

**STANDARD SPECIFICATIONS  
AND  
DETAIL PLATES**

**TOWN OF ST. JOSEPH, WISCONSIN**

**2009**



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## TOWN OF ST. JOSEPH

### QUALITY ASSURANCE

#### PRECONSTRUCTION CONFERENCE

1. A preconstruction conference shall be scheduled by the Developer to ensure the understanding of and compliance with the approved Project Drawings and Specifications, and to discuss the schedule, methods, and means of construction and all other matters necessary to planning the Project work.
2. All pertinent parties shall attend or be represented, and specifically a representative from the Town of St. Joseph, St. Croix County Highway Department, St. Croix County LWCD, the Developer's Engineer and the Contractor's job site supervisor/foreman shall be in attendance.
3. At a minimum, the following items should be discussed at or received prior to the preconstruction conference:
  - Project Schedule - Submitted in bar chart form prior to the preconstruction conference for review and approval.
  - List of Subcontractors.
  - Applicable Permits Required.
4. The locations of construction facilities, staging areas, product stockpiles, material storage, and temporary construction should be decided upon at the preconstruction conference and shall be removed upon completion of work.

#### COORDINATION BY CONTRACTOR

1. Coordinate scheduling and work of the various sections of the Project Specifications to assure efficient and orderly sequence of installation of construction elements.
2. Cooperate with others performing work within and adjacent to the Project Site. Coordinate the sequence of the work of this Project and the use of Project space with the work of others as necessary to the efficient and orderly progress of the development of the Project Site as a whole.
3. Contractor and/or subcontractor shall have approved set of Drawings and Specifications on Project Site at all times during construction.

#### INSPECTION

1. Any work on the project shall be witnessed by an authorized Town representative and, if applicable, St. Croix County prior to acceptance by the Town. Notify the Town representative and St. Croix County 48 hours prior to commencing construction.

#### DEVELOPER'S RESPONSIBILITY

1. The developer or the developer's engineer shall be responsible to furnish the Town with the following:
  - Copies of all applicable quality control and/or materials test results.

- Statement saying construction was accomplished according to these approved Specifications.
- Payment for all costs associated with inspection by the Town of St. Joseph and St. Croix County.
- Payment for all costs (i.e.: labor, materials, transportation, and lab) attributed to the proper methods and procedures involved with all applicable tests and punch lists/defective work notices.

#### PERMITS AND LICENSES

1. All permits and licenses necessary for the execution of the Project shall be secured by the Contractor prior to the commencement of work.

#### PRIVATE UTILITIES

1. Contractor shall notify Digger's Hotline at 1 (800) 242-8511 prior to excavation for location of underground utility lines.
2. Notify local utility company personnel of schedule and sequence of work so that adequate control measures can be taken to locate and protect existing utility lines.
3. Cooperate with local utility company personnel in locating, moving, protecting, and working around in-place underground facilities.

#### SITE MAINTENANCE

1. Location of construction facilities, staging areas, product stockpiles, material storage, and temporary construction areas shall remain outside all Primary and Secondary Conservation Areas.
2. Contractor shall maintain stockpiles, excavations, access roads, and all other work areas free from dust. Contractor shall employ dust abatement techniques whenever a dust nuisance or hazard occurs, or as directed by the Town representative. Comply with all local ordinances.
3. Protect hazardous work areas and hazardous material storage areas.
4. Protect trees, unless specifically indicated for removal on the Project Drawings.
5. Clean access roads and haul routes with mechanical street sweeper.
6. If Contractor fails to maintain Project Site, Town of St. Joseph representatives will provide Written Notice of Contractor's defective work. Contractor will be given 24 hours from the Notice to clean Project Site. After the 24 hours, Town representative may correct and remedy the defective work with all associated costs incurred charged to Contractor.

#### EROSION AND SEDIMENT CONTROL

1. Contractor shall implement appropriate erosion control measures to prevent erosion and control sediment from leaving Project Site.
2. Comply with approved erosion and sediment control plan. Also comply with recommended practices as described in "Wisconsin Construction Site Best Management Practices."
3. Erosion control measures shall be installed prior to any grading activities.

4. Install silt fence where required or as directed to control erosion until vegetation is established in accordance with Detail Plate NO. ERO-1.
5. Furnish and apply water for dust control and compaction within the Project Site as necessary. This shall include application of water on weekends and holidays if necessary, as determined by Town representative.

#### TRAFFIC CONTROL

1. If proposed improvements will necessitate lane closures or internal traffic control signing to existing roadways, Contractor shall furnish, install, and maintain in proper order all traffic control devices needed to guide, warn, control, and protect traffic throughout the Project Site. All traffic control devices and other protective measures shall conform to the Wisconsin Manual on Uniform Traffic Control Devices (MUTCD) and WisDOT Standard Specifications.
2. Remove and dispose of all traffic control devices at the conclusion of the Project.
3. Maintain traffic to local residents and business at all times, unless a traffic control/detour plan providing for other provisions/access has been prepared and approved by the Town of St. Joseph and, if applicable, St. Croix County.
4. If and where required, flaggers and how they are used shall conform to the requirements set forth in the Wisconsin MUTCD.
5. The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices which become damaged, moved, or destroyed; of all lights which cease to function properly; and of all barricade weights which are damaged, destroyed, or otherwise fail to stabilize the barricades. The traffic control devices shall be checked at least twice daily, including once at the end of the workday for proper alignment, proper visibility, and reflectivity to ensure that all traffic control devices required by the construction conform to the MUTCD. The check shall include immediate correction of deficiencies. At least 1 night time inspection shall be made each week.
6. The Contractor shall not deposit materials, store materials, or park equipment on or alongside any roadway open to traffic if it in anyway interferes with the safe flow of traffic. The Contractor shall keep the "open to traffic" sections of roadway free from debris, dirt, etc. at all times. The Contractor shall provide such protective devices as may be necessary to protect traffic and pedestrians from all hazards of drop-offs and openings of any nature, from falling objects, splatter, and other hazards which may exist during construction operations.
7. The Contractor shall provide all signs, barricades, flashers, snow fence, and other means to protect his work and to protect pedestrians using the area abutting his work.
8. Keep all traffic control signs and devices in a legible condition. This shall include but not be limited to removing grime and dust deposited on any device by construction, traffic, or natural causes, or when requested by the Town of St. Joseph or St. Croix County.

END OF SECTION

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**TOWN OF ST. JOSEPH**

**FINAL PROJECT INSPECTION SUMMARY**



PROJECT NAME: \_\_\_\_\_ PROJECT LOCATION: \_\_\_\_\_

DEVELOPER: \_\_\_\_\_ ENGINEER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

**GENERAL PROJECT & MISC**

**DATE**

**INITIAL**

- |  |       |       |
|--|-------|-------|
| <input type="checkbox"/> Site Grading Checked and Approved.  | _____ | _____ |
| <input type="checkbox"/> Erosion Control Measures Properly Installed and Maintained.<br>Items removed at project completion. | _____ | _____ |
| <input type="checkbox"/> Turf Acceptably Established (30-day growing period).  | _____ | _____ |

**STORM SEWER**

- |   |       |       |
|---|-------|-------|
| <input type="checkbox"/> Culverts Properly Installed (size, location)           | _____ | _____ |
| <input type="checkbox"/> Aprons, FES's, Dissipators, Riprap Properly Installed. | _____ | _____ |

**ROADS**

- |   |       |       |
|---|-------|-------|
| <input type="checkbox"/> Sub-base Inspected and Approved                                | _____ | _____ |
| <input type="checkbox"/> Gravel base Inspected and Approved                             | _____ | _____ |
| <input type="checkbox"/> Bituminous Pavement Inspected and Approved                     | _____ | _____ |
| <input type="checkbox"/> Gravel Shoulders Placed (including compaction and sweeping)    | _____ | _____ |
| <input type="checkbox"/> Signs and Pavement Markings in Place.                          | _____ | _____ |
| <input type="checkbox"/> All driveways installed as per plan and Inspected and Approved | _____ | _____ |
| <input type="checkbox"/> Other:   | _____ | _____ |



SECTION 02315  
EXCAVATION AND FILL

1.01 SECTION INCLUDES

- A. Excavation and fill for roadways, foundations, channels, ponds, and other areas.

1.02 RELATED SECTIONS

- A. Section 02318 – Subgrade Preparation.

1.03 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" – most current edition including all current supplements (WisDOT):
  1. Section 205 – Roadway and Drainage Excavation.
  2. Section 207 – Embankment.
  3. Section 209 – Granular Backfill.
  4. Section 211 – Preparing the Foundation.

1.04 SUBMITTALS

- A. Submit the following items:
  1. Gradation tests for borrow materials.

1.05 DEFINITIONS

- A. The definitions of the different classifications of excavation and borrow material shall conform to WisDOT Spec. 205.2, or as modified herein:
  1. Grading Grade: Bottom of the aggregate base as shown on the Drawings.
  2. Common Excavation: In locations where the design cross-section is in a cut section, common excavation shall be classified as all excavation below the grading grade. In areas where the design cross-section is in a fill section, common excavation shall consist of excavation below topsoil stripping.
  3. Subgrade Excavation: Excavation and removal of soft and unstable soils within an established rough graded section.

## 1.06 QUALITY ASSURANCE

- A. Assist testing laboratory by excavating for density tests. Assist testing laboratory with obtaining material samples.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

- A. Granular Backfill:
  - 1. Conform to WisDOT Spec 209.2.2, Grade 2.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Conform to the following:
  - 1. Establish traffic control prior to excavations.
  - 2. Establish the specified erosion control devices according to WisDOT Section 628 – Erosion Control and Town of St. Joseph Standard Detail Plates, prior to all excavations.
  - 3. Notify utility companies of progress schedule so they can accomplish relocations, removals, and holding of lines.
  - 4. Strip topsoil in all areas required prior to performing any excavation.

### 3.02 PREPARATION OF EMBANKMENT

- A. Conform to WisDOT Spec. 207.3, or as modified herein:
  - 1. Engineer's approval is required of all areas where preparation work has been performed prior to the placement of the embankment or fill material.
  - 2. Where embankment is to be constructed over locations where the foundation material is unstable, the foundation shall be excavated to remove all or part of the unstable material.
  - 3. Use selected borrow material for upper portions of subgrade where subgrade excavation areas are performed.

### 3.03 EXCAVATION OPERATIONS

- A. Conform to WisDOT Spec. 205.3 and 208.3, or as modified herein:
  - 1. Perform excavations to grade as shown on the Drawings.
  - 2. Excavation of unstable material below grade shall be done under the direction of the Engineer as the subsurface conditions are disclosed.
  - 3. Remove muck excavation material by utilizing a backhoe, so as to minimize disruption to the bottom of the excavation.
  - 4. No solid rock will be allowed within 12 inches of the subgrade.
  - 6. Provide and maintain temporary drainage facilities until permanent facilities are completed.
  - 7. Cut, fill, and grade Project Site to elevations and contours shown on the Drawings, with allowances for pavements, topsoil, and structures.

### 3.04 DISPOSITION OF EXCAVATED MATERIAL

- A. Conform to WisDOT Spec. 205.3.10 and 205.3.11, or as modified herein:
  - 1. Strip topsoil prior to any excavation.
  - 2. Stockpile topsoil at a location on Project Site.
  - 3. Excavated material not used for embankments shall be disposed of off Project Site or as directed by the Town Engineer.

### 3.05 PLACING EMBANKMENTS

- A. Conform to WisDOT Spec. 207.3.

### 3.06 COMPACTING EMBANKMENTS

- A. Conform to WisDOT Spec. 207.3.6.3 and WisDOT Spec. 207.3.6.2, or as modified herein:
  - 1. Compaction required for embankment materials shall conform to the Specified Density Method with the testing location and rates being determined by the Town Engineer.

### 3.07 FINISH OPERATIONS

- A. Conform to WisDOT Spec. 211.

END OF SECTION

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SECTION 02318  
SUBGRADE PREPARATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Grading, shaping, and compacting subgrade prior to placing a base or surface course.

1.02 RELATED SECTIONS

- A. Section 02315 – Excavation and Fill.

1.03 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT):
  1. Section 205 – Roadway and Drainage Excavation.
  2. Section 207 – Embankment.
  3. Section 208 – Borrow.
  4. Section 211 – Preparing the Foundation.

1.04 SEQUENCING AND SCHEDULING

- A. Subgrade preparation shall be performed on the existing materials in the roadway prior to placement of the granular borrow.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 GENERAL

- A. Subgrade preparations shall be performed to produce the required density, grade, and cross-section.

### 3.02 PREPARATION

- A. Subgrade shall conform to the requirements of WisDOT Spec. 211.3.2.
- B. Inspection of subgrade by test rolling:
  - 1. The equipment used for test rolling shall be a Tandem Truck with a gross weight of 45,000 pounds.
  - 2. The roadbed will be considered unstable if yielding and rutting is greater than 1-1/2 inches.
  - 3. Make corrections to unstable subgrade by replacing unstable material with select granular borrow material as directed by the Town Engineer.

### 3.03 COMPACTION

- A. Conform to WisDOT Spec. 207.3.6.3, or as modified herein:
  - 1. For the Specified Density Method, the Town Engineer will sample and test the soils to determine the Maximum Density and Optimum Moisture.
  - 2. Compact the subgrade to 95 percent of the determined Maximum Density when more than 3 feet below the final grade. Compact the subgrade to 100 percent of the determined Maximum Density when less than 3 feet below the final grade.
  - 3. Density and moisture tests will be taken on the compacted subgrade, at the location and testing rates designated by the Town Engineer. Nuclear density testing shall be considered an approved method.

END OF SECTION

SECTION 02370  
PERMANENT EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Restoration of construction area by establishment of permanent vegetation.
- B. Installation, inspection, and maintenance of permanent soil stabilization systems.
- C. Installation, inspection, and maintenance of permanent sediment control BMP's.
- D. Removal of temporary erosion and sediment control BMP's.

1.02 REFERENCES

- A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT):
  - 1. Section 628 - Erosion Control.
- B. Wisconsin Construction Site Best Management Practice Handbook.

1.03 DEFINITIONS

- A. Weed Free: Organic materials used for vegetation establishment or soil stabilization that are certified to contain less than a specified amount of plant or seed material from undesirable species such as thistle and leafy spurge.

1.04 SUBMITTALS

- A. Submit at least 2 days prior to application seed bag tags for non-native seed mixes indicating the contents are in conformance with Specifications.

1.05 REGULATORY REQUIREMENTS

- A. Comply with Regulatory Agency Requirements for fertilizer and herbicide compositions.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Seed:
  - 1. Seed shall be delivered in sealed, undamaged bags.

2. Seed shall be delivered in air-dried condition.
  3. Store Seed Properly:
    - a. 50 degrees F.
    - b. 50 percent humidity.
- B. Mulch:
1. Mulch shall be delivered in air-dried condition.
  2. Protect mulch from damage from moisture.

#### 1.07 WARRANTY

- A. Provide a warranty on work of this Section for a minimum of 12 months, including 1 continuous growing season. Commence warranty once work is complete as certified by the Town.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Mulch: Conform to WisDOT Spec. 627.
- B. Seed: Conform to WisDOT Spec. 630:
1. Seed Mixture No. 20 and 40 as specified.
- C. Erosion Mat:
1. Shall conform to the requirements of WisDOT Spec. 628.2. Erosion Mat:
    - a. Staples: U-shaped, 8 inch, 11 gauge metal staples, or approved equal.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Verify that sub-soils have been graded and compacted to the correct elevations.
- B. Verify the soil preparation has been completed such that success of vegetation will be maximized.

- C. Commencement of work in this Section implies prior acceptance of Project Site conditions by the Town.

### 3.02 SEQUENCING AND SCHEDULING

#### A. Restoration and Final Stabilization:

1. Final stabilization will be completed within 5 calendar days of completion of final grading operations or by end of day Friday, whichever is sooner. Restoration and final stabilization consists of:
  - a. Seed and mulch.
  - b. Seed and blanket.
  - c. Installation of permanent structural ESC BMP's.
2. Final stabilization may be done after 5 days after final grading only if a protective layer of straw mulch or other soil protection approved by Town is applied within the 5 day period, and only when approved by Town.

B. Apply seed and install all other permanent BMP's per Specifications found in Paragraph 3.04 - Installation.

C. Protect established turf areas during operations and repair damaged ones resulting from operations.

D. In or near wetland areas, as directed by the Town, final grading shall be done such that these areas will be restored to original grade and elevation.

### 3.03 EROSION AND SEDIMENT CONTROL PLAN

A. The Town Engineer and St. Croix County LWCD will inspect the ESC measures, inform the Contractor of required maintenance, and maintain written records of the inspections.

### 3.04 INSTALLATION

#### A. Soil Preparation:

1. Native topsoil will be stripped and stored separately.
2. Conform to WisDOT Spec. 625.3.
3. Scarify subsoil to a depth of 4 inches where topsoil is to be placed.

4. Topsoiling:
  - a. A layer of native topsoil at least 4 inches thick shall be replaced on all areas to be restored with permanent vegetation.
  - b. Fine grade topsoil eliminating rough or low areas. Maintain profiles and contour of subgrade while spreading.
  - c. Rake to remove roots, weeds, large soil clods, rocks over 3 inch size, and foreign material.
  - d. Manually spread topsoil close to trees, plants, and structures to prevent damage.
  - e. Remove surplus subsoil and topsoil from Project Site.
  - f. Final grading shall be performed perpendicular to the contours of the slope (up and down the hill).

B. Seed Application:

1. General:
  - a. Seed having any type of damage from moisture will not be used.
2. Rate of Application: WisDOT Spec. 630.3.3.5.
3. Slope/Method:
  - a. Slopes 3:1 or steeper shall be seeded by a "seed and stabilize" method specified below.
  - b. Slopes flatter than 3:1 shall be seeded by the "seed and mulch" method specified below.

C. Seed and Mulch:

1. Prepare soil as specified in Paragraph 3.04.A.
2. Apply seed at rates specified in Paragraph 3.04.B and according to the seed type coverage shown in the Drawings.
3. Seed will be installed conforming to WisDOT Spec. 630.3.3:
  - a. If Method A is utilized, seed will be distributed using a "cyclone" type broadcaster.

- b. Mulch will conform to WisDOT Method C Specifications, will be applied with blower equipment, and will be disc anchored immediately after placement.
      - c. Fertilizer is not required.
    - 4. Apply water with a fine spray immediately after each area has been mulched at a rate that will not cause surface runoff and erosion. Keep seed moist until it germinates.
  - D. Seed and Stabilize (Erosion Mat):
    - 1. Prepare soil as specified in Paragraph 3.04.A.
    - 2. Apply seed at rates specified in Paragraph 3.04.B and according to the seed type coverage shown in the Drawings:
      - a. Seed shall be installed prior to blanket installation using a cyclone type broadcast seeder.
      - b. The Project Site shall be harrowed or raked parallel to the slope contours following seeding.
    - 3. Install erosion mat in accordance with the appropriate provisions of WisDOT Spec. 628.3.2 and in accordance with manufacturer's specifications immediately following seeding with the following minimum requirements:
      - a. Unroll the blanket from the top to the bottom of the slope.
      - b. Wire staples (11 gauge, 8 inch) shall be installed in 36 inch on-center intervals through the surface area of the blanket.
      - c. A leading anchor trench shall be placed at the top of the slope and shall be a minimum of 6 inches deep with stapling (in the trench) at 18 inch intervals.
      - d. Leading and terminal sides of the blanket shall be stapled along the edge in 18 inch intervals.
      - e. Overlap adjacent side edges and end-to-end edges (shingle) a minimum of 6 inches and staple at 18 inch intervals.
  - E. Failure to install permanent erosion control measures in compliance with these Specifications will result in denial of Town acceptance.

### 3.05 PROTECTION

- A. All temporary and permanent erosion and sediment control BMP's shall be protected from potential damage due to continued operations.
- B. Vehicle, equipment, and continual/concentrated pedestrian traffic across seeded areas are prohibited.

### 3.06 MAINTENANCE

- A. Begin maintenance immediately after installation.
- B. When directed by the Town, re-mulch or any areas on which the original mulch has eroded, washed away, or blown off, and reseed any areas on which the original seed has failed to grow, using the seed mixture shown on the Drawings.
- C. Repeat scarification of subsoil and other necessary soil preparation measures in areas where equipment used for hauling and spreading topsoil has compacted the subsoil or previously placed and prepared topsoil. Repeat soil preparation due to compaction from construction activities.
- D. Repeat soil preparation, seeding, and specified covering of exposed soil where an excess rain event has washed away top soil, seed, and soil cover.
- E. Watering of seeded areas for a period of 30 days from installation, sufficient to ensure establishment of permanent vegetation is required.

### 3.07 PROJECT CLOSEOUT

- A. Cleanup and Restoration:
  - 1. Keep pavements clean and work area in an orderly condition.
  - 2. Collect and dispose of all excess materials, packaging, and containers.
- B. All wetland areas shown in the Drawings which are disturbed by activities associated with this Project Site shall be final graded to their original contours.
- C. Unless required to remain in place by any landowner or permitting authority, all temporary non-degradable ESC measures shall be removed no more than 1 month after final stabilization has been approved by the Town.
- D. After final stabilization has been approved by the Town, all permanent BMP's shall be cleaned out (sediment removal) by the Contractor to provide the original storage volume.

END OF SECTION

SECTION 02630  
STORM DRAINAGE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Corrugated steel storm sewer pipe.
- B. Riprap.

1.02 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT):
  - 1. Section 521 – Corrugated Steel Pipe Culverts.
  - 2. Section 606 – Riprap.
- B. American Society of Testing and Materials (ASTM):
  - 1. A48 – Specification for Gray Iron Castings.
  - 2. A153 – Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - 3. A615 – Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  - 4. A760 – Specification for Corrugated Steel Pipe, Metallic – Coated for Sewers and Drains.
  - 5. C76 – Specification for Reinforced Concrete Culvert, Drain, and Sewer Pipe.
  - 6. C150 – Specification for Portland Cement.
  - 7. C206 – Specification for Finishing Hydrated Lime.
  - 8. C361 – Specification for Reinforced Concrete Low Head Pressure Pipe.
  - 9. C443 – Specification for Joints for Circular Concrete Sewer and Pipe, Using Rubber Gaskets.

### 1.03 SUBMITTALS

- A. Manufacturer's Certificate of Compliance for corrugated steel pipe and endwalls.
- B. Manufacturer's Certificate of Compliance for:
  - 1. Gray iron castings.
  - 2. Storm sewer pipe.
  - 3. Rip rap.

### 1.04 DEFENITIONS

- A. Bedding: The soil material adjacent to the pipe which makes contact with the pipe foundation, walls of the trench, and upper level of backfill. The purpose of bedding is to secure the pipe to true line and grade, and to provide structural support to the pipe barrel.
- B. Foundation: Soil material beneath the pipe bedding.

### 1.05 SEQUENCING AND SCHEDULING

- A. Do not pursue work causing shut-off of utility service (gas, water, electric, telephone, TV, etc.) to consumers until the utility owner is contacted and all consumers are notified of the shut-off schedule.
- B. Strip off and stockpile existing topsoil before commencement of trench excavation.
- C. Backfill all trench excavations promptly after pipe is laid.

### 1.06 PROJECT SITE CONDITIONS

- A. Storm drainage lines are shown on the Drawings in a general way. Contractor should anticipate minor variations in both horizontal and vertical directions in locating existing system.

### 1.07 WARRANTY

- A. Trench settlements which occur during the warranty period that are greater than 1 inch as measured by a 10 foot straight edge will be repaired by the Contractor in a manner that is acceptable to the Town.

## PART 2 – PRODUCTS

### 2.01 CORRUGATED STEEL PIPE AND ENDWALLS

- A. Corrugated steel shall conform to the requirements of WisDOT Spec. 521.2.

### 2.02 PIPE BEDDING MATERIAL

- A. Pipe bedding shall be the undisturbed native soil. If the native soil is unsuitable, the Contractor shall provide granular bedding as described in WisDOT Spec. 520.3.2.1.

### 2.03 BACKFILL MATERIAL

- A. Suitable materials selected from the excavated materials to the extent available and practical.
- B. Suitable materials are mineral soils free of rubbish, trees, stumps, branches, debris, frozen soil, oversize stone, concrete and bituminous chunks, and other similar unsuitable material. If suitable soils are not readily available, the Contractor shall provide granular backfill conforming to WisDOT Spec. 209.2 – Grade 2.

### 2.04 RIPRAP

- A. Riprap shall conform to the requirements of WisDOT Spec. 606.2 for medium riprap.

### 2.05 GEOTEXTILE FABRIC, TYPE R

- A. Conform to the requirements of WisDOT Spec. 645.2.6.

### 2.06 CONCRETE MATERIALS

- A. Standard Portland Cement Type 1, clean washed sand and crushed rock and gravel free from deleterious materials for monolithic concrete manholes and all manhole bases.
- B. Portland Cement: Comply with the requirements of ASTM C150
- C. Design Mix: Subject to the approval of the City Engineer. Use proper water-cement ratio to obtain (4000 psi) in 28 days.
- D. Mortar Materials:
  - 1. Cement: Type 1 Standard Portland Cement conforming to ASTM C150.
  - 2. Lime: Normal finishing hydrated lime meeting the requirements of ASTM C206.

3. Mix Proportions:
  - a. 1 part cement to 3 parts of suitable plaster sand for mortar used for plastering the exterior walls of block manholes and catch basins, adjusting rings, and lift holes. Use lime or mortar mix in the amount necessary to make a suitable mixture for plastering purposes, but not to exceed 15 percent by volume.
  - b. 1 part Portland cement to 2 parts of sand to which lime or mortar mix may be added but not to exceed 15 percent by volume for mortar used for laying concrete block.
- E. Reinforcing Steel: Comply with the requirements of ASTM A615, Grade 60.
- F. Reinforced Concrete (RCP) Pipe and Fittings:
  1. General Requirement: ASTM C76, Wall B with circular reinforcing.
  2. Materials: Conform to the requirements of ASTM C76, Wall B with circular reinforcing. O-ring gaskets shall be synthetic rubber, circular reinforcing in cross-section, and shall conform to ASTM C361.
  3. Pipe Joints: Bell and spigot ASTM C361.
  4. Pipe Class: As shown on the Drawings.
  5. Marking: Each pipe shall be identified with the name of the manufacturer trade name or trademark and code, identification of plant, date of manufacture, and the pipe class and specification design.

## 2.07 TRASH GUARDS

- A. General:
  1. General Requirement: ASTM A153.
  2. Materials: Galvanized steel rods meeting the requirements in ASTM A153.
  3. Bar size and configuration as shown on the Drawings.
  4. Securely attached to end section.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

#### A. Corrugated Steel Pipe and Endwalls:

1. Conform to the requirements of WisDOT Spec. 521.3, except as modified below:
  - a. Contact Digger's Hotline (1-800-242-8511) to have utility owners field mark their utility locations and verify exact locations of existing utilities.
  - b. Excavate to expose existing utilities that cross in close proximity to the planned pipe line to determine the utility's exact location sufficiently ahead of pipe installation to plan for the avoidance of grade conflict. A deviation from the alignment, grade, and location to avoid conflict may be ordered by the Engineer, if in his opinion an alternate alignment, grade, or location is more feasible.
  - c. Install and maintain barricades, guards, and warning lights as necessary to protect persons from injury and to avoid property damage.
  - d. Excavate trench to alignment and grade shown on Drawings and staked by the Engineer.
  - e. Pile all excavated material in a manner that will not endanger or damage trees designated to be saved.
  - f. Segregate soils in the excavated material that are not suitable for trench backfill and dispose of them off of the Project Site.
  - g. Dewater the ground as necessary to excavate the trench and install the pipe and structures.
  - h. Direct all surface and groundwater discharges to natural drainage channels, drains, or storm sewers.

#### B. Seepage Collar:

1. Install approved seepage collar at all corrugated steel pipe joints.

#### C. Reinforced Concrete Pipe Installation:

1. Contact Digger's Hotline (1-800-242-8511) to have utility owners field mark their utility locations and verify exact locations of existing utilities.

2. Excavate to expose existing utilities that cross in close proximity to the planned pipe line to determine the utility's exact location sufficiently ahead of pipe installation to plan for the avoidance of grade conflict. A deviation from the alignment, grade, and location to avoid conflict may be ordered by the Engineer, if in his opinion an alternate alignment, grade, or location is more feasible.
3. Install and maintain barricades, guards, and warning lights as necessary to protect persons from injury and to avoid property damage.
4. Lay and maintain pipe appurtenances to the alignment, grade, and location shown on the Drawings and/or staked in the field. No deviation from the Drawing and/or staked alignment, grade, or location is allowed, unless approved by Engineer. Deviation from grade in excess of 0.05 percent may be cause for removal and relaying pipe at the Contractor's expense.
5. General Pipe Installation Procedures:
  - a. Wipe joints clean; apply the manufacturer's recommended lubricant compound over the entire joint surface; center spigot in bell and push spigot home; take care to prevent dirt from entering the joint space; bring pipe to proper line and grade, and secure pipe in place by properly bedding.
6. Lay pipe upgrade with spigot ends pointing in the direction of flow.
7. All joints must be watertight.
8. Remove all foreign matter or dirt from inside the pipe. Keep the bell and spigot clean during and after installation. Take care to prevent dirt from entering the joint space. Remove any superfluous material from inside the pipe after pipe installation by means of an approved follower or scraper.
9. Where cut-ins make it impossible to construct bell and spigot joints or when dissimilar pipe materials are joined, a reinforced concrete collar shall be placed completely surrounding the joint or the connection shall be made by using an approved adapter.
10. Any pipe which has been disturbed after being laid must be taken up, the joint cleaned and properly relaid as directed by the Engineer.
11. Where a sewer line outlets to grade or where the line is terminated with a flared end section:
  - a. Fasten at least the last 3 joints together using 2 "U" bolt fasteners per joint approved and as recommended by the pipe manufacturers.

- C. Riprap:
  - 1. Conform to the requirements of WisDOT Spec. 606.3.3 for medium riprap.
- D. Geotextile Fabric, Type R:
  - 1. Conform to the requirements of WisDOT Spec. 645.3.6.

### 3.02 FIELD QUALITY CONTROL

- A. Cleaning:
  - 1. Cleaning of storm drainage pipes will be required if the pipes become dirty due to negligence of the Contractor.
  - 2. Complete prior to final inspection for acceptance.
- B. Required Tests and Inspections:
  - 1. Lamping:
    - a. Lamping shall be done by the Town Engineer to verify that the installed pipe is structurally sound, there and are no broken or deflected pipe, and the pipe joints are properly connected.

### 3.03 PROTECTION

- A. Establish erosion control measures as Town standards.

END OF SECTION

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SECTION 02720  
AGGREGATE BASE COURSE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Production and placement of dense graded base course for roadway and driveway base material.

1.02 RELATED SECTIONS

- A. Section 02740 – Hot Mix Asphalt Pavement.

1.03 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT):
  - 1. Section 301 – General Requirements for Base Aggregates.
  - 2. Section 305 – Dense Graded Base.

1.04 DEFINITIONS

- A. Subgrade: Subgrade shall be considered the native material found directly below the material being used for the road section as shown on Drawings.
- B. Subbase: Subbase shall be considered the granular material placed directly below the aggregate base as shown on Drawings.

1.05 SEQUENCING AND SCHEDULING

- A. Place aggregate base only after all of the following have been completed to the satisfaction of the Town Engineer:
  - 1. Subgrade has been corrected for instability problems and successfully passed the rolling test.
  - 2. Subgrade has been checked for conformance to line and grade tolerances (string line).
  - 3. Subbase has been checked for conformance to line and grade tolerances (string line).

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Dense Graded Base: Conform to the requirements of WisDOT Section 305.2, 100 Percent Crushed Stone, except as modified below:
  - 1. Use 3/4 inch (19.0 mm) aggregate for all dense graded base course.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Confirm Town Engineer's acceptance of the subgrade before placing dense graded base course.

### 3.02 PREPARATION

- A. Prepare the subgrade in accordance with WisDOT Section 301.3.2.

### 3.03 CONSTRUCTION METHODS

- A. Construct the Dense Graded Base Course in accordance with the requirements of WisDOT 305.3, except as modified below:
  - 1. Compact the aggregate base according to WisDOT 301.3.4.3 – Special Compaction, except that each layer shall be compacted to 100 percent of the determined maximum density using a Standard Proctor Test.

### 3.04 FIELD QUALITY CONTROL

- A. The Town Engineer will sample the aggregate base at the Project Site. The rate of sampling is at the discretion of the Engineer. The samples will be submitted to a testing lab to be tested for proof of conformance to material gradation, determination of maximum density and optimum moisture, and other quality requirements.
- B. Density and moisture tests will be taken on the compacted aggregate base, at the location and testing rates designated by the Town Engineer. Nuclear density testing shall be considered an approved method.
- C. Tolerance: The finished surface of the aggregate base shall not vary more than 0.03 foot above or below the prescribed elevation at any point where measurement is made. Maintain base course until bituminous surface has been installed.

END OF SECTION

SECTION 02740  
HOT MIX ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Requirements for bituminous street surfacing.
- B. Requirements for bituminous driveway surfacing.

1.02 RELATED SECTIONS

- A. Section 02720 - Crushed Aggregate Base Course.

1.03 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT). Conform to the requirements of the following WisDOT Sections, except as modified herein:
  - 1. Section 450 – General Requirements for Asphaltic Pavements.
  - 2. Section 455 – Asphaltic Materials.
  - 3. Section 460 – Hot Mix Asphalt Paving.
  - 4. Section 465 – Asphaltic Surface.

1.04 SUBMITTALS

- A. Submit mix design(s) at the preconstruction conference that will be used on the Project. If mix design is not available at the time of the preconstruction conference, submit mix design at least 15 days before commencement of paving.

1.05 QUALITY CONTROL

- A. Provide and maintain a QC Program conforming to WisDOT Sections 460.2.8 – Quality Management Program, except as modified below:
  - 1. Engineer shall have authority to increase frequency of testing.

1.06 SEQUENCING AND SCHEDULING

- A. Obtain approval of Aggregate Base and Concrete Curb and Gutter from the Town Engineer before commencing pavement construction.

- B. The Contractor shall provide a 48 hour notice for scheduling and noticing of the residents prior to paving operations.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Mixture shall conform to WisDOT Section 460 – Table 460-2, except as modified on typical section Detail Drawings.
- B. Aggregate shall conform to the gradation requirements of WisDOT Section 460.2.2, except as modified below:
  - 1. Nominal size of aggregate shall be 1/2 inch for all mixtures, unless otherwise approved by Town Engineer.
  - 2. Thickness of lift shall be as shown on Drawings.
- C. Asphaltic Binder in Mixture: Conform to the requirements of WisDOT Section 455.2, except as modified below:
  - 1. Asphaltic binder in mixture shall be PG 58-28, unless otherwise approved by Town Engineer.
- D. Bituminous Materials for Tack Coat shall conform to the requirements of WisDOT Section 455.2.5 for type CSS-1 tack coat, or approved equal.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Dense Graded Aggregate Base Course: Prepare the Dense Graded Aggregate Base Course as required in Section 02720 - Crushed Aggregate Base Course.
- B. Hot Mix Asphalt:
  - 1. Apply tack at the rate of 0.05 gallon per square yard.
  - 2. Tack the full surface of in-place street before paving.
  - 3. Tack full face of existing bituminous transitions, including patches.

### 3.02 CONSTRUCTION

- A. The Contractor to review the proposed paving sequence with the Engineer prior to placement of each bituminous course (lift).

- B. The proposed sequence shall address the longitudinal seams, compaction, traffic control, hauling routes, and placement of pavement markings.
- C. Where new construction meets existing bituminous, the existing surface shall have straightly and neatly cut edges to the full depth of pavement as directed by Town Engineer.
- D. Preparation of bituminous surface shall include final clean up of the surface with the use of a pickup broom and front end loader.
- E. A rubber tire roller shall be used on the bituminous surface course to finish the final paved surface as specified and at the direction of the Town Engineer.

### 3.03 RESTRICTIONS

- A. Existing bituminous surfaces and aggregate bases must be dry prior and during placement of any bituminous pavements.
- B. Wearing course shall not be placed when the air temperature in the shade and away from artificial heat is 50 degrees or less, unless otherwise approved by the Town Engineer.

### 3.04 THICKNESS REQUIREMENTS

- A. Conform to Section 460.3.2, except as modified herein:
  - 1. After compaction, the thickness of each course shall be within 1/8 inch of the thickness shown on the Drawings.
  - 2. The Town Engineer may require end of Project core samples for verification of pavement thickness and uniformity.

### 3.05 PAVEMENT DENSITY

- A. Conform to the requirements of WisDOT Section 460.3.3 "Minimum Required Density," except as modified:
  - 1. Measurement of pavement density shall be by nuclear density.
  - 2. Required minimum compaction is 91.5 percent of the target maximum density. Target maximum density shall be determined each day by the Contractor using a Standard Rice Test. Contractor shall provide the target maximum density to the Engineer at the start of paving operations.
- B. Driveways and patching shall conform to Section 450.3.2.6.2 – Ordinary Compaction.

END OF SECTION

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SECTION 02760  
BITUMINOUS JOINT CONSTRUCTION

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Joint construction for bituminous pavements by a method of saw and seal.

1.02 RELATED SECTIONS

- A. Section 02740 – Hot Mix Asphalt Pavement.

1.03 REFERENCES

- A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction," – most current edition including all current supplements (WisDOT).

1.04 SUBMITTALS

- A. Submit the Following Items:
  - 1. Product and data sheet for joint sealant material.
  - 2. Manufacturer's recommendations pertaining to heating and application of joint sealant.

1.05 DEFINITIONS

- A. Saw and Seal: Saw cutting and sealing transverse joints in new bituminous pavements.

1.06 SEQUENCING AND SCHEDULING

- A. Saw and seal of joints shall be completed no sooner than 48 hours following the wear course placement.

## PART 2 – PRODUCTS

### 2.01 JOINT SEALANT MATERIALS

- A. Conform to WisDOT Spec., except as modified herein:
  - 1. Saw and Seal:
    - a. Flexible at –30 degrees F. (capable of being bent over without cracking).
    - b. Proven successful in the field in Wisconsin during the last 2 years.
  - 2. Packaged In Sealed Containers Marked With: Name of manufacturer, trade name of sealant, manufacturer's batch and lot number, pouring temperature, and safe heating temperature.
  - 3. Bond Breaker Tape for Saw and Seal:
    - a. Regular masking tape or a suitable bond breaker tape designed for use with hot pour sealants.
    - b. Width: Equal to but not more than 1/8 inch narrower than the width of the saw cut.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Perform bituminous joint construction operations during daylight hours.
- B. Establish traffic control which is compatible to the operations being performed.

### 3.02 PREPARATION

- A. Weather Limitations:
  - 1. The existing bituminous surface must be dry prior to performing the joint construction work.
  - 2. Air temperature in the shade and away from artificial heat sources is at least 40° F.

### 3.03 SAWCUTTING OF JOINTS

- A. Saw and seal joints shall be cut using blades of such size and configuration such that the resulting joint reservoir shape conforms to Detail Plate RD-7 details on the Drawings:

1. A single saw cut shall be made if the configuration consists of multiple reservoir shape.
  2. Extend the full width of the pavement.
  3. Dry or wet cutting is allowed.
- B. Joint Reservoir Size:
1. Saw and Seal: 1/2 inch wide, 5/8 inch depth.
- C. Saw and Seal joints shall have a longitudinal spacing of 50 feet, or as directed by Town Engineer.

### 3.04 CLEANING JOINTS

- A. Dry Sawed Joints:
1. Clean thoroughly with a 100 psi air blast to remove any dust, dirt, or deleterious matter adhering to the joint walls or in the joint cavity.
  2. Blow or brush the dry dust and material off the pavement surface.
- B. Wet Sawed Joints:
1. Clean thoroughly with a 50 psi water blast immediately after sawing to remove any slurry dirt or deleterious matter adhering to the joint walls or in the joint cavity.
  2. Dry with a 100 psi air blast.
  3. Re-clean joint with a water blast if the air blast produces dirt or other residue from the joint cavity.
  4. Immediately flush all sawing slurry from the pavement surface.

### 3.05 HEATING JOINTS

- A. Dry and warm joints with a hot compressed air heat lance immediately prior to placing the sealant:
1. Temperature of Air at Exiting Orifice: At least 2,800° F.
  2. Velocity of Exiting Heated Air: At least 2,800 fps.

### 3.06 SEALING

- A. Heat sealant material in a kettle or melter constructed as a double boiler with the space between the inner and outer shells filled with oil or other heat transfer medium.

- B. Heat or insulate applicator wand to maintain the pouring temperature of the sealant during the placement operations.
- C. Do not use pour pots or similar devices to fill sawed joints.
- D. Adhere to Manufacturer's Recommendations:
  - 1. Do not let field application equipment exceed the safe heating temperature recommended by manufacturer.
- E. Do not heat sealant material at pouring temperature for more than 6 hours.
- F. Do not re-heat sealant material.
- G. Saw and Seal:
  - 1. Place bond breaker tape in the bottom of the saw cut joint after cleaning and just prior to sealing.
  - 2. After cooling, the level of the sealer will not be greater than 1/8 inch below the pavement or shoulder surface.
  - 3. Do not over fill joints.
  - 4. Do not spread sand on sealed joints to allow for opening to traffic.
  - 5. Sealant must be tack free prior to opening to traffic.

### 3.07 FIELD QUALITY CONTROL

- A. Final results of cleaning joint subject to Town Engineer's approval.
- B. Application time of sealing is subject to Town Engineer's approval.
- C. Do not place sealant if Town Engineer determines the weather and roadbed conditions to be unfavorable.
- D. Final appearance of sealed joint will present a neat, fine line.

END OF SECTION

SECTION 02766  
PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Permanent pavement markings.

1.02 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT):
  - 1. Section 646 – Pavement Markings.
- B. State of Wisconsin Department of Transportation Facilities Development Manual Standard Detail Drawings 15C7-1 and 15C8-3.
- C. The Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) – 2003 Edition.
- D. The Wisconsin Manual on Uniform Traffic Control Devices (MUTCD) - Latest edition.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Upon delivery to the Project Site, the Contractor shall store the materials at least 10 feet away from any construction areas or traveled roadways. Vehicles and equipment shall not be stored, even temporarily, in the buffer zone of the work area or where it would be so close to moving traffic that it is in the judgment of the Engineer a potential hazard to motorists.

1.04 MAINTENANCE

- A. The Contractor shall maintain pavement markings in accordance with the Contract, the Traffic Control Plan, the FHWA MUTCD, the Wisconsin MUTCD, or as directed by the Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All permanent pavement markings shall be epoxy and conform to the applicable requirements of WisDOT Spec. 646.2.4. No Glass Beads.

## 2.02 EQUIPMENT

- A. All pavement marking equipment shall conform to the applicable requirements of WisDOT Spec. 646.3.2.

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. The Engineer shall be notified at least 48 hours prior to the Contractor applying any pavement markings so all staking and preliminary marking may be accomplished.
- B. The pavement marking crew shall include at least 1 technical expert knowledgeable in each of the following areas:
  - 1. Equipment operation.
  - 2. Application techniques.
  - 3. Traffic control.
  - 4. Safety regulations.
- C. 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 material.
- D. All permanent pavement marking work shall conform to WisDOT Spec. 646.3.

### 3.02 SCHEDULE

- A. Painting of Pavement Markings:
  - 1. Place permanent pavement markings following completion of bituminous wear course:
    - a. No sooner than 24 hours after placement of bituminous.
    - b. Within 5 working days of completion of bituminous placement.

### 3.03 PREPARATION

- A. Locations:
  - 1. Apply as shown on the Drawings, or as directed by the Engineer.

B. Bituminous Surface:

1. Engineer may direct cleaning of surface as necessary immediately prior to marking application:
  - a. The Contractor shall clean the roadway surface in accordance with WisDOT Spec. 646.3.3.2 prior to the placement of all pavement markings.

3.04 APPLICATION

A. General:

1. Tolerance:
  - a. Width: A tolerance of 1/4 inch under or 1/4 inch over the specified width will be allowed for striping provided the variation is gradual and does not detract from the general appearance. Striping found to be outside of the acceptable tolerance limits shall be re-striped at no cost to the Town.
2. Conditions:
  - a. Markings shall not be applied when 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.
  - b. Pavement markings shall only be applied in seasonable weather when air temperature is 50 degrees F or higher.

END OF SECTION

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SECTION 02920  
TURF ESTABLISHMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Requirements for seeding, mulching, and fertilizer.

1.02 REFERENCES

- A. State of Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - most current edition including all current supplements (WisDOT):
  - 1. Section 627 - Mulching.
  - 2. Section 629 – Fertilizer and Agricultural Limestone.
  - 3. Section 630 - Seeding.

1.03 WARRANTY

- A. At the conclusion of the establishment period, which will be 1 year following initial installation, a final inspection of planting will be made to determine the conditions of areas specified for seeding. All areas with insufficient plant establishment as determined by the Town Engineer will be noted. This material shall be re-supplied and planted in the next growing season.

The expectations for the seeded areas are as follows:

- 1. That they show indications of healthy establishment (90 percent of species occurring are those seeded) in the specified areas and weed species are less than 10 percent.

1.04 PROJECT/SITE CONDITIONS

- A. Place temporary seed, permanent seed, fertilizer, and mulch on all disturbed areas.
- B. Place erosion mat in accordance with Town standards.

1.05 MAINTENANCE

- A. Keep all seeded areas thoroughly moist by watering when rainfall is deficient until an adequate root system develops.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Seed: Use seed that complies with the requirements of WisDOT Section 630 for Mixture #20 and #40:
  - 1. Place temporary seed conforming to the requirements of WisDOT Section 630.2.1.5.1.2.
  - 2. Place permanent seed conforming to the requirements of WisDOT Section 630.2.1.5.1.1.
- B. Mulch: Use straw or hay mulch which conforms to the requirements of WisDOT Section 627.2.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Confirm Town Engineer's acceptance of finish grading prior to seeding.

### 3.02 APPLICATION

- A. Seed in accordance with the applicable requirements specified in WisDOT Section 630.3. Use Method A to sow the seed.
- B. Mulch seeded areas in accordance with the applicable requirements of WisDOT Section 627 for Method C mulching.

### 3.03 FIELD QUALITY CONTROL

- A. Provide the Engineer with bags and tags of seed and fertilizer used. Provide the Engineer with the opportunity to observe the loading of seed. No seed will be allowed that was batched more than 1 year prior to placement.

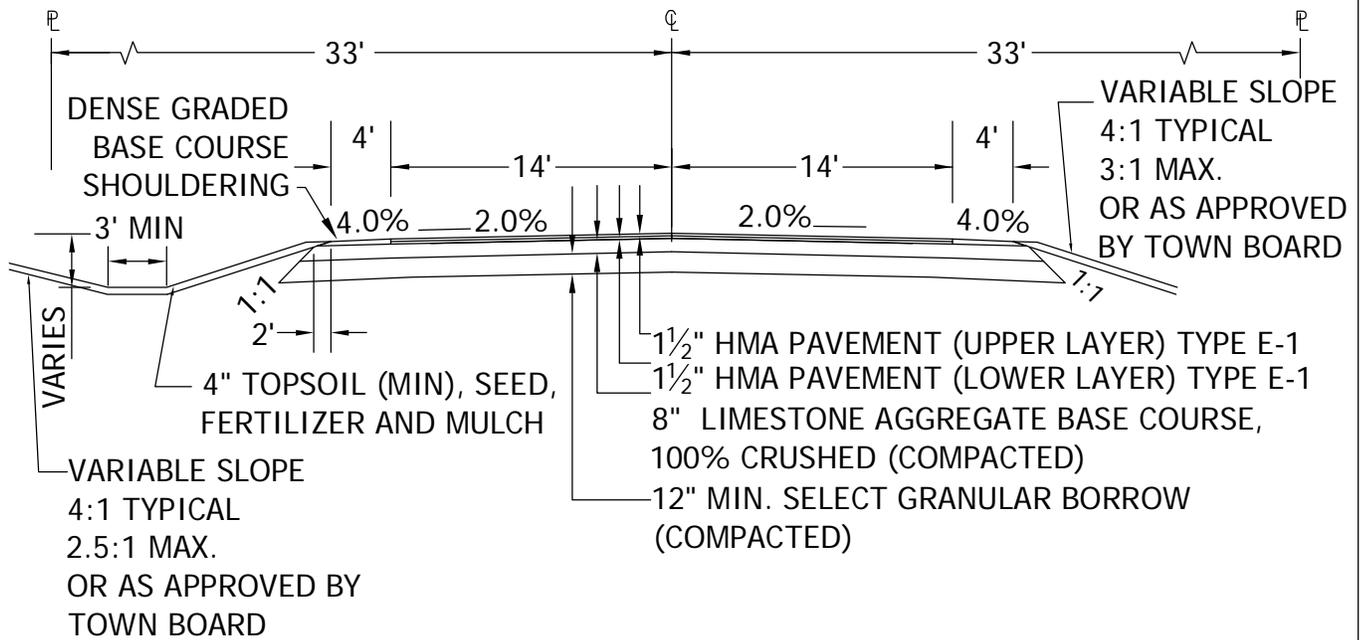
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# **DETAIL PLATES**

**TOWN OF ST. JOSEPH, WISCONSIN**

**2009**





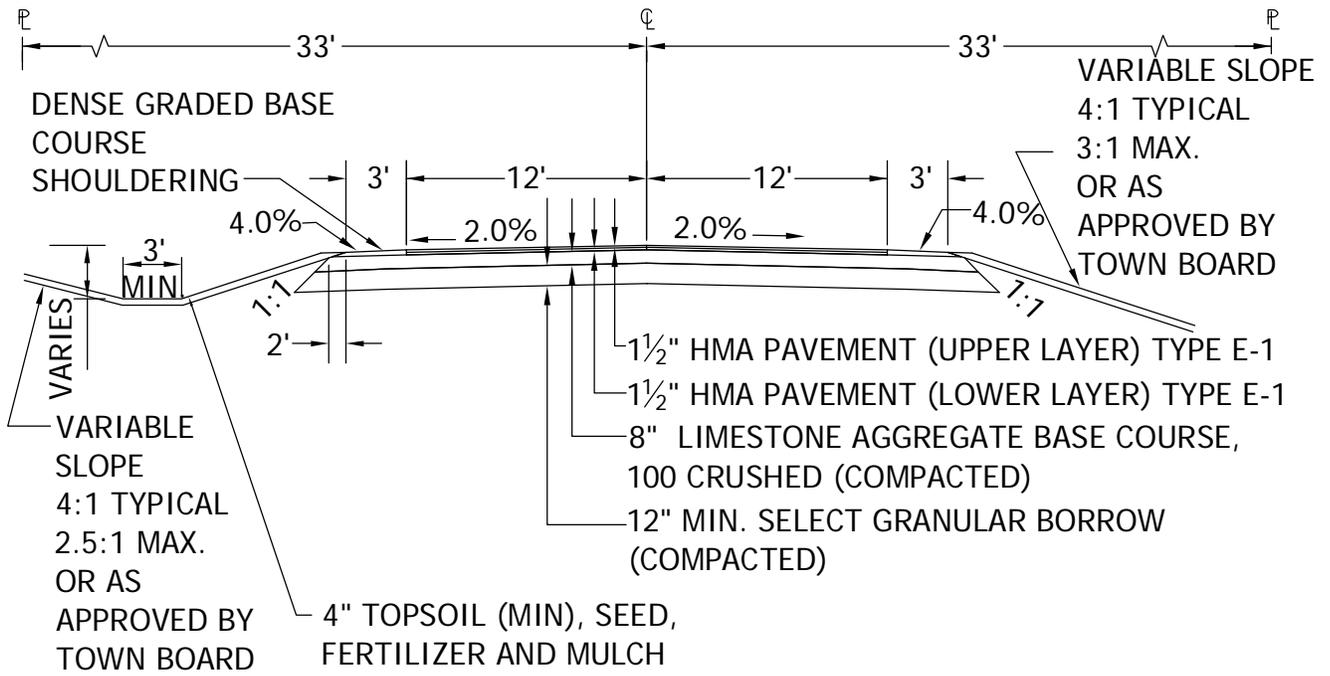
**Notes:**

1. Decomposable material shall not be used in construction.
2. Tack coat to be applied between asphalt lifts.
3. Intersection angle of driveway to road or road to road shall not be less than 75°.
4. Culverts to be 18" minimum size, or as approved by town board and installed with a minimum cover of 12" to the top of the select granular material. All culvert pipes shall be galvanized, corrugated steel, arch, or reinforced concrete in conformity with American Association of State Highway & Transportation Officials (AASHTO) Specification.
5. Roadway slopes as they enter other roads are limited to 2% grade for the first 50 ft and are measured from the edge of pavement. Exceeding this restriction will require town board approval. All other roadway slopes shall be in accordance with table 1 of the town's standard specification.
6. Roadway slopes shall not exceed 8% in grade, or as specified by the Town of St. Joseph.
7. Suitable erosion control plans will be submitted to the town for review and approval with the preliminary and final plats. In addition, these plans will also be submitted to the St. Croix County Land and Conservation Division for their technical review and approval.
8. Various types of erosion control methods may be used but only with prior town board approval. The town prefers to control erosion with vegetation, barriers, and infiltration ponds.

**COLLECTOR ROAD TYPICAL SECTION  
 TOWN OF ST. JOSEPH,  
 WISCONSIN**

LAST REVISION:  
 MAR 2009

PLATE NO.  
 RD-01



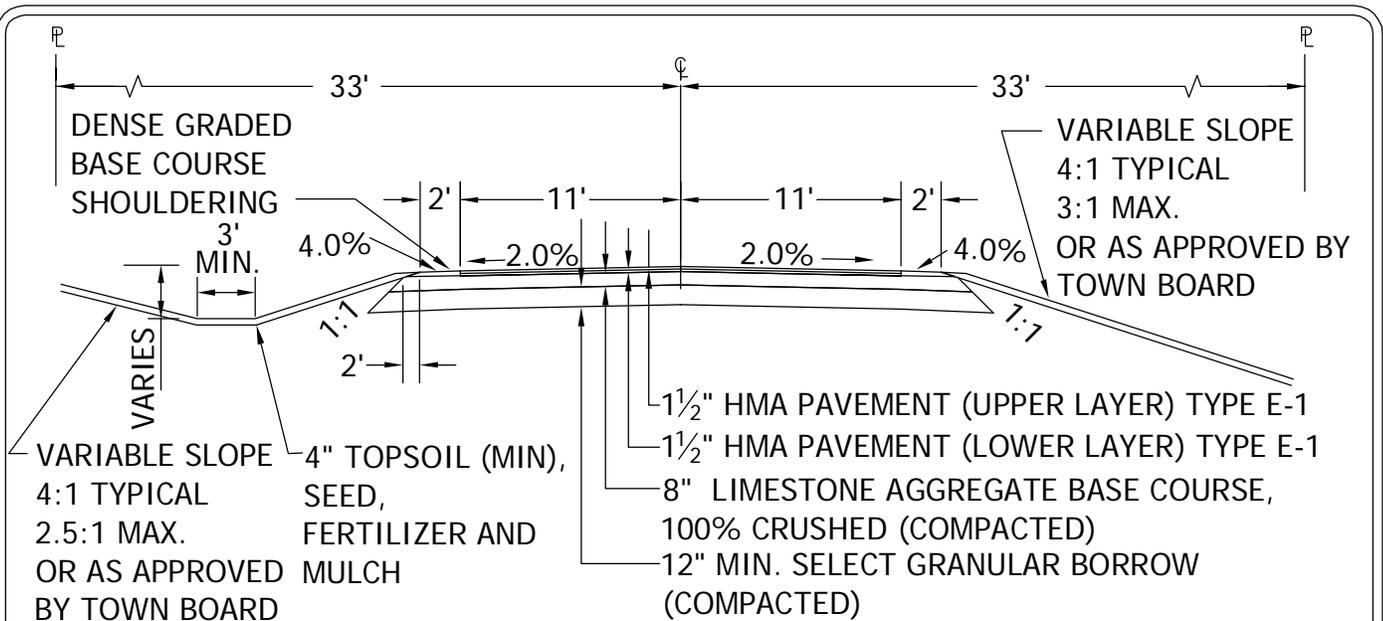
**Notes:**

1. Decomposable material shall not be used in construction.
2. Tack coat to be applied between asphalt lifts.
3. Intersection angle of driveway to road or road to road shall not be less than 75°.
4. Culverts to be 18" minimum size, or as approved by town board and installed with a minimum cover of 12" to the top of the select granular material. All culvert pipes shall be galvanized, corrugated steel, arch, or reinforced concrete in conformity with American Association of State Highway & Transportation Officials (AASHTO) Specification.
5. Roadway intersection slopes are limited to 2% grade for the first 50 ft and are measured from the edge of pavement. Exceeding this restriction will require town board approval.
6. Roadway slopes shall not exceed 8% in grade or as specified by the Town on St. Joseph.
7. Suitable erosion control plans will be submitted to the town for review and approval with the preliminary and final plats. In addition, these plans will also be submitted to the St. Croix County Land and Conservation Division for their technical review and approval.
8. Various types of erosion control methods may be used but only with prior town board approval. The town prefers to control erosion with vegetation, barriers, and infiltration ponds.

**SUBCOLLECTOR ROAD TYPICAL SECTION**  
**TOWN OF ST. JOSEPH**  
**WISCONSIN**

LAST REVISION:  
 MAR 2009

PLATE NO.  
 RD-02



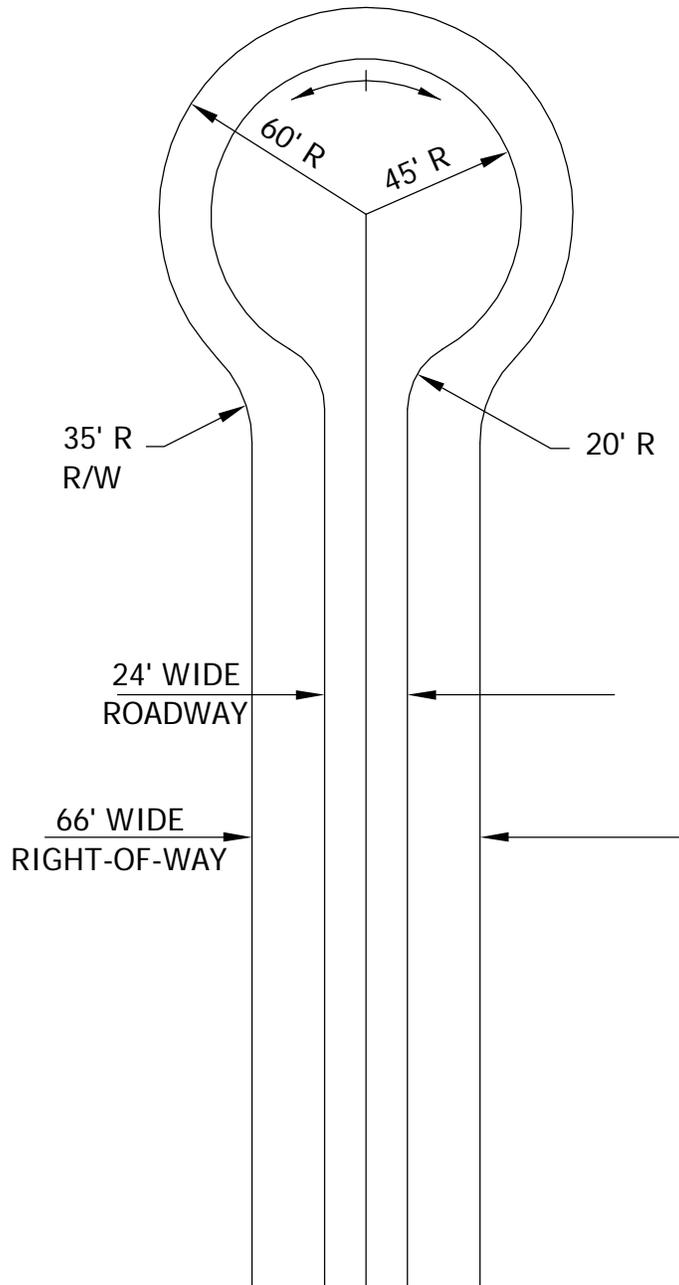
Notes:

1. Decomposable material may not be used in construction.
2. Tack coat to be applied between asphalt lifts.
3. Intersection angle of driveway to road or road to road shall not be less than 75°.
4. Culverts to be 18" minimum size or as approved by town board, and installed with a minimum cover of 12" to the top of the select granular material. All culvert pipes shall be galvanized, corrugated steel, arch, or reinforced concrete in conformity with American Association of State Highway & Transportation Officials (AASHTO) Specifications.
5. Roadway intersection slopes as they enter other roads are limited to 2% grade for the first 50 ft and are measured from the edge of pavement. Exceeding this restriction will require town board approval. All other roadway slopes shall be in accordance with table 1 of the town's standard specification.
6. Roadway slopes shall not exceed 8% in grade, or as specified by the Town of St. Joseph.
7. Suitable erosion control plans will be submitted to the town for review and approval with the preliminary and final plats. In addition, these plans will also be submitted to the St. Croix County Land and Conservation Division for their technical review and approval.
8. Various types of erosion control methods may be used but only with prior town board approval. The town prefers to control erosion with vegetation, barriers, and infiltration ponds.

ACCESS ROAD TYPICAL SECTION  
 TOWN OF ST. JOSEPH  
 WISCONSIN

LAST REVISION:  
 MAR 2009

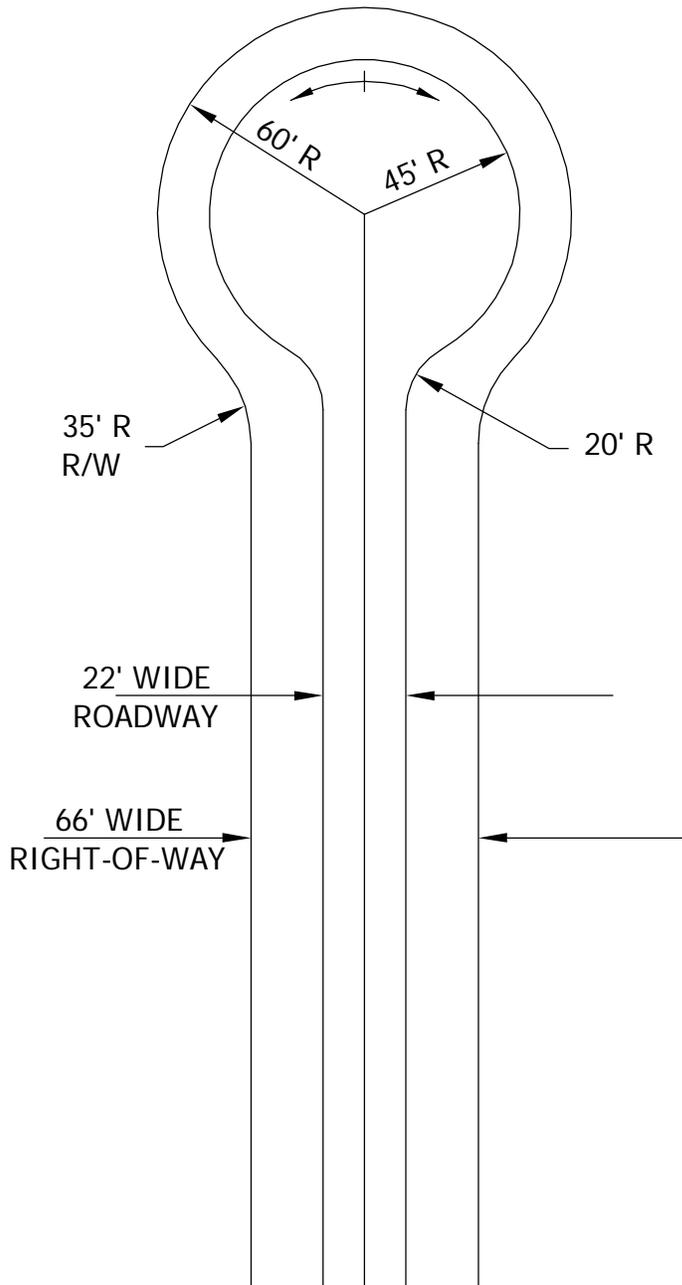
PLATE NO.  
 RD-03



SUBCOLLECTOR ROAD CUL-DE-SAC  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

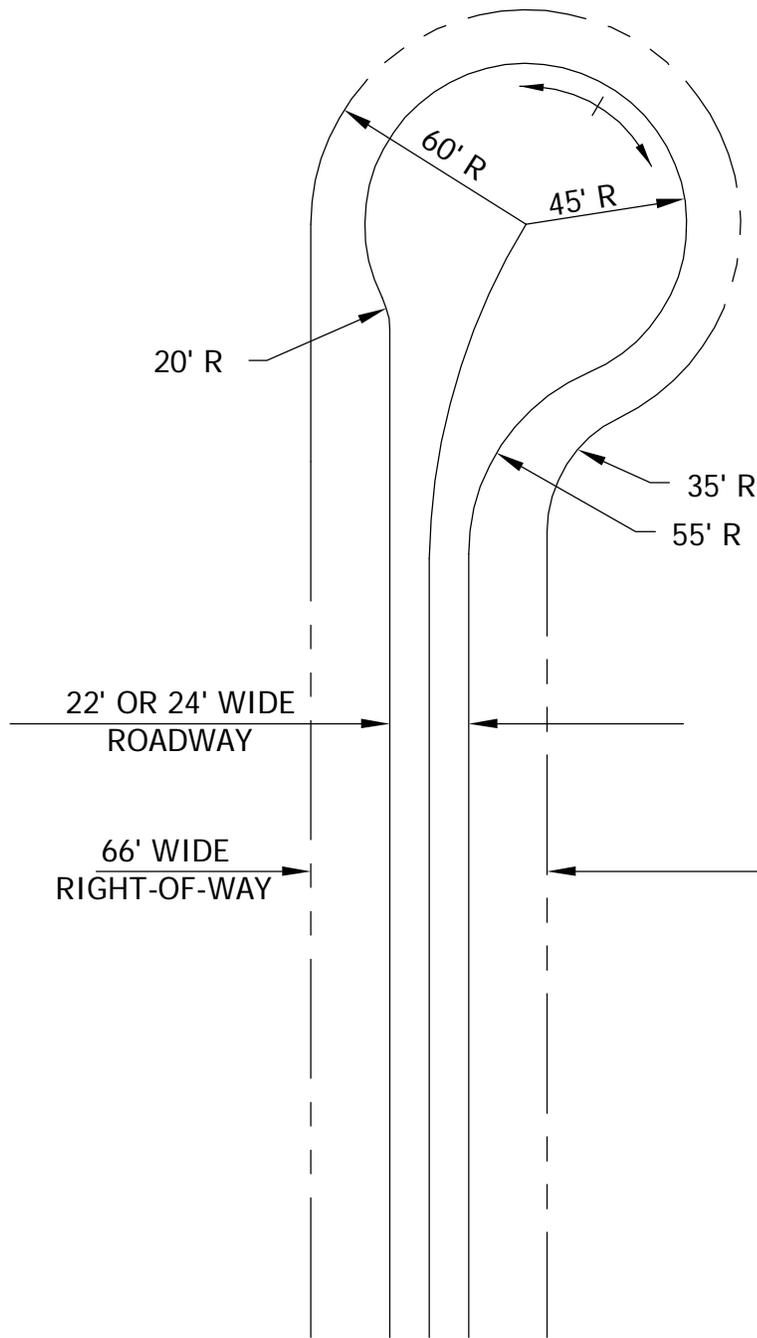
PLATE NO.  
RD-04



ACCESS ROAD CUL-DE-SAC  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

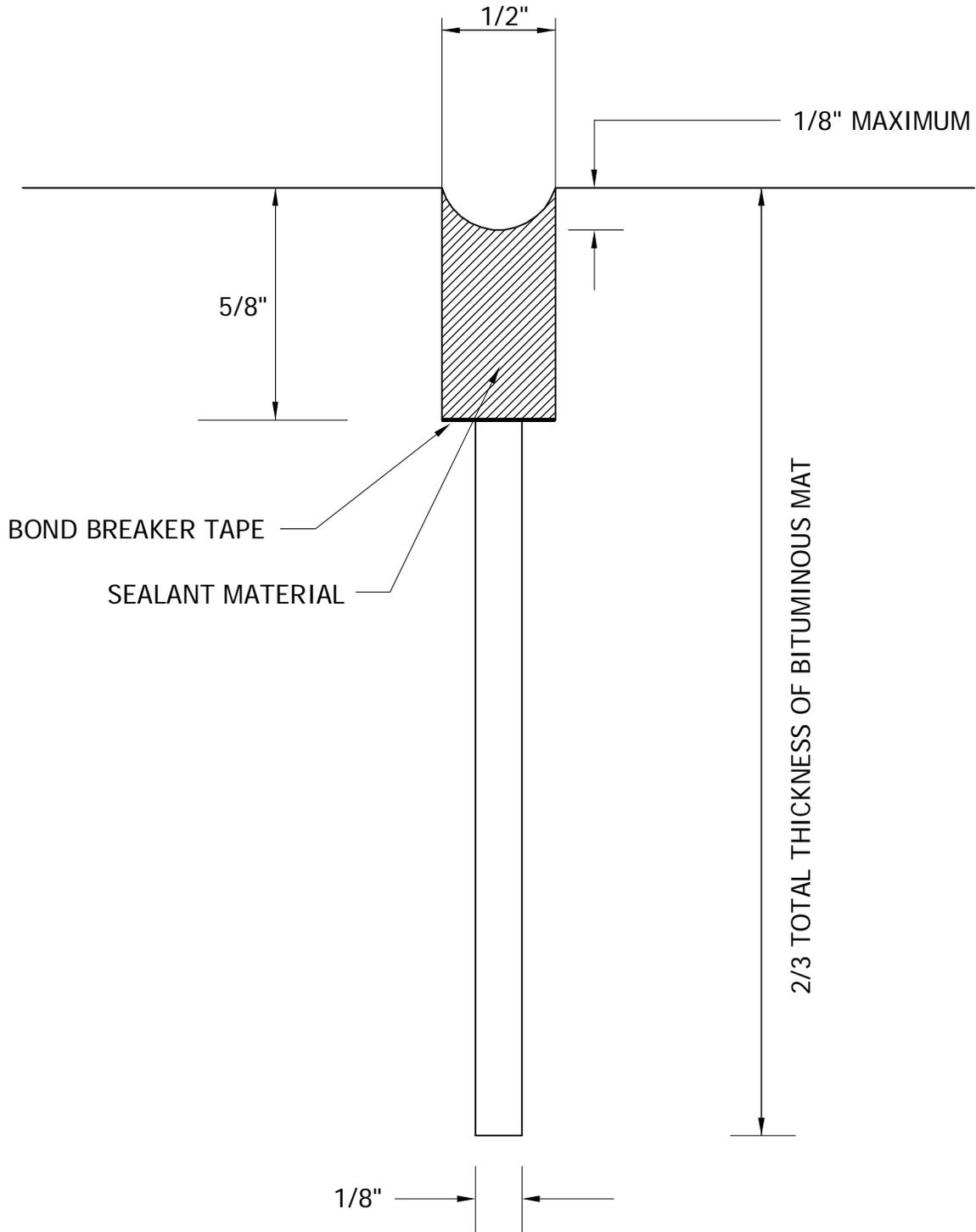
PLATE NO.  
RD-05



OFFSET CUL-DE-SAC FOR ACCESS OR  
 SUBCOLLECTOR ROAD  
 TOWN OF ST. JOSEPH  
 WISCONSIN

LAST REVISION:  
 MAR 2009

PLATE NO.  
 RD-06



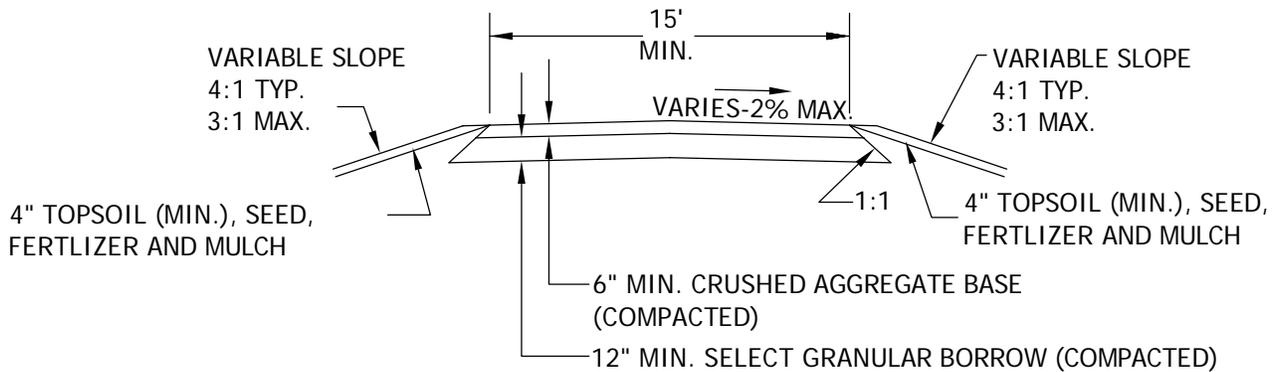
TYPICAL JOINT SECTION

BITUMINOUS JOINT SAW AND SEAL

TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
RD-07



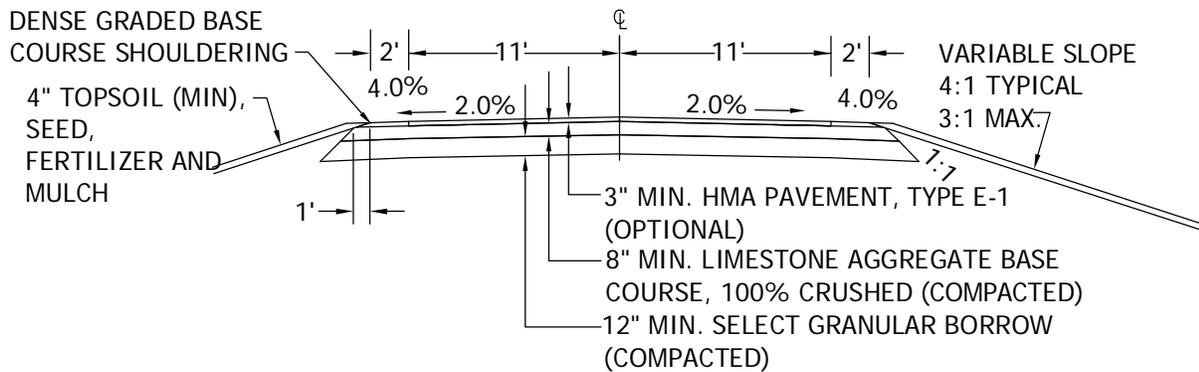
Notes:

1. Decomposable material shall not be used in construction.
2. If desired an asphaltic or concrete pavement at a minimum of 10 ft in width shall be centered on the 15 foot minimum aggregate base. Pavement thickness should be consistent with the town's required minimum weight load.
3. Driveways that require a culvert shall use a 15" minimum pipe, unless otherwise specified by the Town of St. Joseph, with a minimum cover of 12" to the top of the select granular material. All culvert pipes shall be galvanized, corrugated steel, arch, or reinforced concrete in conformity with WISDOT standards.
4. Intersection angle of driveway to road or road to road shall not be less than 75°.
5. All driveways shall have a width clearance of at least 15 ft, with a height clearance of at least 14 ft, and shall be maintained in such a way as to allow for adequate emergency vehicle access.
6. All driveways shall be constructed to the road right-of-way as part of the roadway construction. To qualify for a building permit, driveways must be extended not less than 50 ft in length from the edge of the traveled road surface into the lot. The final driveway must be constructed from the public roadway to the building location.
7. A minimum distance of 200 feet spacing shall exist between driveways and/or intersecting roadway as measured from centerline of driveways and/or roadway along the centerline of intersecting roadway.
8. All driveways in excess of 300 ft which terminate in a dead end shall have a 14 ft height clearance and shall terminate at a turnaround with either a minimum 45 ft radius or sufficient area and design to enable the turnaround of a tandem axle truck of at least 40 ft in length.
9. Driveways shall be constructed to sustain a minimum weight load of 9 tons/axle.
10. Driveway slopes as they enter other roads are limited to 2% grade for the first 50 feet and are measured from the edge of pavement or driving surface. Exceeding this restriction will require town board approval.
11. Remaining driveway slopes shall not exceed 8% in grade. Exceeding this restriction will require town board approval.
12. Approved erosion and sediment control measures per WISDOT's product acceptability list shall be installed and approved prior to, during and after construction. If applicable, suitable erosion and sediment control plans shall be submitted to the town for review and approval with the preliminary plat.

RESIDENTIAL DRIVEWAY  
TYPICAL SECTION  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
RD-08



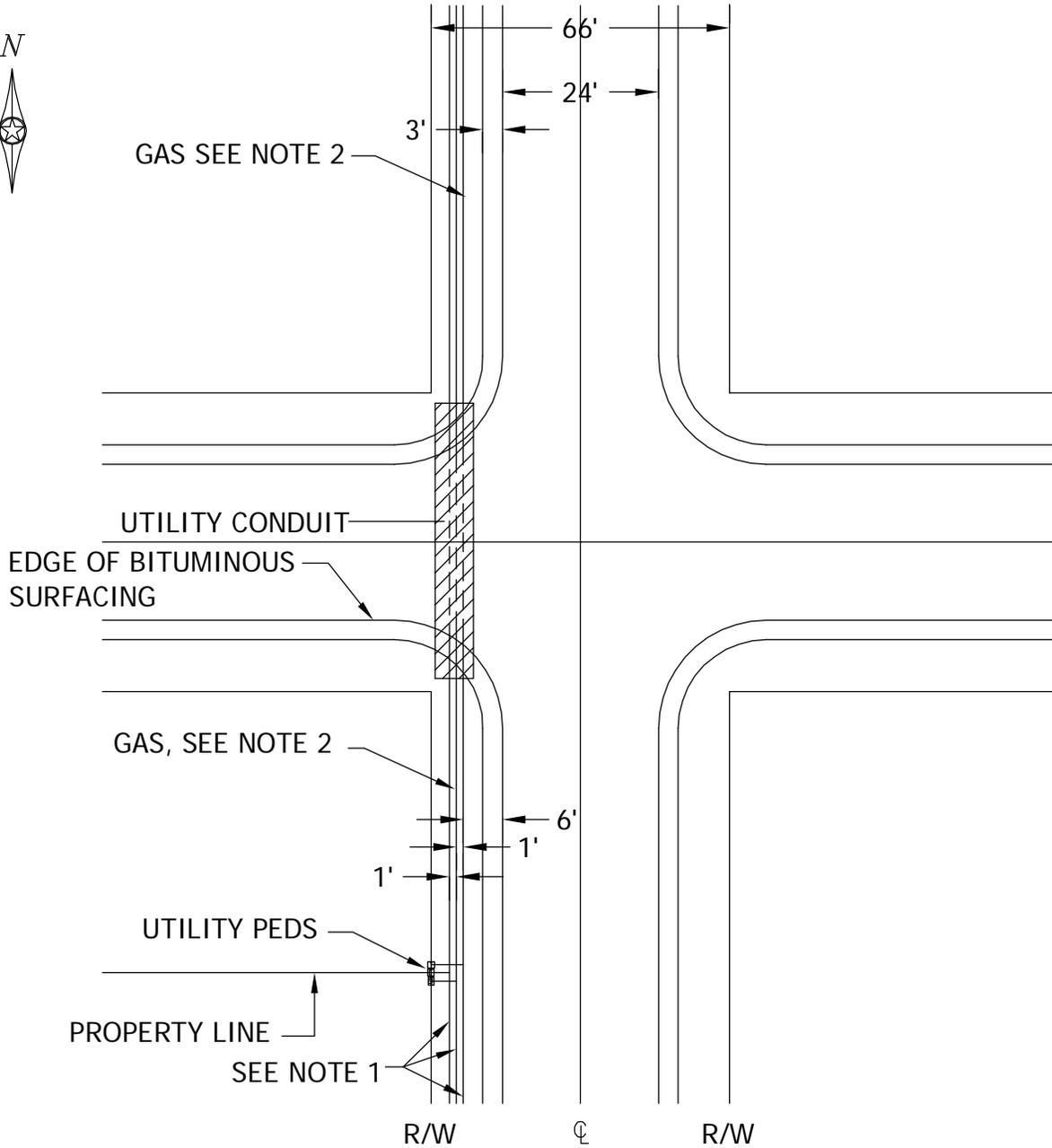
**Notes:**

1. Decomposable material shall not be used in construction.
2. Driveways that require a culvert shall use a 15" minimum pipe, unless otherwise specified by the Town of St. Joseph, with a minimum cover of 12" to the top of the select granular material. All culvert pipes shall be galvanized, corrugated steel, arch, or reinforced concrete in conformity with WISDOT standards.
3. Intersection angle of driveway to road or road to road shall not be less than 75°.
4. A double residential driveway shall be constructed from the road to the right-of-way line. The remaining shared driveways shall conform to either this detail plate or the residential driveway plate RD-08 as determined by the Town Board.
5. A minimum distance of 200 feet spacing shall exist between driveways and/or intersecting roadway as measured from centerline of driveways and/or intersecting roadway along the centerline of intersecting roadway.
6. All driveways in excess of 300 ft which terminate in a dead end shall have a 14 ft height clearance and should terminate at a turnaround with either a minimum 45 ft radius or sufficient area and design to enable the turnaround of a tandem axle truck of at least 40 ft in length.
7. Driveways shall be constructed to sustain a minimum weight load of 9 tons/axle.
8. Driveway slopes as they enter other roads are limited to 2% grade for the first 50 ft and are measured from the edge of pavement or driving surface. Exceeding this restriction will require town board approval.
9. Remaining driveway slopes shall not exceed 8% in grade. Exceeding this restriction will require town board approval.
10. Approved erosion and sediment control measures per WISDOT's product acceptability list shall be installed and approved prior to, during and after construction. If applicable, suitable erosion and sediment control plans shall be submitted to the town for review and approval with the preliminary plat.

**DOUBLE RESIDENTIAL DRIVEWAY  
TYPICAL SECTION  
TOWN OF ST. JOSEPH  
WISCONSIN**

LAST REVISION:  
MAR 2009

PLATE NO.  
RD-09



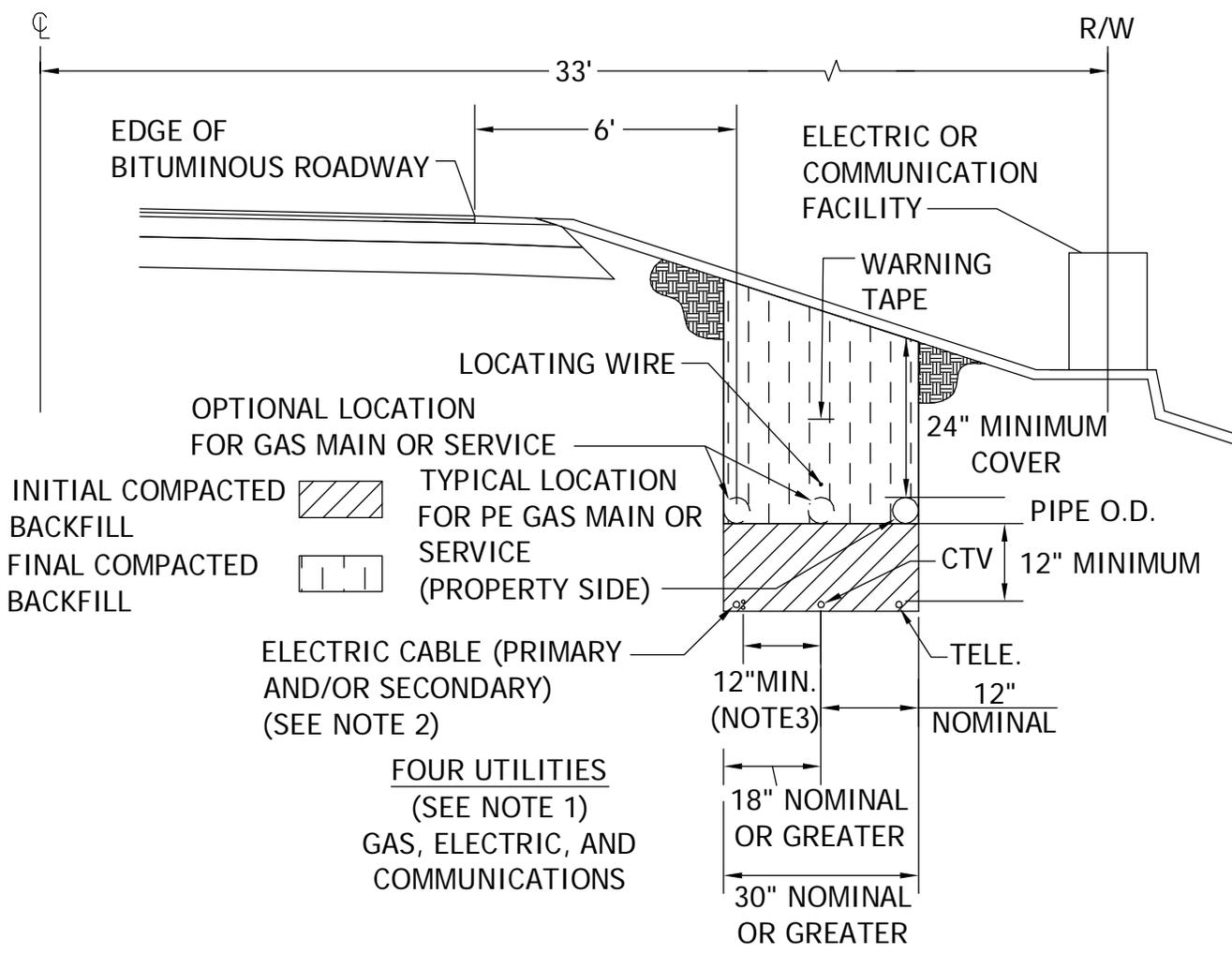
Note:

1. See plate no. RD-11 for typical private utility joint trench construction detail.
2. Gas typically located vertically over ctv, or alternatively over electric or telephone lines.
3. Utility conduit placed before street construction.

TYPICAL UTILITY LOCATIONS  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
RD-10

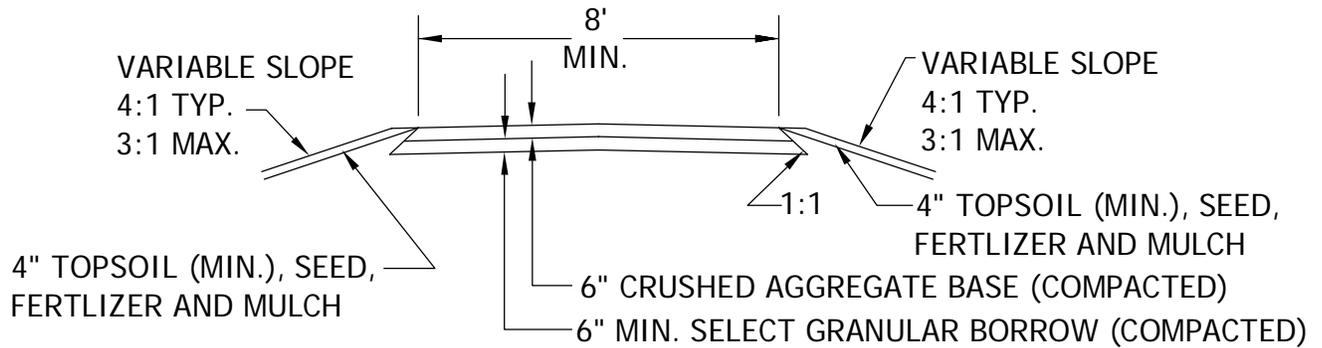


- Note:**
1. Communication cables may be buried with random separation provided all parties are in agreement.
  2. Electric cables may be buried with random separation provided all parties involved are in agreement; however, 3 phase and 1 phase cables should be separated (1" or more apart) preferably on opposite sides of the trench.
  3. Horizontal or vertical separation between electric cables and communication cables should be 12" minimum. Vertical clearance between gas pipe and cables should be 12" minimum.
  4. Horizontal separation between gas pipes and cables at the same level should be a minimum 12" to 24".
  5. Warning tape if used shall be installed using methods agreed upon by each of the utility companies involved.
  6. Locating wire shall be installed with gas pipe using standard installation methods.

**TYPICAL UTILITY  
 JOINT TRENCH CONSTRUCTION  
 TOWN OF ST. JOSEPH  
 WISCONSIN**

LAST REVISION:  
 MAR 2009

PLATE NO.  
 RD-11



Notes:

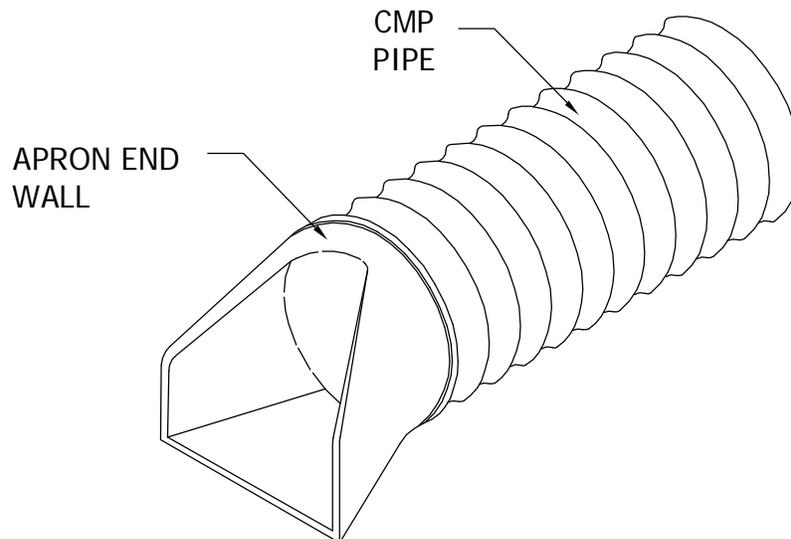
1. Decomposable material shall not be used in construction.
2. 2" asphaltic pavement type E-1 at a minimum of 8 ft in width to be used on paved trails only.
3. All trails shall be designed to ADA requirements, or as specified by the Town of St. Joseph.
4. Suitable erosion control plans will be submitted to the town for review and approval with the preliminary and final plats. In addition, these plans will also be submitted to the St. Croix County Land and Conservation Division for their technical review and approval. Various types of erosion control methods may be used but only with prior town board approval. The town prefers to control erosion with vegetation, barriers, and infiltration ponds.

TRAIL TYPICAL SECTION  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
RD-12

SEE PLATE NO. STO-02 FOR RIP RAP  
PLACEMENT



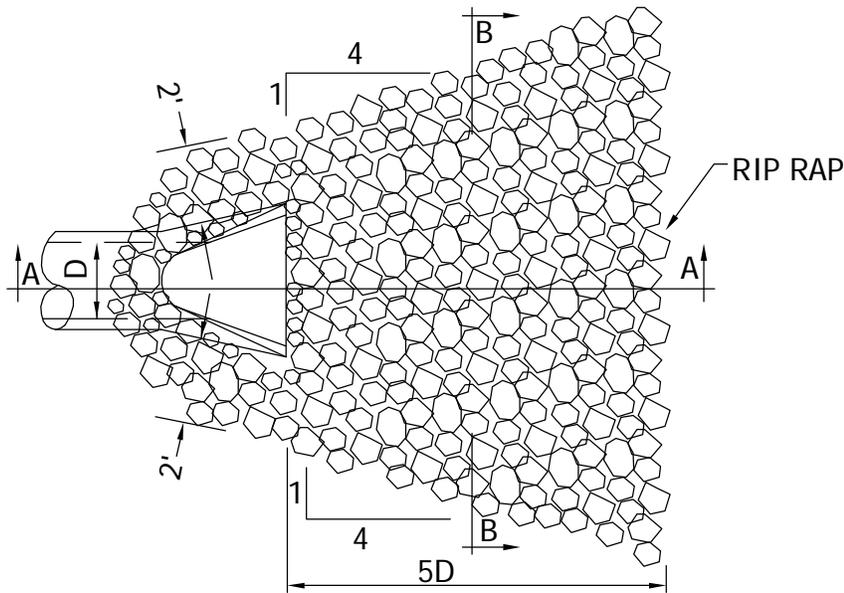
Notes:

1. All culvert pipes shall be corrugated steel, in conformity with American Association of State Highway & Transportation Officials (AASHTO) Specification.
2. All culverts must be of adequate size to have the ability to withstand water from a 25 year rain event.
3. Apron end walls shall be used on all culverts where designated.

CMP STORM SEWER PIPE  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
STO-01



PLAN

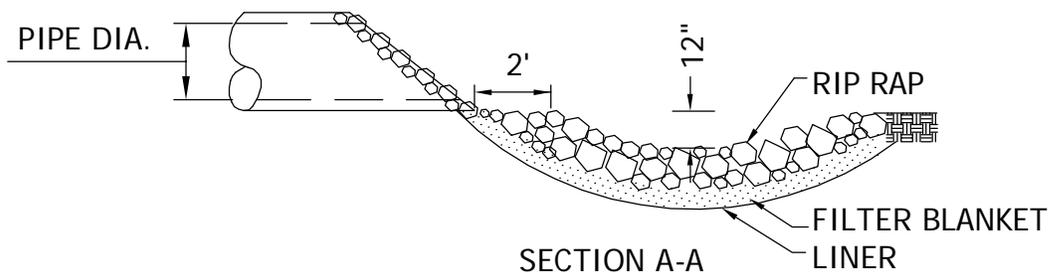
RIP RAP MINIMUM REQUIREMENTS

| PIPE DIA.  |                    |
|------------|--------------------|
| 12" TO 18" | 8 CY RIP RAP       |
| 24"        | 12 CY MED. RIP RAP |
| 27"        | 14 CY MED. RIP RAP |
| 30"        | 17 CY MED. RIP RAP |
| 33"        | 20 CY MED. RIP RAP |

RIP RAP MINIMUM REQUIREMENTS

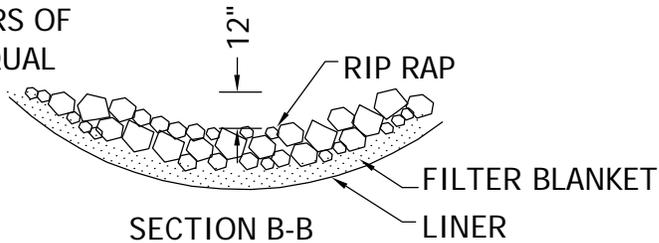
| PIPE DIA.  |                            |
|------------|----------------------------|
| 36"        | 23 CY MED. RIP RAP         |
| 42"        | 31 CY MED. RIP RAP         |
| 48"        | 38 CY MED. RIP RAP         |
| 54" AND UP | 62 CY and up HEAVY RIP RAP |

(One cubic yard is approximately 2,800 lbs.)



SECTION A-A

NOTE FILTER BLANKET REQUIRED UNDER RIP RAP OR 2 LAYERS OF 500X MIRAFI FABRIC OR EQUAL

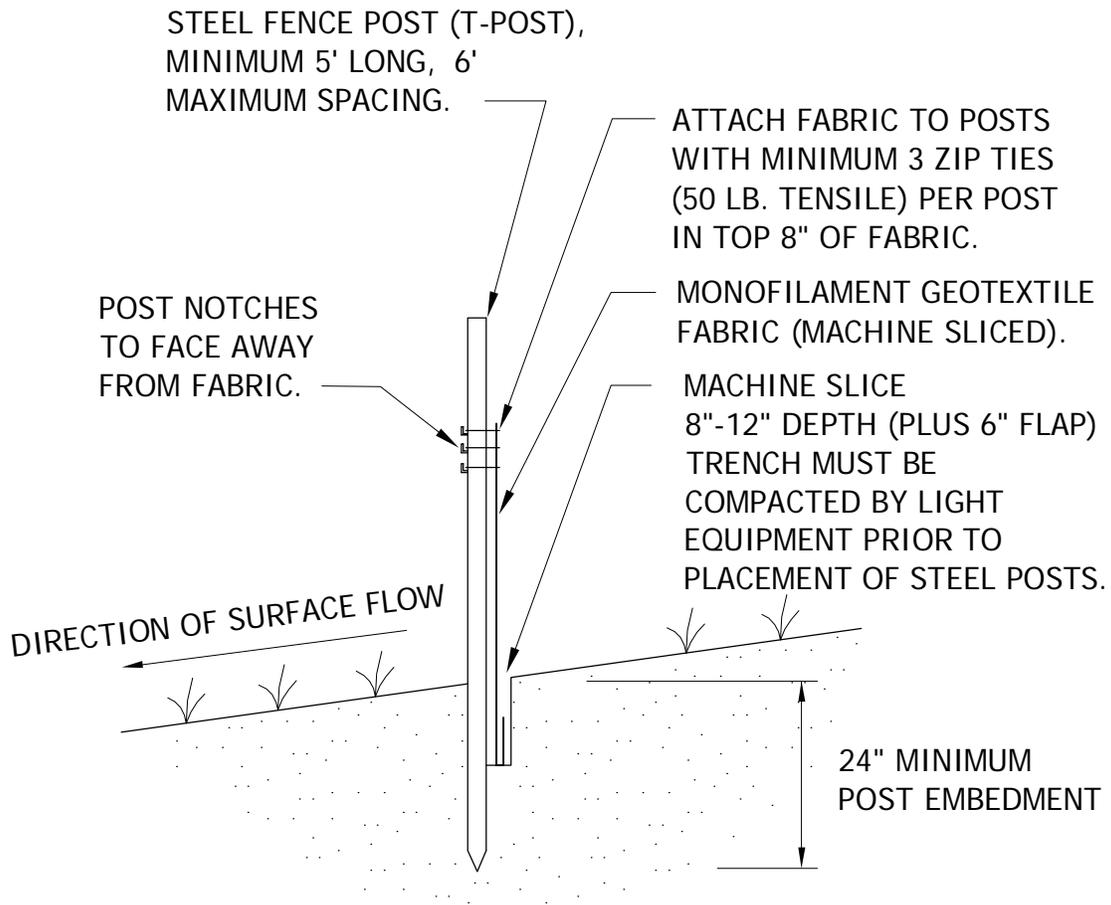


SECTION B-B

RIP RAP AT OUTLETS  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
STO-02



**NOTE:**

The machine sliced method (this detail) is the standard silt fence installation method. Heavy-duty or standard silt fence installation methods should only be used when approved or directed by the Town.

**SILT FENCE MACHINE SLICED  
TOWN OF ST. JOSEPH, WISCONSIN**

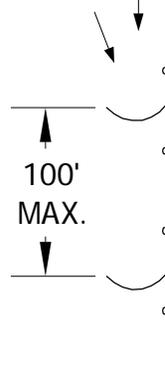
LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-01

PLAN VIEW

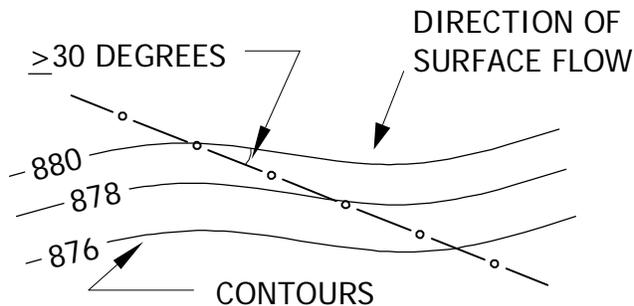
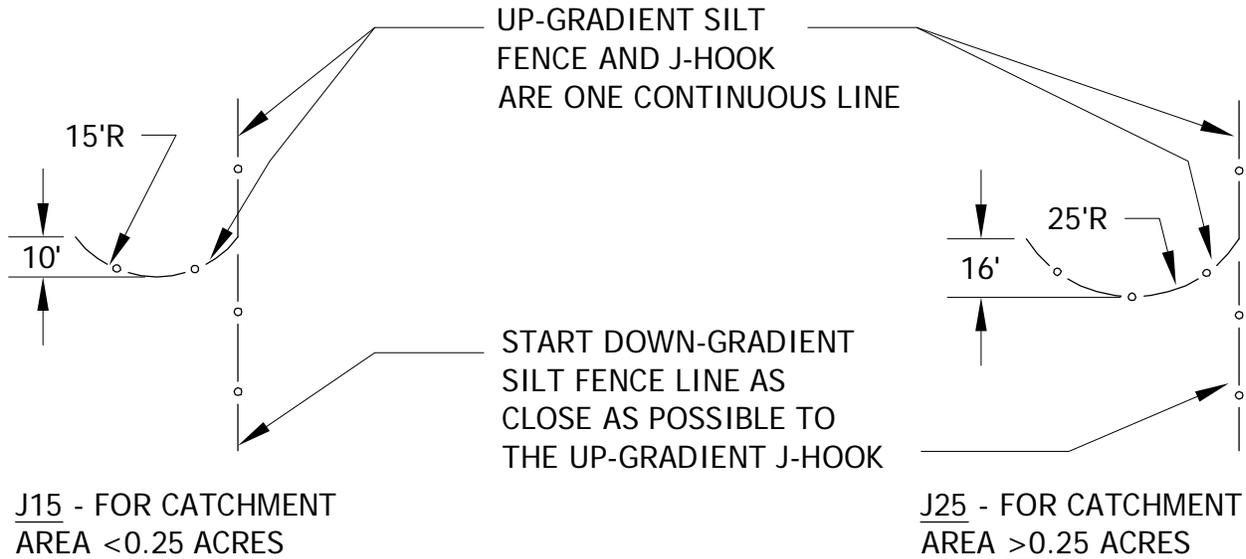
I. SPACING REQUIREMENTS

DIRECTION OF SURFACE FLOW



NOTE: SPACING DISTANCES WILL VARY, BUT ARE NOT TO EXCEED 100 FEET.

II. SIZING REQUIREMENTS: J15, J25



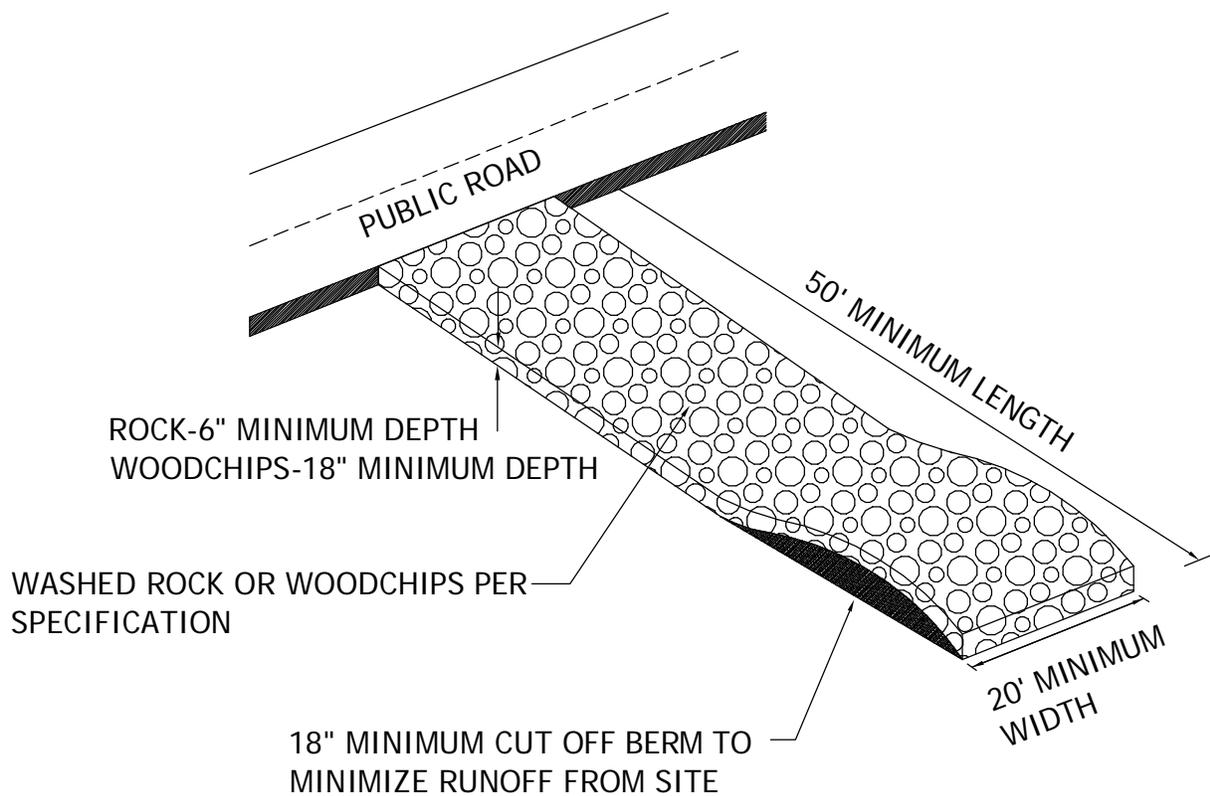
NOTE:  
J-HOOKS SHALL BE USED WHEN THE SILT FENCE IS INSTALLED AT AN ANGLE OF 30 DEGREES OR GREATER FROM PARALLEL TO THE CONTOURS.

SILT FENCE J-HOOK

TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-02



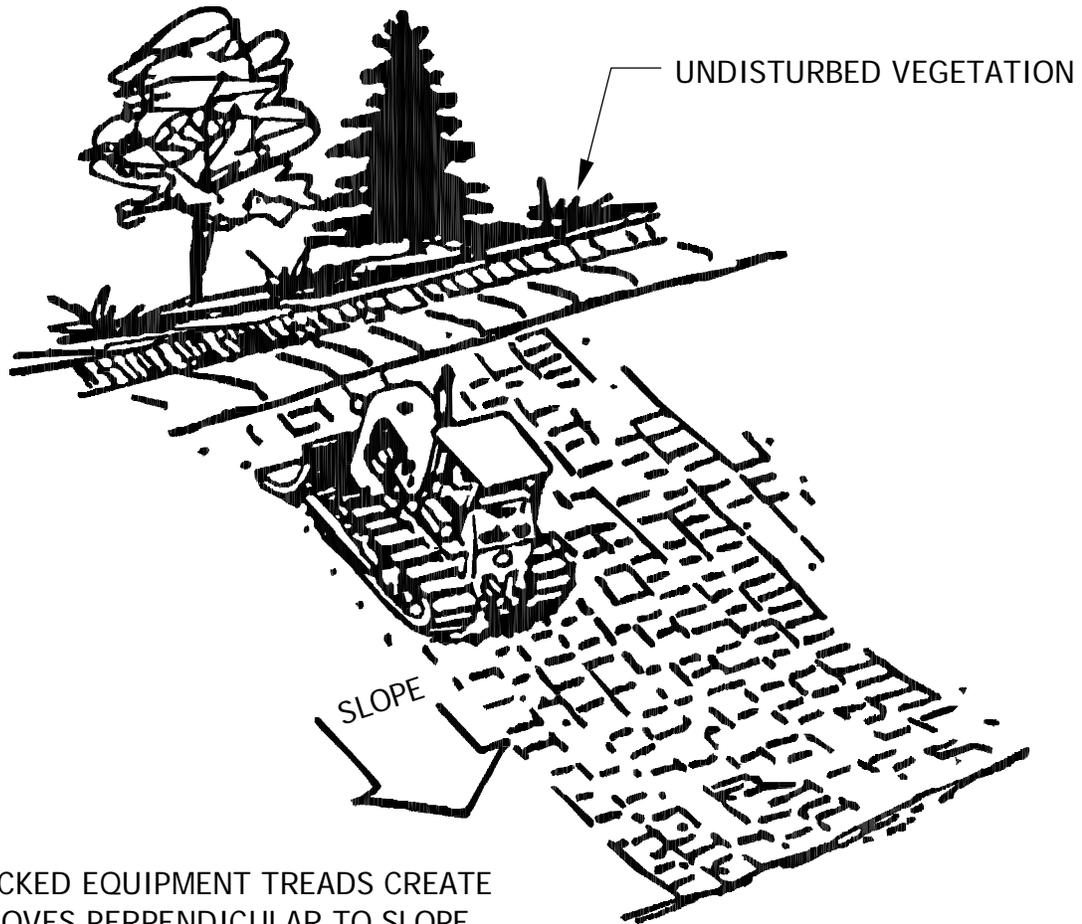
Notes:

1. Filter fabric shall be placed under rock to stop mud migration through rock.
2. Filter fabric is not required under woodchips.
3. Entrance must be maintained regularly to prevent sedimentation on public roadways.

CONSTRUCTION ENTRANCE  
 ROCK OR WOOD CHIP  
 TOWN OF ST. JOSEPH  
 WISCONSIN

LAST REVISION:  
 MAR 2009

PLATE NO.  
 ERO-03



TRACKED EQUIPMENT TREADS CREATE GROOVES PERPENDICULAR TO SLOPE DIRECTION.

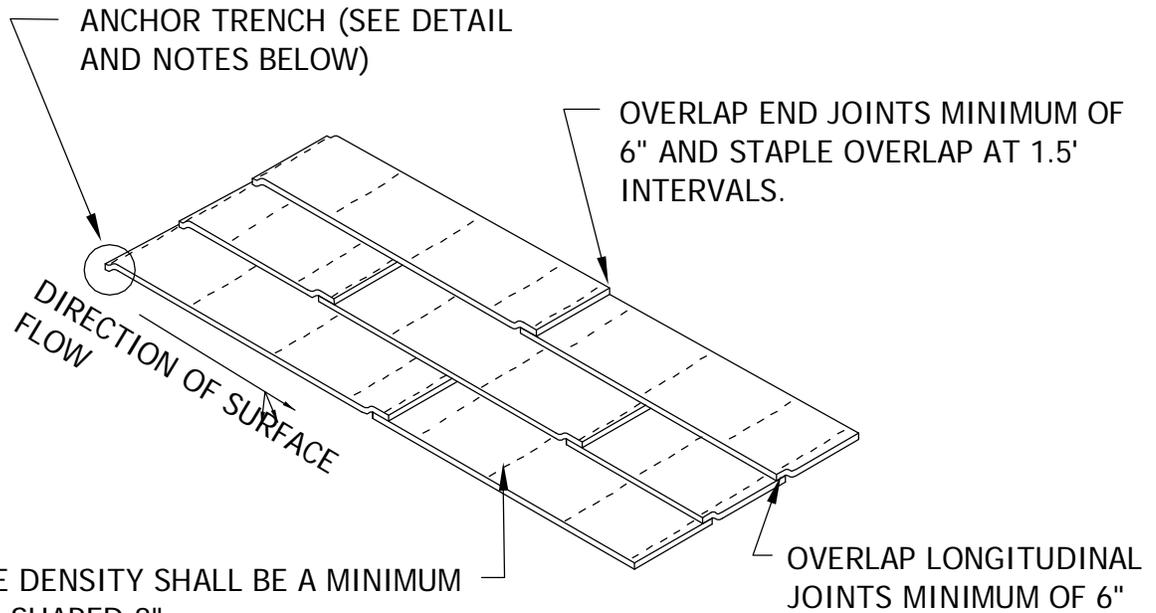
Note:

All slopes with a grade equal to or steeper than 3:1 require slope tracking. Slopes with a grade more gradual than 3:1 require slope tracking if the stabilization method is erosion control blanket or hydromulch.

TEMPORARY SLOPE GRADING  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

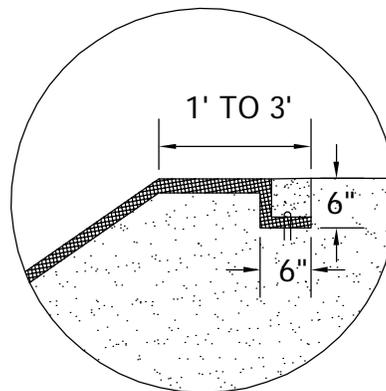
PLATE NO.  
ERO-04



STAPLE DENSITY SHALL BE A MINIMUM OF 3 U-SHAPED 8", 11 GAUGE METAL STAPLES PER SQUARE YARD (THIS MAY VARY AS DIRECTED BY THE TOWN).

ANCHOR TRENCH

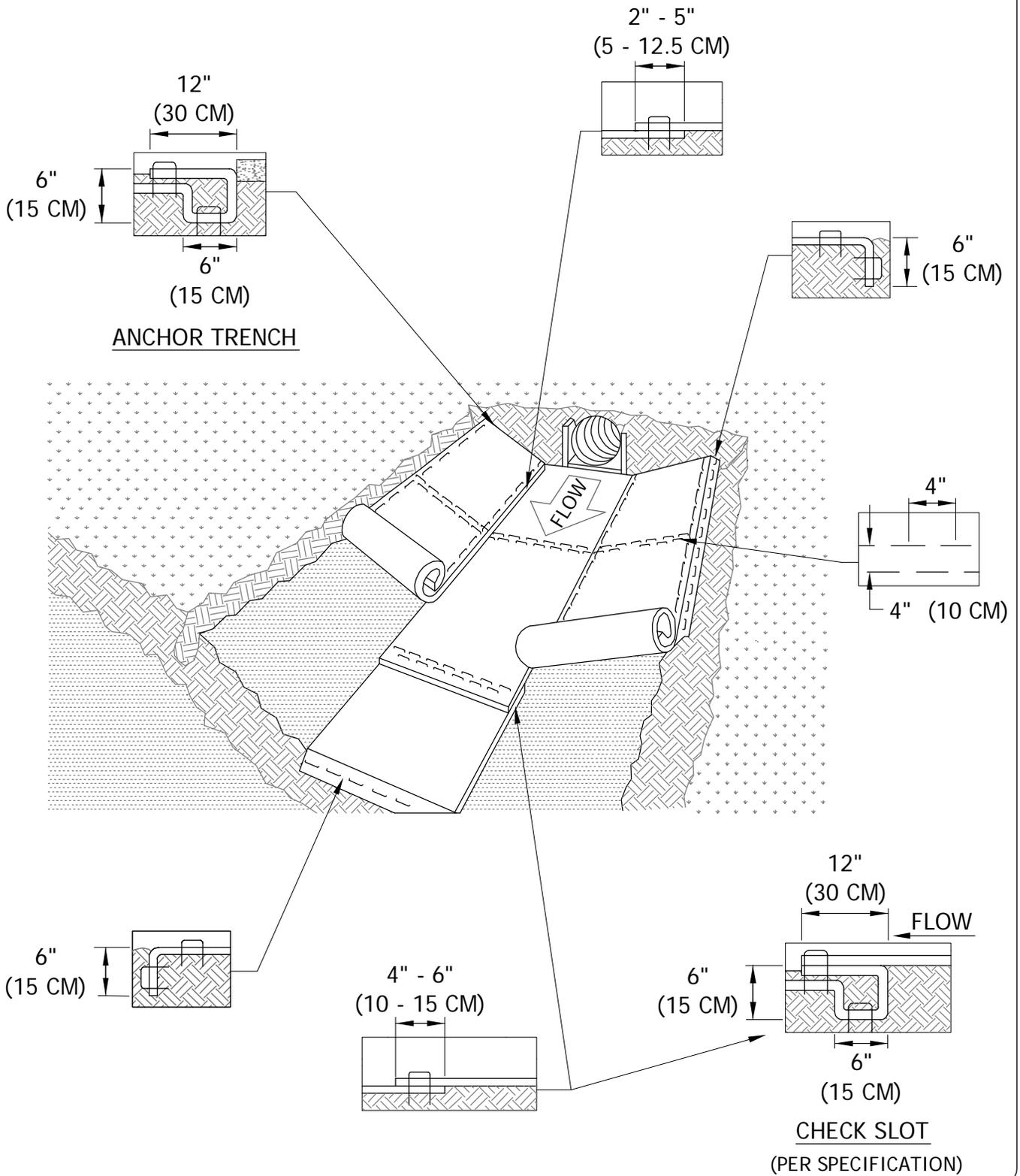
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



EROSION CONTROL BLANKET  
TOWN OF ST. JOSEPH  
WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-05



EROSION CONTROL BLANKET  
CHANNEL INSTALLATION  
TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-06

6" X 6" TRENCH WITH LEADING EDGE OF GEOTEXTILE FABRIC STAPLED AT 1' INTERVALS AND BACKFILLED WITH NATURAL SOIL

WISDOT 628.2.6  
GEOTEXTILE FABRIC

POINT 1

DITCH CHECK  
ROCK/BIO WEEPER  
OR CHECK DAM

FLOW  
FLOW  
FLOW

MIN. 6" OVERLAP  
IF NECESSARY,  
STAPLE 1' O.C.

NOTE:  
POINT 1 MUST BE A  
MINIMUM OF 6" HIGHER  
THAN POINT 2 TO ENSURE  
THAT WATER FLOWS OVER  
THE DITCH CHECK AND  
NOT AROUND THE ENDS.

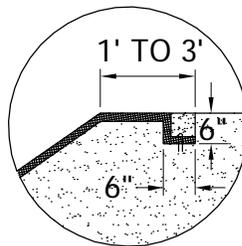
POINT 2

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

|             | HEIGHT<br>(INCHES) | WIDTH<br>(INCHES) | MATERIAL            |
|-------------|--------------------|-------------------|---------------------|
| SMALL CHECK | 24                 | 12 - 18           | WISDOT MED. RIP RAP |
| LARGE CHECK | 36                 | 24 - 30           | WISDOT MED. RIP RAP |
| ROCK WEEPER | 18                 | 6 - 12            | 1 1/2" WASHED ROCK  |

ANCHOR TRENCH

1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT



MATERIALS  
(SEE TABLE)

WIDTH  
(SEE TABLE)

≥ 1.5

DIRECTION OF  
SURFACE FLOW

HEIGHT  
(SEE TABLE)

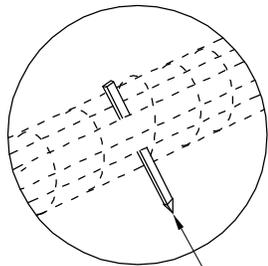
GEOTEXTILE FABRIC ANCHORED IN 6" X  
6" TRENCH WITH 6", 11 GAUGE METAL  
STAPLES AT 1' INTERVALS

STAPLE DOWNSTREAM  
SIDE OF FABRIC AT 2' INTERVALS

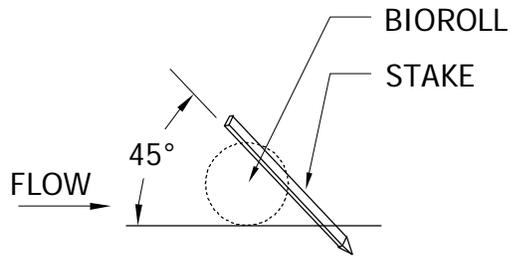
ROCK DITCH CHECK / WEEPER  
SIZING & MATERIALS  
TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-07



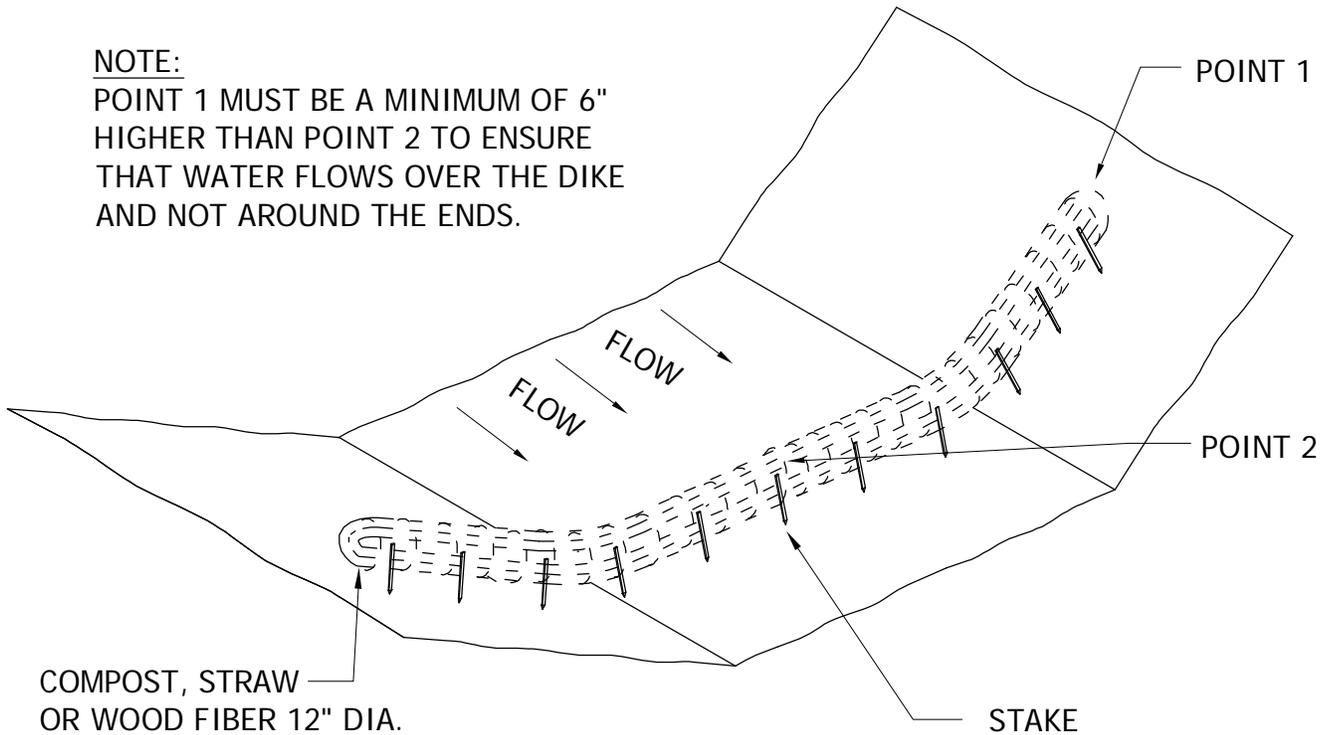
STAKE



2" x 2" x 16" LONG WOODEN STAKES AT 1'-0" SPACING . STAKES SHALL BE DRIVEN THROUGH THE BACK HALF OF THE FILTER LOG AT AN ANGLE OF 45° WITH THE TOP OF THE STAKE POINTING UPSTREAM.

**NOTE:**

POINT 1 MUST BE A MINIMUM OF 6" HIGHER THAN POINT 2 TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

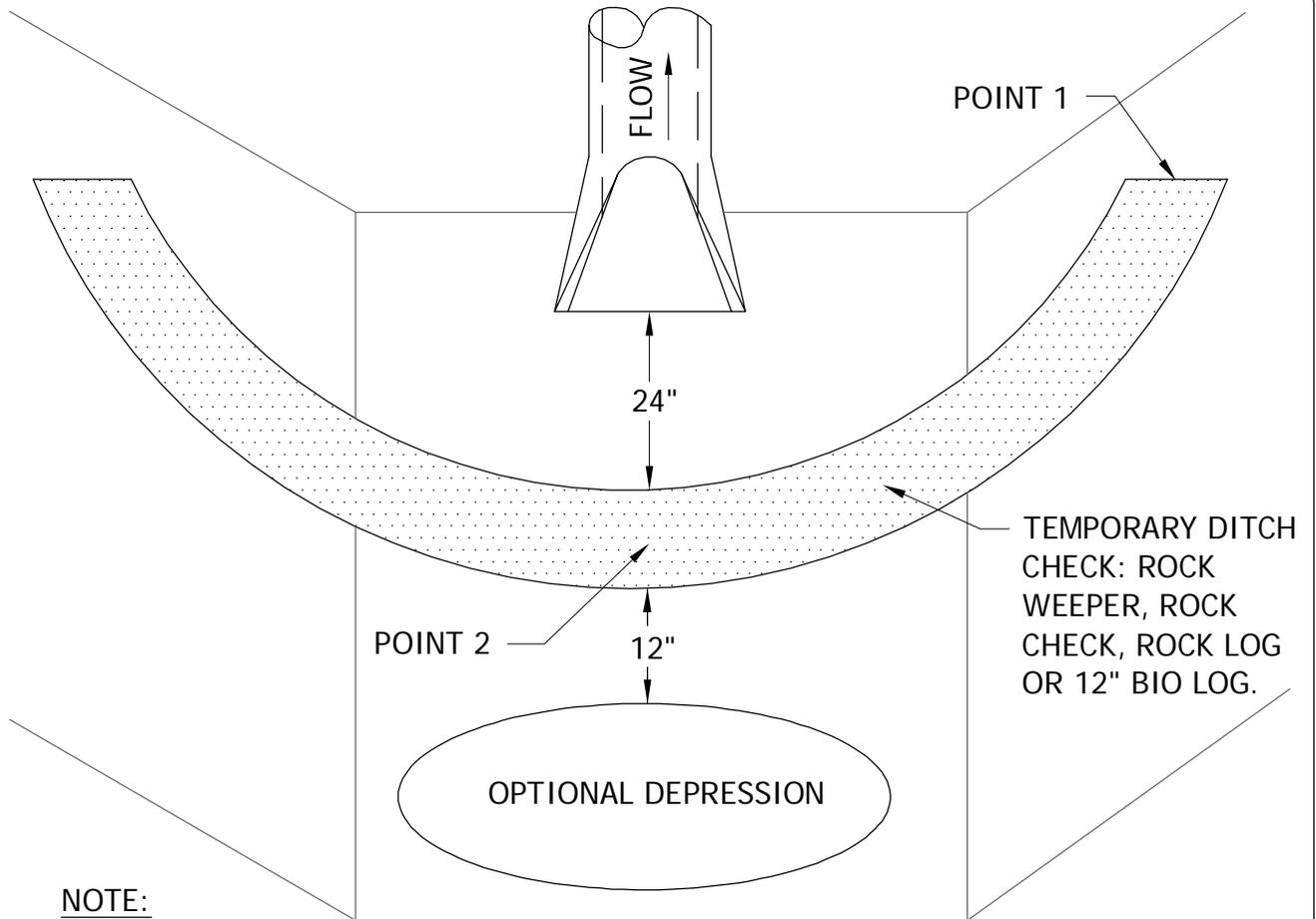


COMPOST, STRAW OR WOOD FIBER 12" DIA. ROLL ENCLOSED IN POLYPROPYLENE NETTING OR A GEOTEXTILE BAG.

**FILTER LOG DITCH CHECK  
TOWN OF ST. JOSEPH, WISCONSIN**

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-08

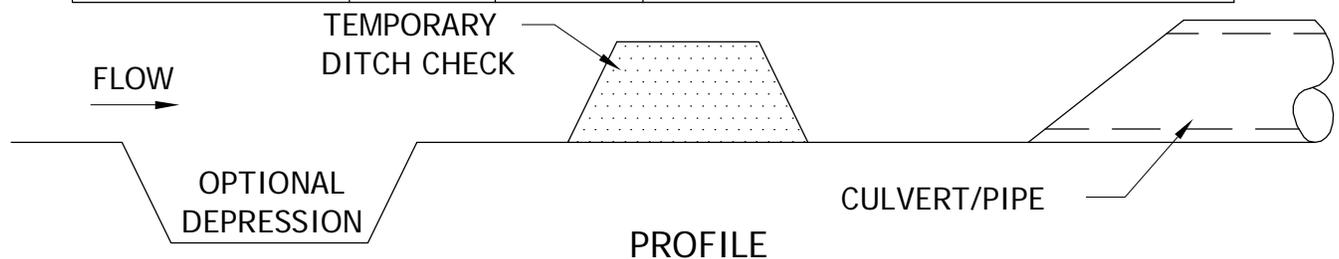


**NOTE:**

POINT 1 MUST BE MINIMUM OF 6" HIGHER THAN POINT 2, TO ENSURE WATER FLOWS THROUGH AND OVER THE CHECK AND NOT AROUND THE ENDS

PLAN VIEW

|             | HEIGHT<br>(inches) | WIDTH<br>(inches) | MATERIAL              |
|-------------|--------------------|-------------------|-----------------------|
| SMALL CHECK | 24                 | 12-18             | WISDOT MEDIUM RIP-RAP |
| ROCK WEEPER | 18                 | 6-12              | 1 1/2" WASHED ROCK    |



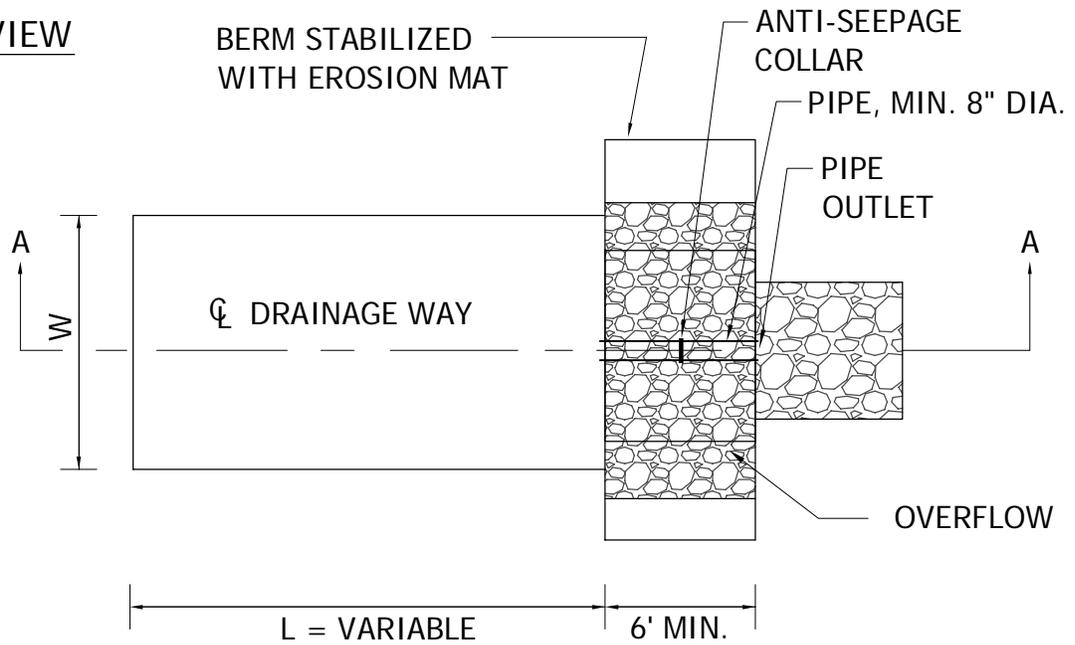
PROFILE

**CULVERT/PIPE PROTECTION**

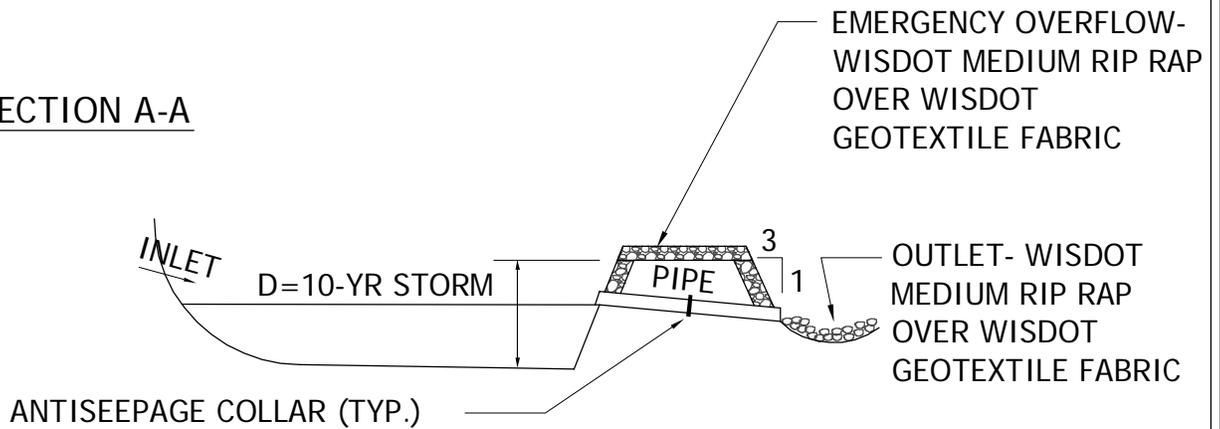
LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-09

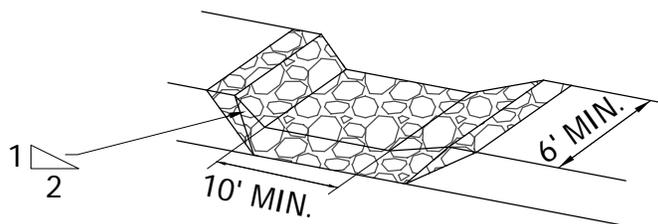
I. PLAN VIEW



II. SECTION A-A



III. BASIN EMERGENCY OVERFLOW



NOTES:

BASIN USED FOR 10 ACRES DRAINAGE AREA OR MORE. DESIGN RUNOFF VOLUME IS FROM A 2-YR, 24-HR STORM PER ACRE DRAINED TO THE BASIN. BASIN VOLUME MUST BE A MIN. OF 1800 CUBIC FEET/ACRE. SEE PLANS/SPECIFICATIONS FOR BASIN DIMENSIONS AND PIPE SIZE AND SLOPE.

TEMPORARY SEDIMENTATION BASIN  
PIPE OUTLET

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-10

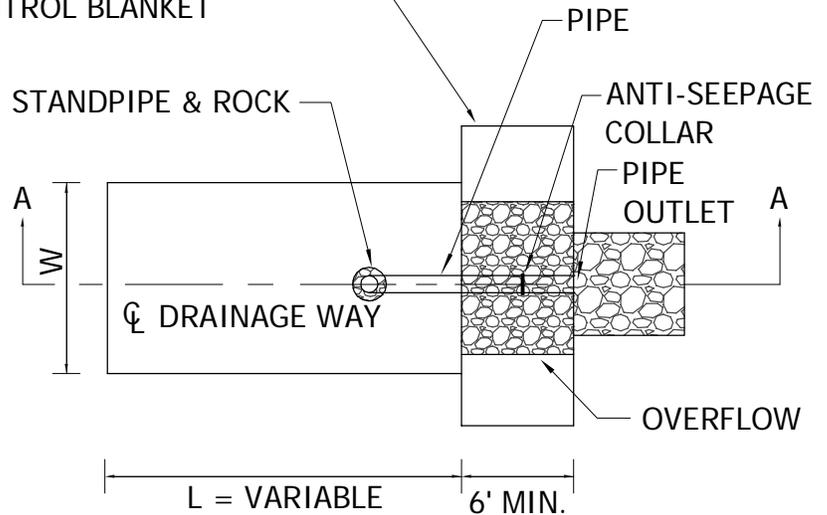
## I. PLAN VIEW

### NOTES:

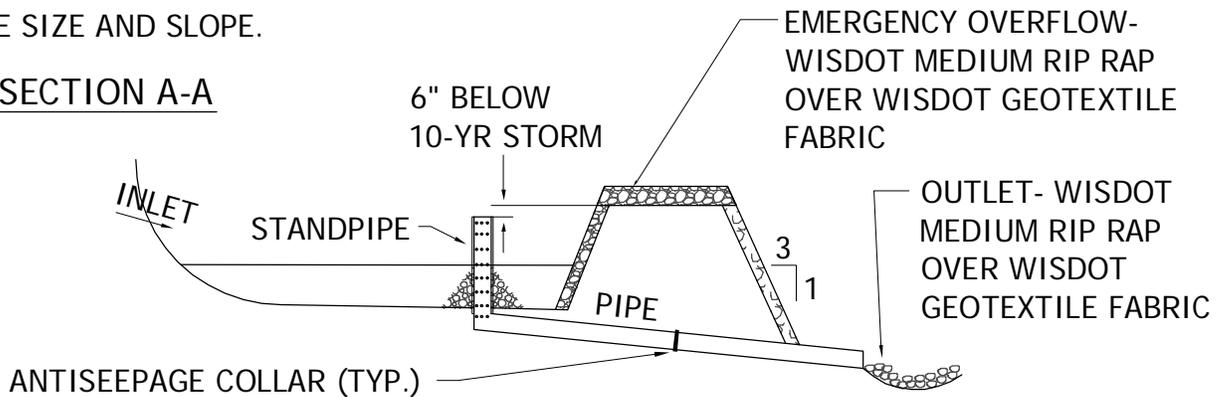
BASIN USED FOR 10 ACRES DRAINAGE AREA OR MORE. DESIGN RUNOFF VOLUME IS FROM A 2-YR, 24-HR STORM PER ACRE DRAINED TO THE BASIN. BASIN VOLUME MUST BE A MIN. OF 1800 CUBIC FEET/ACRE.

SEE PLANS/SPECIFICATIONS FOR BASIN DIMENSIONS AND PIPE SIZE AND SLOPE.

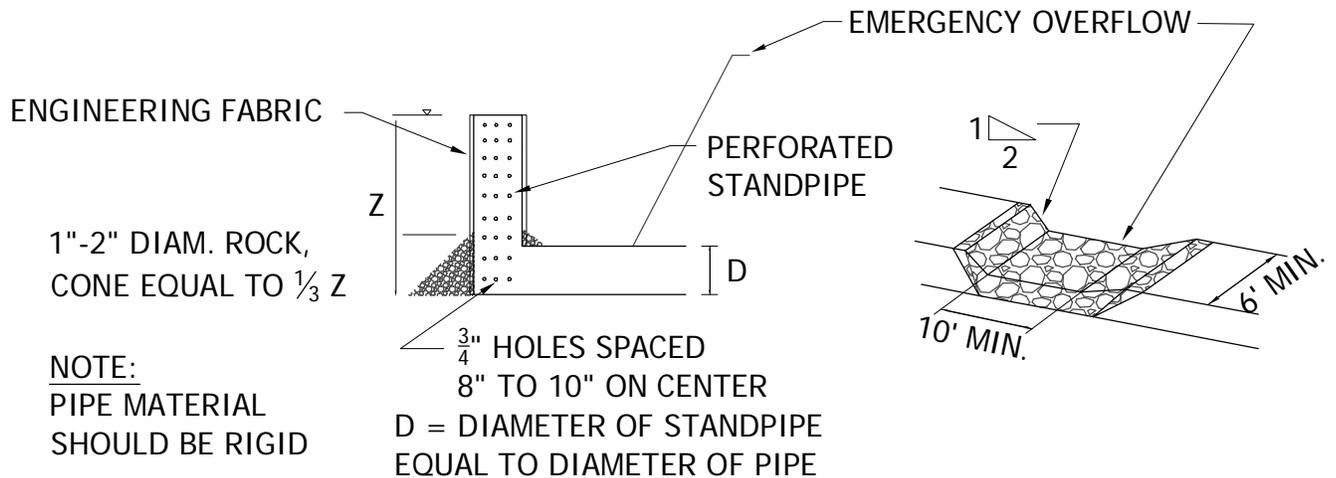
BERM STABILIZED EROSION  
MAT CONTROL BLANKET



## II. SECTION A-A



## III. BASIN STANDPIPE AND EMERGENCY OVERFLOW

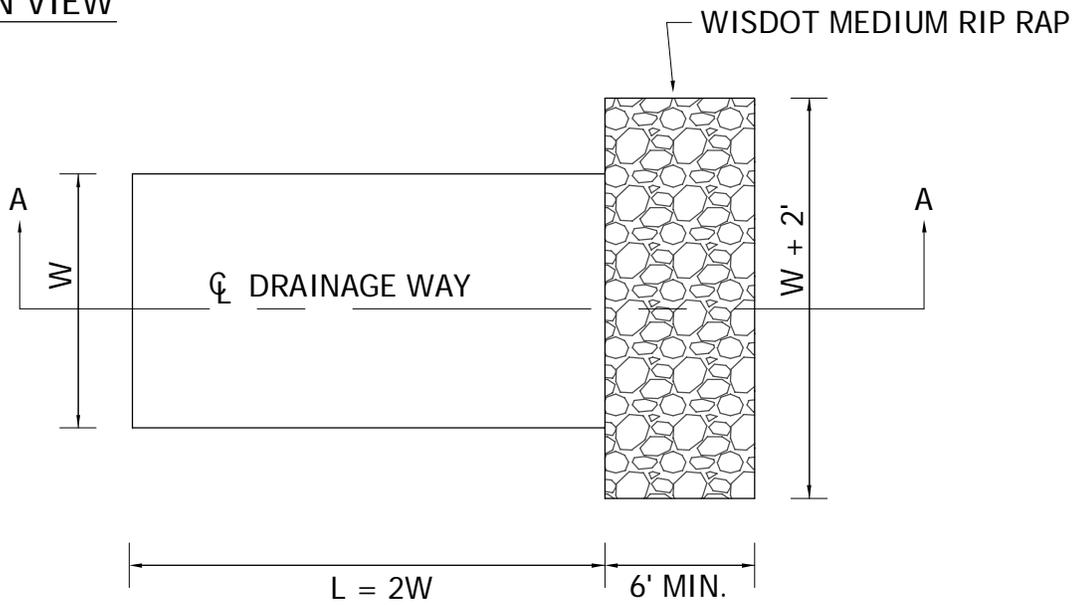


TEMPORARY SEDIMENTATION BASIN  
STANDPIPE OUTLET  
TOWN OF ST. JOSEPH, WISCONSIN

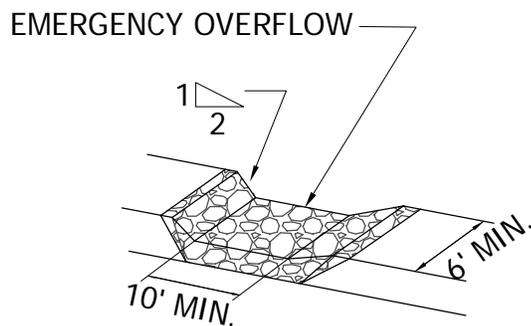
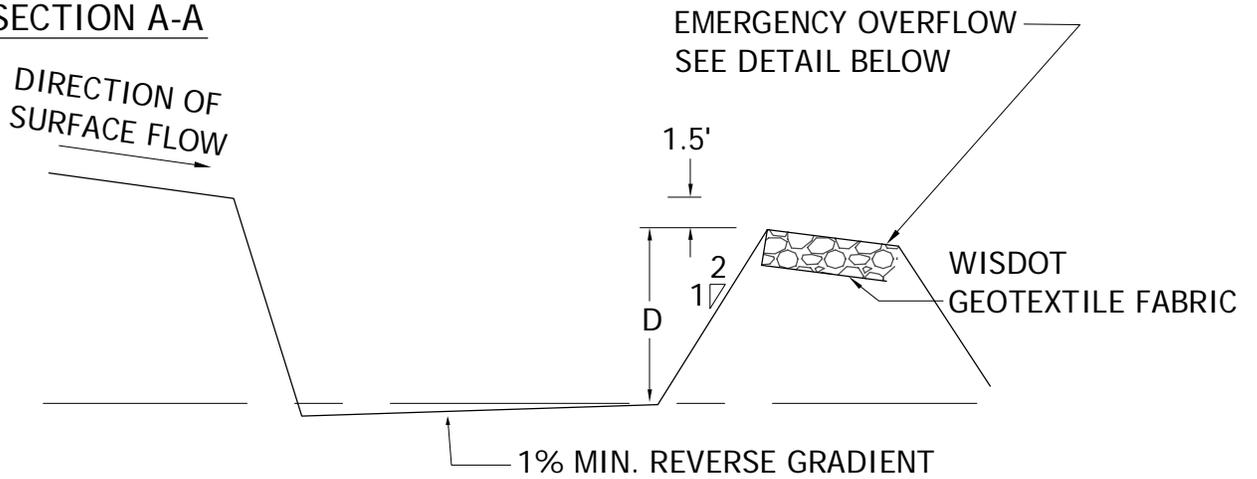
LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-11

**I. PLAN VIEW**



**II. SECTION A-A**



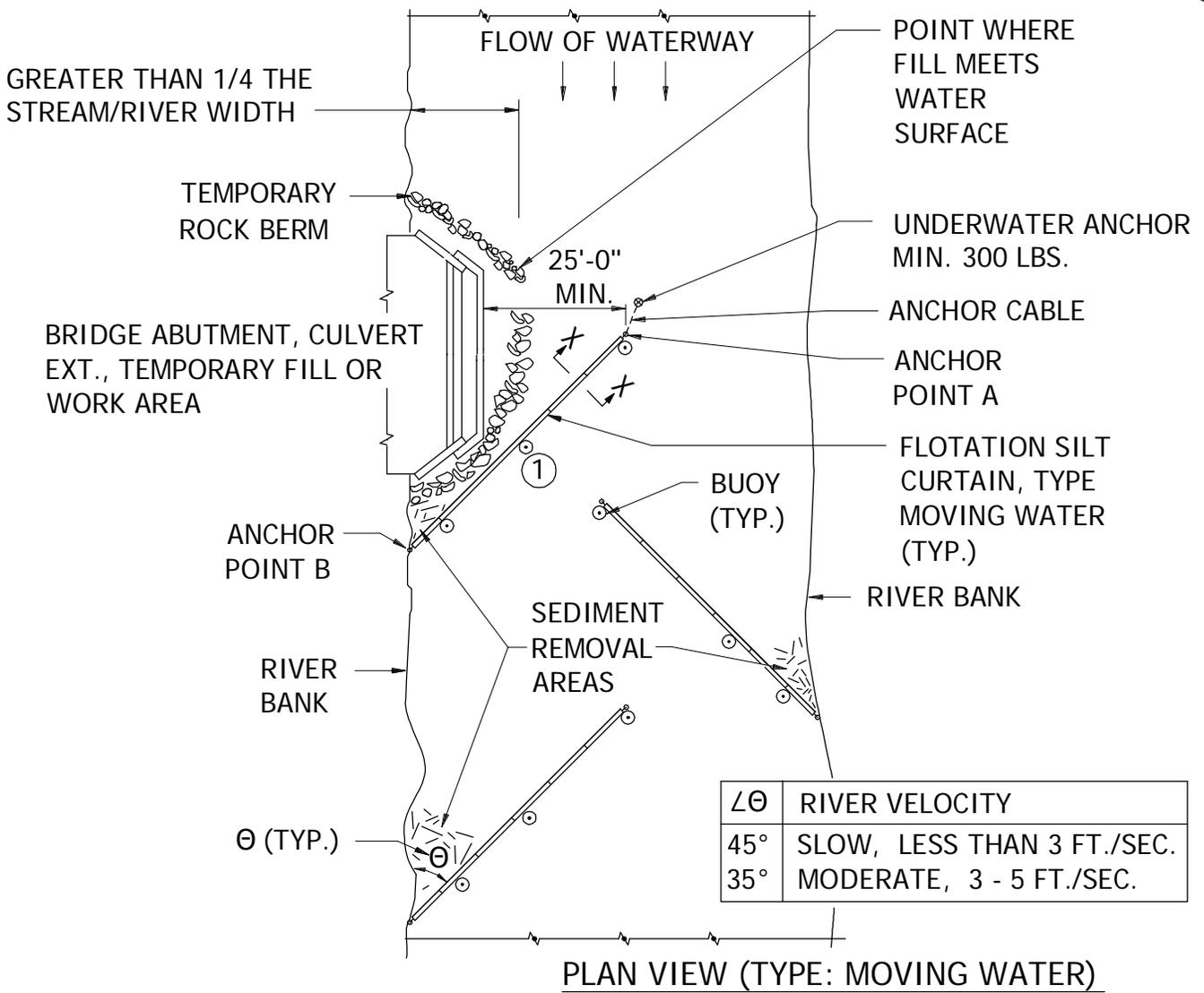
**NOTE:**

D=3' MIN, 5' MAX  
 W=10' MIN, 25' MAX  
 W(FT.)= 10 X DRAINAGE  
 AREA (AC.)

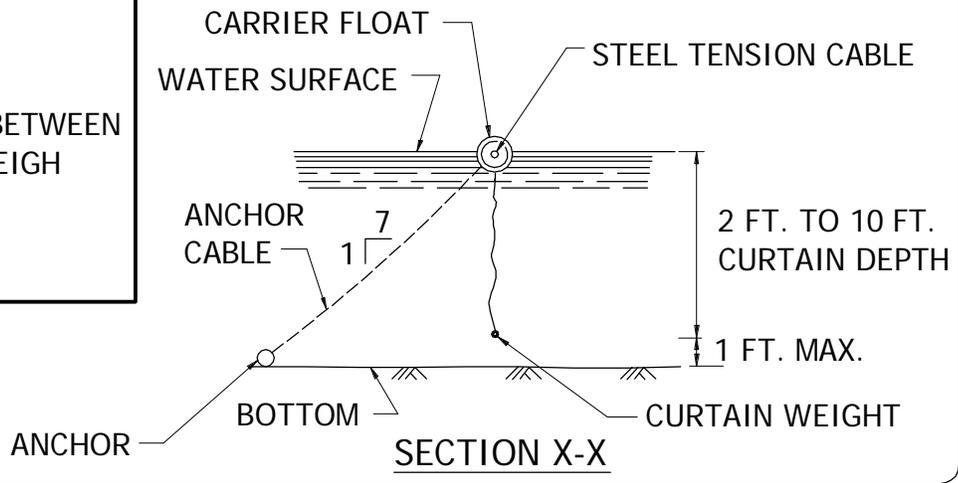
TEMPORARY SEDIMENT TRAP  
 TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
 MAR 2009

PLATE NO.  
 ERO-12



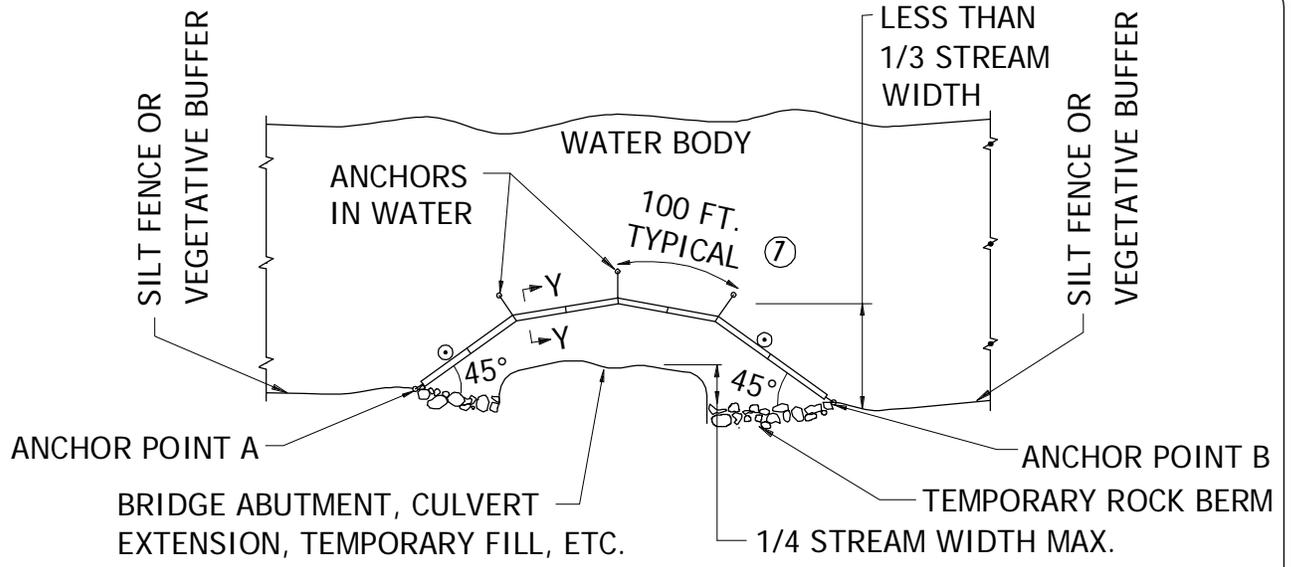
**NOTE:**  
 ① 100 FT. MAX. SPACING BETWEEN ANCHORS. ANCHORS WEIGH MIN. 40 LBS.



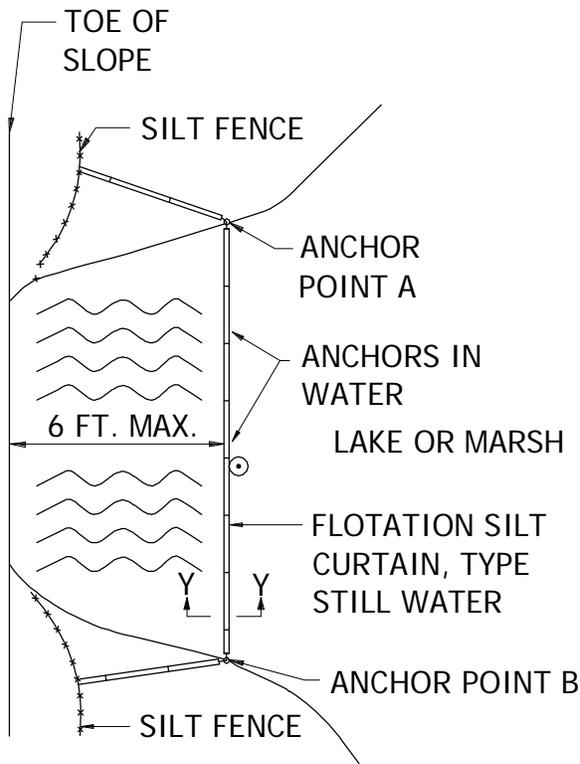
FLOATING SILT CURTAIN  
 MOVING WATER  
 TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
 MAR 2009

PLATE NO.  
 ERO-13



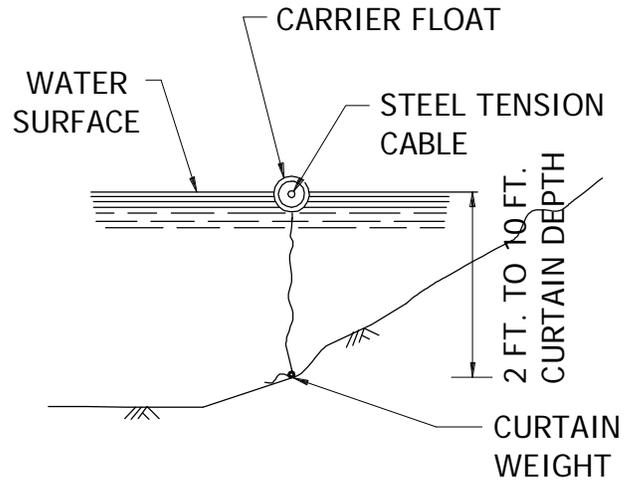
PLAN VIEW (TYPE: WORK AREA)



PLAN VIEW (TYPE: STILL WATER)

**NOTES:**

- ① 100 FT. MAX. SPACING BETWEEN ANCHORS. ANCHORS WEIGH MIN. 40 LBS.



SECTION Y-Y

FLOATING SILT CURTAIN  
STILL WATER  
TOWN OF ST. JOSEPH, WISCONSIN

LAST REVISION:  
MAR 2009

PLATE NO.  
ERO-14