole opinion of the Owner, the Contractor is unable to make the corrections in a timely manner, the Owner may direct their own forces to take corrective steps. The Contractor will be responsible for any costs incurred by the Owner.

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

02505.4 Basis of Payment:

The lump sum unit price bid for temporary water distribution system shall include all work, materials and equipment required to install and maintain water service to the project area for the duration of the project in accordance with the requirements of Shakopee Public Utilities.

S.S.P. 02506 MANHOLES, CATCH BASINS AND VALVE BOXES

02506.1 Description:

This work consists of the adjustment of manholes, catch basins and valve boxes to meet final grades. Construction of manholes, catch basins and valve boxes shall be accomplished in accordance with applicable sections of the City Engineers Association of Minnesota, Standard Utility Specifications, Division II of these specifications, and Standard Detail Plates.

02506.3 Construction Requirements:

Adjusting Frame and Ring Castings or Valve Boxes: The procedure for adjusting structures shall be in accordance with the standard procedures used to adjust structures within multiple lift bituminous pavement sections. Included in this work is the requirement to set the rim elevations to the final surface elevation prior to the application bituminous wear course. During the structure adjustment, the CONTRACTOR shall place traffic cones or other traffic barricades on the structure being adjusted.

The procedure shall consist of installing metal plates on manhole structures, paving the first lift of pavement, removing the plate, setting the rings and casting or valve box to the final pavement grade, placement of new Class 5 (compacted) and bituminous pavement, prior to paving the final bituminous wear course.

The CONTRACTOR has forty-eight (48) hours to install the wear course paving after adjusting structures for the wear course paving, this time frame includes overlay projects. During the interim period between adjusting structures for the wear course paving and installing the wear course paving, the CONTRACTOR shall place traffic cones or other traffic barricades on the adjusted structures.

Structures shall be adjusted such that they conform to the following requirements:

Manholes and catch basins shall have no more than six (6) nor less than two (2) concrete adjusting rings and the maximum height of adjusting rings and the casting shall not exceed eighteen (18") inches. Concrete adjusting rings shall be a standard, two (2) inch thick, reinforced ring manufactured for this specific purpose. The diameter or rectangular dimension shall conform to the type of casting on the structure.

Frame and ring castings shall be set to the designated elevation in a full bed of mortar. Mortar between the rings shall be no less than one-third ($\frac{1}{3}$) inch nor greater than one-half ($\frac{1}{2}$) inch. No less than one-half ($\frac{1}{2}$) inch thickness of mortar shall be plastered around the outside of the rings to encase the rings of structures (this does not apply to catch basins within curbs, which shall be encased in concrete). No shims of any type shall be used to set the rings.

Catch basin castings and adjusting rings shall be encased in a minimum of four (4) inches of concrete when installed in curbing in accordance with the Standard Detail Plates. Rim elevations shall be set to correspond with the depressed curb as illustrated in the Standard Detail Plates.

Valve boxes shall be set to have six inches (6") of adjustment up and down from finished grade.

The final rim surface elevation of the manhole or valve box casting shall be one-half ($\frac{1}{2}$) inch (plus or minus $\frac{1}{8}$ inch) below the adjacent pavement elevation and at grade in turf.

All storm sewer drainage structures shall have geotextile filter fabric placed around the concrete adjusting rings in addition to what is shown on the City detail plate. This shall be considered incidental to the drainage structures.

02506.5 Basis of Payment:

The raising of castings and gate valves shall be paid for at the contract unit price per each.

S.S.P. 02521 WALKS

02521.1 Description:

Walks shall be constructed in accordance with Mn/DOT 2521. Signing for "Walk Closed" signs, during reconstruction or repair of sidewalks and bituminous paths, shall be considered incidental. Placement shall be at the beginning and end of each block segment or as directed by the ENGINEER.

02521.2 Materials:

Concrete: The air content of the concrete shall not be less than four (4) nor more than seven (7) percent. Concrete mix shall be 3A32 where forms are placed and 3A22 where slip form machine placement is used.

Bituminous Mixture: Shall meet requirements of Section 2360, Plant-Mixed Asphalt Pavement.

Granular Materials: Base for concrete walk shall meet the requirements of Mn/DOT 3149.2-B1, granular borrow, except that 100 percent of the material shall pass a one and one-half inch ($1\frac{1}{2}$ ") sieve. Existing on site materials may be used if approved by the ENGINEER.

Base for bituminous walk shall meet requirements of Section 2211, Aggregate Base. The aggregate base course shall be Class 5 (100% crushed quarry rock).

02521.3 Construction Requirements:

Placing and Finishing Concrete: Each concrete batch shall be tested for air content prior to placement. Any batch not meeting the air requirements will be rejected.

The testing will be done by an approved testing laboratory. The OWNER shall bear the initial cost of the testing. If, however, sections of the walk fail and retesting is required, the cost of this additional testing shall be at the CONTRACTOR'S expense.

Slip form machine placement will be allowed and shall conform to Mn/DOT 2531.3F requirements.

Joint Construction: Expansion joints shall be placed a maximum of one-hundred feet (100') apart. Spacing of contraction joints shall equal the width of the walk.

Membrane and Extreme Service Membrane Curing Method: Membrane curing method will be allowed with the minimum rate of application being one gallon per one hundred and twenty-four square feet (124 sq. ft.) of exposed surface area.

Bituminous: Construction shall be in accordance with requirements of Section 2340, Plant Mixed Bituminous Pavement Quality Assurance (Q/A).

Truncated Domes: The CONTRACTOR shall select a cast iron coated truncated dome product from the approved products list at <http://www.mrr.dot.state.us/materials/materials.asp>. Only approved products are allowed. Stamped concrete is not allowed. The entire truncated dome area shall be powder-coated finish in the color of brick red.

All truncated dome systems shall be installed in strict accordance with the recommendations of the manufacturer. The installation protocol shall include details regarding products specific construction requirements. The CONTRACTOR shall provide this information to the ENGINEER for approval prior to commencement of work.

S.S.P. 02531 CONCRETE CURB AND GUTTER

02531.1 Description:

Mn/DOT specification section 2531 shall apply to the construction of concrete curb, medians, and driveway pavement, except as modified herein. This work shall consist of constructing cast-

in-place concrete curbs, curb and gutter, medians, driveway pavement, and other similar traffic delineation or service items.

02531.2 Materials:

Concrete: The air content of the concrete shall not be less than four (4) nor more than seven (7) percent. Concrete mix shall be 3A32 where forms are placed and 3A22 where slip form machine placement is used. The ENGINEER shall take samples as he/she deems necessary to determine the quality of the concrete. Concrete compressive strength shall not be less than thirty-nine hundred (3,900) psi at twenty-eight (28) days.

02531.3 Construction Requirements:

Foundation Preparations: The CONTRACTOR shall shape and compact the aggregate base prior to starting concrete curb and gutter construction.

Joint Construction: Expansion and contraction joints shall be constructed according to Mn/DOT Specification 2531.3. Expansion joints are required at every structure, at ends of curved sections,

ends of curved portions of entrance and street returns and every fifty feet 50' for manual placement and one hundred feet (100') for slip form placement. Expansion joints shall also be placed at locations where concrete adjoins any fixed object or existing pavement. Contraction joints shall be provided at ten-foot (10') intervals in the curb and gutter.

Placing and Finishing Concrete: Each concrete batch shall be tested for air content prior to placement. Any batch not meeting the air requirements will be rejected. The ENGINEER will take samples as deemed necessary to determine the quality of the concrete. The CONTRACTOR shall provide for suitable storage on site for concrete test cylinders.

The testing will be done by an approved testing laboratory. The OWNER shall bear the initial cost of the testing and transporting of cylinders. If, however, sections of the curb and gutter fail and retesting is required, the cost of this additional testing shall be at the CONTRACTOR'S expense.

Membrane and Extreme Service Membrane Curing Method: Membrane curing method will be allowed with the minimum rate of application being one gallon per one hundred twenty-four (124) square feet of exposed surface area.

Joint Sealing: Shall not be required.

Backfill Construction: No work around newly constructed curb will be permitted until the curb has had a minimum of four days to cure. Backfilling of the curb and gutter shall be completed within fourteen (14) days of placement of curb and prior to bituminous surfacing of the roadway. Extreme care must be exercised by the CONTRACTOR during this operation to prevent horizontal displacement of the curb and gutter. Backfilling shall be considered incidental to the construction.

Workmanship and Finish: The complete concrete work shall give the appearance of uniformity in surface contour and texture, and shall be accurately constructed to line and grade. Unacceptable work shall be removed and replaced with acceptable work as ordered by the ENGINEER. Cracking at areas other than joints, may at the discretion of the ENGINEER, be saw cut and sealed with an approved sealant or removed and replaced.

02531.4 Method of Measurement:

By Linear Foot: The basis of payment for concrete curb and gutter will be at the contract unit price per lineal foot of curb and gutter constructed in place as measured along the gutter lines. No deductions will be made for catch basins. The contract unit price per lineal foot shall include all necessary excavation, joints, expansion material, protective coating and tamped backfill.

S.S.P. 02532 CONCRETE DRIVEWAY PAVEMENT

02532.1 Description:

Mn/DOT specification section 2531 shall apply to the construction of concrete driveway pavement, except as modified herein. This work shall consist of constructing cast-in-place concrete driveway pavement.

02532.2 Materials:

Concrete: The air content of the concrete shall not be less than four (4) nor more than seven (7) percent. Concrete mix shall be 3A32 where forms are placed and 3A22 where slip form machine placement is used. The ENGINEER shall take samples as he/she deems necessary to determine the quality of the concrete. Concrete compressive strength shall not be less than thirty-nine hundred (3,900) psi at twenty-eight (28) days.

02532.3 Construction Requirements:

Foundation Preparations: The CONTRACTOR shall shape and compact the aggregate base prior to starting concrete driveway pavement construction.

Joint Construction: Expansion and contraction joints shall be constructed according to Mn/DOT Specification 2531.3 if a detail is not provided on the plans. Expansion joints are required at least every fifty feet (50') and at ends of curved sections and ends of curved portions of entrance and street returns and where concrete adjoins existing curb and gutter and existing pavement.

Placing and Finishing Concrete: Each concrete batch shall be tested for air content prior to placement. Any batch not meeting the air requirements will be rejected. The ENGINEER will take samples as deemed necessary to determine the quality of the concrete. The CONTRACTOR shall provide for suitable storage on site for concrete test cylinders.

The testing will be done by an approved testing laboratory. The OWNER shall bear the initial cost of the testing and transporting of cylinders. If, however, sections of the driveway pavement fail and retesting is required, the cost of additional testing shall be at the CONTRACTOR'S expense.

Membrane and Extreme Service Membrane Curing Method: Membrane curing method will be allowed with the minimum rate of application being one gallon per one hundred twenty-four (124) square feet of exposed surface area.

Joint Sealing: Shall not be required.

Backfill Construction: Backfilling of the concrete driveway pavement shall be completed within seven (7) days of placement of the concrete driveway pavement. Extreme care must be exercised by the contractor during this operation to prevent damage to the concrete pavement. Backfilling shall be considered incidental to the construction.

Workmanship and Finish: The complete concrete work shall give the appearance of uniformity in surface contour and texture, and shall be accurately constructed to line and grade. Unacceptable work shall be removed and replaced with acceptable work as ordered by the ENGINEER. Panels cracking at areas other than joints, within the two year warranty, will be removed and replaced at the contractor's expense.

S.S.P. 02545 INSTALL 1.25-INCH (1.25") PVC CONDUIT

02545.1 Description:

This item consists of the installation of 1.25" PVC conduit for Shakopee Public Utilities Commission (S.P.U.C.).

02545.3 Construction Requirements:

S.P.U.C. will provide the PVC conduit. CONTRACTOR shall bury PVC conduit at depths not to exceed three (3) to five (5) feet.

S.S.P. 02564 EPOXY PAVEMENT MARKINGS

2564.1 General

The following Mn/DOT Specifications apply to pavement markings:

*Specifications for Epoxy Resin Pavement Markings (Free of Toxic Heavy metals),
March 1, 1999*

*Minnesota Department of Transportation Specification Drop-On Glass Beads, January
16, 1998*

Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

This section covers the furnishing of all labor, materials, tools, equipment and performance of all work and services necessary or incidental to the application of pavement markings as indicated on the drawings or as specified herein.

2564.2 Method of Measurement and Payment

Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:

Pavement markings of the specified width will be measured separately by length of each type constructed complete in place as specified. Broken line will be measured by the actual length of line marked and will not include the gap between the broken lines. Pavement messages will be measured separately by the number of each type constructed.

Payment for pavement markings of each type and width will be made at the appropriate Contract bid price for the specified unit measure.

The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated pavement markings items. Such items of work include but are not limited to:

All costs of preparing the surface.

Controlling and protecting traffic.

Maintaining the work, together with any other expenses incurred in the completing the work that are not specifically included for payment under Contract Items.

2564.3 Construction Requirements

Application equipment shall consist of a machine of the spray type capable of applying the material under pressure at a controlled temperature through nozzles equipped with remotely controlled cutoff mechanisms and suitable line guides that will produce clean cut lines and prevent excessive material drift.

At the time of applying the marking material, the application area shall be free of contamination. The CONTRACTOR shall clean the surface prior to the line application in a manner and to the extent required by the ENGINEER.

Pavement markings shall only be applied in a seasonable weather when the air temperature is 50 degrees F or higher, and shall not be applied when the wind or other conditions cause a film of dust to be deposited on the pavement surface after cleaning and before the marking material can be applied.

The filling of tanks, pouring of materials or cleaning of equipment shall not be performed on unprotected pavement surfaces unless adequate provisions are made to prevent spillage of the material.

No striping operations will be permitted between sundown and sunrise without written permission from the ENGINEER.

All material shall be placed in a workmanlike manner, which shall result in a clearly defined line.

All pavement striping shall be 4-inches wide, unless noted otherwise on the plans.

Application of the makings material shall be such as to provide uniform film thickness throughout the coverage area. Stripe ends shall be clean cut and square, with a minimum of material beyond the cutoff.

All pavement markings not conforming to the requirements of the Contract shall be removed and replaced or otherwise repaired to the satisfaction of the ENGINEER. Removal of unacceptable work shall be accomplished with suitable blasting or grinding equipment unless other means are approved by the ENGINEER.

S.S.P. 02571 PLANT INSTALLATION

02571.1 Description:

Mn/DOT specification section 2571 shall apply to plant installation, except as modified herein. This work shall consist of furnishing and installing shrubs and trees on the project as directed by the ENGINEER.

02571.3 Construction Requirements:

Planting Soil Preparation: Topsoil, soil conditioners, humus and fertilizer shall be included to assure good growth.

Plant Establishment Period: Plant establishment shall be two years and match the two-year guarantee period of the Contract.

02571.5 Basis of Payment:

The unit bid for each shall include any watering, topsoil, soil conditioners, humus and fertilizer required to assure good growth.

S.S.P. 02572 PROTECTION AND RESTORATION OF VEGETATION

02572.3 Construction Requirements:

Protecting and Preserving: No trees shall be removed without permission of the ENGINEER. No compensation will be paid for cutting down, removing and disposing of shrubs. Any trees or shrubs deemed savable will be field located by the ENGINEER and shall be fully protected by this CONTRACTOR during construction. Any trees or shrubs removed or damaged by the CONTRACTOR, which were deemed savable by the ENGINEER will be replaced at the CONTRACTOR'S expense.

The following procedures shall be adhered to when constructing utilities near trees:

Cut roots cleanly.

Paint cut root ends with asphalt base paint.

Backfill trench as soon as possible; do not leave the roots exposed to air.

No equipment or construction materials shall be stored beneath a tree's drip line.

Clean up around trees immediately after construction.

Pruning: All pruning of trees has to be approved by the ENGINEER. All trees damaged during construction shall be pruned and repaired. All wounds on trees shall be treated with an asphalt varnish containing an antiseptic. If an antiseptic asphalt varnish is not available, a plain asphalt varnish can be used if the wound is swabbed with alcohol or coated with shellac. Wounds shall be painted as soon as possible after the area is dry.

02572.5 Basis of Payment:

All work under protection and restoration of vegetation shall be considered incidental to the contract with no additional compensation allowed therefore.

S.S.P. 02573 TEMPORARY EROSION CONTROL

02573.1 Description:

Mn/DOT specification section 2573 shall apply to the construction of temporary erosion control except as modified herein. Erosion control shall be placed and maintained by the CONTRACTOR and as directed by the ENGINEER. The CONTRACTOR shall use the appropriate means of control for individual situations. The erosion control types could include silt filter fence, fiber blanket, rock construction entrances, diversion ditches, and sediment filters around catch basins. Erosion control devices shall be paid for at the contract unit price bid on the proposal, installed and maintained as specified. All forms of erosion control will be considered incidental to the project cost if a pay item is not provided for on the proposal. Failure to maintain the erosion control will be sufficient cause to withhold further payments on the project until the maintenance is complete. At the end of the maintenance period, the CONTRACTOR shall be responsible for removing the temporary erosion control measures.

All manholes shall be protected from surface water drainage. All storm sewer systems shall be protected from sedimentation, along with downstream ponding area. All catch basins shall be surrounded with sediment filters immediately following construction.

The CONTRACTOR shall control drainage and erosion on the project including: haul roads, temporary construction, waste disposal sites, plant and storage locations, and borrow pits, other than commercially operated sources. The CONTRACTOR shall clean up the area, shape the area to allow storm runoff with a minimum of erosion and/or siltation, replace topsoil, and establish vegetative cover to the satisfaction of the City Engineer on areas where the potential for pollution has been increased due the CONTRACTOR'S operations.

All exposed soil areas with continuous positive slope shall have temporary protection or permanent cover for the exposed soil areas within 14 days after being actively worked.

When the City Engineer determines that the erosion control practices installed by the CONTRACTOR have failed, the CONTRACTOR shall correct the cause and alleviate all sediment deposition outside the construction limits, to the fullest extent possible. Unless the project has received approval or certification for depositing fill into surface waters, the CONTRACTOR shall remove all deltas and sediment deposited in drainage ways or catch basins and restabilize the areas where sediment removal results in exposed soil. The removal and stabilization shall take place within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access. The CONTRACTOR is responsible for contacting all local, regional, State and Federal authorities before working in surface waters and obtaining applicable permits.

02573.3 Construction Requirements:

A goal of the project during construction is to get the cleanest water possible into the storm drainage systems as quickly as possible. Every effort shall be required by the CONTRACTOR to achieve this goal.

The CONTRACTOR shall install erosion control devices where control is required and/or where directed by the ENGINEER. The erosion control measures as shown on the plans shall be considered the minimum requirements with additional measures required dependent on the construction sequencing and scheduling.

Where applicable, the CONTRACTOR will be required to co-sign for a "General Storm Water Permit" for construction activity with the Minnesota Pollution Control Agency (MPCA). The CONTRACTOR will be required to comply with all of the terms and conditions of the Permit, which also includes performing the required inspections of the erosion control devices and maintaining an Inspector's Log for the MPCA Storm Water Permit. Sediment filters shall be used around catch basins and/or other surface water accesses to any existing or proposed storm water conveyance system.

The CONTRACTOR shall take all steps necessary to prevent excess soil erosion of the project. Temporary erosion control devices shall be constructed, maintained and left in place to such time as permanent erosion control measures are in place or instructed to remove them by the Engineer. Exit areas or roads shall be kept clean of excess soil by routine sweeping.

The CONTRACTOR shall construct temporary sediment traps with granular outlets within the disturbed roadway area and shall stockpile a sufficient quantity of suitable fill material to regrade sedimentation ponds and temporary ditches to match the subgrade elevation.

Mn/DOT is requesting that machine sliced silt fence be used as the standard method of installation. The heavy duty type silt fence shall be used only in atypical situations where the machine sliced cannot be used. The reason the silt fence, Type Heavy Duty, is included in the bid proposal is to make allowance for possible wet areas where the machine may not be able to operate efficiently.

Purpose:

The purpose of this special provision is to provide criteria for the proper installation of machine sliced silt fence. The silt fence must be installed properly with proper equipment or function of the silt fence will be compromised.

Background:

Mn/DOT has recently approved the use of silt fence installed by machine that slices the ground and inserts the geotextile into undisturbed soil. The sliced in method is often desirable in that no wire mesh is used and silt fence is uniformly and firmly embedded into the ground.

Guidelines:

To insure proper function, the machine sliced silt fence shall be installed in accordance with the attached detail drawings. These detail drawings were extracted from Standard Plan Sheet 5-297.405. The bottom of the geotextile shall be installed with an approximate 6-inch cuff and into the soil a minimum of 8 inches. In a ditch check installation, a 5/8-inch minimum diameter rope shall be inserted into the 6-inch cuff.

Approved Equipment:

The equipment approved to install the sliced in silt fence shall have a single vertical shank approximately 1 inch thick by 18 inches min. length that when inserted into the ground makes a thin slice 8-12" deep. The lower part of the shank shall have an approximate 2" diameter chisel

type horizontal point that shears through the soil with minimal soil displacement. Mounted directly behind the vertical shank is a ground driven vertical wheel that cuffs the geotextile and inserts it into the soil slit caused by the vertical shank.

As the machine is pulled along the vertical shank makes an approximate 1-inch wide vertical slit 8 to 12 inches deep. The bottom edge of the geotextile is folded with an approximated 6-inch cuff and inserted into the soil slit all in one operation. In ditch check installations a 5/8" minimum diameter rope shall be inserted into the cuff.

The approved installation machine shall be a Devon Distributing Corporation Tommy silt fence machine or approved equal. Machines that turn the soil over, do not properly cuff the bottom edge of the geotextile or will not insert the required rope on ditch check installations will not be approved.

Compaction:

Immediately after the geotextile has been sliced into the soil, the ground shall be compacted by driving the wheels of a tractor or skid loader next to and parallel with the fence on both sides of the fabric. The geotextile shall then be fastened to the support posts. The upstream side shall be compacted first, then each side twice for a total of four passes. In saturated areas covered by surface water, the soil shall be compacted by foot tamping or other approved methods.

Inspection:

Project personnel must verify that the silt fence is installed in accordance with the silt fence details (attached and Standard Plan Sheet 5-297.405). Project personnel must also verify that approved equipment is used to slice the silt fence into the soil and that the soil adjacent to the fence is compacted. Because the bottom edge of the silt fence is held in place by only the friction between the geotextiles and the soil, it is extremely important that all installation details are adhered to.

Payment:

Payment for sliced in silt fence will be compensation for all labor materials, equipment and other incidentals necessary to complete the work as specified. Compaction of soil along the fence shall be considered incidental to the silt fence installation. Rope insertion on silt fence ditch check installations shall be considered incidental to the ditch check installation.

02573.5 Basis of Payment:

Payment for Silt Fence, Type Machine Sliced, and for Silt Fence, Type Heavy Duty, shall be by the linear foot of correctly installed and accepted silt fence of each type actually placed on the project site.

S.S.P. 02575 TURF ESTABLISHMENT

02575.1 Description:

Mn/DOT specification section 2575 shall apply to turf establishment except as modified herein. All disturbed areas within the project shall be either seeded or sodded to an equal or better condition as directed by the ENGINEER. All exposed areas of the site will receive seed and mulch, sod or erosion control blanket within seven (7) days after final grade. Restoration may include areas outside of the project area as determined by the ENGINEER. If bituminous base is placed, sod shall be installed within one week of bituminous placement.

Sod shall be placed in the boulevard area between the curb and walk or trail. A minimum of three feet (3') of sod shall be placed along curb. Also, a minimum of three 18 inches (18") of sod shall be placed along both sides of a walk or trail.

02575.2 Materials:

Sod: The sod type shall be Mineral or Highland. No Peat sod allowed.

Fertilizer: The fertilizer shall be zero (0) phosphorus commercial grade.

02575.3 Construction Requirements:

General: The CONTRACTOR should inspect the project prior to construction activity and notify the ENGINEER of any deficiencies in the topsoil. The CONTRACTOR shall salvage topsoil to the greatest extent practical. The salvaged topsoil shall be utilized in areas disturbed by construction. A minimum of six inches (6") of topsoil will be placed in all locations designated by the ENGINEER. Additional topsoil, as necessary, may be required in the boulevard areas to ensure adequate slope toward the roadway as shown on the typical street section or as directed by the ENGINEER. Topsoil shall meet the requirements for topsoil borrow according to Mn/DOT Specification Section 02105. Topsoil Borrow shall be paid at the unit price bid if any additional topsoil is required.

No sod will be installed later than September 30th unless directed by the ENGINEER.

Applying Fertilizer: Fertilizer shall be applied at a rate approved by the ENGINEER over all seeded areas.

Seeding: Seed shall be Mn/DOT Highway Standard for the times of year the seeding occurs. Seed can be installed in the dormant state in accordance with Mn/DOT requirements. Seeding shall be done within seven (7) days after finish grading has been completed.

Applying Mulch: Mulch shall be applied on all seeded areas at the rate of 2 tons per acre.

Disk Anchoring: The CONTRACTOR shall disk anchor mulch Types 1, 7, and 8. The anchoring equipment shall be operated in a general direction at right angles to the direction of surface drainage wherever practical.

Sod: Sod shall be Type Mineral or Highland meeting the requirements of Mn/DOT Specification Section 3878. It is understood that sodding of areas behind the curb could occur prior to the completion of work by private utility companies. The CONTRACTOR shall place sod within two (2) weeks following the completion of curb construction. In areas where there will be sidewalk construction, two strips of sod shall be placed behind the curb within two (2) weeks following the completion of curb construction. The remainder of the sod shall be placed within two (2) weeks following sidewalk construction and the completion of private utility work. No additional compensation will be allowed for the additional mobilization required to complete the work as specified. All sod shall be placed and maintained according to these specifications. If additional sod is required to repair damage caused by the private utility companies, it shall be paid for at the unit price in the Proposal with no allowances made for additional mobilization costs.

During the course of laying or immediately after completing the sod placement on each area, the sod shall be watered and compressed into the underlying soil by rolling in accordance with Mn/DOT 2575. If, after rolling, the surface of the sod is not free of bumps or depressions, the CONTRACTOR shall make suitable corrections to the topsoil and/or subgrade, replace the sod and roll the sod at no additional cost to the OWNER.

Sod shall not be installed later than September 30th unless directed by the ENGINEER.

Maintenance: The CONTRACTOR shall be solely responsible for replacement and/or repair of any seeded area that may wash out, erode, or fail to grow prior to acceptance with no additional

compensation therefore. The CONTRACTOR shall be responsible for maintaining sod for a period of forty-five (45) days. The CONTRACTOR is responsible for successful establishment of the seed and shall replace all unsuccessful seeding until adequate turf is established.

02575.5 Basis of Payment:

Seeding: Seeding shall be paid for at the bid unit price per acre. This shall include seed mixture, furnishing and installing mulch, fertilizer, disc anchoring, grading, shaping and all miscellaneous work.

Sodding: Payment shall be by the square yard placed and rolled at the unit price in the Proposal and shall include fertilizer, maintenance, and watering. No additional payments will be made for multiple mobilizations.

S.S.P. 02621 SANITARY SEWER AND SEWER SERVICES

Sanitary sewer installation including manholes and sanitary sewer services shall be constructed in accordance with CEAM Specification No. 2621 except as modified herein:

Basis of Payment:

Sewer Pipe: Payment shall be by the linear foot for diameter of pipe classification. Sewer service pipe shall be paid as the horizontal distance from the main to the end of the service at the contract unit price bid.

Connect to Existing Sanitary Sewer: Payment shall be made for each connection to the existing sanitary sewer including locations where manholes will be constructed over existing sewer lines. Payment shall include all labor and materials necessary to make the connection. The CONTRACTOR shall verify locations, alignment and elevation prior to connecting. Fernco or approved equal adapters, if necessary, shall be incidental.

Televising Sanitary Sewer: All sanitary sewer lines shall be jetted clean and televised after the services are installed and within fifteen (15) days after the manholes are raised or as directed by the ENGINEER. The CONTRACTOR shall supply the OWNER with two DVD's and a detailed report within two (2) weeks of the completion of the work. Payment shall be by the linear foot at the unit price in the Contract and shall include all materials, labor equipment, etc. to complete the inspection as specified. Coordinates of service wyes and the location of the service stub one foot inside of the easement line shall be provided on the as-builts.

S.S.P. 02630 PIPE SEWERS – STORM

02630.1 Description:

This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to storm sewer construction as indicated on the drawings or as specified herein. This work shall include but is not limited to:

1. The removal and restoration, or protection of existing utilities.
2. Any dewatering necessary for storm sewer construction.
3. Foundation materials placed in lieu of performing necessary dewatering (as approved by the CITY ENGINEER.)
4. Locating and connecting to an existing storm sewer.

5. The costs of furnishing bends, adapters, cutting and removing the existing storm sewer pipe.
6. Locating and connecting to an existing storm sewer service laterals.
7. Bulkheading of existing pipes to be abandoned in place.
8. Bedding and encasement materials, include in the price bid for storm sewer.
9. Crushed rock foundation materials used in lieu of bedding materials in the specified bedding zone.
10. Maintenance of an appropriate storm water outlet during construction.
11. The replacement of all material displaced due to shrinkage or loss during the excavation and backfilling operations. Compaction and deflection testing.
12. Delays due to other utility conflicts which result during the course of construction.
13. Protecting existing improvements from damage.
14. Protecting the inverts of other utility pipes from the accumulation of debris and soil, the removal of blockages which threatens to damage property, and/or the cleaning of both the newly constructed lines and the existing lines of all debris and soil which accumulated during the construction.
15. Compaction and deflection testing.

SPECIFICATION REFERENCES:

Mn/DOT Specification No. 2506 shall apply to manholes, catch basins and castings, except as modified herein.

CEAM Specification No. 2621 shall apply to construction of pipe sewers, except as modified herein.

Mn/DOT Specification No. 2503 shall apply to measurement and payment of pipe sewers, except as modified herein.

Mn/DOT Standard Plates Manual with latest revisions.

Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

02630.2 Materials:

- A. Reinforced Concrete Pipe (Mn/DOT 3236)
- B. Precast Concrete Manholes and Catch Basin Section
 1. Storm sewer manholes shall conform to the Mn/DOT Standard for the design type shown on the plans.
 2. Reinforced polypropylene plastic steps shall be furnished for all storm sewer manholes four feet or more in depth.
- C. Castings

1. All casting assemblies shall meet the certification requirements of the Minnesota Department of Transportation and be manufactured by a Mn/DOT approved source.
2. The type of manhole casting assembly to be used shall be NEENAH R-1642 with lettering to read "storm sewer" with two concealed pick holes, unless otherwise specified.
3. The type of curb and gutter catch basin casting assembly to be used shall be Neenah R-3067-V, unless otherwise specified on the plan.
4. External manhole seals accepted for use, when specified as shown in the plans, shall be one of the following listed as standard of quality:
 - a. Infi-shield (exterior only)
 - b. Cretex (exterior or interior)

S.S.P. 03000 CURB BACKFILL

Curb shall not be backfilled for at least four (4) days after the curb has been poured to allow for curing. The CONTRACTOR shall use the existing aggregate base within the roadway when backfilling the trench after utility installation. The excess material generated from utility excavation can be used for backfilling the curb. The material used to backfill the curb shall be approved by the ENGINEER. Backfilling the curb with excess material from the project shall be incidental to the project with no direct compensation paid therefore.

Standard Details Plates

Street Detail Plates

TYPICAL STREET SECTION RESIDENTIAL	1001
TYPICAL STREET SECTION COMMERCIAL	1002
CONCRETE CURB AND GUTTER FOR STREETS	1003
STANDARD DETAIL BITUMINOUS PATCH	1004

Erosion Control Detail Plates

SILT FENCE	2001
HEAVY DUTY SILT FENCE	2002
BALE CHECKS	2003
INLET PROTECTION PREASSEMBLED.....	2004
DITCH CHECK.....	2005
ROCK CONSTRUCTION ENTRANCE	2006
INLET PROTECTION SYSTEM.....	2007
EROSION CONTROL BLANKET	2008
FILTER LOG.....	2009

Sanitary Sewer Detail Plates

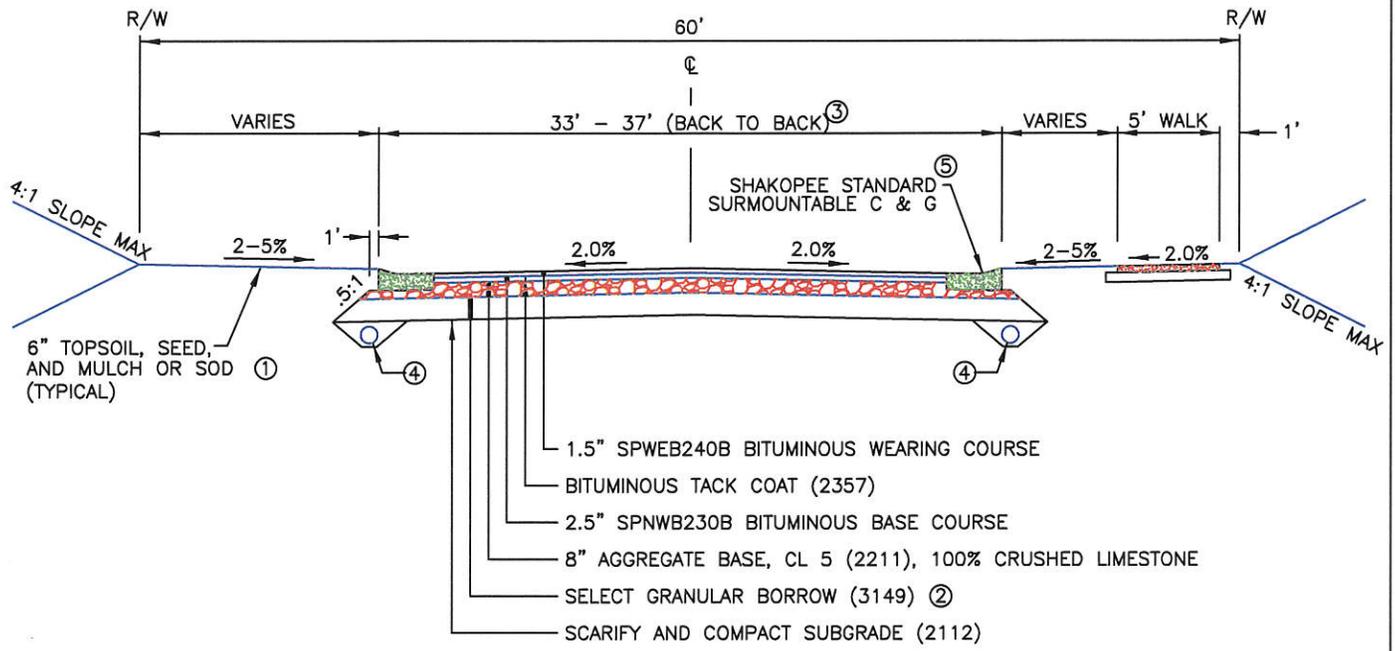
STANDARD SANITARY MANHOLE	3001
OUTSIDE DROP SANITARY MANHOLE	3002
SANITARY SEWER SERVICE	3003
SANITARY SEWER RISER	3004
PIPE BEDDING	3005
ROCK EXCAVATION	3006
INSULATION	3007
SANITARY CLEAN OUT	3008
STRUCTURE MARKER SIGN	3009
STEEL CASING.....	3010

Storm Sewer Detail Plates

STANDARD MANHOLE FOR STORM SEWER	4001
2' x 3' CATCH BASIN	4002
CATCH BASIN MANHOLE	4003
27" CATCH BASIN	4004
MANHOLE DESIGN 4019/F	4005
TRASH GUARD FOR END SECTION	4006
PERFORATED DRAINTILE	4007
PERFORATED DRAINTILE	4008
BEEHIVE MANHOLE GRATE	4009
RIPRAP DETAIL	4010
TRANSITION TO B618 CURB AT CATCH BASIN	4011
POND SKIMMER STRUCTURE	4012

Misc. Detail Plates

TYPICAL BARRICADE	5001
TYPICAL SIDEWALK	5002
PEDESTRIAN CURB RAMP	5003
CONCRETE DRIVEWAY PAVEMENT	5004
RESIDENTIAL DRIVEWAY ENTRANCE	5005
COMMERCIAL DRIVEWAY AND CROSS PAN	5006
BITUMINOUS TRAIL	5007
TRAFFIC SIGN INSTALLATION	5008



- ① NOT LESS THEN 2 ROLLS OF SOD TO BE PLACED BEHIND CURB.
- ② THE USE AND THICKNESS OF GEOTEXTILE FABRIC AND SELECT GRANULAR BORROW IS BASED ON EXISTING SOIL CONDITIONS AS DETERMINED BY THE CITY ENGINEER.
- ③ STREET WIDTH TO BE DETERMINED BY THE CITY ENGINEER. STREETS MUST BE PAVED IN NO MORE THAN TWO PASSES.
- ④ 4" PERFORATED PIPE. INSTALL WHERE CLAY SOILS ARE ENCOUNTERED IN THE ROADWAY SUBGRADE AS DIRECTED BY THE ENGINEER.
- ⑤ B618 CONCRETE CURB AND GUTTER IS REQUIRED AT ALL CURB RADII AND CATCH BASINS.

NOTE:

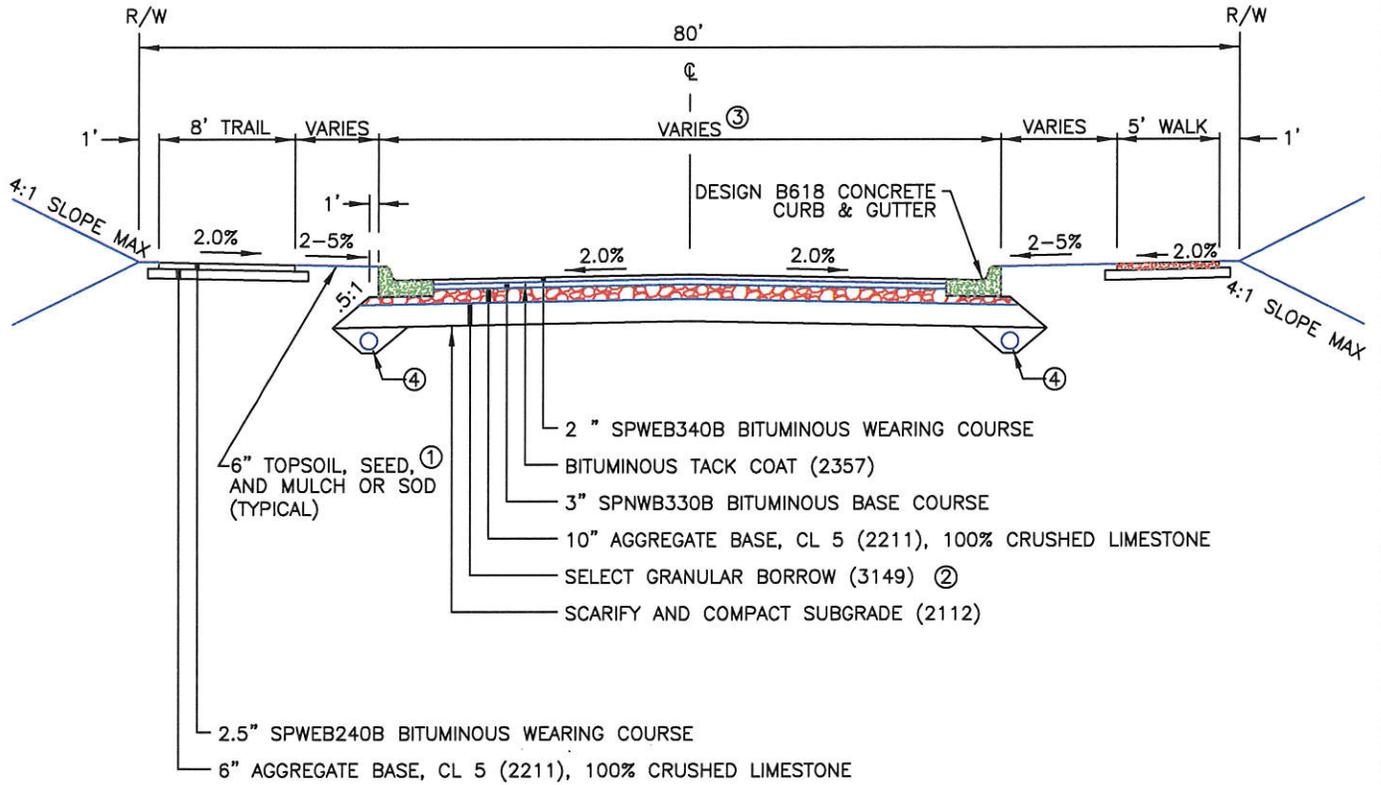
THE PAVEMENT SECTION SHOWN IS A MINIMUM. TYPE OF BITUMINOUS MIXTURE AND THE SECTION MAY BE INCREASED BY THE CITY ENGINEER BASED ON A SOILS REPORT AND PROJECTED TRAFFIC VOLUMES.



TYPICAL STREET SECTION
RESIDENTIAL

APPROVED:
REVISION DATE: MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
1001



- ① SOD TO BE PLACED BETWEEN CURB AND SIDEWALK/TRAIL. ONE ROLL OF SOD SHALL ALSO BE PLACED ON THE NON-BOULEVARD SIDE OF THE SIDEWALK/TRAIL AS DIRECTED BY THE ENGINEER.
- ② THE USE AND THICKNESS OF GEOTEXTILE FABRIC AND SELECT GRANULAR BORROW IS BASED ON EXISTING SOIL CONDITIONS AS DETERMINED BY THE CITY ENGINEER.
- ③ STREET WIDTH TO BE DETERMINED BY THE CITY ENGINEER.
- ④ 4" PERFORATED PIPE WITH PROTECTIVE WRAP. INSTALL WHERE CLAY SOILS ARE ENCOUNTERED IN THE ROADWAY SUBGRADE AS DIRECTED BY THE ENGINEER.
- ⑤ B618 CONCRETE CURB AND GUTTER IS REQUIRED AT ALL CURB RADII.

NOTE:

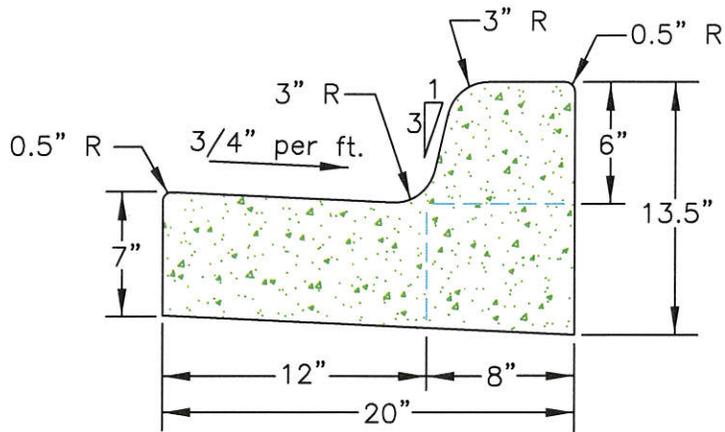
THE PAVEMENT SECTION SHOWN IS A MINIMUM. TYPE OF BITUMINOUS MIXTURE AND THE SECTION MAY BE INCREASED BY THE CITY ENGINEER BASED ON A SOILS REPORT AND PROJECTED TRAFFIC VOLUMES.



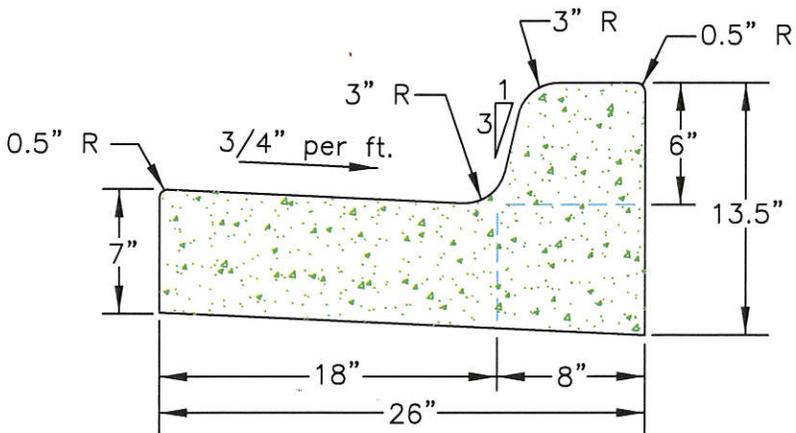
TYPICAL STREET SECTION
COMMERCIAL

APPROVED:
REVISION DATE: MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT

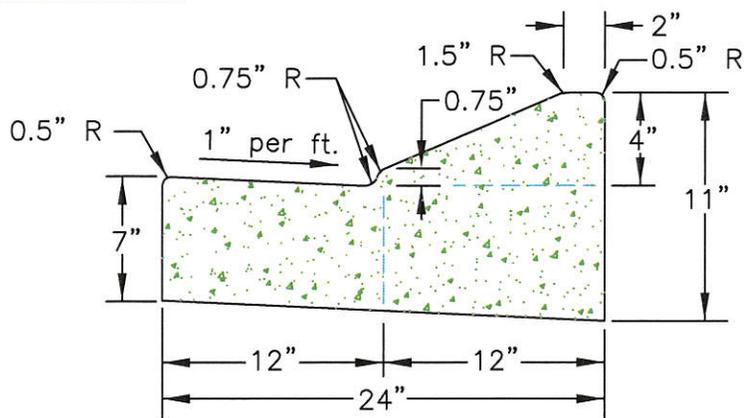
DETAIL NO:
1002



B-612



B-618



SHAKOPEE
STANDARD SURMOUNTABLE



CONCRETE CURB AND
GUTTER FOR STREETS

APPROVED:

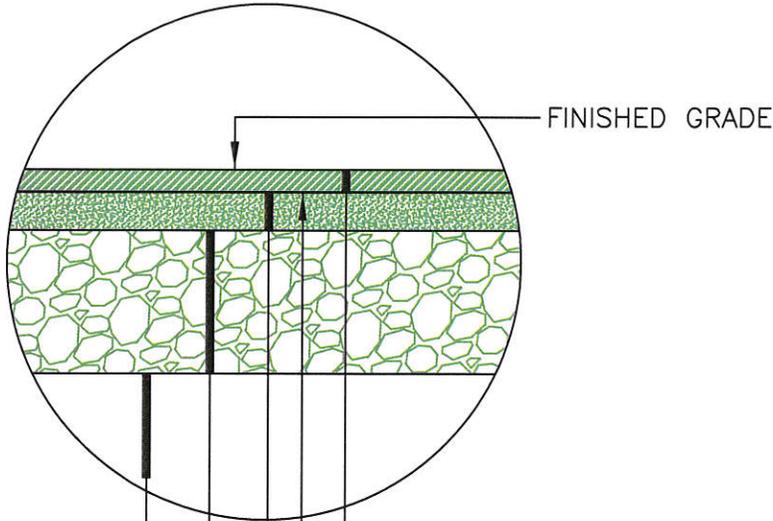
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

1003



- 1.5" SPWEB240B BITUMINOUS WEARING COURSE
- BITUMINOUS TACK COAT (2357)
- 2.5" SPNWB230B BITUMINOUS BASE COURSE
- 8" AGGREGATE BASE, CLASS 5,
100% CRUSHED LIMESTONE (2211)
- SUBGRADE PREPARATION (2112)



STANDARD DETAIL
BITUMINOUS PATCH

APPROVED:

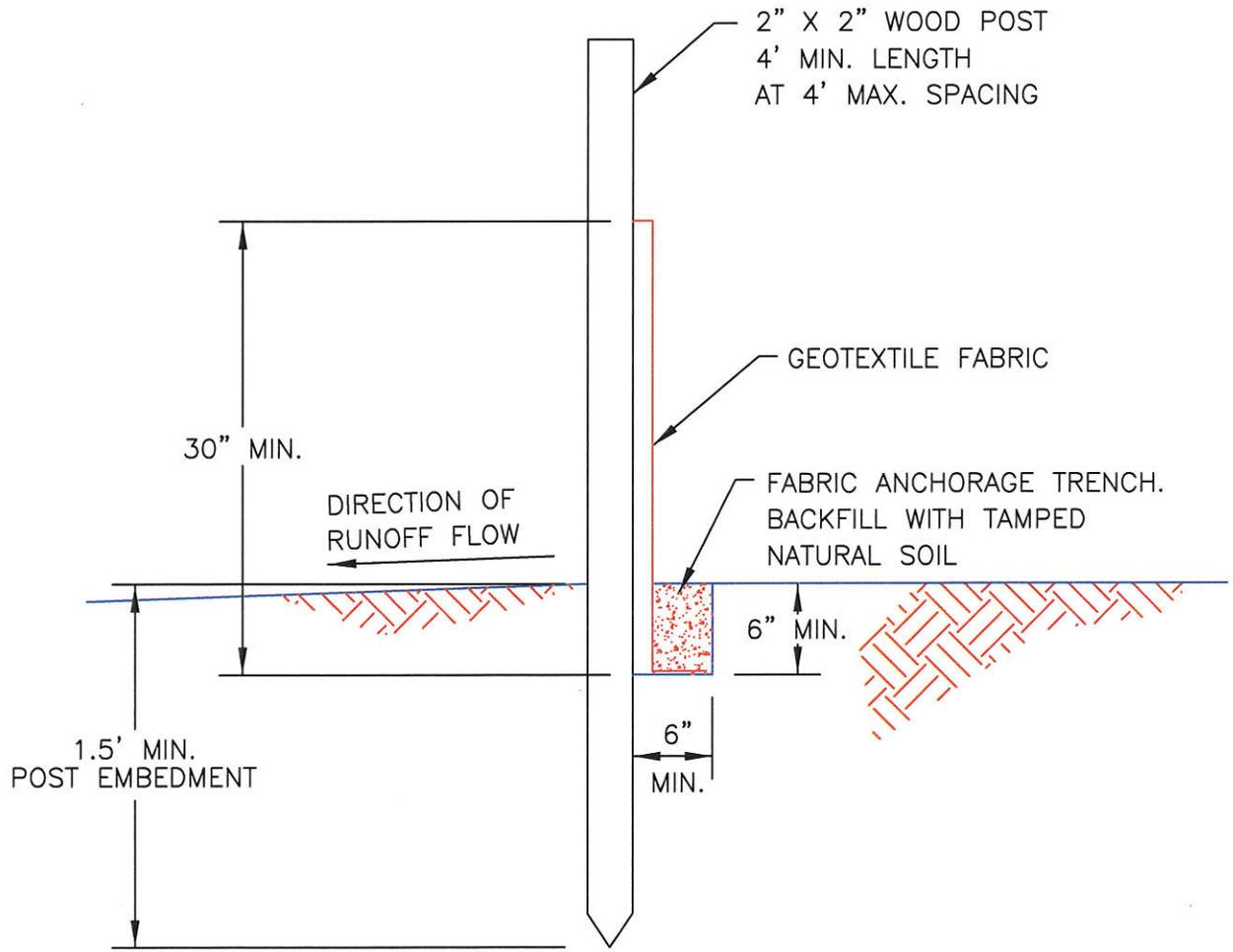
REVISION DATE:

MAY 2010

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

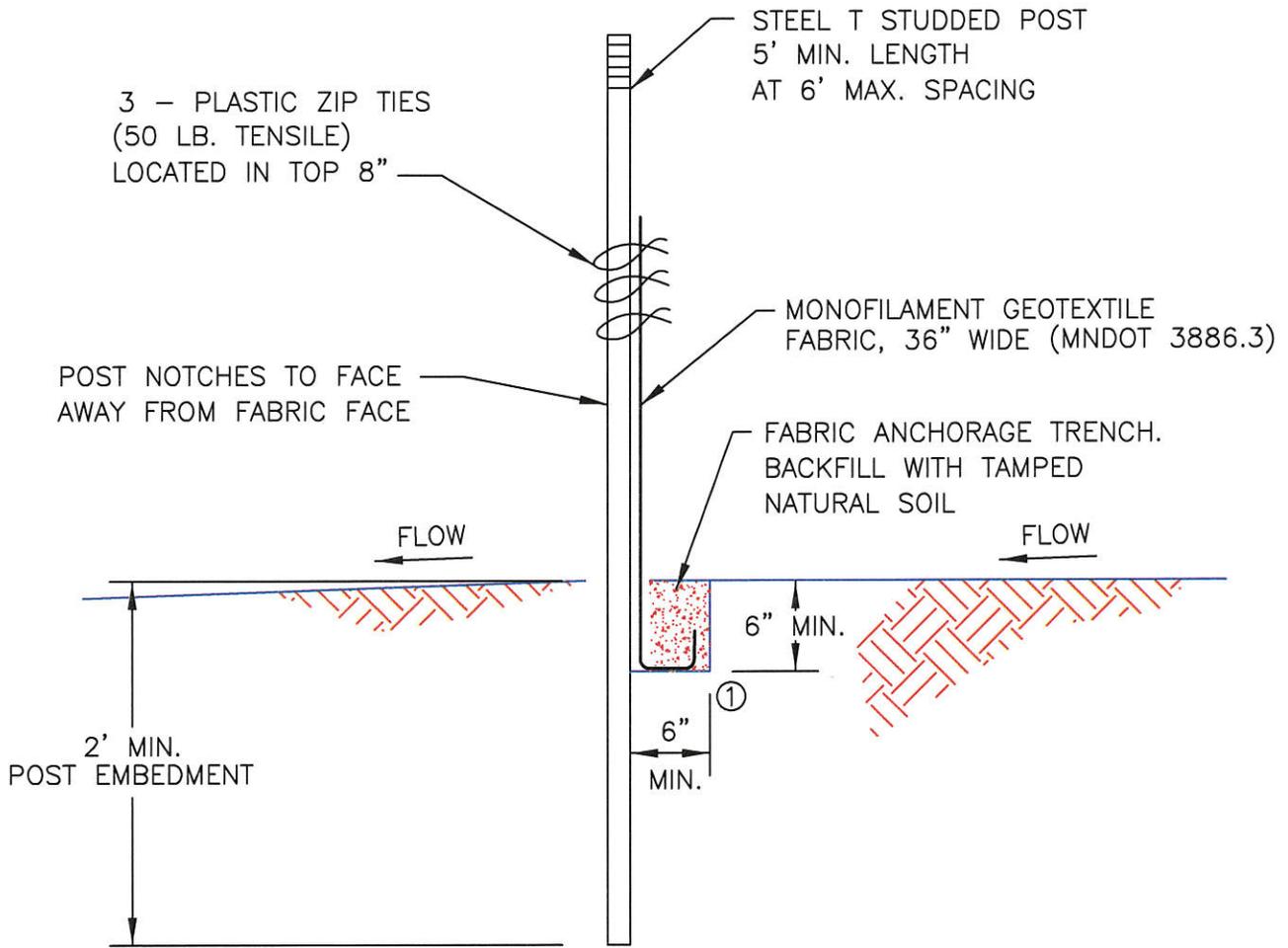
1004



SILT FENCE

APPROVED:	
REVISION DATE:	JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
2001



NOTE:
HEAVY DUTY SILT FENCE SHALL BE HAND INSTALLED.

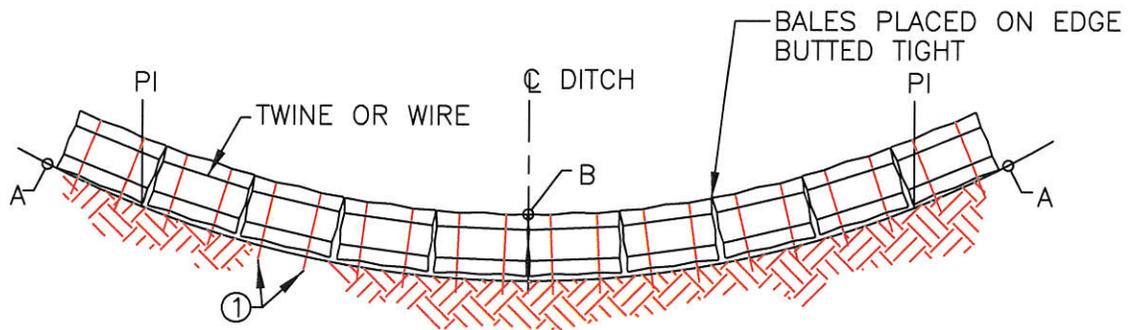
- ① 12" BURY FOR MACHINE SLICED SILT FENCE
SEE MNDOT 2573 FOR MACHINE SLICED SILT FENCE REQUIREMENTS



HEAVY DUTY SILT FENCE

APPROVED:	
REVISION DATE:	MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT	

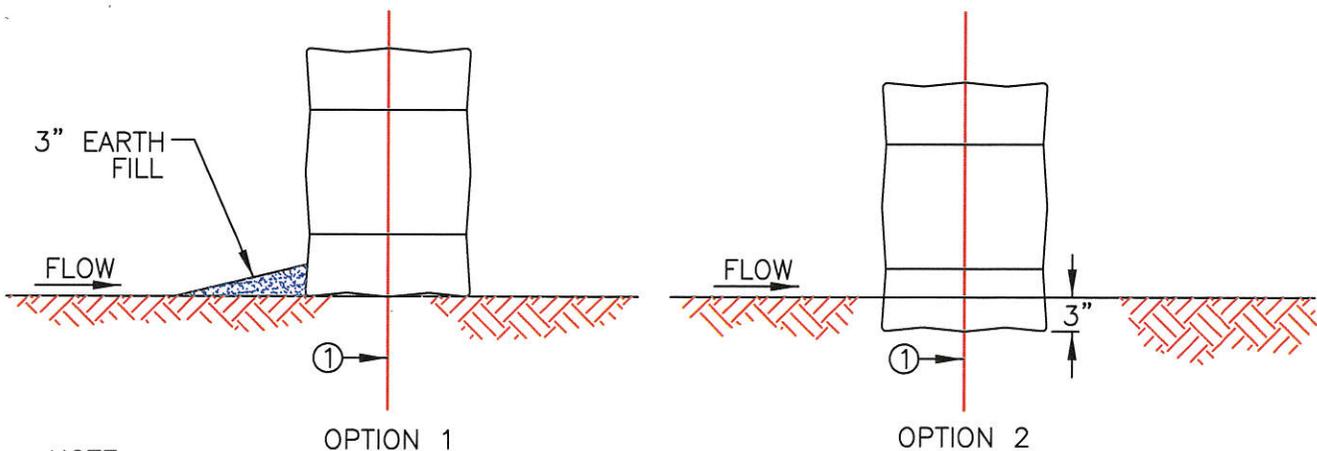
DETAIL NO:
2002



BALE DITCH CHECK

NOTE: POINT A MUST BE A MINIMUM OF 12" HIGHER, THAN POINT B

BALE DITCH CHECKS ARE ONLY PERMITTED WHEN THE GROUND IS FROZEN, OTHERWISE SILT FENCE, BIOROLL OR ROCK DITCH CHECKS SHALL BE USED.



NOTE:

- ① TWO 2"x 2" WOOD STAKES OR STEEL REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10" MINIMUM.



BALE CHECKS

APPROVED:

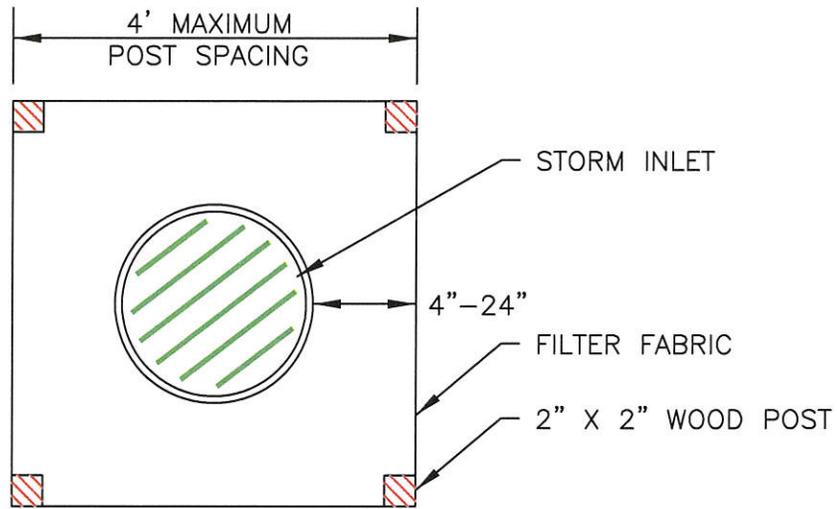
REVISION DATE:

JANUARY 2007

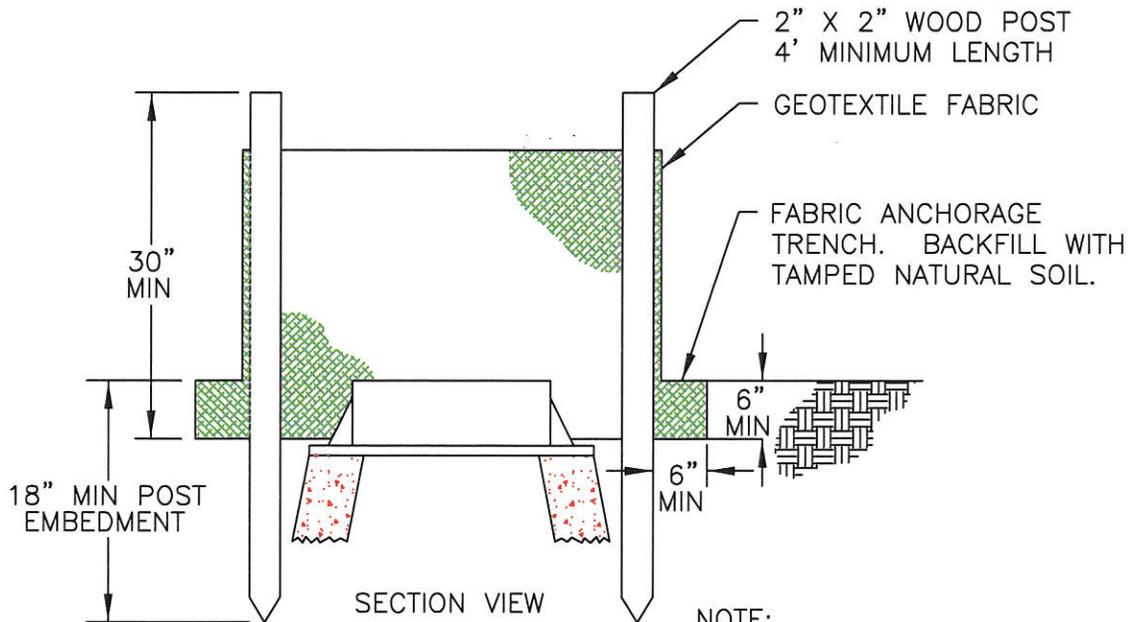
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

2003



PLAN VIEW



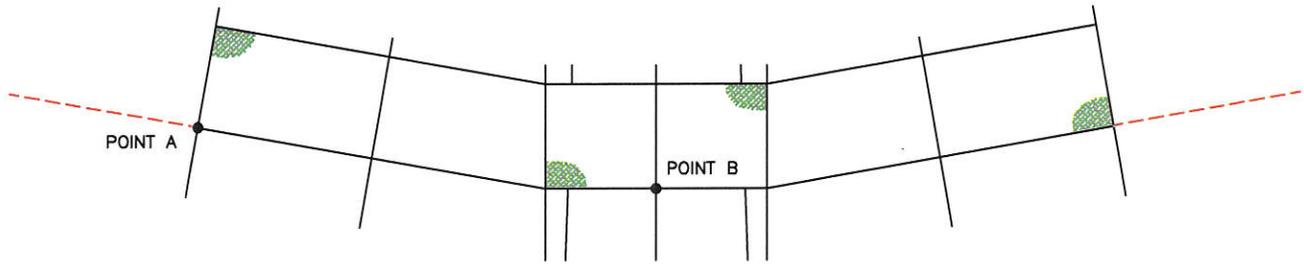
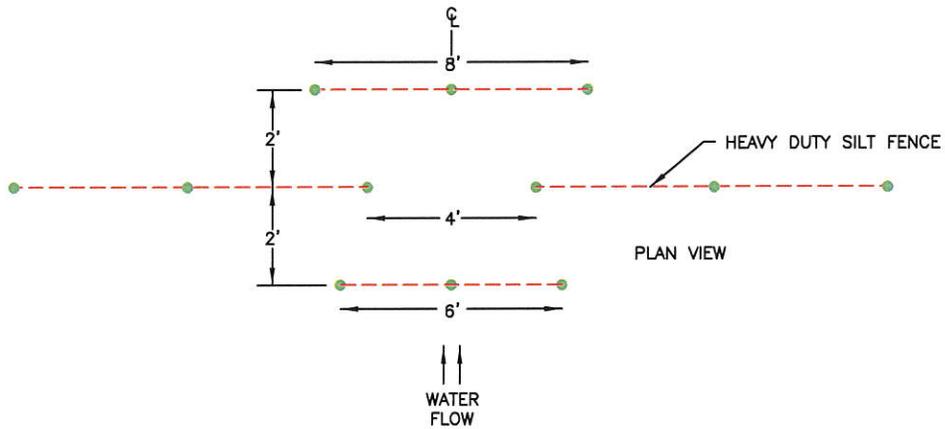
NOTE:
SILT FENCE SHALL CONFORM TO THE REQUIREMENTS OF (MN/DOT 3886)



INLET PROTECTION
PREASSEMBLED

APPROVED:
REVISION DATE: JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
2004



ELEVATION VIEW

NOTES:

1. POINT A MUST BE A MINIMUM OF 12 INCHES HIGHER THAN POINT B.
2. HEAVY DUTY SILT FENCE SHALL CONFORM TO THE REQUIREMENTS OF (3886)
3. DIMENSIONS SHOWN ARE FOR TYPICAL 8' DITCH BOTTOM. MODIFICATIONS MAY BE NECESSARY FOR VARYING SLOPES AND DITCH WIDTHS.
4. REFER TO PLAN OR MN/DOT EROSION CONTROL MANUAL FOR SPACING INTERVALS OF CHECKS.



DITCH CHECK

APPROVED:

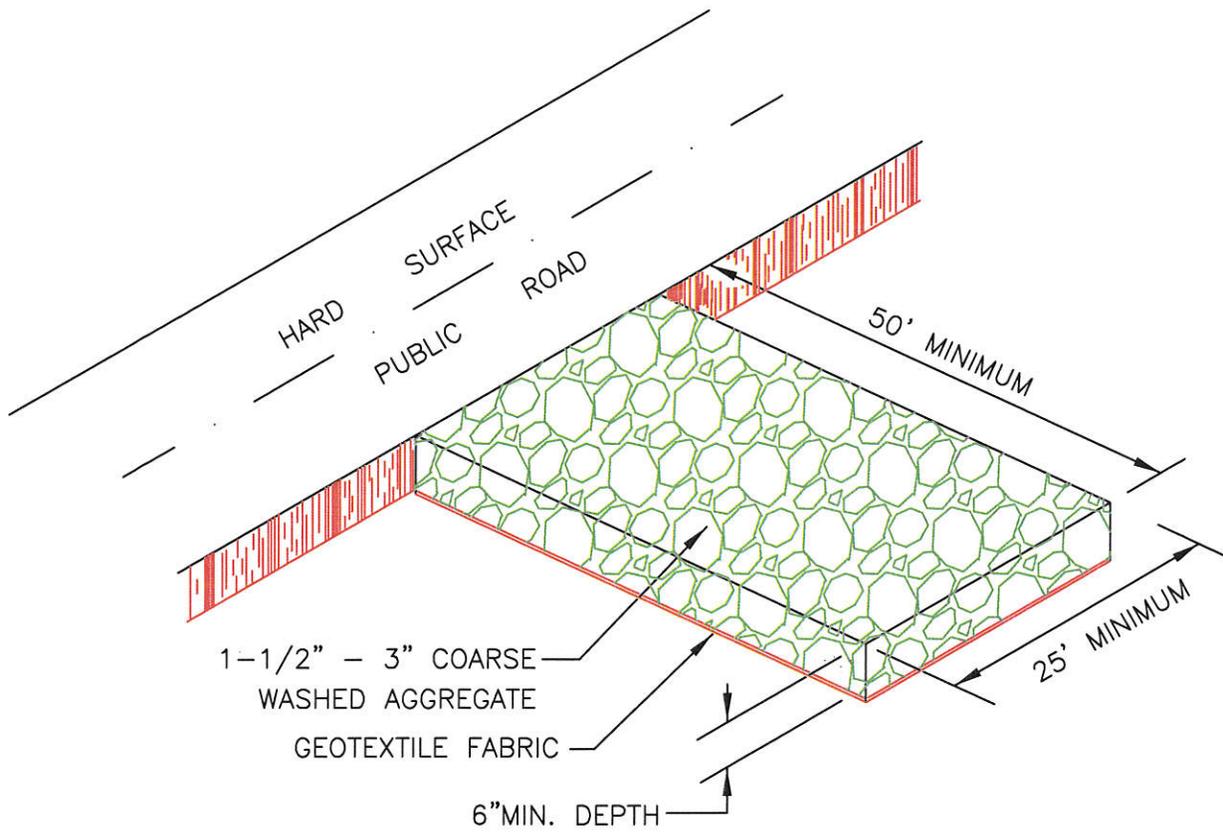
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO.:

2005



**ROCK CONSTRUCTION
 ENTRANCE**

APPROVED:
 REVISION DATE: MAY 2010
 SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
 2006

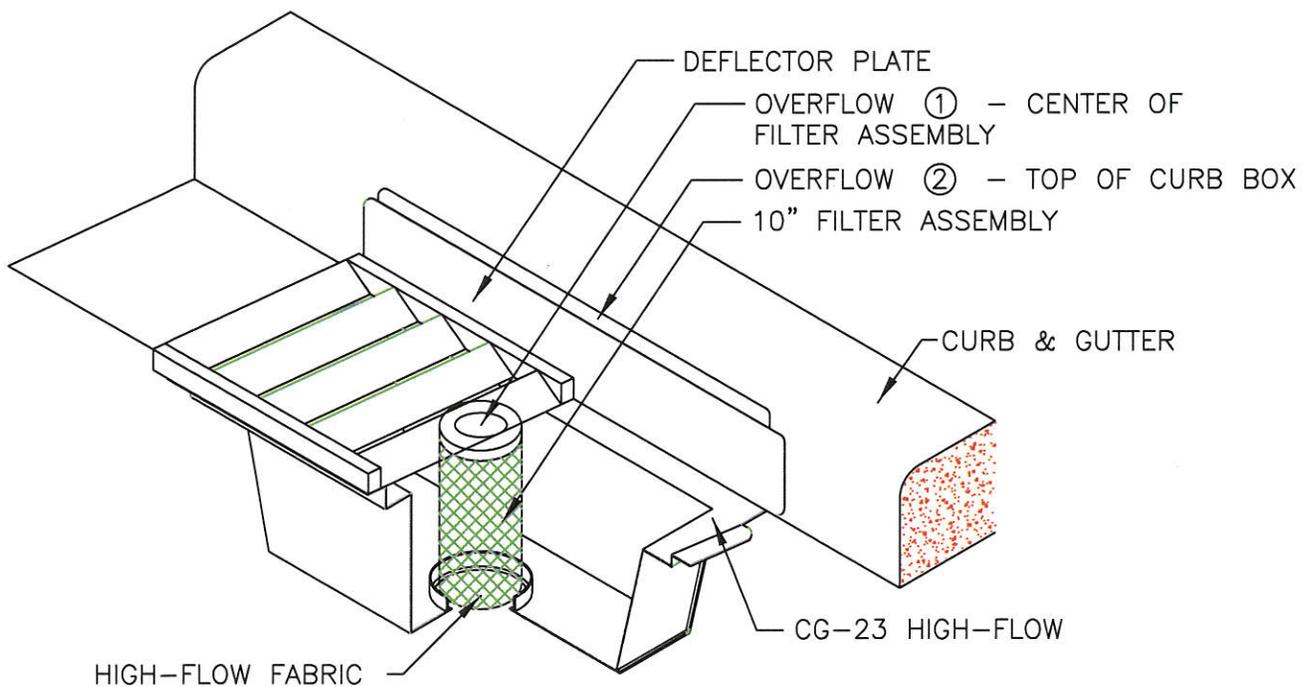
ROAD DRAIN – CURB & GUTTER MODEL #CG 3067V
 AS MANUFACTURED BY:
 WIMCO LLC., SHAKOPEE, MN.,
 ESS BROS., LORETTO, MN., OR APPROVED EQUAL

SPECIFICATIONS AND STANDARDS

- AISC MANUAL OF STEEL CONSTRUCTION, 9TH EDITION.
- AWS STRUCTURAL WELDING CODE – STEEL, D1.1-94.
- 29 CFR 1926 – OSHA SAFETY AND HEALTH STANDARDS

DESIGN LOADS

WATER FLOW RATE (THROUGH TYPE FF FILTER) 0.707 cfs @ 3" head
 MAXIMUM OVERFLOW RATE 5.94 cfs @ 15" head



NOTE:

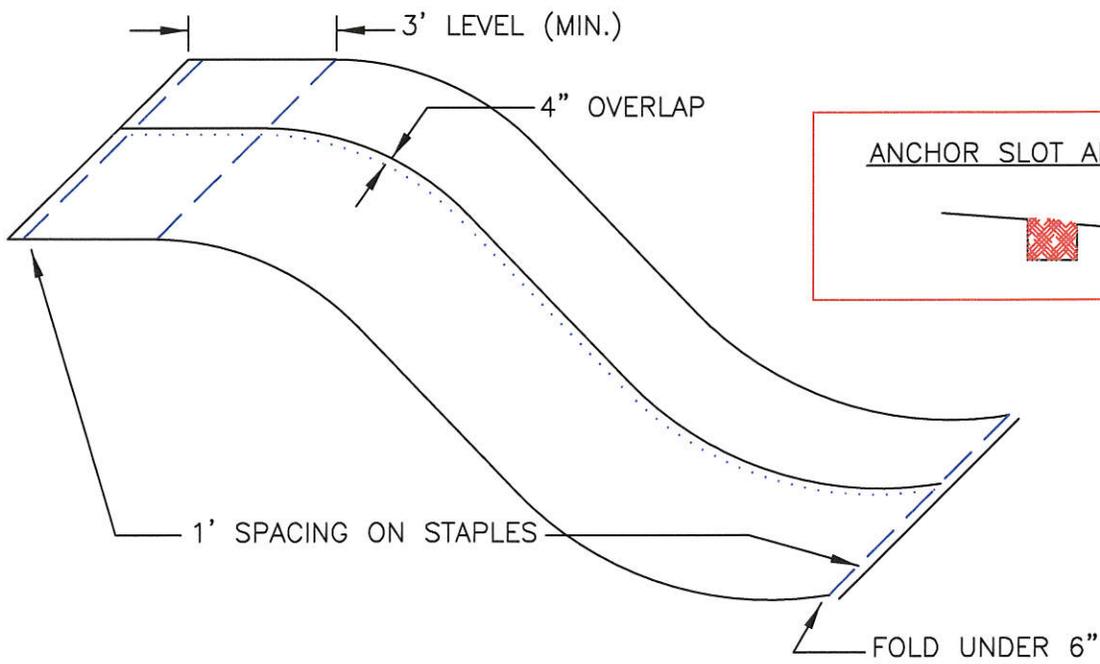
Clean filter media after each rain event and replace if filter is clogged with sediment.
 Remove debris/sediment from receptacle after each rain event.



INLET PROTECTION
 SYSTEM

APPROVED:
 REVISION DATE: MAY 2010
 SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
 2007



EROSION CONTROL
BLANKET

APPROVED:

REVISION DATE: JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

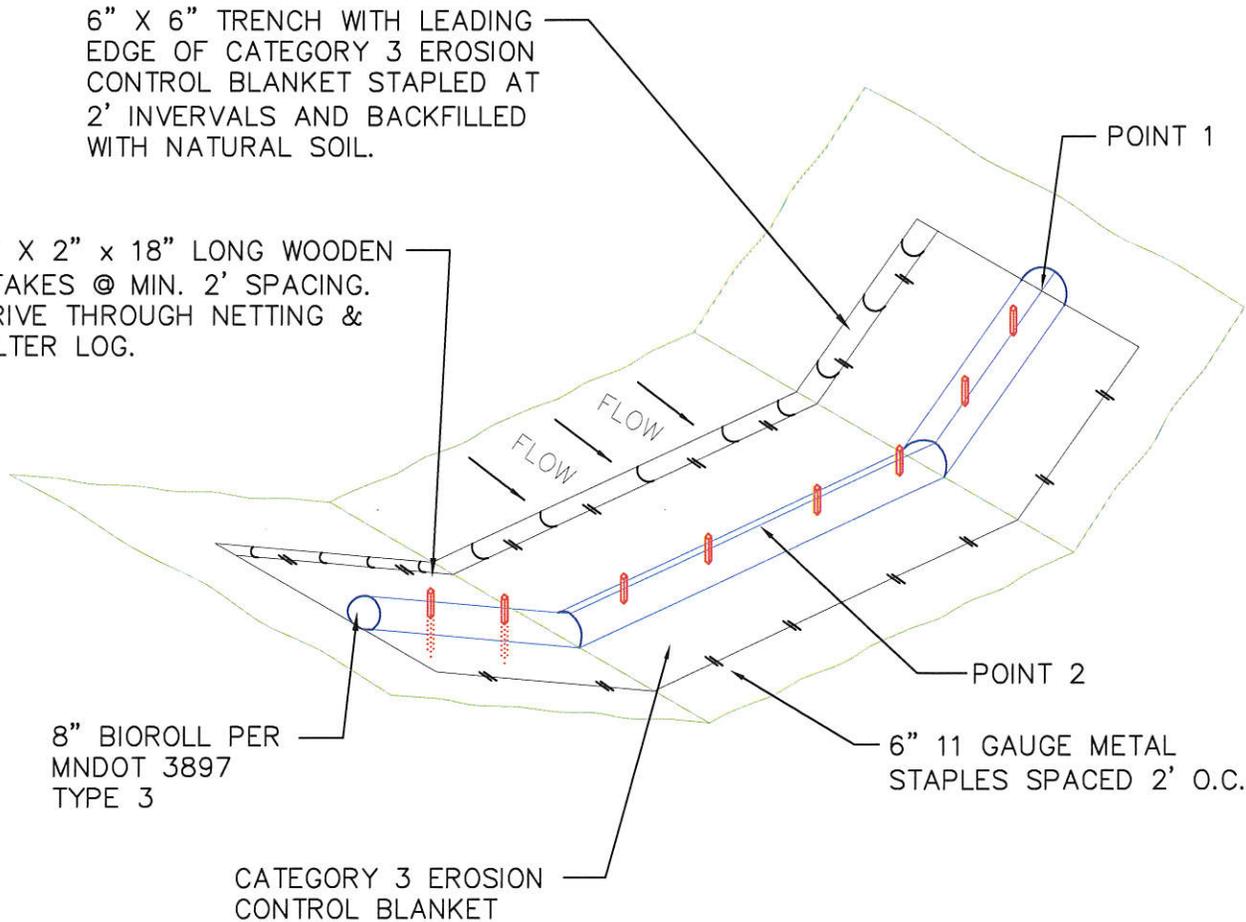
2008

NOTE:

POINT 1 MUST BE A MINIMUM OF 12" HIGHER THAN POINT 2 TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

6" X 6" TRENCH WITH LEADING EDGE OF CATEGORY 3 EROSION CONTROL BLANKET STAPLED AT 2' INTERVALS AND BACKFILLED WITH NATURAL SOIL.

2" X 2" X 18" LONG WOODEN STAKES @ MIN. 2' SPACING. DRIVE THROUGH NETTING & FILTER LOG.



8" BIOROLL PER MNDOT 3897 TYPE 3

6" 11 GAUGE METAL STAPLES SPACED 2' O.C.

CATEGORY 3 EROSION CONTROL BLANKET



FILTER LOG

APPROVED:

REVISION DATE:

JANUARY 2007

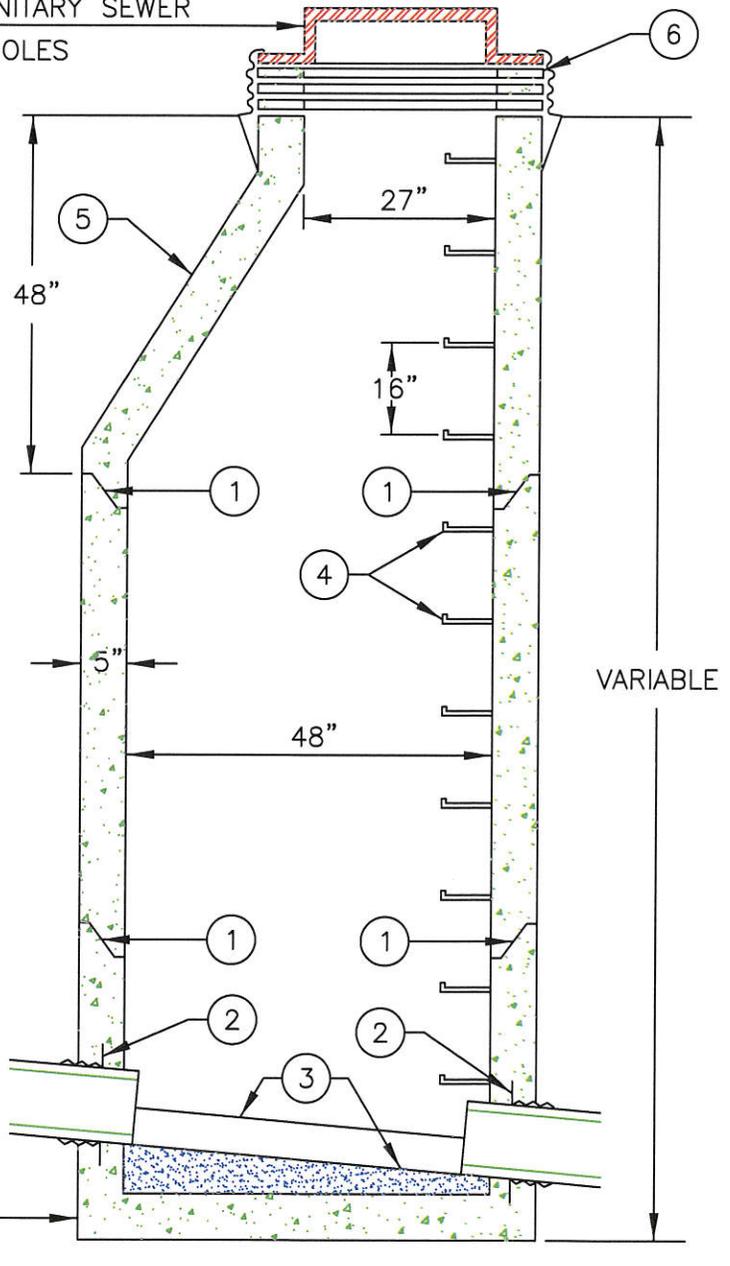
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO.:

2009

NEENAH R-1642 (OR EQUAL)
 LETTERING TO READ SANITARY SEWER
 WITH CONCEALED PICKHOLES

- ① RUBBER GASKET.
- ② FLEXIBLE WATERTIGHT SEAL TO BE APPROVED BY ENGINEER.
- ③ SHAPE, DEPTH AND SLOPE OF INVERT TO BE APPROVED BY ENGINEER.
- ④ STEEL REINFORCED PLASTIC STEPS SHALL BE A POLYPROPYLENE PLASTIC REINFORCED WITH A NO. 2 DEFORMED STEEL ROD GRADE 60.
- ⑤ MN/DOT TYPE "B" ECCENTRIC PRECAST CONCRETE CONE SECTION TYPICAL FOR ALL MANHOLES.
- ⑥ CONCRETE ADJUSTING RINGS MINIMUM 2 RINGS (4 INCHES) MAXIMUM 18" INCLUDING CASTING.



6" MIN. INTEGRAL
 PRECAST CONCRETE BASE

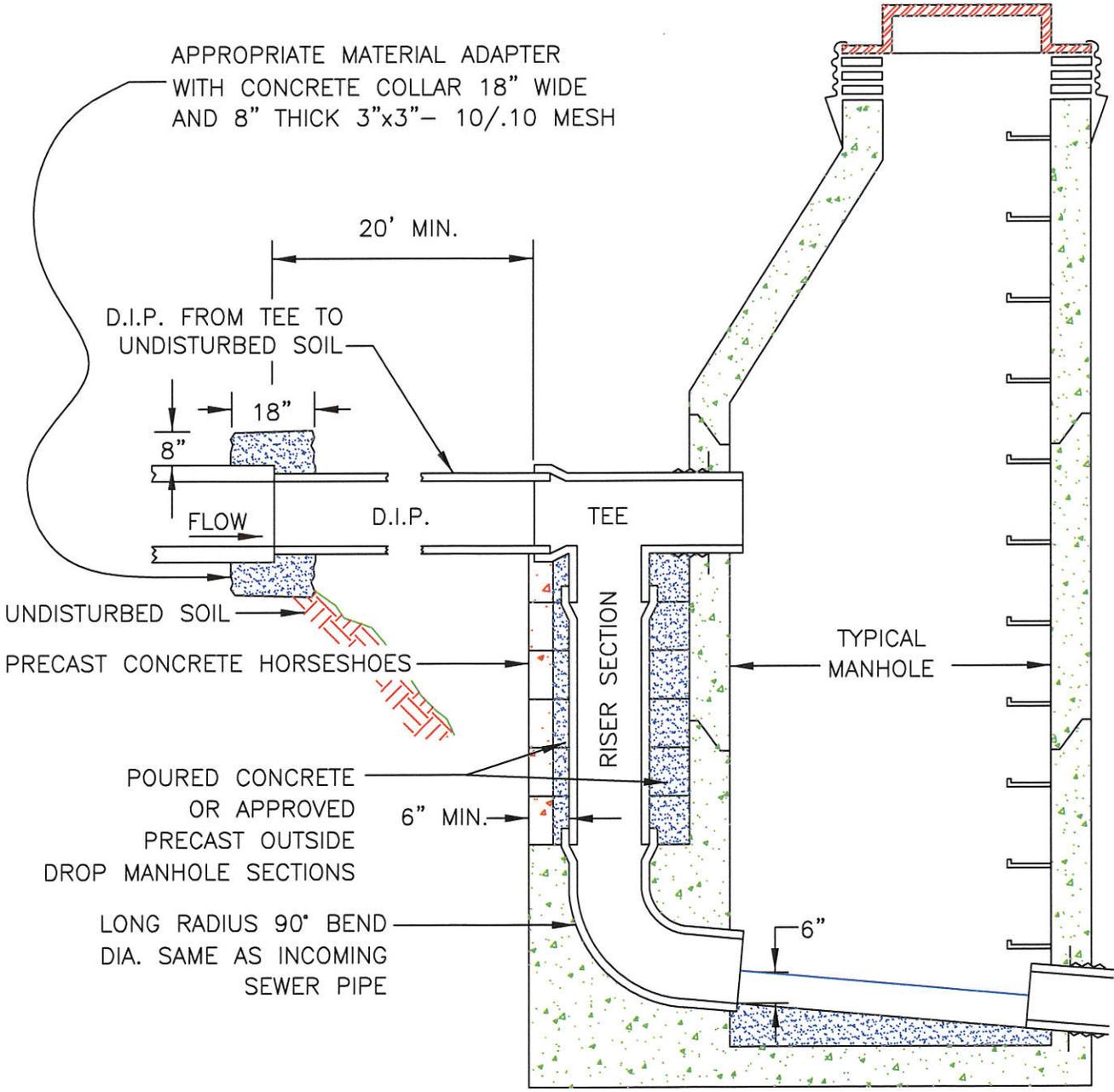
REFER TO PLANS
 FOR PIPE REQUIRED



STANDARD SANITARY
 MANHOLE

APPROVED:	
REVISION DATE:	JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
 3001



APPROPRIATE MATERIAL ADAPTER
WITH CONCRETE COLLAR 18" WIDE
AND 8" THICK 3"x3"- 10/.10 MESH

20' MIN.

D.I.P. FROM TEE TO
UNDISTURBED SOIL

18"

8"

FLOW

D.I.P.

TEE

UNDISTURBED SOIL

PRECAST CONCRETE HORSESHOES

RISER SECTION

TYPICAL
MANHOLE

POURED CONCRETE
OR APPROVED
PRECAST OUTSIDE
DROP MANHOLE SECTIONS

6" MIN.

LONG RADIUS 90° BEND
DIA. SAME AS INCOMING
SEWER PIPE

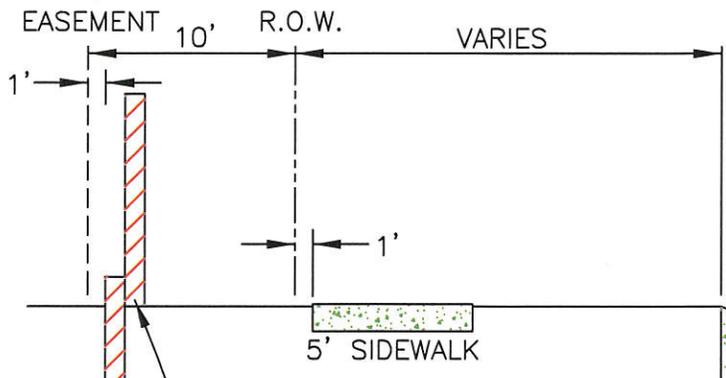
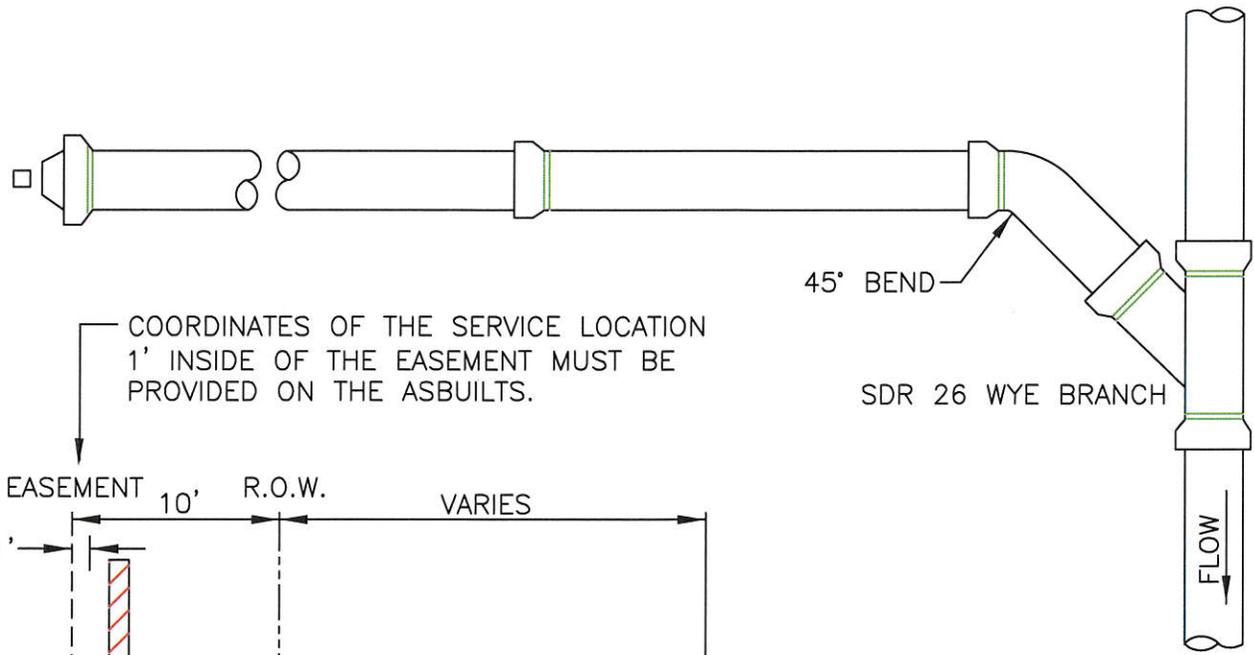
6"



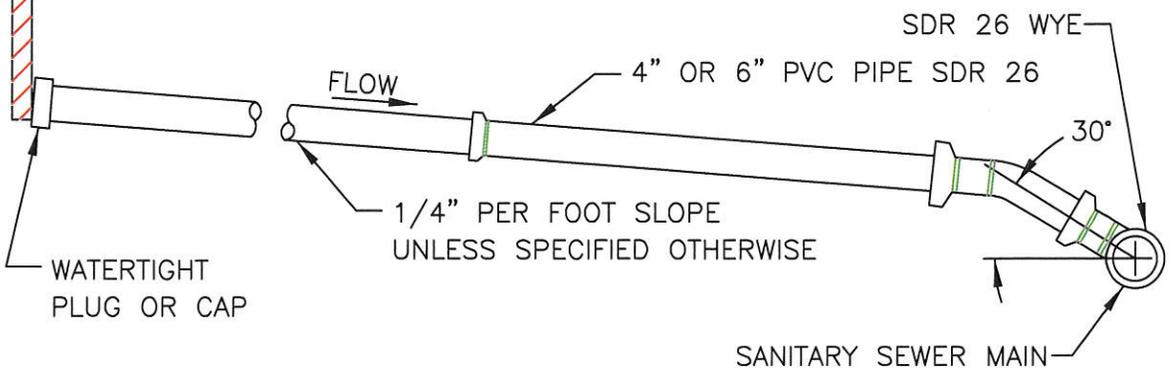
OUTSIDE DROP
SANITARY MANHOLE

APPROVED:
REVISION DATE: JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
3002



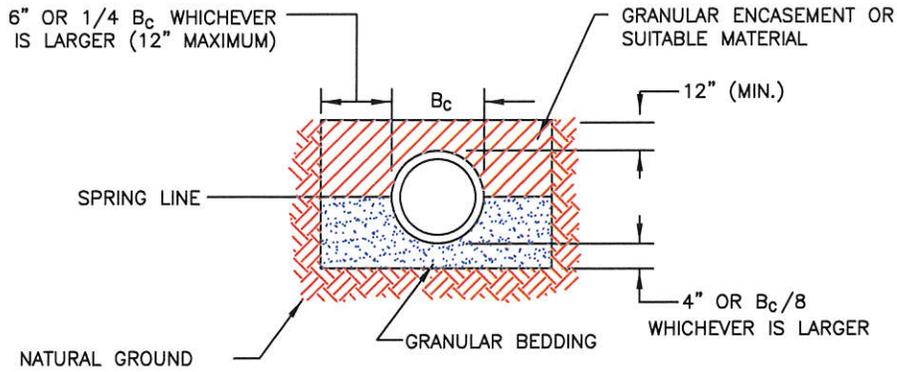
9' MINIMUM FROM PROPOSED GRADE TO INVERT.



SANITARY SEWER SERVICE

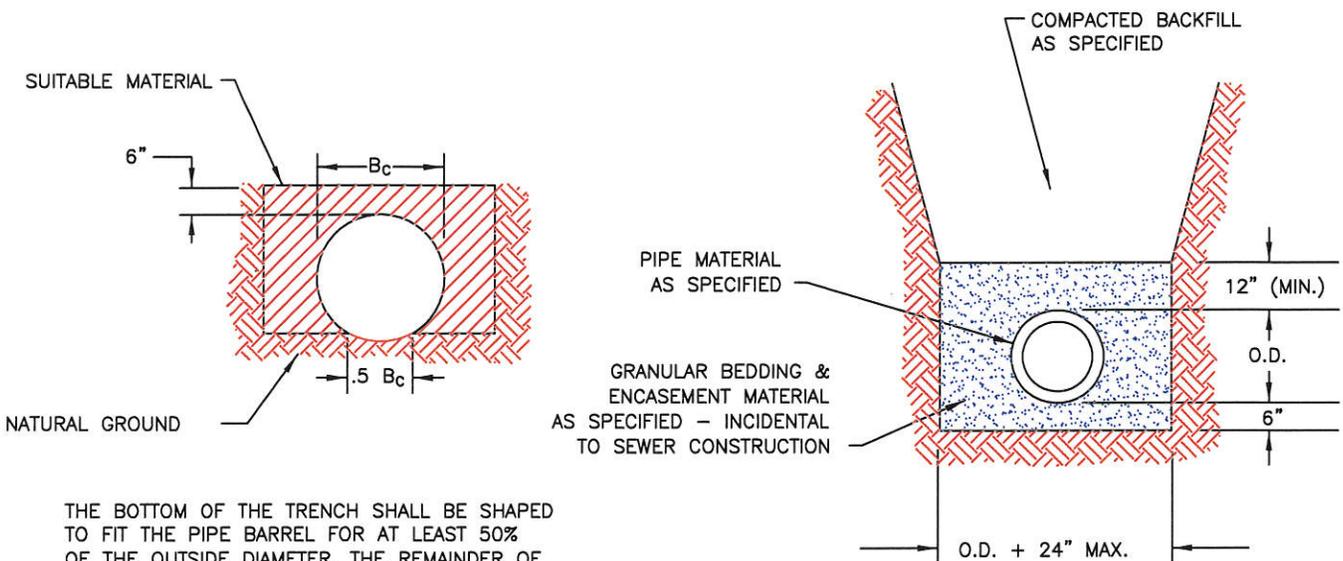
APPROVED:	
REVISION DATE:	MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
3003



NOTE: ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS, UNLESS SPECIFIC BID QUANTITIES ARE LISTED FOR GRANULAR BEDDING FOR WATERMAIN.

CLASS "B" PIPE BEDDING



THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO FIT THE PIPE BARREL FOR AT LEAST 50% OF THE OUTSIDE DIAMETER. THE REMAINDER OF THE PIPE IS SURROUNDED TO HEIGHT OF AT LEAST 6" ABOVE IT'S TOP BY SELECT FILL MATERIALS, PLACED BY HAND TOOLS AND COMPACTED TO COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO THE PIPE.

PVC SANITARY SEWER

NOTE: ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.

CLASS "C" PIPE BEDDING



PIPE BEDDING

APPROVED:

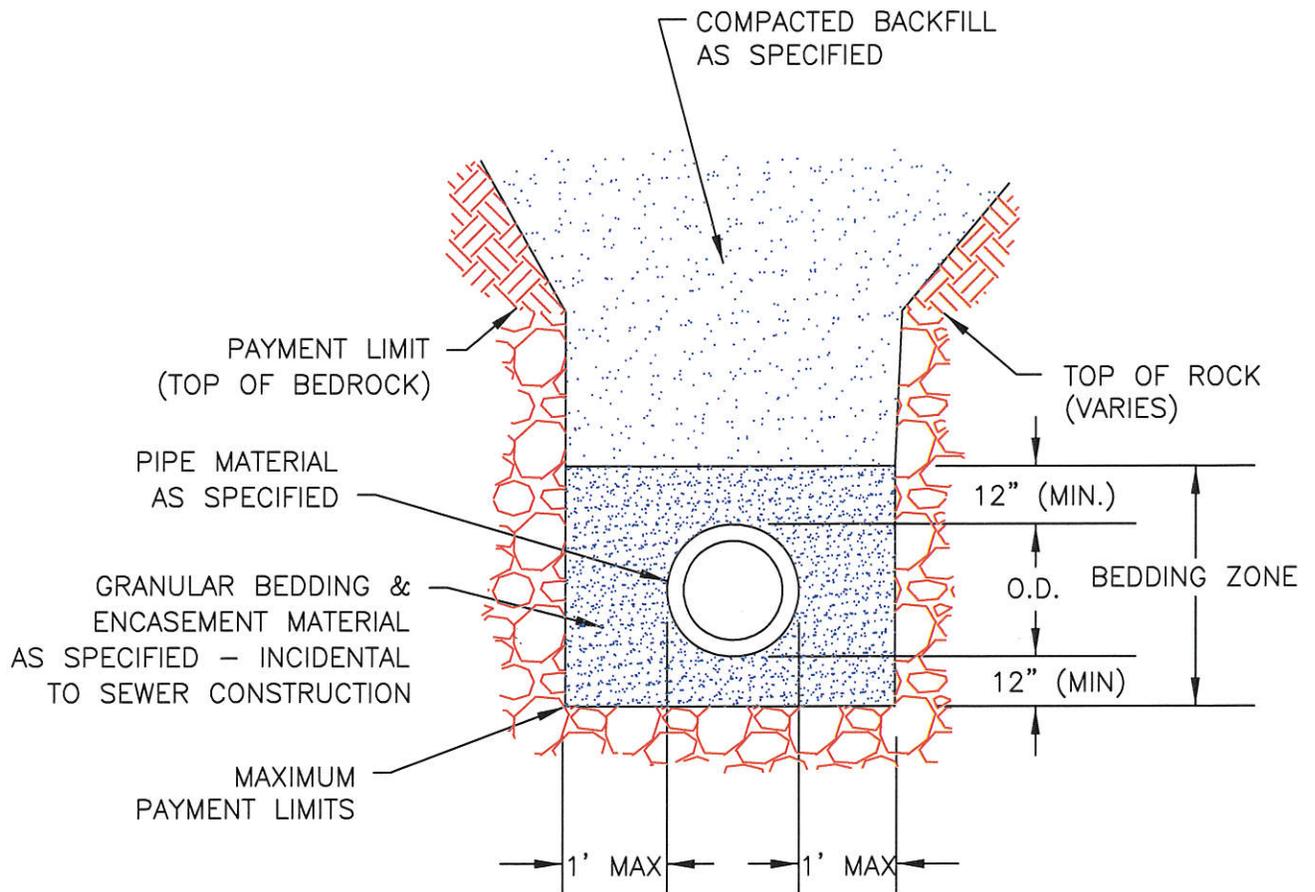
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

3005



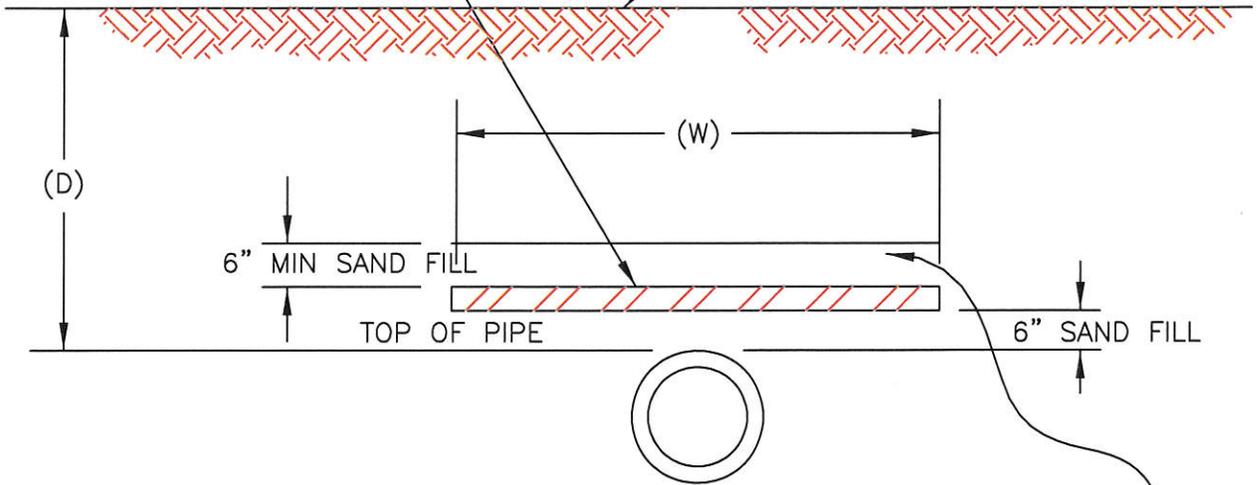
ROCK EXCAVATION

APPROVED:	
REVISION DATE:	JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
 3006

4" RIGID POLYSTYRENE FOAM
SEE SPECS.

DESIGN GRADE OR
EXISTING GRADE



COMPACT AREA ABOVE PIPE TO
95% STANDARD PROCTOR DENSITY
USE GRANULAR BEDDING MATERIAL
FOR BACKFILL MATERIAL BELOW &
6" ABOVE INSULATION MATERIAL

(D) DEPTH OF PIPE	(W) WIDTH OF INSULATION
2'	12'
3'	10'
4'	8'
5'	6'
6'	4'
7'	4'

NOTE: ALL INSULATION SHALL HAVE A MINIMUM
COMPRESSION STRENGTH OF 35 PSI.



INSULATION

APPROVED:

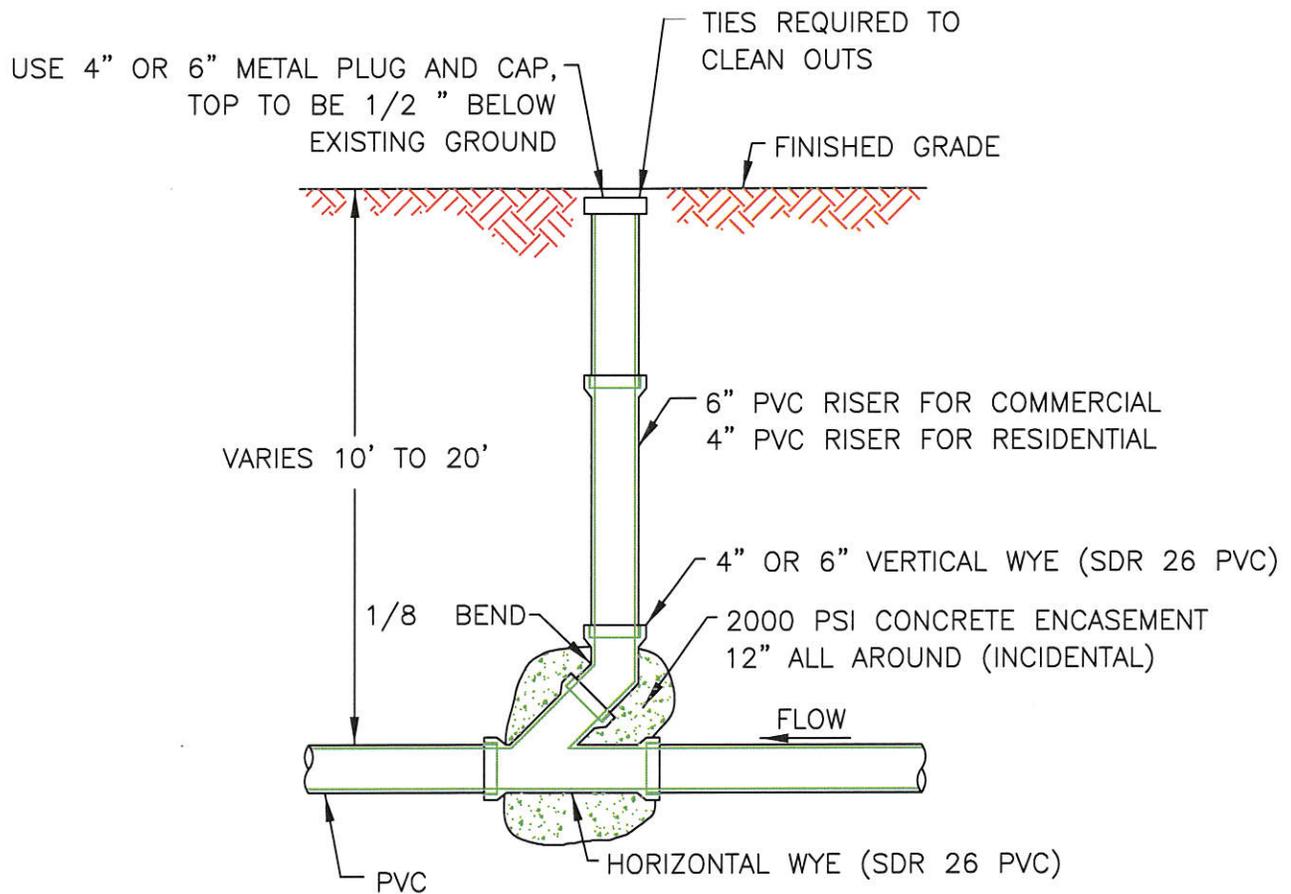
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO.:

3007



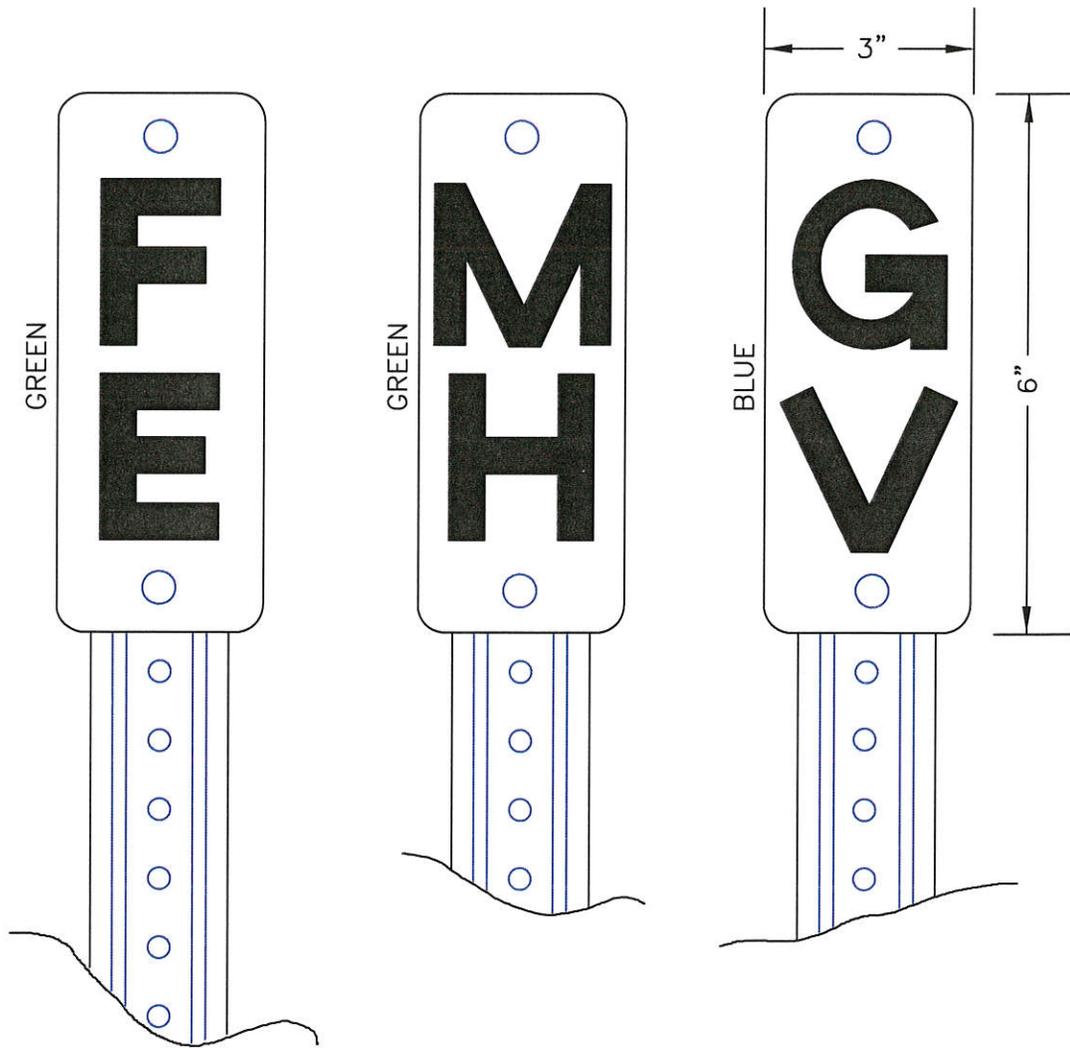
CLEAN-OUTS REQUIRED AT 70' INTERVALS FROM MAIN SEWER LINE.



SANITARY CLEAN OUT

APPROVED:	
REVISION DATE:	JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
3008



NOTE:

3" x 6" STRUCTURE MARKER SIGNS SHALL BE FURNISHED AND INSTALLED FOR ALL STRUCTURES LOCATED OUTSIDE OF THE STREET RIGHT OF WAY AND SHALL BE CONSIDERED INCIDENTAL.

0.063" THICK ALUMINUM SIGN.

BLACK LETTERS ON GREEN OR BLUE HIGH INTENSITY REFLECTORIZED BACKGROUND.

U-CHANNEL POST,

MINIMUM 1.2 LB./FT. 6'- 6" LONG, PAINTED GREEN.

FLARED END SECTION POST SHALL NOT BE POSITIONED IN A WAY THAT WILL BLOCK FLOW.



STRUCTURE MARKER SIGN

APPROVED:

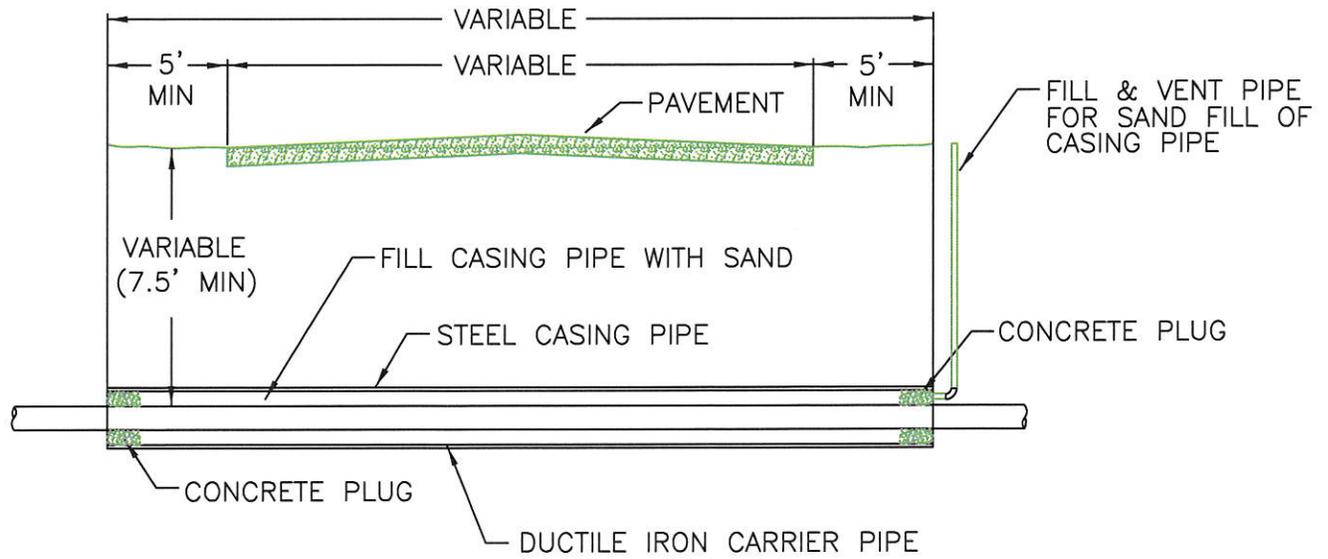
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

3009



PIPE SIZE CHART

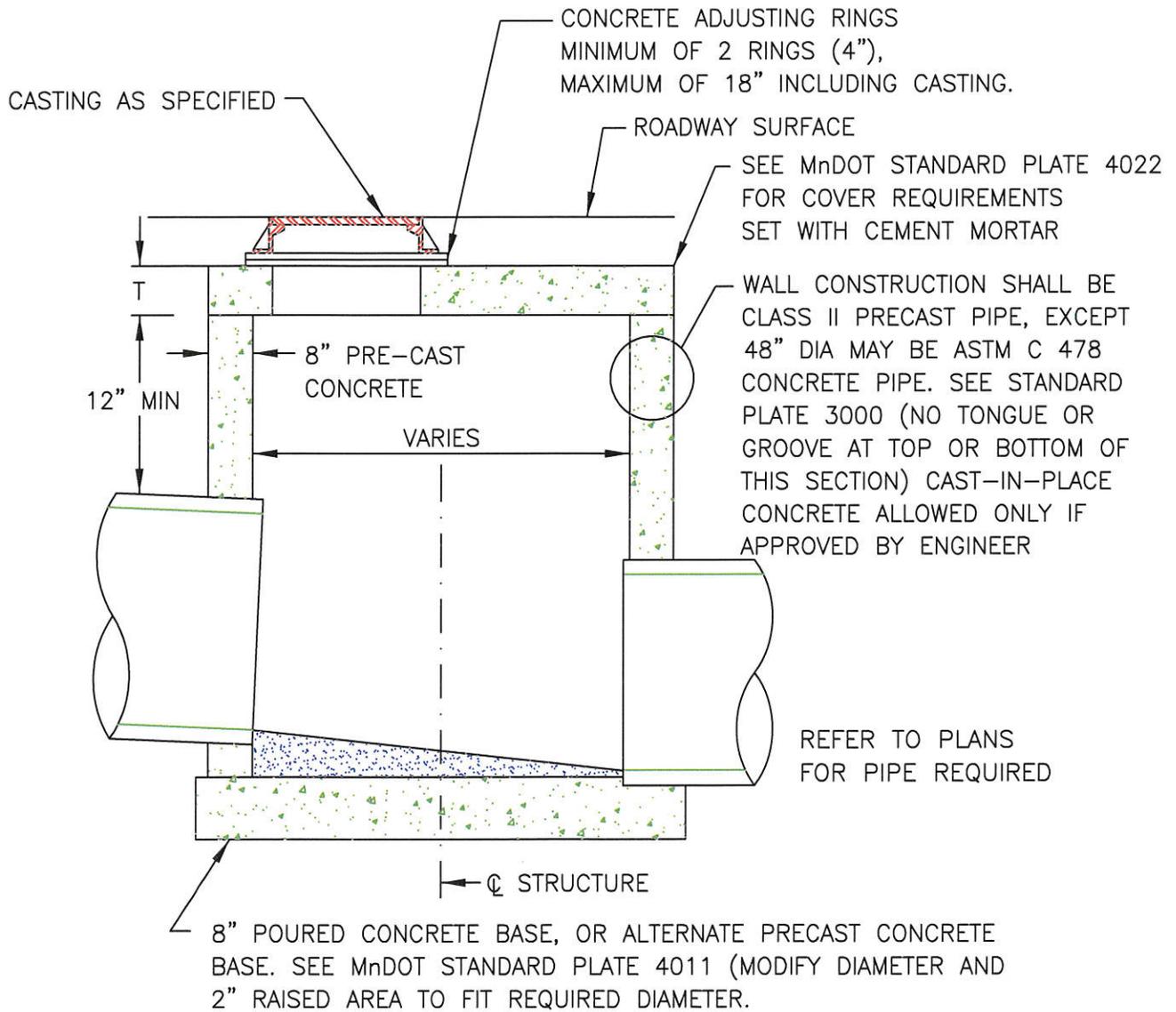
CARRIER PIPE	CASING DIAMETER	CASING THICKNESS
6"	18"	0.250
8"	22"	0.250
10"	22"	0.250
12"	26"	0.250
16"	30"	0.250
18"	30"	0.250



STEEL CASING

APPROVED:
 REVISION DATE: JANUARY 2007
 SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
 3010



- ① REFER TO STANDARD PLANS FOR HEIGHT AND DIAMETER REQUIRED.
- ② MANHOLE STEPS SHALL BE POLYPROPYLENE PLASTIC REINFORCED WITH A NO. 2 DEFORMED STEEL ROD GRADE 60 AND SPACED 16" OC.
- ③ REINFORCEMENT AS PER SPEC 3301, GRADE 60.



STANDARD MANHOLE FOR STORM SEWER

APPROVED:

REVISION DATE:

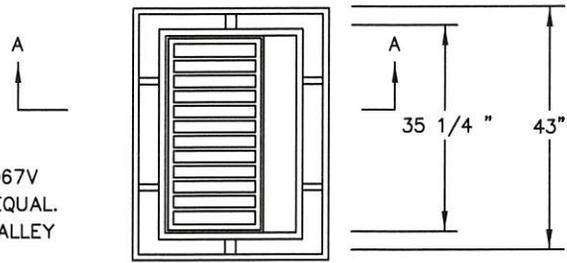
MAY 2010

SHAKOPEE ENGINEERING DEPARTMENT

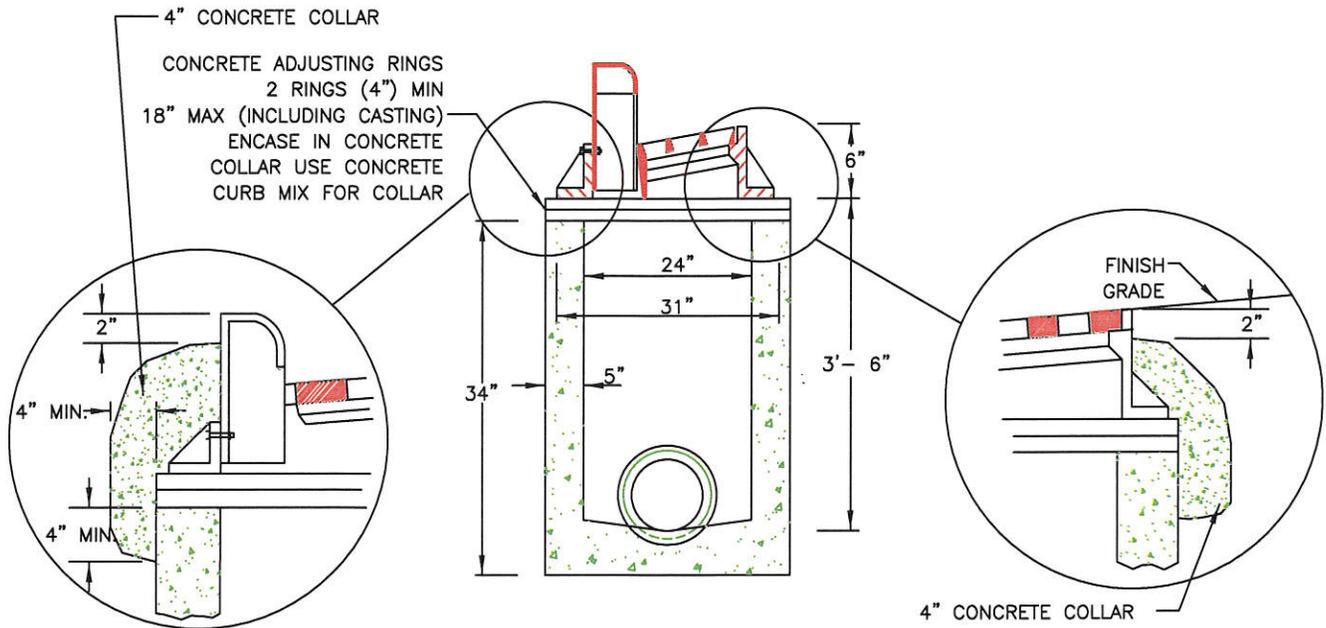
DETAIL NO.:

4001

CURB INLET FRAME AND CURB BOX
 24"x36" SLAB OPENING FOR NEENAH R3067V
 OR ESS. BROS. 330 HIGH CAPACITY OR EQUAL.
 INSTALL R3290L FOR DRIVEWAYS AND VALLEY
 GUTTERS. VANE GRATE SHOWN



PLAN



SECTION A-A

NOTES:

MINIMUM REINFORCING SHALL BE WIRE FABRIC
 HAVING AN AREA OF NOT LESS THAN 0.12 SQ IN
 PER FOOT IN BOTH DIRECTIONS

POUR A 3" TO 4" CONCRETE COLLAR
 AROUND RINGS EXTENDING FROM THE
 CASTING TO THE PRECAST SECTION

REFER TO PLANS
 FOR PIPE REQUIRED



2' x 3' CATCH BASIN

APPROVED:

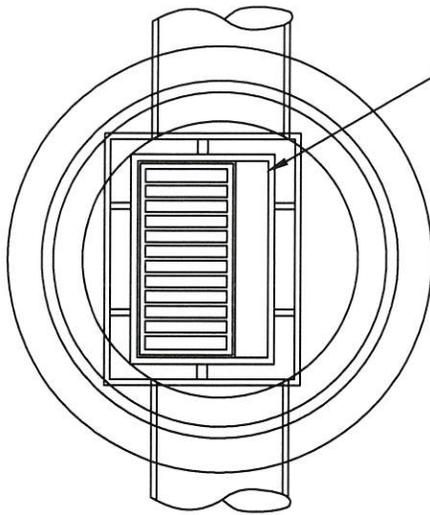
REVISION DATE:

MAY 2010

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

4002



PLAN

24"x36" SLAB OPENING FOR NEENAH R3067V OR ESS. BROS. 330 HIGH CAPACITY OR EQUAL. INSTALL R3290L FOR DRIVEWAYS AND VALLEY GUTTERS. VANE GRATE SHOWN

DIMENSION FROM BACK OF CURB TO CENTER OF PIPE.

- 4' DIA. MH - 9" IN FROM BACK OF CURB
- 5' DIA. MH - 3" IN FROM BACK OF CURB
- 6' DIA. MH - 3" BEHIND BACK OF CURB
- 7' DIA. MH - 9" BEHIND BACK OF CURB
- 8' DIA. MH - 15" BEHIND BACK OF CURB

ALL STORM SEWER CASTING ELEVATIONS SHOWN ON THE PLANS HAVE BEEN DEPRESSED 0.15' BELOW GUTTER ELEVATION.

4" CONCRETE COLLAR

VARIES
12"-16"

VARIES

VARIES
4'-0" TYP.

SECTION

CONCRETE ADJUSTING RINGS MINIMUM OF 2 RINGS (4") MAXIMUM OF 18" INCLUDING THE CASTING.

6" PRECAST REINFORCED CONCRETE SLAB WITH 2' X 3' OPENING, SET WITH CEMENT MORTAR. FOR 6' DIA. MANHOLE, AN 8" PRECAST SLAB IS REQUIRED.

ALL JOINTS IN MANHOLE TO HAVE "O" RING RUBBER GASKETS.

PRECAST CONCRETE SECTION

DOGHOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE.

MANHOLE STEPS SHALL BE PLACED BELOW THE DOWNSTREAM CORNER OF THE OPENING NEAREST THE STREET.

CONCRETE CATCH BASIN MANHOLE AND BASE TO BE CRETEX TYPE 433B OR APPROVED EQUAL. MINIMUM SLAB THICKNESS, 6" FOR 14' DEPTH. INCREASE THICKNESS 1" FOR EACH 4' OF DEPTH GREATER THAN 14', AND REINFORCE WITH 6"x6" 10/10 MESH.

GROUT BOTTOM.

NOTES:

BASE TO BE GROUTED TO FORM A SMOOTH INVERT TO OUTLET. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED.



CATCH BASIN MANHOLE

APPROVED:

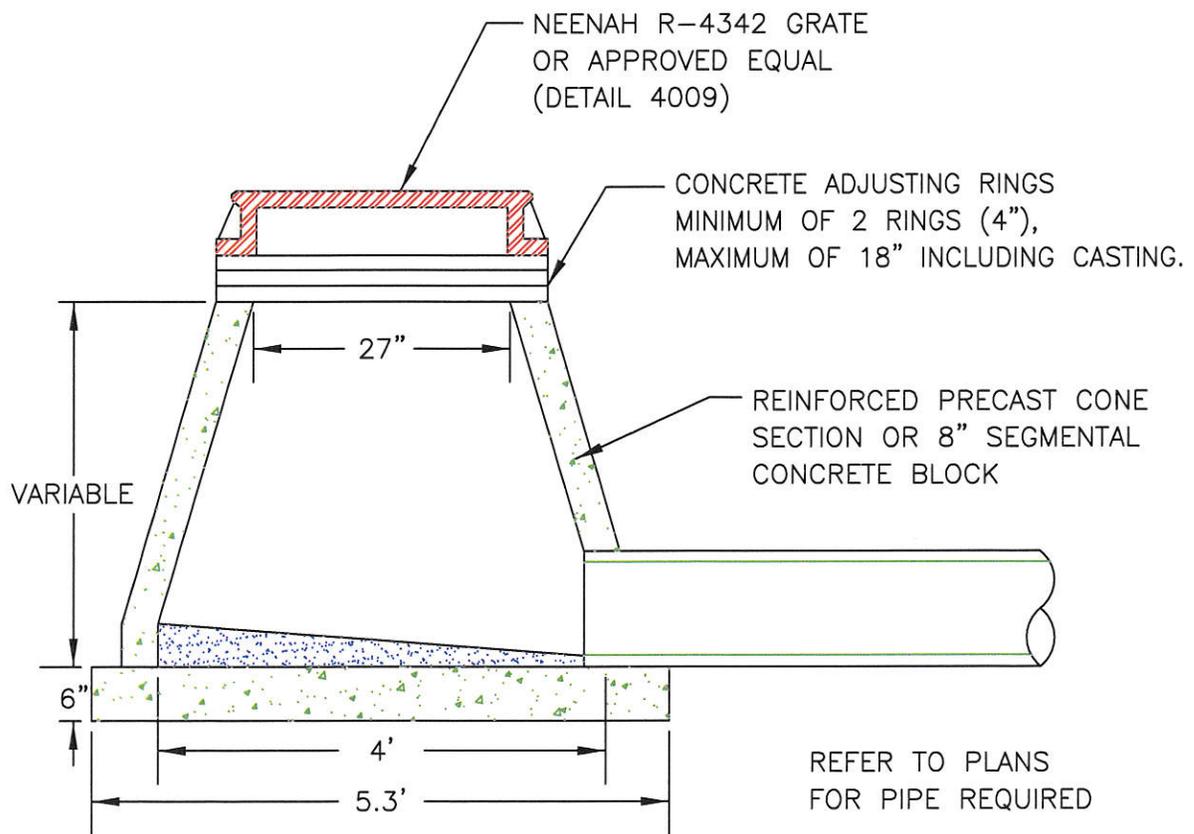
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO.:

4003



27" CATCH BASIN

APPROVED:

REVISION DATE:

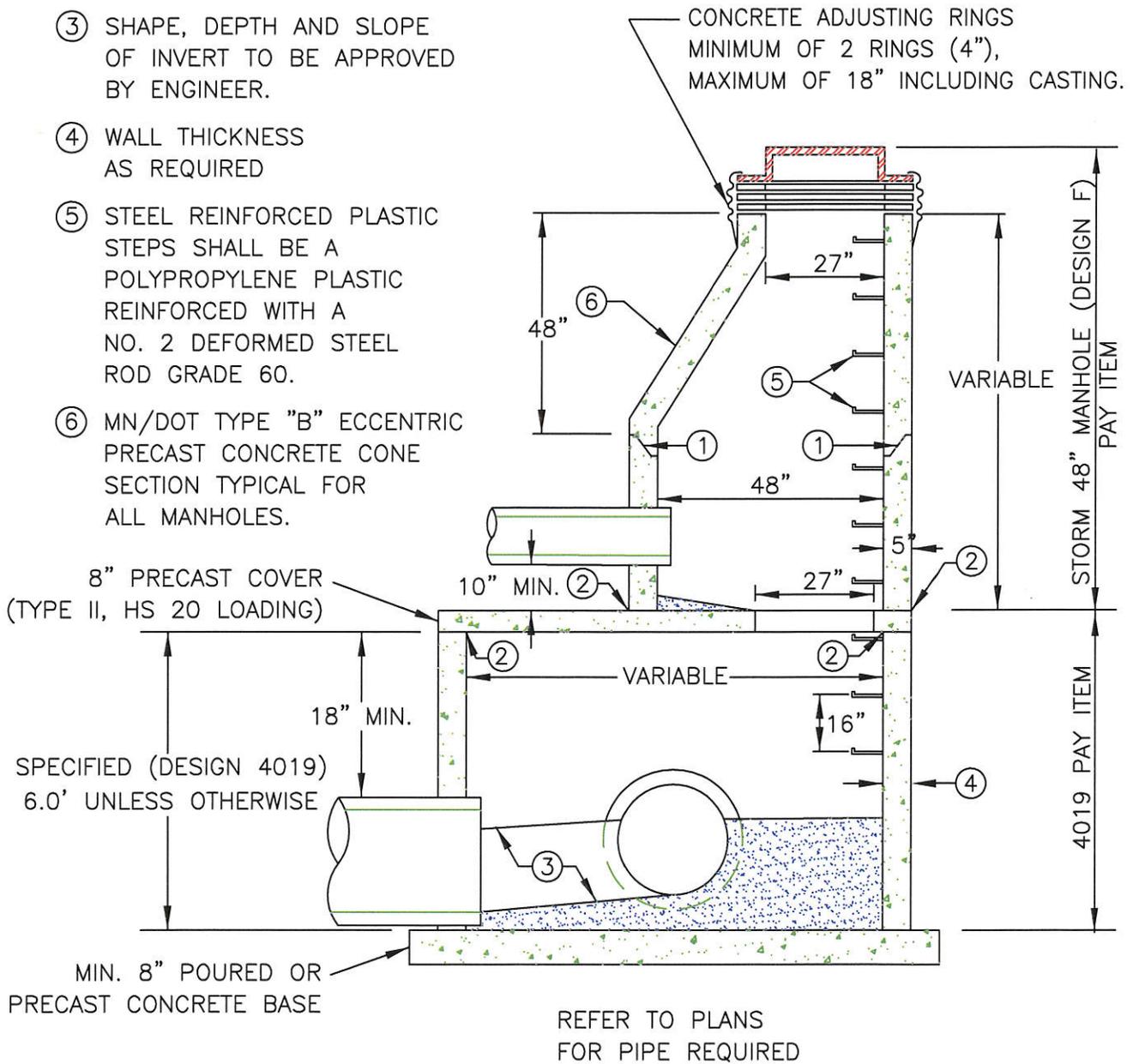
JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

4004

- ① RUBBER GASKET
- ② PLACE CEMENT MORTAR BETWEEN SECTIONS
- ③ SHAPE, DEPTH AND SLOPE OF INVERT TO BE APPROVED BY ENGINEER.
- ④ WALL THICKNESS AS REQUIRED
- ⑤ STEEL REINFORCED PLASTIC STEPS SHALL BE A POLYPROPYLENE PLASTIC REINFORCED WITH A NO. 2 DEFORMED STEEL ROD GRADE 60.
- ⑥ MN/DOT TYPE "B" ECCENTRIC PRECAST CONCRETE CONE SECTION TYPICAL FOR ALL MANHOLES.



MANHOLE
DESIGN 4019/F

APPROVED:

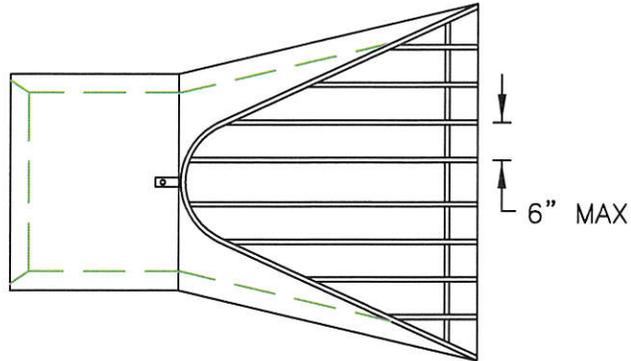
REVISION DATE:

JANUARY 2007

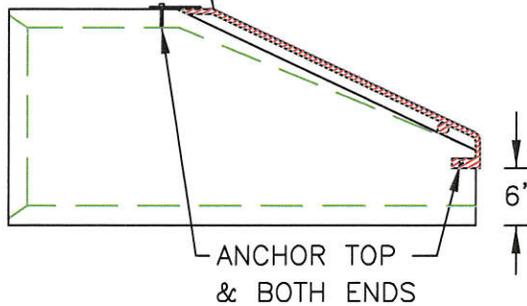
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO.:

4005



TRANSVERSE & LONGITUDINAL BARS
 1" FOR 21" TO 42" APRONS
 1 1/4" FOR 42" & LARGER APRONS.



NOTE:

ALL TRASH GUARDS SHALL BE GALVANIZED AFTER FABRICATION PER MNDOT SPEC. 3392 & 3394.

TIE LAST 3 PIPE JOINTS. USE 2 GALVANIZED TIE BOLT FASTENERS PER JOINT. INSTALL AT 60° FROM TOP TO BOTTOM OF PIPE.



TRASH GUARD FOR
 END SECTION

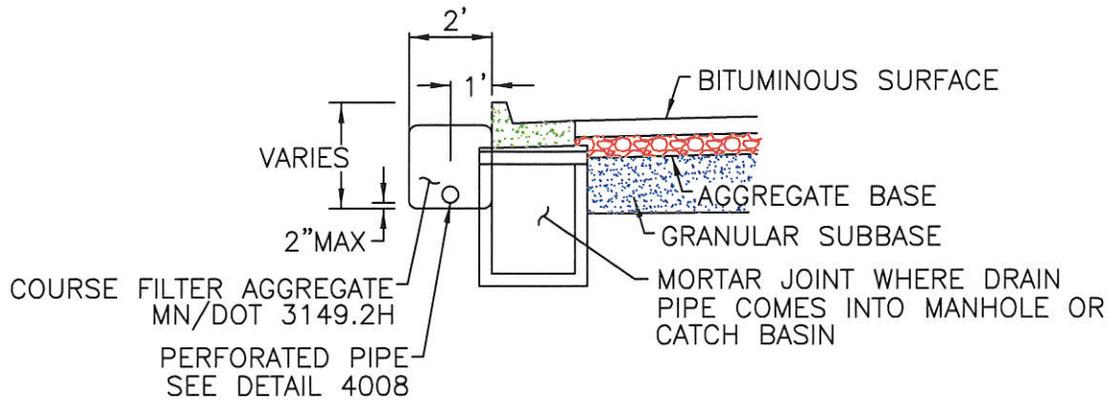
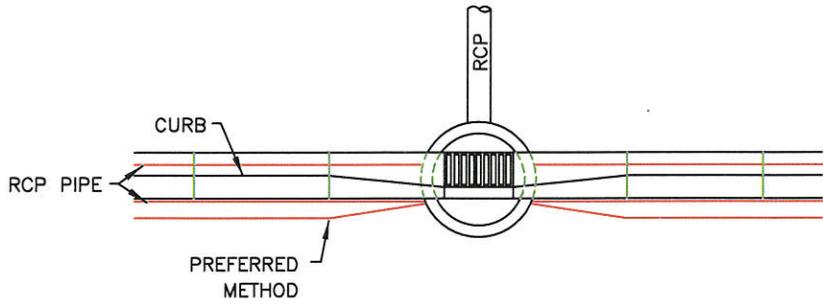
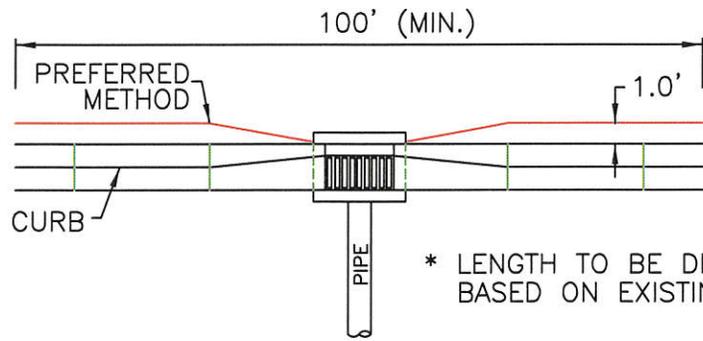
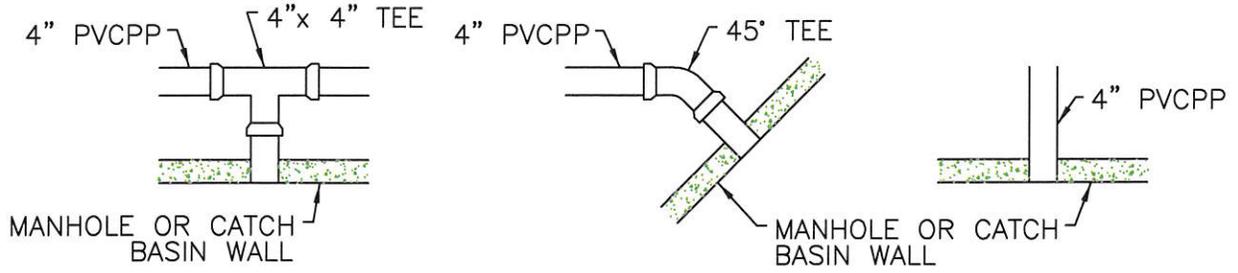
APPROVED:

REVISION DATE: JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

4006



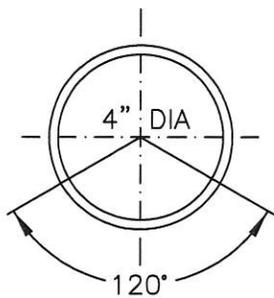
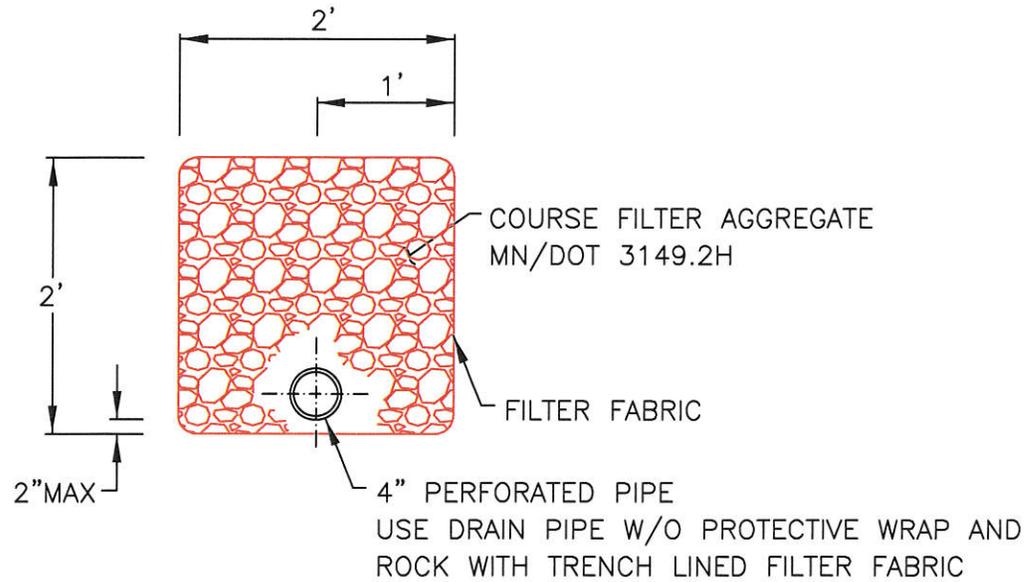
PERFORATED DRAINTILE

APPROVED:

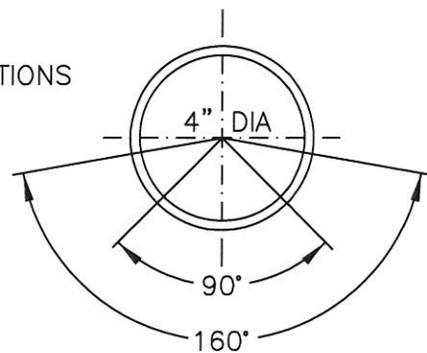
REVISION DATE: MAY 2010

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
4007



TYPICAL HOLE LOCATIONS



CORRUGATED POLYETHYLENE PIPE WITH
OR WITHOUT PROTECTIVE WRAP

PVCPP WITH OR WITHOUT PROTECTIVE WRAP



PERFORATED DRAINTILE

APPROVED:

REVISION DATE:

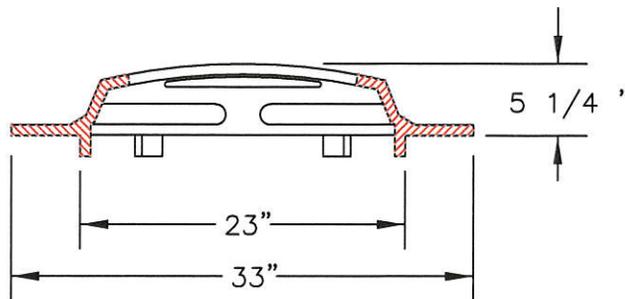
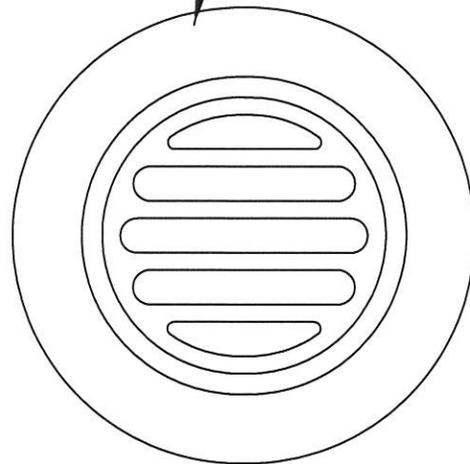
JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

4008

NEENAH R-4342 DITCH GRATE,
STOOL TYPE (OR EQUAL)



BEEHIVE MANHOLE GRATE

APPROVED:

REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

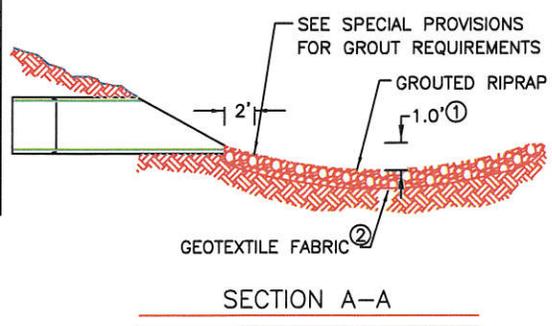
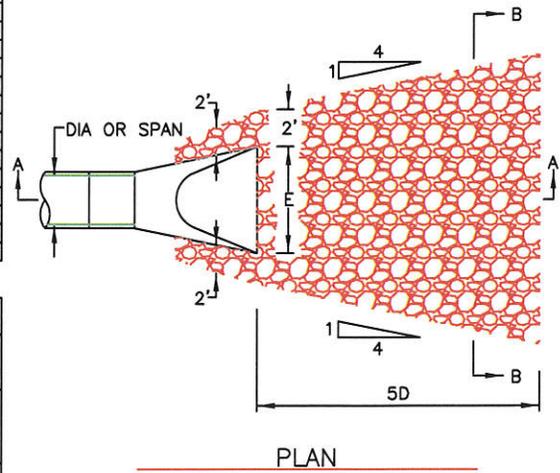
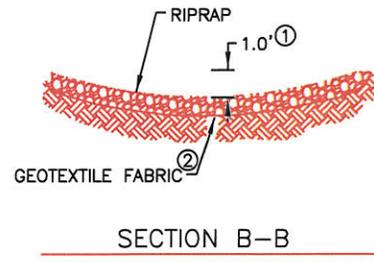
4009

TABLE OF QUANTITIES

RIPRAP AT RCP OUTLETS						
DIA ROUND PIPE	CLASS III D 50 = 9"		CLASS IV D 50 = 12"		CLASS V D 50 = 15"	
	15" DEPTH RIPRAP	7.5" DEPTH GRANULAR FILTER	18" DEPTH RIPRAP	9" DEPTH GRANULAR FILTER	24" DEPTH RIPRAP	12" DEPTH GRANULAR FILTER
(IN)	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)
12	2.1	1.1	2.6	1.3	3.4	1.7
15	2.9	1.4	3.5	1.7	4.6	2.3
18	3.6	1.8	4.4	2.2	5.8	2.9
21	4.6	2.3	5.6	2.8	7.4	3.7
24	5.8	2.9	6.9	3.5	9.2	4.6
27	6.9	3.4	8.3	4.1	11.0	5.5
30	8.3	4.1	9.9	5.0	13.2	6.6
36	11.0	5.5	13.2	6.6	17.6	8.8
42	13.6	6.8	16.4	8.2	21.8	10.9
48	16.8	8.4	20.1	10.1	26.8	13.4
54	19.8	9.9	23.7	11.9	31.6	15.8
60	23.0	11.5	27.6	13.8	36.8	18.4
66	27.0	13.5	32.4	16.2	43.2	21.6
72	31.1	15.6	37.4	18.7	49.8	24.9
84	40.0	20.0	48.0	24.0	64.0	32.0
90	45.5	22.8	54.6	27.3	72.8	36.4

RIPRAP AT RCP—A OR BOXES OF EQUIVALENT SPAN WIDTH						
SPAN ROUND PIPE	CLASS III D 50 = 9"		CLASS IV D 50 = 12"		CLASS V D 50 = 15"	
	15" DEPTH RIPRAP	7.5" DEPTH GRANULAR FILTER	18" DEPTH RIPRAP	9" DEPTH GRANULAR FILTER	24" DEPTH RIPRAP	12" DEPTH GRANULAR FILTER
(IN)	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)
22	3.6	1.8	4.4	2.2	5.8	2.9
28	5.8	2.9	6.9	3.5	9.2	4.6
36	8.1	4.1	9.8	4.9	13.0	6.5
43	11.0	5.5	13.2	6.6	17.6	8.8
51	13.6	6.8	16.4	8.2	21.8	10.9
58	16.5	8.3	19.8	9.9	26.4	13.2
65	19.8	9.9	23.7	11.9	31.6	15.8
73	23.3	11.6	27.9	14.0	31.2	18.6
88	32.4	16.2	38.9	19.4	51.8	25.9
102	43.5	21.8	52.2	26.1	69.6	34.8
115	44.0	22.0	52.8	26.4	70.4	35.2
122	49.3	24.6	59.1	29.6	78.8	39.4
138	61.3	30.6	73.5	36.8	98.0	49.0
154	74.4	37.2	89.3	44.6	119.0	59.5

NOTE:
REQUIREMENTS FOR RIPRAP SIZE, THICKNESS,
WILL BE DESIGNATED IN PLANS.



- ① FOR PIPES GREATER THAN OR EQUAL TO 48", USE 2.0'
- ② THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE CULVERT APRON 3 FEET.

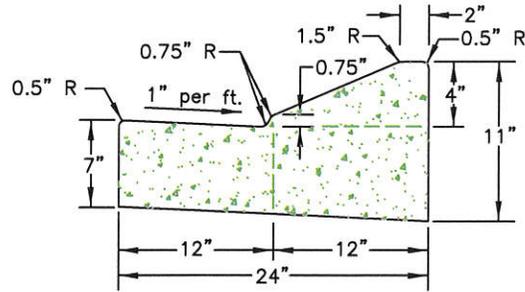
TIE LAST 3 PIPE JOINTS. USE 2 TIE BOLT FASTENERS PER JOINT.



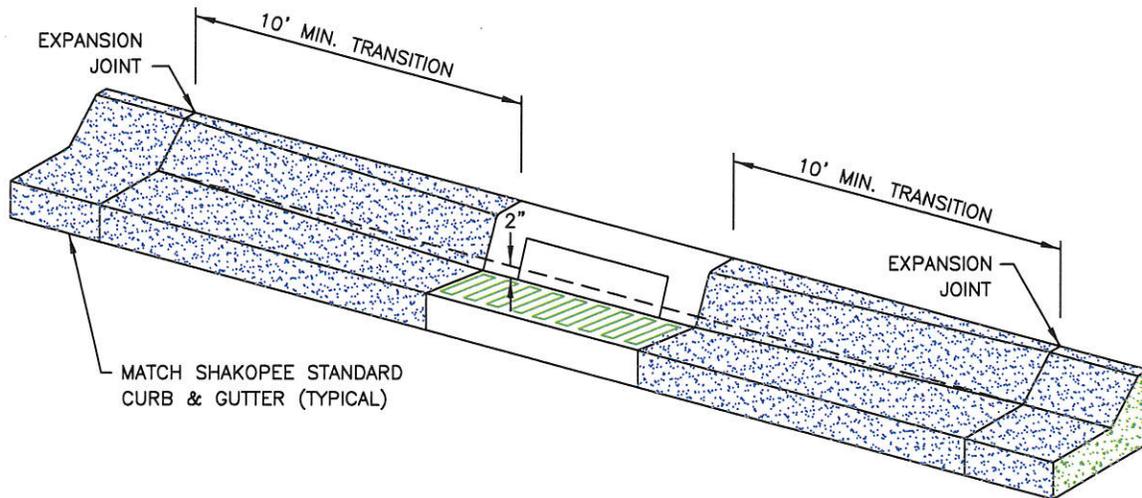
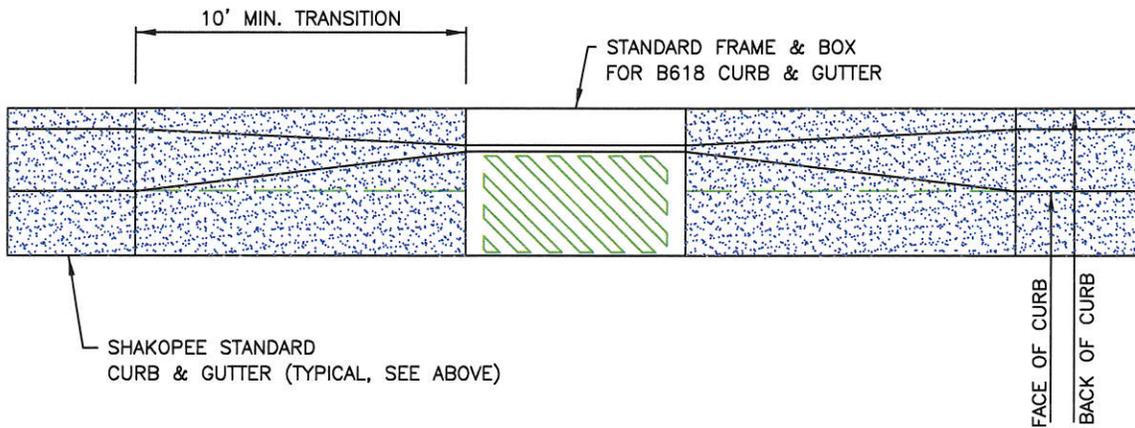
RIPRAP DETAIL

APPROVED:
REVISION DATE: JANUARY 2007
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:
4010



SHAKOPEE STANDARD



NOTE:

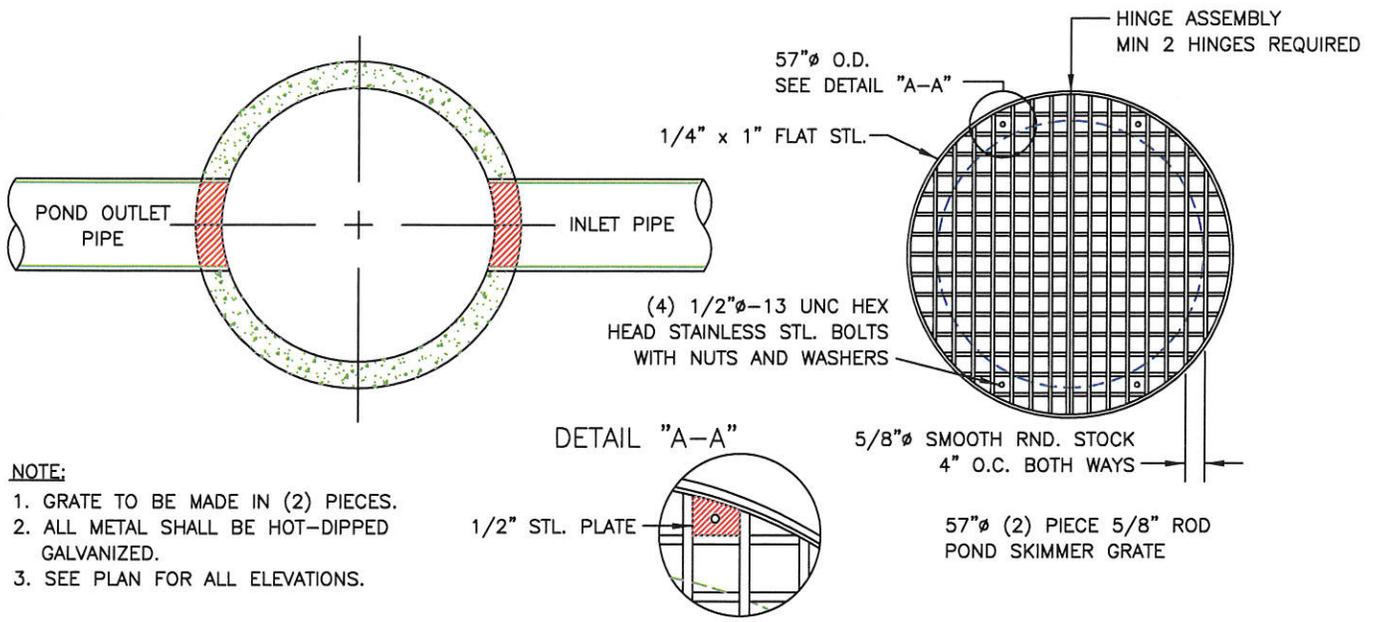
STORM SEWER TOP OF CASTING ELEVATION SHOWN ON THE PLANS INCLUDES A 0.15' DEPRESSION FROM THE PROPOSED GUTTER GRADE. THE CONCRETE CURB SHOULD BE TRANSITIONED FROM THE PROPOSED GUTTER GRADE TO THE CASTING ELEVATION 10 FEET ON EACH SIDE OF THE CASTING.



TRANSITION TO B618 CURB
AT CATCH BASIN

APPROVED:	
REVISION DATE:	MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT	

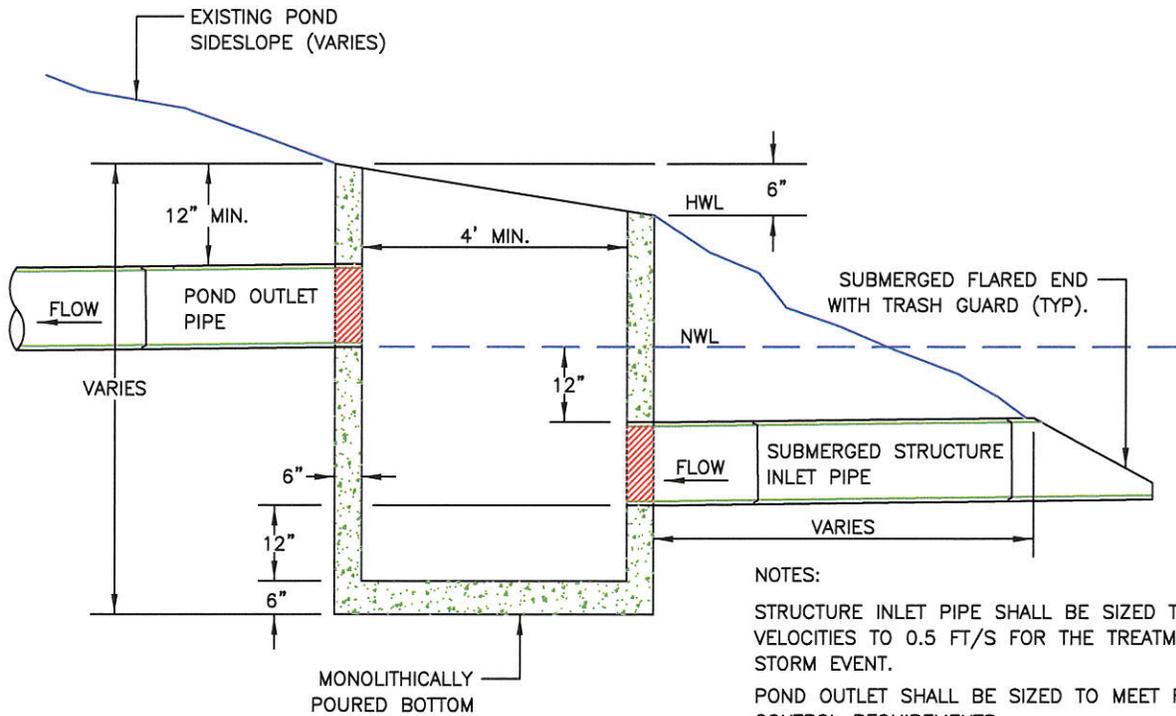
DETAIL NO:
4011



NOTE:

1. GRATE TO BE MADE IN (2) PIECES.
2. ALL METAL SHALL BE HOT-DIPPED GALVANIZED.
3. SEE PLAN FOR ALL ELEVATIONS.

TOP VIEW



NOTES:

- STRUCTURE INLET PIPE SHALL BE SIZED TO LIMIT VELOCITIES TO 0.5 FT/S FOR THE TREATMENT STORM EVENT.
- POND OUTLET SHALL BE SIZED TO MEET RATE CONTROL REQUIREMENTS.
- TIE LAST 3 PIPE JOINTS. USE 2 TIE BOLT FASTENERS PER JOINT.

SECTION VIEW



**POND SKIMMER
STRUCTURE**

APPROVED:

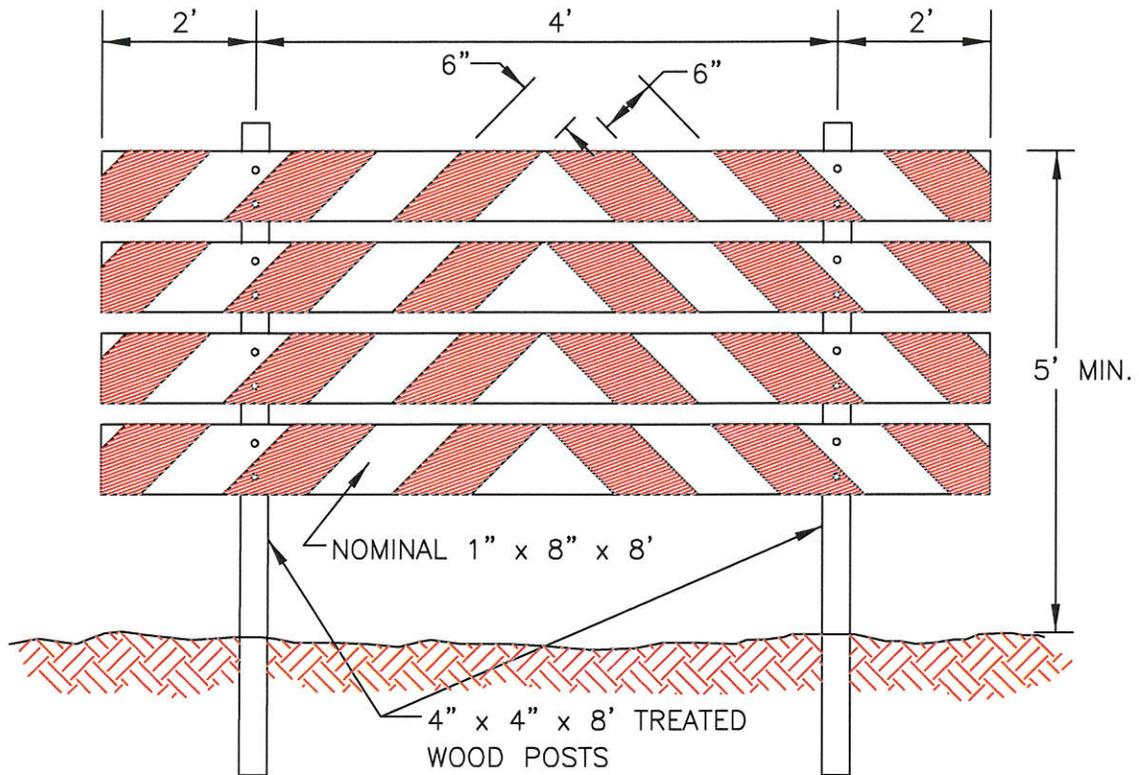
REVISION DATE:

JANUARY 2007

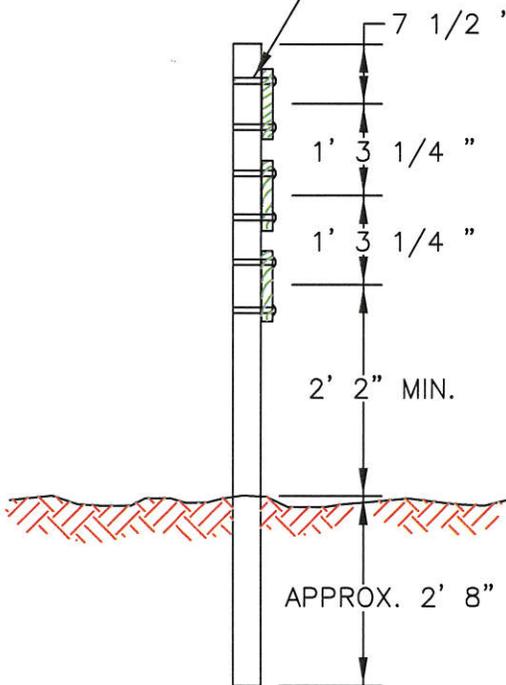
SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

4012



1/2" x 8" GALV. BOLTS
w/ CUT WASHER



NOTES:

THE BARRICADE BOARD FACE SURFACE SHALL BE RETROREFLECTIVITY IN ALTERNATE SILVER WHITE AND RED STRIPING, USING REFLECTIVE SHEETING CONFORMING TO THE REQUIREMENTS OF SPEC. 3352.2A2a STANDARD NO. 1.

PRIOR TO INSTALLING THE REFLECTIVE SHEETING, THE BARRICADE BOARDS SHALL BE GIVEN A COMPLETE COAT OF WHITE WOOD PRIMER PAINT FOLLOWED BY A SECOND COAT OF WHITE EXTERIOR PAINT APPLIED ONLY TO THE SURFACES NOT COVERED WITH REFLECTIVE SHEETING.

THE BARRICADE BOARDS SHALL BE COMPLETELY PAINTED AND RELECTORIZED SHEETING APPLIED BEFORE INSTALLED ON THE POSTS.



TYPICAL BARRICADE

APPROVED:

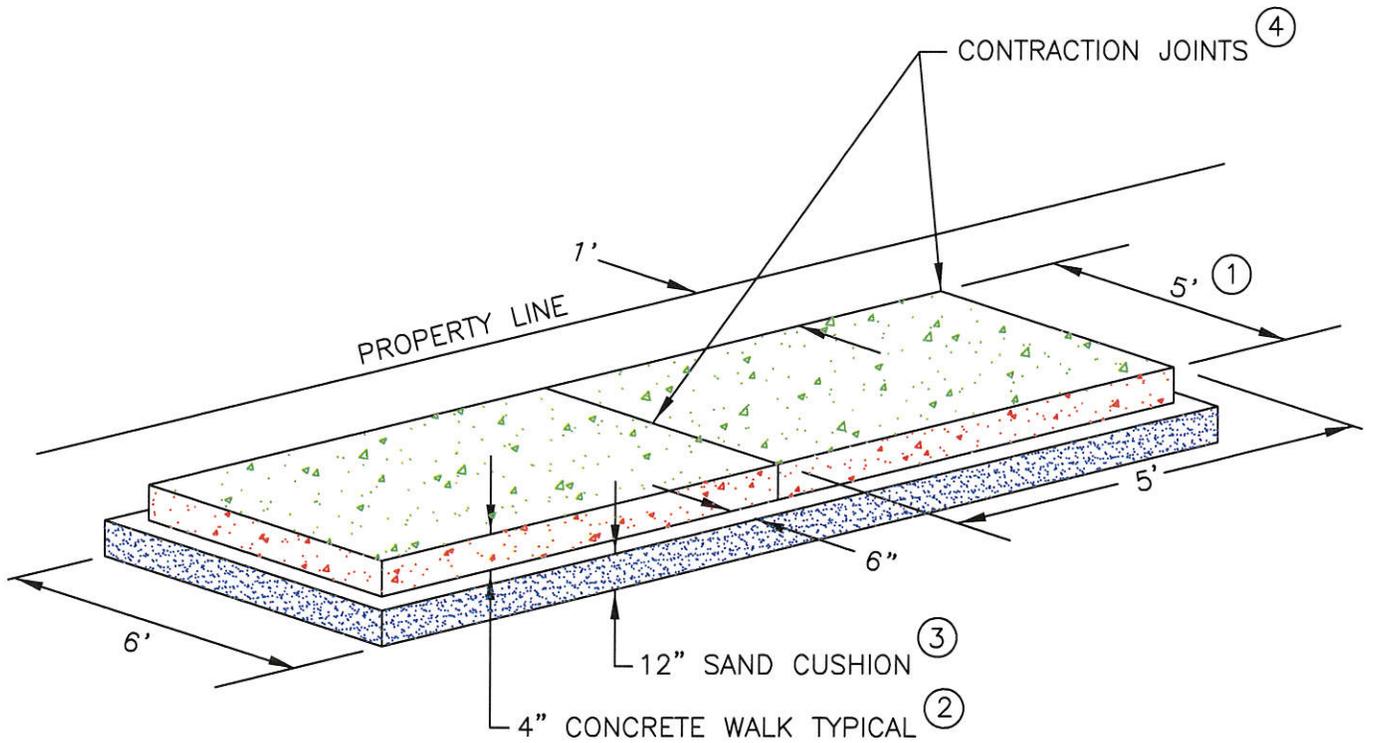
REVISION DATE:

MAY 2010

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

5001



BOULEVARD WIDTH VARIES

SIDEWALK DIMENSIONS

- ① WIDTH - 5'
- ② DEPTH - 4" TYPICAL, 6" AT RESIDENTIAL DRIVEWAYS
6" IN NEW DEVELOPMENTS ADJACENT TO
SHAKOPEE STANDARD SURMOUNTABLE CURB.
- ③ BASE DEPTH - 12" GRANULAR BORROW OR 4" OF
CLASS 5 AGGREGATE (100% CRUSHED LIMESTONE)
- ④ CONTRACTION JOINTS - 5' INTERVALS (APPROX)
- ⑤ EXPANSION JOINTS - 100' INTERVALS (MAX.)



TYPICAL SIDEWALK

APPROVED:

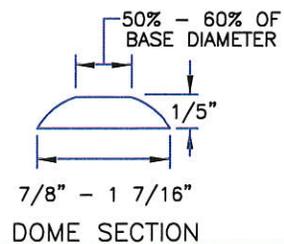
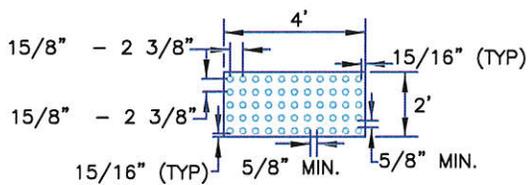
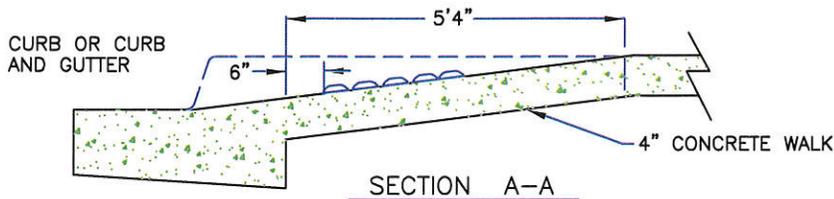
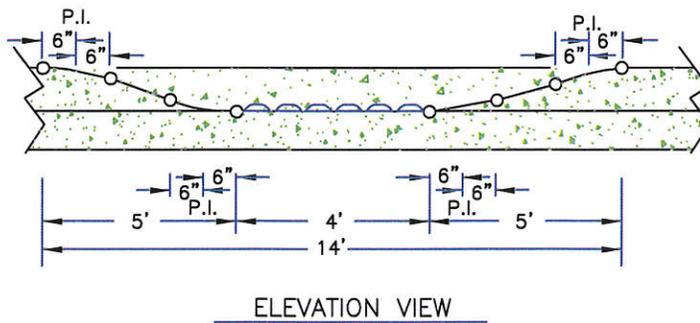
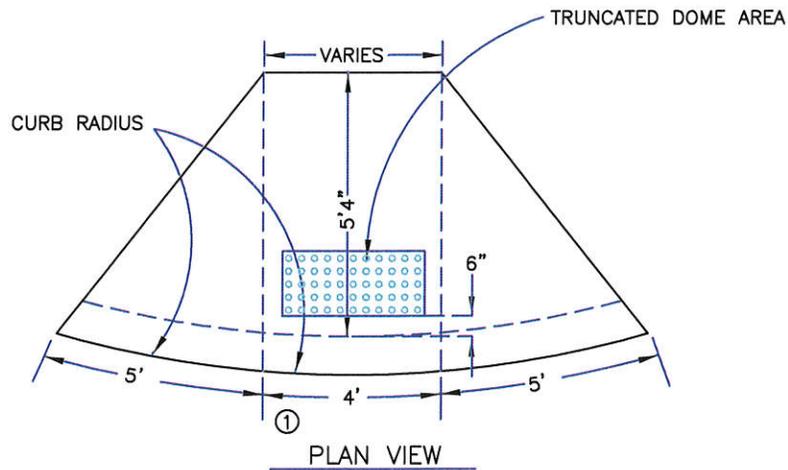
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

5002



① DIMENSIONS MAY BE CHANGED BY THE ENGINEER.

NOTE:

TRUNCATED DOMES SHALL BE NEENAH R-4984 DETECTABLE WARNING PLATE OR APPROVED EQUAL FROM MN/DOT'S APPROVED PRODUCTS LIST. SURFACE APPLIED TRUNCATED DOMES AND STAMPED CONCRETE ARE NOT PERMITTED. TRUNCATED DOME PANEL SHALL BE POWDER-COATED FINISH IN THE COLOR OF BRICK RED.



PEDESTRIAN
CURB RAMP

APPROVED:

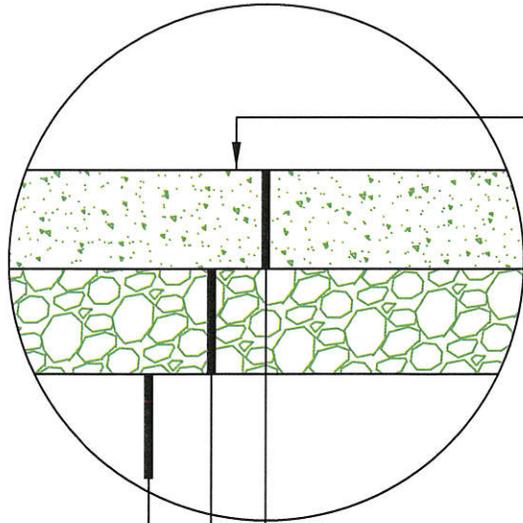
REVISION DATE:

MAY 2010

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

5003



FINISHED GRADE

6" MIN. FOR RESIDENTIAL CONC. DWY/APRON,
10" MIN. FOR COMMERCIAL CONC. DWY/APRON,

8" AGGREGATE BASE, CLASS 5,
100% CRUSHED LIMESTONE (2211)

SUBGRADE PREPARATION (2112)



CONCRETE DRIVEWAY
PAVEMENT

APPROVED:

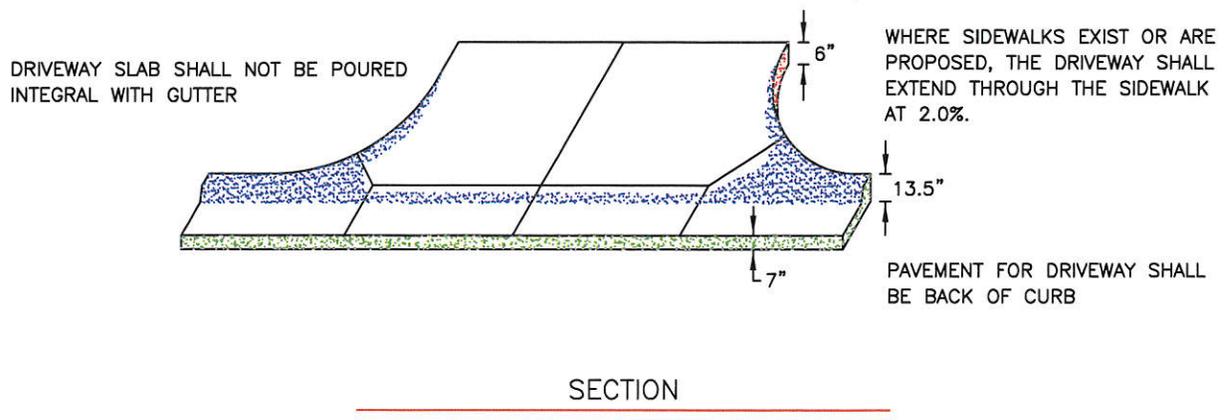
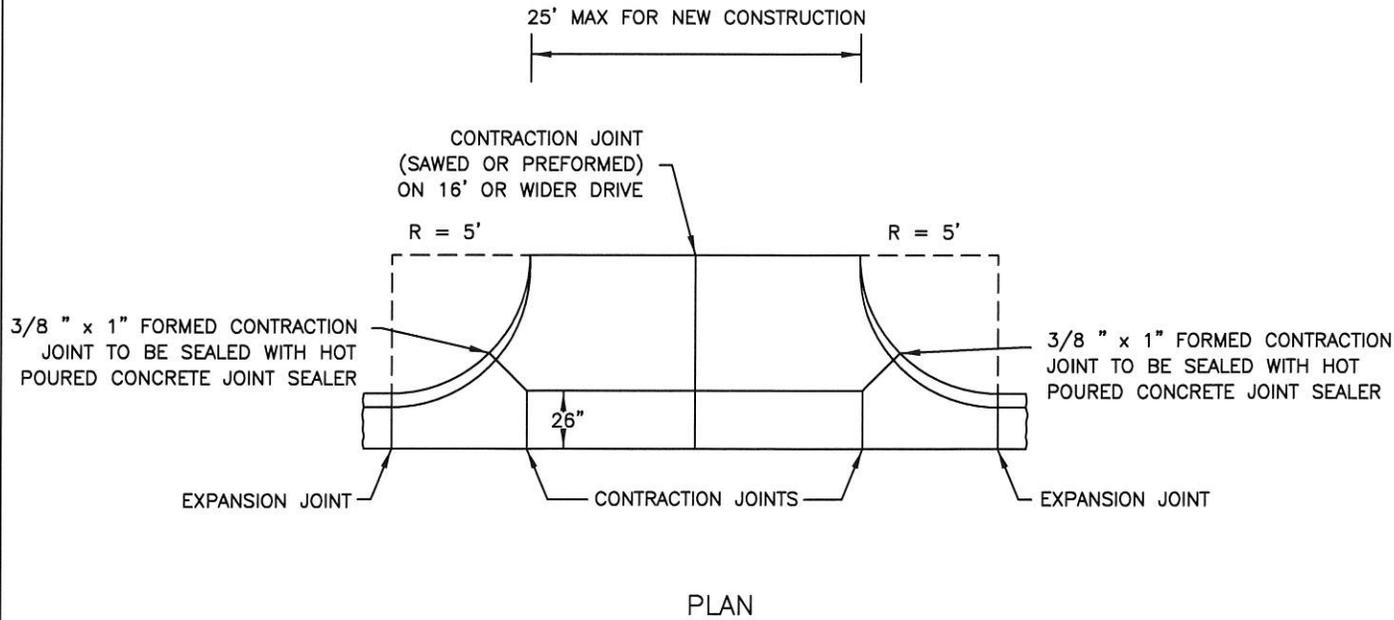
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

5004



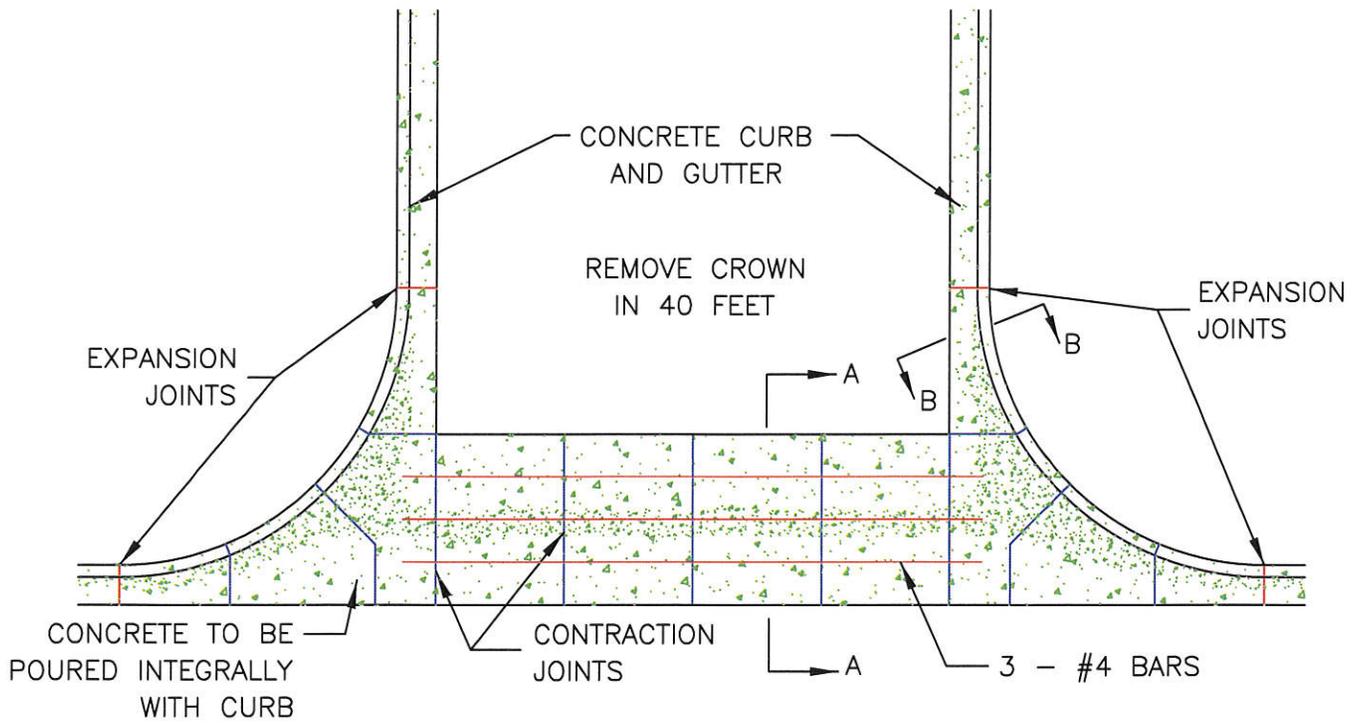
RESIDENTIAL DRIVEWAY
ENTRANCE

APPROVED:

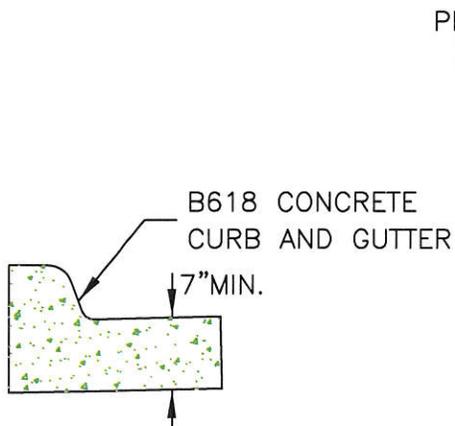
REVISION DATE: JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

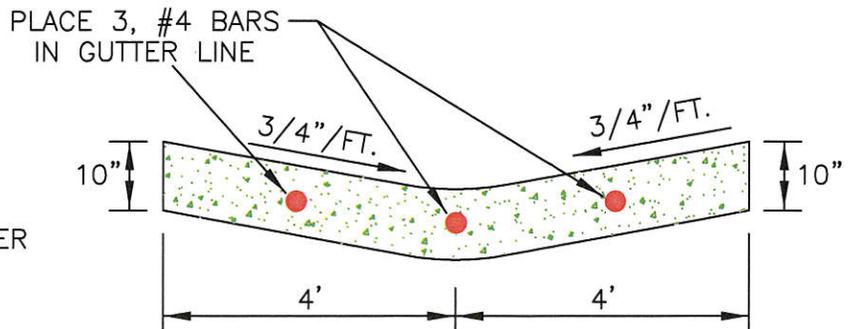
DETAIL NO:
5005



PLAN



SECTION B-B



SECTION A-A



COMMERCIAL DRIVEWAY
AND CROSS PAN

APPROVED:

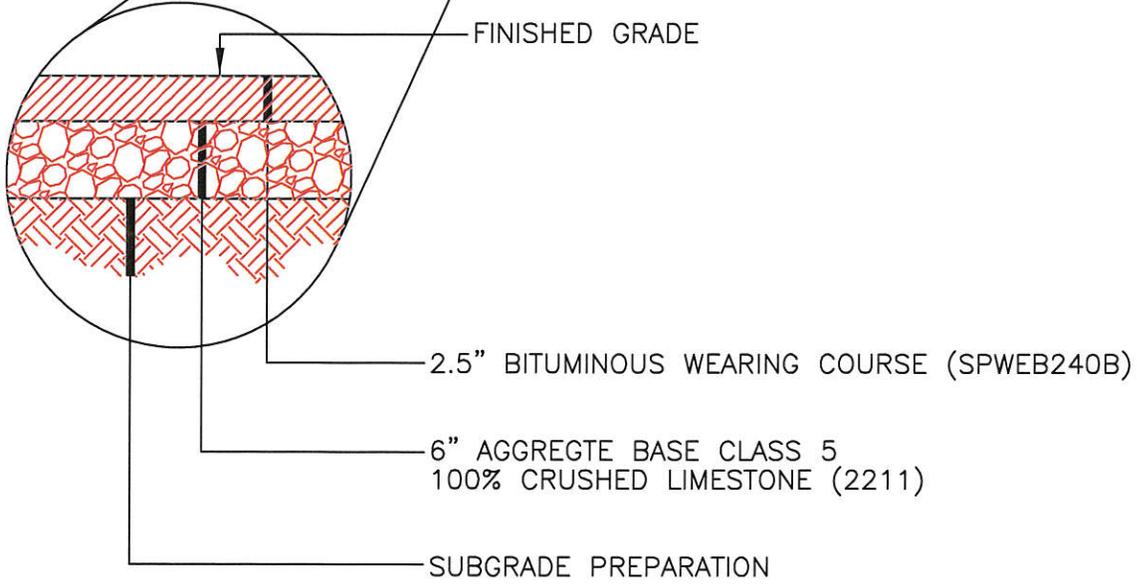
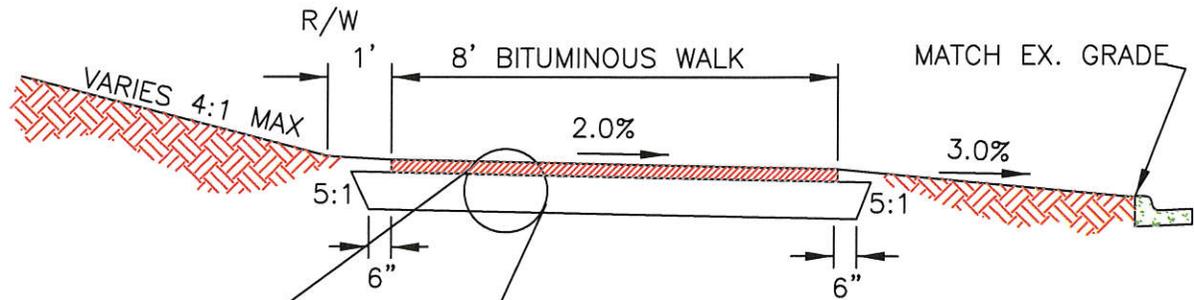
REVISION DATE:

JANUARY 2007

SHAKOPEE ENGINEERING DEPARTMENT

DETAIL NO:

5006



BITUMINOUS TRAIL

APPROVED:	
REVISION DATE:	MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
5007

TRAFFIC SIGN SPECIFICATIONS

MATERIAL:

ALUMINUM SHALL BE 5052-H38 OR 6061-T6 ALLOY.
 GAUGE SHALL BE: 0.080 ON THE LONGEST SIDE
 UP TO 30"
 0.100 ON THE LONGEST SIDE
 OVER 30"

REFLECTING SHEETING SHALL BE HIGH PERFORMANCE (DG3).

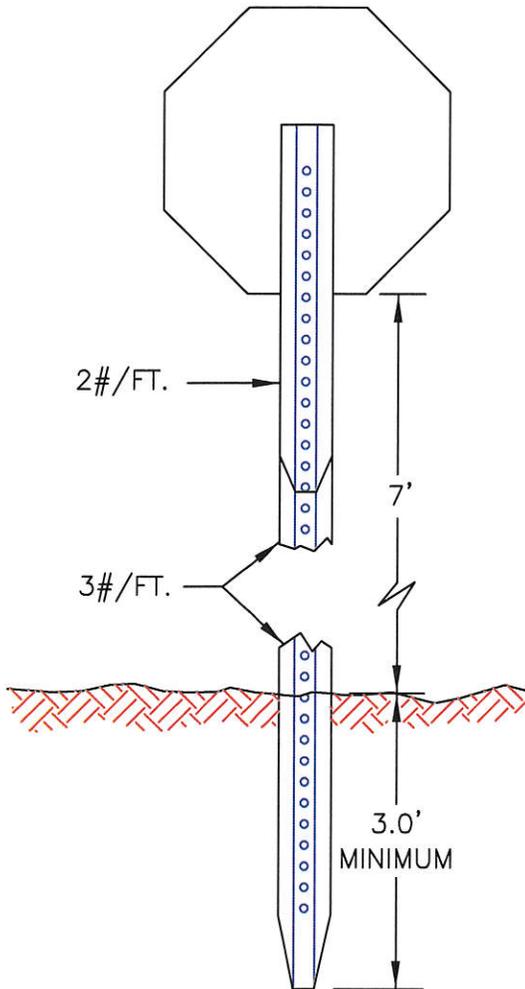
ALL SIGNS CONFORM TO SECTION 3352, SIGNS AND MARKERS STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

CHANNEL POST SPECIFICATIONS

STEEL CHANNEL POSTS SHALL WEIGH 2LB./FT. OR 3LB./FT. AS REQUIRED. POSTS SHALL BE PUNCHED ON 1" CC AND PAINTED GREEN. POSTS SHALL BE OF THE 4-RIB DESIGN. POSTS ARE TO BE 7 FEET IN LENGTH. POSTS MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

BOLTS, NUTS, AND WASHERS

HARDWARE SHALL BE GRADE 5 STEEL BOLTS W/ LOCKING NUTS MINIMUM AND BE GALVANIZED OR CADMIUM PLATED.



NOTE:
 TYPICAL SIGN INSTALLATION WHEN STREET
 NAME SIGNS ARE NOT INSTALLED

ALL SIGNS LOCATED IN CONCRETE MEDIANS SHALL HAVE AN ADDITIONAL BREAKAWAY SYSTEM APPROVED BY THE CITY OF SHAKOPEE PUBLIC WORKS DEPARTMENT PRIOR TO CONSTRUCTION.



TRAFFIC SIGN
 INSTALLATION

APPROVED:	
REVISION DATE:	MAY 2010
SHAKOPEE ENGINEERING DEPARTMENT	

DETAIL NO:
 5008