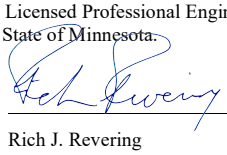
Standard Construction Specifications
City of Elko New Market
Elko New Market, MN

Standard Construction Specifications
City of Elko New Market
Elko New Market, MN

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.

By: 

Rich J. Revering

License No. 20711

Date: August 26, 2025

Bolton & Menk, Inc.
CONSULTING ENGINEERS & SURVEYORS
Mankato - Fairmont - Sleepy Eye - Burnsville - Willmar - Chaska - Ramsey, MN
Ames, IA

© Bolton & Menk, Inc. 2009, All Rights Reserved

DOCUMENT 00010 - TABLE OF CONTENTS

Standard Construction Specifications

City of Elko New Market

CONTRACT DOCUMENTS:

PROJECT MANUAL:

Introductory Information, Bidding Requirements, Contract Forms and Conditions of Contract

00005 - CERTIFICATION
00010 - TABLE OF CONTENTS
01110 - SUMMARY OF WORK
01230 - ALTERNATES / ALTERNATIVES
01315 - PROJECT MEETINGS
01330 - SUBMITTALS
01410 - REGULATORY REQUIREMENTS
01420 - SPECIFICATION REFERENCE
01425 - ABBREVIATIONS
01450 - QUALITY CONTROL
01550 - MAINTENANCE OF HAUL ROADS & TEMPORARY ACCESS
01555 - MAINTENANCE AND CONTROL OF TRAFFIC
01562 - AIR, LAND AND WATER POLLUTION
01770 - PROJECT CLOSEOUT

Specifications

02220 - REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES
02230 - CLEARING AND GRUBBING
02310 - EXCAVATION & EMBANKMENT - SITE GRADING
02315 - APPLICATION OF WATER
02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL
02330 - EXCAVATION AND EMBANKMENT - ROADWAY & PAVEMENT
02370 - EROSION CONTROL
02377 - RIPRAP
02510 - DOMESTIC WATER SYSTEM
02530 - PIPE SEWERS – SANITARY
02610 - PIPE CULVERTS
02620 - SUBSURFACE DRAINS
02630 - PIPE SEWERS – STORM
02664 - INFILTRATION/FILTRATION AREA
02705 - MANHOLES & CATCH BASINS - ADJUST CASTING
02720 - AGGREGATE BASE
02740 - PLANT-MIXED BITUMINOUS SURFACING
02741 - BITUMINOUS PATCH
02750 - CONCRETE PAVEMENT
02760 - PAVEMENT MARKINGS
02770 - CONCRETE CURBING AND DRIVEWAY PAVEMENT
02775 - WALKS – CONCRETE
02830 - MODULAR BLOCK RETAINING WALL
02920 - TURF RESTORATION

© Bolton & Menk, Inc. 2009, All Rights Reserved

02923 - RAIN GARDEN
02930 - PLANT INSTALLATION
02931 - POND PLANT INSTALLATION
02955 - DRAIN TILE REPAIR

******END OF SECTION*****

© Bolton & Menk, Inc. 2009, All Rights Reserved

CONDITIONS OF THE WORK
STANDARD CONSTRUCTION SPECIFICATIONS
CITY OF ELKO NEW MARKET
ELKO NEW MARKET, MN

01110 - SUMMARY OF WORK
01230 - ALTERNATES / ALTERNATIVES
01315 - PROJECT MEETINGS
01330 – SUBMITTALS
01410 - REGULATORY REQUIREMENTS
01420 - SPECIFICATION REFERENCE
01425 - ABBREVIATIONS
01450 - QUALITY CONTROL
01550 - MAINTENANCE OF HAUL ROADS & TEMPORARY ACCESS
01555 - MAINTENANCE AND CONTROL OF TRAFFIC
01562 - AIR, LAND AND WATER POLLUTION
01770 - PROJECT CLOSEOUT

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01110 - SUMMARY OF WORK

PART 1 -- GENERAL

1.1 PROJECT LOCATION

A. The project is located in Elko New Market, Minnesota. The project location is shown on the vicinity map in the design drawing set.

1.2 PROJECT DESCRIPTION

A. The work may include, but are not limited to:

1. Removal of bituminous pavement, concrete curb and gutter, sidewalk and driveways, pipe and other miscellaneous items.
2. Clearing and grubbing.
3. Street excavation.
4. Sanitary sewer construction.
5. Water main construction.
6. Water and sewer service construction.
7. Storm sewer construction.
8. Concrete walk construction.
9. Concrete curbing and driveway pavement construction.
10. Bituminous street construction.
11. Turf restoration and erosion control construction
12. Traffic Control.
13. Other miscellaneous work shown on the plans or specified herein.

1.3 CONTRACTOR USE OF PROJECT SITE

A. The Contractor's use of the project site shall be limited to its construction operations, including on-site storage of materials and field offices. No materials shall be stored in a location as to limit access to the affected public. Any damage caused by Contractor operations to private property, including but not limited to, parking lots, trees, shrubs, material spatter, etc. shall promptly be corrected at the Contractor’s expense.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 OPERATIONAL LIMITATIONS AND REQUIREMENTS

A. The Contractor shall confine its work within the limits of the easements, public rights-of-way, and/or construction limits as shown on the plans. If the Contractor desires additional space, it shall be the Contractor's responsibility to acquire easements and/or permission, as desired.

© Bolton & Menk, Inc. 2009, All Rights Reserved

3.2 BARRICADES

A. The Contractor shall furnish and install any necessary barricades to protect the public or workers during the project. Barricades to keep public out of construction areas shall be left in place until removed by Contractor after they are no longer required for protection. The Contractor is responsible to secure the site at all times during the work.

B. The Contractor shall furnish names, addresses, and phone numbers of at least two (2) local individuals capable of immediate response who will be responsible for the site security and traffic control devices to:

The Developer
The City of Elko New Market
Local Law Enforcement Agencies

3.3 SAFETY HAZARDS

A. The City of Elko New Market or Owner or their representatives may indicate potential safety hazards noticed at the Construction site. However, the Contractor shall remain the only party liable for the maintenance of safe construction practices.

Commented [DJ1]: Page: 2
Andy recommended 4/3/2004

3.4 INTERFERENCE WITH TREES

A. The Contractor may be required to trim tree branches that overhang the work zone as specifically identified during construction by the City of Elko New Market, where branches are likely to be broken or excessively damaged by construction equipment and activities. Branches which are accidentally damaged during construction shall be trimmed immediately. All trimmed ends shall be coated with an appropriate coating material.

B. The Contractor shall protect existing trees within close proximity of the construction from stripping and root damage. Roots extending into excavations shall be cut before excavating in their vicinity. Roots cut or otherwise damaged shall be coated with an appropriate protective dressing prior to backfilling.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01315 - PROJECT MEETINGS

PART 1 -- GENERAL

1.1 SUMMARY

A. Pre-construction Conference

1. Prior to the start of the work, a joint meeting will be held with representatives of the Contractor, the City of Elko New Market, the Owner, and any other interested parties. This meeting is intended to introduce the various key personnel from each organization and to discuss the start of the work, order of work, labor and legal requirements, insurance requirements, shop drawing requirements, protection of existing facilities, location of disposal and stockpile areas, and other pertinent items associated with the project.

2. The Contractor shall be prepared to discuss his proposed detailed construction progress schedule. The construction schedule shall be subject to the review of the City of Elko New Market, Owner and applicable agencies.

B. Construction Progress Meetings

1. Meetings will be held between the City of Elko New Market, Contractor and Owner for the purpose of reviewing the project schedule or the status of the project. These meetings will be arranged by the City of Elko New Market, and/or Owner, as deemed necessary.

C. Safety Meetings

1. The City of Elko New Market, the Owner or their representatives shall be allowed to attend Contractor's onsite safety meetings to facilitate communication among the Contractor, the City of Elko New Market and the Owner. The intent of attendance includes providing knowledge of traffic controls for Contractor's crew and general public, manager's safety issues for crew that might also affect RPRs, and provide general safety issue comments from an outside company perspective, etc.

2. The Contractor shall make additional copies of any safety related handouts or materials for distribution to the City of Elko New Market, Developer or their representatives. However, the Contractor shall remain the only party liable for the maintenance of safe construction practices.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01330 – SUBMITTALS

PART 1 -- GENERAL

1.1 SUMMARY

A. The Contractor shall submit to the Developer copies of all required submittals and sample items as noted below. Upon approval by the Developer he will submit five copies to the City. The City Engineer will review them with reasonable promptness. The Contractor shall make all required corrections and file with the Developer five corrected sets for final review and submission to the City. Two approved copies will be returned. If the Developer and Contractor require more than two (2) approved copies, the Contractor shall submit additional sets.

B. The responsibility for completeness of submittals lies with the Contractor. If the City of Elko New Market signs the submittal with no exception taken, such action shall not absolve the responsibilities of the Contractor in any way.

1.2 ITEMS TO BE SUBMITTED

1. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) materials. – Reference Section 02370 – Temporary Erosion & Sediment Control.
2. Concrete Mix Design
3. Bituminous Mix Design (wear and non-wear)
4. Gradation Test Results from 2 separate tests, as required in Source Quality Control provisions of individual sections contained herein, from material stockpiles of aggregates to be used on this project. These tests may be run by the Contractor or its supplier during aggregate production.
5. Sanitary Sewer and Sanitary Sewer Service
   (a) Manhole structure - shop drawings.
   (b) Manhole casting - shop drawings.
   (c) Piping and fittings - Certificates of Compliance.
   (d) Final televising DVD and log.
6. Storm Sewer, Subdrain and Sump Drain Lines
   (a) Manhole and catch basin structure - shop drawings.
   (b) Manhole and catch basin casting - shop drawings.
   (c) Piping and fittings - Certificates of Compliance.
7. Watermain and Water Service Lines
   (a) Hydrants - Certificates of Compliance.
   (b) Valves & boxes - Certificates of Compliance.
   (c) Pipe & fittings - Certificates of Compliance.
   (d) Corporation stops, saddles, curb stops, curb boxes, copper pipe - Certificates of Compliance.
8. Seeding - Certificates of Compliance for seed mixture.
9. Trees & Shrubs - Certificates of Compliance.

© Bolton & Menk, Inc. 2009, All Rights Reserved

1.3 MATERIAL SAFETY DATA SHEETS

A. The Contractor shall submit two copies of Material Safety Data Sheets (MSDS) for each material on site to the CITY OF ELKO NEW MARKET.

B. The Contractor shall maintain an orderly file of material safety data sheets at the job site.

1.4 RECORD DRAWINGS

A. The CONTRACTOR shall maintain at the construction site one complete full-size set of drawings suitably marked to show all deviations from the original set of drawings and other information as specified. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed. Variations from planned sanitary and water service tie-in or stub-out locations shall show station and distances left or right of the survey control centerline.

B. All variations in location for manholes, watermain bends and valves shall be located with tie-off dimensions to items on the plans and visible from the surface in the field to enable the Contractor or City personnel to locate these structures for adjustment and operation.

C. All work shall be clearly shown and the mark-up drawings shall be satisfactory to the CITY OF ELKO NEW MARKET in order to insure that adequate information is indicated to show the actual construction. The complete set of the drawings shall be submitted to the City of Elko New Market. The City will provide a copy to the Developer upon request. Failure of the CONTRACTOR to maintain an up-to-date set of record drawings on the project site shall be reason for the Owner to withhold payments and/or the City to withhold acceptance of the work. The location of all underground lines shall be determinable from the marked-up drawings.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 SUBMITTAL ROUTING

A. All submittals shall be approved by the Contractor prior to submission to the Owner.

Commented [DJ2]: Page: 2
Submitted by Andy 4/13/2004

B. A Letter of Transmittal that identifies the submitted item and the review action required shall accompany all submittals.

3.2 RESPONSIBILITY

A. The Developer and City's review of a submittal shall not relieve the Contractor from the responsibility for deviation from the drawings and specifications unless the Contractor has, in writing, called attention to the deviations at the time of submission; nor shall it relieve the Contractor from the responsibility of errors in the submittals.

B. All submittals shall be approved by the Owner and City prior to their incorporation into the project. If materials are installed without prior review, they will be subject to removal, at the Contractor's expense, if the material is found to be non-conforming to the Specifications.

****** END OF SECTION ******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01410 - REGULATORY REQUIREMENTS

PART 1 -- GENERAL

1.1 SUMMARY

A. Applicable codes and standards referred to in these specifications shall establish minimum requirements for equipment, materials, construction and shall be superseded by more stringent requirements of drawings and specifications when and where they occur.

B. All equipment furnished and installed under the contract shall be designed, fabricated, assembled, installed, and placed into service. The equipment will conform to the applicable provisions of the Federal and State Safety and Health Standards, including but not limited to Federal Occupational Safety and Health Regulations for Construction; the Division of Environmental Health, Minnesota Department of Health; the Minnesota Pollution Control Agency; the Department of Natural Resources; the Minnesota Department of Transportation, Division of Highways; the Minnesota Industrial Commission and ordinances of the City that apply to this work.

C. All construction methods and tools shall comply with commonly accepted standards for safety and health of personnel engaged on construction, including but not limited to Federal Occupational Safety and Health Regulations for Construction; the Division of Environmental Health, Minnesota Department of Health; the Minnesota Pollution Control Agency; the Department of Natural Resources; the Minnesota Department of Transportation, Division of Highways; the Minnesota Industrial Commission and ordinances of the City that apply to this work.

D. Any conflicts between specifications and applicable codes and standards shall be referred to the City Engineer.

1.2 PERMITS OBTAINED BY OWNER

A. The Owner has applied for the following permits from appropriate authorities. It is anticipated that permission to proceed will be authorized prior to execution of Contract. The Contractor shall perform all work and conduct itself in full accordance with the requirements of the applicable permit:

1. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001)
2. Minnesota Pollution Control Agency (MPCA) - Extension of sanitary sewers.
3. Minnesota Health Department - Extension of water mains.
4. Minnesota Department of Transportation (Mn/DOT) - Work within right-of-way.
5. Minnesota Department of Transportation (Mn/DOT) - Access Driveway Permit
6. Utility installation within a County right-of-way.

B. The Contractor shall be responsible for posting any bonds which may be required as a condition to any permit, listed above.

1.3 PERMITS OBTAINED BY CONTRACTOR

A. The Contractor shall secure and pay the cost of any other permits not mentioned aboLve, which may be required including but not limited to:

1. Work within City right-of-way permit.

1.4 WORK WITHIN A RAILROAD RIGHT OF WAY

A. The Contractor shall comply with all provisions of Mn/DOT Specification 1708.

© Bolton & Menk, Inc. 2009, All Rights Reserved

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01420 - SPECIFICATION REFERENCE

PART 1 -- GENERAL

A. The specifications listed in this section are not all inclusive, i.e., there may be other specifications referenced in individual specification sections that are not listed in 01420

1.2 SOIL DISTURBING ACTIVITIES

A. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001)

1. Details of the Permit are available on request from the Developer, or at.

(a) Storm Water Program - http://www.pca.state.mn.us/water/stormwater/stormwater-c.html

(b) Permit itself - http://www.pca.state.mn.us/publications/wq-strm2-51.doc

1.3 WATERMAIN, SANITARY SEWER AND STORM SEWER CONSTRUCTION

A. Watermain, sanitary sewer and storm sewer construction shall conform to the applicable provisions of the "Standard Utilities Specifications for Trench Excavation and Backfill/Surface Restoration Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation" as published by the City Engineers Association of Minnesota, (CEAM).

B. Copies of the Standard Utilities Specifications may be downloaded and printed from the "*DOCUMENTS´* portion of the City Engineers Association of Minnesota (CEAM) web site at:

www.ceam.govoffice.com

C. References to the standard specifications shall serve to supplement or modify the referenced specification. Portions of referenced specifications not specifically affected by the supplemented information of modification shall remain in effect as originally written.

D. THREADED ITEMS - All threaded items furnished under this contract, including but not limited to mechanical joint connectors, flanged joint connectors, mainline valves, saddles, corporation stops, curb stops, hydrants, and air release valves shall be furnished to the nominal size as specified with ENGLISH threads. Should the Contractor choose to supply any items with metric threads, the Contractor shall supply full shop drawings of the item(s) with special attention drawn to the metric thread designation proposed.

1.4 GRADING, STREET AND SURFACE IMPROVEMENTS

A. All of Divisions II and III, and any specifically referenced Division I sections of the Minnesota Department of Transportation (Mn/DOT), "Standard Specifications for Construction", latest Edition, together with all the Supplemental Specifications and Mn/DOT Technical Memoranda in force 30 calendar days prior to bid date and referencing the use of English units of measure, shall apply to all construction performed under this Contract except as modified in these Specifications. Unless noted, the requirements in the Specifications are in addition to the Mn/DOT Specification section being referenced.

Commented [BMI - DJ3]: Page: 1
Wes Brown to meet 2005 mndot

Mn/DOT Division	Applicable
I	Only when specifically referenced.

© Bolton & Menk, Inc. 2009, All Rights Reserved

II & III	Always.

B. Whenever the word "Contracting Authority," "Department" or "Owner" is used in the sense of ownership as part of these Specifications and Contract, it shall mean Owner as defined in the Agreement.

C. References to the standard specifications shall serve to supplement or modify the referenced specification. Portions of referenced specifications not specifically affected by the supplemented information or modification shall remain in effect as originally written.

Commented [BMI - DJ4]: Page: 2
Wes Brown to meet 2005 mndot

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 THE CONTRACTOR SHALL HAVE THE FOLLOWING DOCUMENTS AT THE SITE AT ALL TIMES DURING THE CONSTRUCTION:

A. The applicable edition of Mn/DOT Standard Specification for Highway Construction.

B. Any Supplemental Specifications to the applicable edition of Mn/DOT Standard Specification for Highway Construction.

C. Any Technical Memoranda specifically referenced or linked to the execution of the Contract Documents.

D. Minnesota Temporary Traffic Control Zone Layouts Field Manual, January 2014

E. Project Manual

F. "Standard Specifications" as published by the City Engineers Association of Minnesota, (CEAM) 2013 Edition.

G. **The Storm Water Pollution Prevention Plan (SWPPP), including completed inspection reports, developed for this project.**

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01425 – ABBREVIATIONS

PART 1 -- GENERAL

1.1 WHEREVER THE FOLLOWING ABBREVIATIONS ARE USED, THEY SHALL HAVE THE MEANINGS INDICATED:

A.	AASHTO	American Association of the State Highway and Transportation Officials
B.	ACI	American Concrete Institute
C.	AI	The Asphalt Institute
D.	ASTM	American Society for Testing and Materials
E.	AWWA	American Water Works Association
F.	CEAM	City Engineer's Association of Minnesota
G.	CLFMI	Chain Link Fence Manufacturers Institute
H.	Mn/DOT	Minnesota Department of Transportation
I.	OSHA	Occupational Safety and Health Administration
J.	PCA	Portland Cement Association or Minnesota Pollution Control Agency (context obvious)
K.	SWPPP	Storm Water Pollution Prevention Plan

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01450 - QUALITY CONTROL

PART 1 -- GENERAL

1.1 SCOPE OF TESTS

A. All materials, equipment, installation, and workmanship included in this contract, if so required by the Developer or City shall be tested and inspected to prove compliance with the contract requirements.

B. All tests and inspections shall be completed under the direct supervision of a licensed professional. All tests and inspections shall be the responsibility of the Contractor as identified in the individual sections of these specifications and shall be reported directly to the Owner.

C. No tests specified herein shall be applied until the item to be tested has been inspected and approval given for the application of such tests.

D. Tests and inspections shall include all those specified in the individual sections and shall be compensated in accordance with the individual sections.

E. Tests and inspection, unless otherwise specified or accepted, shall be in accordance with the recognized standards of the industry.

~~F.~~

~~G.~~F. Soil compaction testing performed by the Owner is deemed to be for the convenience of the Owner for documentation of the progress and performance of the work. Soil compaction testing results will be made available to the Contractor. However, the Owner makes no representations that the number of tests taken will be sufficient to accurately characterize the condition of any trench, and the Contractor shall take any supplemental test it deems necessary to monitor its own performance. The Owner may, at its discretion, eliminate soil and compaction testing on any part or the entire project. The presence or absence of soil and compaction testing or the approval of the results thereof shall in no way reduce the Contractor's obligation to correct trench settlement as described in these Special Provisions.

1.2 TESTING AND LABORATORY SERVICES

A. Independent Testing Laboratory

1. Where in the individual sections of this Specification, tests or inspections are required to be furnished by the Contractor by an independent testing laboratory; the Contractor shall employ and arrange for, at its expense, the services of an approved independent testing laboratory satisfactory to the Developer to perform the testing utilizing recognized standard procedures and criteria.

B. Reports and Certificates

1. The Contractor shall submit reports and certificates of all inspections and test to the Owner in duplicate. The Owner will submit one copy of the reports and certificates to the City of Elko New Market.

C. Sample Materials

1. The Contractor shall furnish all sample materials required for these tests and shall deliver the same without charge to the testing laboratory or other designated agency when and where directed by them.

© Bolton & Menk, Inc. 2009, All Rights Reserved

D. Additional Tests

1. In addition to those tests required by the individual technical specifications and/or referenced specifications:

(a) Additional tests required beyond these required under this specification may be ordered by the Developer to settle disagreements with the Contractor regarding quality of work done. If the work is defective, the Contractor shall pay all costs of the additional tests and shall correct the work. If the work is satisfactory, the City of Elko New Market will pay for the additional tests.

1.3 SITE INVESTIGATION AND CONTROL

A. The Contractor shall verify all dimensions in the field and shall check field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the work due to his failure to comply with this requirement.

B. The Contractor shall inspect related and appurtenant work and shall report in writing to the Developer any conditions, which will prevent proper completion of the work. Failure to report any such conditions shall constitute acceptance of all site conditions, and any required removal, repair or replacement caused by unsuitable conditions shall be performed by the Contractor at his sole cost and expense.

1.4 RIGHT OF REJECTION

A. The City Engineer, acting for the City of Elko New Market, shall have the right, at all time and places, to reject any articles or materials to be furnished hereunder which in any respect, fail to meet the requirements of these specifications, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the work at the site. If the City Engineer or RPR, through an oversight or otherwise, has accepted materials or work which is defective or which is contrary to the specifications, such material, no matter in what stage or condition of manufacture, deliver, or erection, may be rejected by the City of Elko New Market.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01550 - MAINTENANCE OF HAUL ROADS & TEMPORARY ACCESS

PART 1 -- GENERAL

1.1 MAINTENANCE

A. The Contractor shall notify and obtain the approval of the local governmental authority for the use of all haul roads and construction easement areas within the City limits. The Contractor will be required to deliver new materials and dispose of all excavated material plus removal items only on designated haul roads. This also applies to equipment entering and leaving the project site such as backhoes and front end loaders.

B. The Contractor shall confine all operations, ingress and egress to the designated haul roads. The City of Elko New Market may **assess a fee in the amount of $500 per day for each day** that the Contractor occupies or travels on non-designated haul roads. The fee shall be in addition to damages assessed against the Contractor to repair damage caused to the roadway.

C. The Contractor shall maintain and repair any damage to haul roads. Maintenance shall include, but not be limited to, the following: blading, patching, signing, graveling and dust control.

D. The Contractor shall be responsible for all roadbed maintenance over backfilled trenches and roadbed subgrade during the construction period.

1.2 REFERENCED SPECIFICATION

A. Mn/DOT Specification 1515, Control of Haul Roads

B. Mn/DOT Specification 2051, Maintenance and Restoration of Haul Roads.

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

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Reclaimed bituminous and salvaged aggregate base may be used for temporary access surfacing.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01555 - MAINTENANCE AND CONTROL OF TRAFFIC

PART 1 -- GENERAL

1.1 SUMMARY

A. Traffic Control

1. All traffic control methods shall conform to the provisions of the latest edition of the Minnesota Manual of Uniform Traffic Control Devices (MN MUTCD), including its supplements and Part VI, "Field Manual for Temporary Traffic Control Zone Layouts", the "Guide to Establishing Speed Limits in Highway Work Zones", the Minnesota Flagging Handbook, the provisions of Mn/DOT 1404 and 1710, the Minnesota Standard Signs Manuals Parts I and II, the Traffic Engineering Manual Chapter 8 Appendixes 8-8.02 and 8-8.03, the Traffic Control Layouts/Typical Traffic Control Layouts in the Plans.
2. The Contractor shall furnish, install, maintain and remove all traffic control devices including, but not limited to, construction signs, barricades and barricade weights, traffic marking tape, and warning lights which are needed for the guidance, warning and control of traffic adjacent to and through this project.
3. The Contractor shall be responsible for securing a site for storage of construction equipment and materials.

B. General Construction and Traffic Requirements

1. The parking of Contractor's Vehicles that obstruct any traffic control devices will not be permitted.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The Contractor shall notify the City 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.

B. The traffic control devices required along the project corridor shall be delivered and installed prior to the start-up of the work.

C. The Contractor shall maintain traffic through the intersections whenever possible.

D. The Contractor shall monitor and maintain all traffic control devices.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01562 - AIR, LAND AND WATER POLLUTION

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary for the prevention of air, land and water pollution as indicated on the plans or as specified herein or as directed by the Developer or City.

1.2 SPECIFICATION REFERENCES

1. Mn/DOT Specification Section1717 shall apply to the prevention of air, land and water pollution.
2. Mn/DOT Specification Section 2573 shall apply to storm water management.
3. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 GENERAL

A. The Contractor shall provide and maintain all sanitary accommodations for use by employees.

B. All solid waste material shall be disposed by the Contractor in accordance with the local and State solid waste disposal regulations.

3.2 DUST CONTROL

A. The Contractor shall perform dust control operations whenever necessary to prevent the production of dust in amounts damaging or creating a nuisance to property, vegetation, animals, or persons in the vicinity of the construction. The Contractor shall be responsible for any damage resulting from dust originating from the construction. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility under these Contract provisions.

B. Requests for water to be placed for dust control shall be accomplished within 4 hours of notification and shall also include evenings and weekends as required or deemed necessary by the City of Elko New Market or the Developer. **Failure to perform the work requested within the 4 hours may result in a contract deduction of $100 for each 4-hour period that the work is incomplete, as observed by the City.**

3.3 USE OF CHEMICALS

A. Reference Storm Water Pollution Prevention Plan (SWPPP).

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 01770 - PROJECT CLOSEOUT

PART 1 -- GENERAL

1.1 FINAL INSPECTION

A. After the cleaning up of the work, premises, and all other areas and structures connected with the performance of the contract, the work as a whole, shall be examined by the Developer and City of Elko New Market; and any workmanship or materials found not meeting the requirements of the specifications shall be identified and included on a punch list given to the Contractor.

B. The Contractor shall, at its own expense, promptly remove, replace, repair, or otherwise correct the deficiencies with good and satisfactory workmanship and material to the satisfaction of the City of Elko New Market and Developer.

1.2 PROJECT ACCEPTANCE

A. The project shall be accepted after the final examination has been conducted and all settlement, defects, damages, etc., discovered during the previous examination have been remedied.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

****** END OF SECTION ******

© Bolton & Menk, Inc. 2009, All Rights Reserved

TECHNICAL SPECIFICATIONS

STANDARD CONSTRUCTION SPECIFICATIONS

CITY OF ELKO NEW MARKET

ELKO NEW MARKET, MN

02220 - REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES
02230 - CLEARING AND GRUBBING
02310 - EXCAVATION & EMBANKMENT - SITE GRADING
02315 - APPLICATION OF WATER
02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL
02330 - EXCAVATION AND EMBANKMENT - ROADWAY & PAVEMENT
02370 - EROSION CONTROL
02377 - RIPRAP
02510 - DOMESTIC WATER SYSTEM
02530 - PIPE SEWERS – SANITARY
02610 - PIPE CULVERTS
02620 - SUBSURFACE DRAINS
02630 - PIPE SEWERS – STORM
02664 - INFILTRATION/FILTRATION AREA
02705 - MANHOLES & CATCH BASINS - ADJUST CASTING
02720 - AGGREGATE BASE
02740 - PLANT-MIXED BITUMINOUS SURFACING
02741 - BITUMINOUS PATCH
02750 - CONCRETE PAVEMENT
02760 - PAVEMENT MARKINGS
02770 - CONCRETE CURBING AND DRIVEWAY PAVEMENT
02775 - WALKS – CONCRETE
02830 - MODULAR BLOCK RETAINING WALL
02920 - TURF RESTORATION
02923 - RAIN GARDEN
02930 - PLANT INSTALLATION

© Bolton & Menk, Inc. 2009, All Rights Reserved

02931 - POND PLANT INSTALLATION
02955 - DRAIN TILE REPAIR

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02220 - REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the removal of pavement and miscellaneous structures as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2104 shall apply to the removal of pavement and miscellaneous structures, except as modified herein.

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

1.3 SUBMITTALS

A. No exception to the referenced specification is made.

PART 2 -- PRODUCTS

2.1 NO EXCEPTION TO THE REFERENCED SPECIFICATION IS MADE.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Remove existing bituminous, curb and gutter, walks, drives, steps and other specified items where shown on the plans and/or required for the construction of the project.

B. Saw cut bituminous and concrete surfaces prior to excavation to produce a clean-cut breakage joint.

C. Dispose of all concrete and bituminous removal items, rubbish and debris outside of the construction zone. It shall be the Contractor's responsibility to secure all required permits and pay all fees associated with the disposal of the material and to secure the disposal site.

D. Remove existing mailboxes, street signs and similar structures that must be removed to construct the project. Restore these facilities to the original location or a location designated by the City of Elko New Market, when work has progressed past the location of the structure. The Contractor shall reinstall or replace those structures which are damaged or lost during the course of construction with new materials or components.

E. The Contractor shall take full responsibility to protect structures or other surface improvements from damage that are not to be removed. If damage to these facilities occurs due to the construction of the project, the Contractor shall replace or repair them.

F. The City of Elko New Market will designate which existing hydrants, valves and boxes, manhole castings and other items removed as part of the construction, are to be salvaged. All other items shall be disposed by the Contractor.

© Bolton & Menk, Inc. 2009, All Rights Reserved

G. In general, all existing watermain, sanitary sewer and storm sewer pipe being replaced by new improvements shall be considered as debris and removed during the construction process. In certain instances, existing pipes may be abandoned in place, only upon approval by the City.

H. Where existing pipes are to be abandoned in place, the exposed pipe ends shall be bulkheaded shut with a watertight non-shrink concrete grout at a thickness of not less than one pipe diameter.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02230 - CLEARING AND GRUBBING

PART 1 -- GENERAL

1.1 SUMMARY

A. 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.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2101 shall apply to clearing and removing trees, stumps and brush, except as modified herein.

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

PART 2 -- PRODUCTS

A. No exception to the referenced specification is made.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. All trees, stumps, brush, seed, grass, roots or other undesirable material within the construction limits shall be disposed of by the Contractor.

B. Disposal methods shall be approved by the City of Elko New Market and shall meet all Local, State and Federal regulations.

C. Burning or burial will not be allowed within City limits.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02310 - EXCAVATION & EMBANKMENT - SITE GRADING

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the excavation and embankment of the site improvements as indicated on the drawings or as specified herein.

1.2 DEFINITIONS

A. Building Pad - The area under any proposed building, or an area delineated on the plans as the site for a future building.

B. Building Pad Hold-Down - The elevation that the proposed building pad is to be constructed to. This elevation does not represent the finished grade elevation of the proposed building.

C. Compacted Volume (CV) – The volume of material actually placed as determined by computing the difference between original and final cross-sections by the average end area method.

D. Excavated Volume (EV) – The volume of material actually excavated as determined by computing the difference between original and final cross-sections by the average end area method.

E. Excess Material - Material that is not needed to complete the earthwork balance.

F. Structural Improvements - For the purposes of this specification, structural improvements shall refer to any roadway, sidewalk, trail, building, sign, or other improvements requiring suitable soil to support the anticipated loadings.

G. Subcut - Excavation performed below the proposed subgrade or building pad hold-down elevation shown on the plans for the purposes of removing unsuitable material.

H. Subgrade - The top surface of a roadbed upon which the pavement structure (including aggregate base and/or granular subbase) is to be constructed. This is also a general term denoting the soil foundation upon which a proposed improvement is to be placed.

I. Suitable Material - Sand, silty sand or low plasticity clay soils with no organic content. The City of Elko New Market shall make the final determination as to what material will be considered suitable.

J. Topsoil - Any soil, generally black in color, containing organic material.

K. Unsuitable Material - Soil with organic content including topsoil, swamp deposits, peat, muck, or other material deemed by the City of Elko New Market to be unsuitable for fill or embankment construction.

1.3 SPECIFICATION REFERENCES

A. Mn/DOT Specification No. 2105 shall apply to the excavation and embankment for the site improvements, except as modified herein.

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

C. Frozen material will not be allowed for roadway or building pad construction. The City of Elko New Market shall approve locations for placement of frozen material.

© Bolton & Menk, Inc. 2009, All Rights Reserved

PART 2 -- PRODUCTS

2.1 MATERIALS

A. All excess excavated material shall become the property of the Contractor and shall be removed from the site and disposed of at a location secured by the Contractor.

B. Stabilizing aggregates for use in backfilling subgrade excavations shall be material generally produced and referred to as “11/2-inch dust free aggregate", "4" to 6" rubble aggregate" or other coarse aggregate found to be in general compliance by the City of Elko New Market. Aggregate base, Class 5 may also be used at the direction of the City of Elko New Market.

PART 3 -- EXECUTION

3.1 GENERAL

A. Excavated topsoil and suitable material for reuse in the project shall be segregated and stockpiled at a site selected by the Owner and approved by the City.

B. All excavations shall be kept free of water during the placement of fill.

C. The Contractor shall utilize methods and equipment for excavating that will minimize the disturbance to the subgrade. The use of backhoes rather than scrapers or front-end loaders may be required to minimize repeated passes of equipment over wet subgrade soils.

D. At the end of each day the Contractor shall eliminate surface indentations, including those caused by sheepsfoot rollers and tractor cleats, and roll the surface with a steel wheel or rubber-tired roller.

E. Sufficient common excavation shall be utilized by the Contractor to replace the soil shrinkage from excavation which occurs through the course of construction handling and compaction. The Contractor shall make his own estimate of the amount of shrinkage that will occur.

F. Topsoil

1. Topsoil shall be salvaged and stockpiled in locations shown on the plans or in areas requiring final turf establishment, as approved by the Developer.
2. Once the salvaged topsoil is stockpiled, the Contractor shall make an estimate of any potential shortage or surplus of topsoil possible in meeting the other provision of this Contract and notify the Developer of the estimate.
3. In areas requiring final turf establishment with no proposed or anticipated structural improvements (street boulevards, parks, outlots, etc.), topsoil shall be spread uniformly to a minimum depth of 6-inches.
4. In areas requiring final turf establishment with proposed or anticipated structural improvements (building pads, etc.), topsoil shall be spread to a depth of 2 to 4-inches.
5. In areas not requiring final turf establishment with proposed or anticipated structural improvements (streets, walks, etc.), no topsoil shall be placed.

G. Material suitable for curb backfill shall be segregated and stockpiled at a site selected by the Contractor. Following curb construction, the material shall be placed behind the curb, allowing for a minimum of 6-inches of topsoil.

© Bolton & Menk, Inc. 2009, All Rights Reserved

H. In areas where filling above the existing grade is necessary to establish the final designed elevation, the Contractor shall fully remove the topsoil and organic material to the level of stable underlying sand or clay prior to backfilling with suitable embankment material.

I. The Contractor shall make his own determination as to whether the proposed grading has been completed according to the plans. When the Contractor determines that the grading has been completed, he will notify the Developer. Neither the City of Elko New Market nor the Developer will provide any intermediate acceptance of the grading improvements until all of the grading has been completed and all topsoil has been spread.

3.2 EXCAVATION AND EMBANKMENT IN AREAS WITH PROPOSED STRUCTURAL IMPROVEMENTS.

A. All vegetation, topsoil, organic, or other unsuitable materials shall be excavated from the area below the structural improvement. Due to the variability of soils, the depth of the excavation in these areas is expected to vary significantly throughout the site. The excavated area shall be inspected by the geotechnical engineer as specified in Field Quality Control.

B. Subcut excavations shall be laterally oversized a distance of one (1) foot beyond the edges of the proposed structural improvement for each foot of excavation depth (1:1 oversizing). The extents of the structural improvement areas shown on the plans do not necessarily show this 1:1 oversizing.

C. Fill placed from the bottom of the subcut to the subgrade or building pad hold down elevation shall be selected material from the excavation or borrow material. Such material shall consist of suitable material as defined above. Clay fill shall be moisture-conditioned to within 2% above or below the optimum moisture content determined from the Standard Proctor compaction test.

D. The embankment material shall be spread in 6 to 8 inch loose lifts.

E. In all roadway and pavement areas, the Contractor shall perform a roll test on the subgrade prior to placing any portion of the pavement structure. The roll test shall be performed with a fully-loaded tandem truck. Soils which rut or deflect 1-inch or more shall be corrected by scarifying, drying, and recompacting the soils. Subgrade excavation shall only be performed as directed by the Developer.

F. Subgrade excavation shall be performed only when the Developer and the Contractor both agree that the inplace soil cannot be made suitable by scarifying, drying, and recompacting. Such excavation shall be backfilled with suitable excess common excavation material, stabilizing aggregate, granular borrow or select granular borrow, as directed by the Developer. If the Contractor proceeds without approval from the Developer, all work and material to restore the roadbed to the proper grade shall be at the Contractor's expense.

3.3 EXCAVATION AND EMBANKMENT IN AREAS WITH NO PROPOSED STRUCTURAL IMPROVEMENTS

A. Topsoil or unsuitable material may be used to construct embankments in areas with no structural improvements.

B. The use of topsoil with favorable hydraulic conductivity properties is preferred for embankments and re-fill of borrow areas in rear-yard drainage areas and other open areas to promote infiltration of surface waters.

3.4 COMPACTION

A. All embankment grading shall be compacted using:

© Bolton & Menk, Inc. 2009, All Rights Reserved

1. Under areas with proposed paved or structural improvements, Specified Density Method :
   (a) 100% Standard Proctor dry density within 3 feet of the proposed sub-grade or building pad hold-down elevation.
   (b) 95% of the maximum Standard Proctor dry density below 3 feet from the proposed sub-grade or building pad hold-down elevation.
2. Under areas with no proposed paved or structural improvements, Quality Compaction Method.

3.5 SOURCE QUALITY CONTROL

A. The Contractor shall arrange for having the following testing performed:
   1. One (1) gradation test per each 500 tons or 275 cubic yards (CV) of select granular borrow.
   2. One (1) gradation test per each 500 tons or 275 cubic yards (CV) of stabilizing aggregate. Select granular borrow.

B. All testing shall be performed by an independent testing laboratory approved by the City of Elko New Market.

3.6 FIELD QUALITY CONTROL

A. The Contractor shall arrange for and pay all costs associated with having the following testing and inspections, with written certification, performed:
   1. Areas with Proposed Structural Improvements:
      (a) One (1) compaction test (including Standard Proctor) per each 500 SY per each 3 foot of depth of embankment.
      (b) Building Pads shall have a minimum of one (1) compaction test (including Standard Proctor) per each 3 foot of depth of embankment for each pad.
      (c) Inspection following the removal of unsuitable material and prior to placement of embankment material to insure that all topsoil and unsuitable material has been removed, and that the exposed subgrade has sufficient bearing capacity for the anticipated structural improvement.

B. The Contractor shall notify the City of Elko New Market 24 hours prior to completing the removal of topsoil and unsuitable material in areas with proposed structural improvements to insure that appropriate inspection may be performed.

C. All testing shall be performed by an independent testing laboratory. All inspection shall be performed under the direct supervision of a licensed Geotechnical Engineer who shall provide written certification of the results.

D. Samples for testing shall be taken from material in place, in building sites and/or paved areas. All sampling methods shall be approved by the City of Elko New Market.

E. The Contractor shall coordinate the site grading and inform the City of Elko New Market when the roadway subgrade is ready for test rolling, prior to installing any aggregate base. The City of Elko New Market may order some subgrade correction prior to allowing the installation of aggregate base.

F. Should any of the specified tests or inspections fail, the Contractor may arrange and pay for additional tests or inspections as may be necessary to satisfy the City of Elko New Market that the specified requirements have been met.

© Bolton & Menk, Inc. 2009, All Rights Reserved

G. Grading tolerances for streets and walks, lot corners and drainageways shall be per MnDOT Specifications, or .05 above to 0.10 below the design elevation at that location for that portion of the typical section shown on the plans, whichever is less restrictive. Tolerances for building pads shall conform to those shown on the approved construction plans after topsoil placement.

*****END OF SECTION*****

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02315 - APPLICATION OF WATER

PART 1 -- GENERAL

1.1 SUMMARY

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

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification No. 2130 shall apply to the application of water, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 NO EXCEPTION TO THE REFERENCED SPECIFICATION IS MADE.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The Contractor shall secure his own source of water. The Contractor may contact the City of Elko New Market to determine whether water is available from the City of Elko New Market and the associated cost.

B. The Contractor shall apply water as may be required to obtain proper compaction for all dust control, street construction, and embankment construction.

C. The Contractor shall NOT apply water in quantity or rate sufficient to cause erosion.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to maintenance of utility service, trench excavation, bedding and backfill necessary for the construction of underground utilities and structures, as indicated on the drawings or as specified herein.

1.2 DEFINITIONS

A. Excess Material - Material that is not needed to complete the earthwork balance.

B. Suitable Material - Sand, silty sand or low plasticity clay soils with no organic content. The City of Elko New Market shall make the final determination as to what material will be considered suitable.

C. Unsuitable Material - Soil with organic content including topsoil, swamp deposits, peat, muck, or other material deemed by the City of Elko New Market to be unsuitable for fill or embankment construction in structural areas.

1.3 SPECIFICATION REFERENCES

A. Reference CEAM Specification No. 2600 shall apply to excavating, installing bedding and backfilling all trench excavation construction necessary for the completion of work, except as modified herein.

1. All references to Mn/DOT specifications shall mean the specific edition, including Supplemental Specifications and Technical Memoranda as identified in Section 01420 of these Specifications.
2. CEAM Specification 2600.3.A1 Maintenance of Traffic is hereby deleted, See Section 01555 of these Specifications.
3. CEAM Specification 2600.3.A2 Establishing Line and Grade is modified by Section 01720 of these Specifications.
4. CEAM Specification 2600.3.A3 Protection of Surface Structures:
   (a) Street signs shall be considered as items of essential service.
   (b) The last sentence in the third paragraph is deleted.
5. CEAM Specification 2600.3.A5 Removal of Surface Improvements - All rubble and debris to be disposed of off-site, shall be disposed of at a location secured by the Contractor and in a manner in compliance with applicable Local, State and Federal regulations.
6. CEAM Specification 2600.3.B3 Excavation Limits and Requirements - OSHA limitations shall also apply to the top of trench width determination. The seven-day written notice is waived if changing soil conditions and OSHA compliance apply.
7. CEAM 2600.3.C1 Jacking/Boring - The Contractor is responsible for protecting all existing utilities above the elevation of the pipe invert minus 2 times the wall thickness of the casing pipe being installed. In addition, bentonite materials shall not be permitted to flow back into the excavation during the non-open cut construction.
8. CEAM 2600.3.F1 Turf Restoration is hereby deleted, See Section 02920 of these Specifications.

© Bolton & Menk, Inc. 2009, All Rights Reserved

9. CEAM 2600.3.F1 Pavement Restoration is hereby deleted, See applicable sections of these Specifications.

10. CEAM 2600.4 Method of Measurement Paragraphs B and C are hereby deleted. See applicable sections of these Specifications.

B. Reference Mn/DOT Specification No. 2451 shall apply to granular materials for foundation, bedding and encasement of utility line construction, except as modified herein.

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

1.4 SUBMITTALS

A. No exception to the referenced specification is made.

PART 2 -- PRODUCTS

2.1 GRANULAR MATERIALS

A. Granular Bedding and Granular Encasement - Bedding and granular encasement materials used in the pipe zone area (6" below the pipe to 12" over the pipe) shall meet the same gradation and specification as granular backfill.

B. Granular Backfill - Granular backfill material to be used above the pipe zone up to the top of subgrade if unsuitable native material is encountered shall conform to Mn/DOT Specification 3138, Class 3, modified to permit the following gradation limits. The use of the material shall be reviewed by the City of Elko New Market prior to the installation of the material.

Sieve Size	Percent Passing
1½"	100
# 4	35 - 100
# 10	20 - 80
# 40	5 - 40
# 200	0 - 15

~~A.~~C. Granular Foundation - Granular foundation material (rock) shall meet MnDOT specification 2451 for aggregate bedding as modified below. This material may be required for stabilization of the foundation below the pipe bottom, around the pipe fittings and under fire hydrants. The material shall be crushed rock meeting the following gradation by weight. The use of the material shall be reviewed by the City of Elko New Market prior to the installation of the material.

Sieve Size	Percent Passing
1½"	95 - 100
¾	20 - 60

© Bolton & Menk, Inc. 2009, All Rights Reserved

# 4	0 - 5

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Temporary Service

1. It will be necessary to maintain utility service during the construction period. Before proceeding with the project, the Contractor shall establish a work plan and submit the plan to the appropriate utility personnel for review and comment. The plan shall outline the method to be used to maintain service to the affected consumers and estimate the duration of any anticipated interruptions of service. The Contractor is the sole party responsible to notify the Utility and consumers who may be affected by limitations and/or interruption of utility service.
2. Planned service interruptions shall not exceed six (6) hours in any 72 hour period unless previously approved by the Utility.
3. **The Contractor shall coordinate water main shut-downs with the water utility and notify affected residents/users at least 24 hours but no more than 48 hours prior to the requested shut-down.**
4. If needed, the Contractor shall furnish, install and maintain equipment to bypass and control the storm and/or sanitary sewer flow around the construction zone. Failure to operate and maintain the bypass equipment could result in direct damage claims as well as consequential damage claims to the Contractor.

3.2 EXCAVATION AND PREPARATION OF TRENCH

A. Interference and Protection of Underground Structures

1. If an existing utility is shown on the plans and there is no bid item for removing and restoring, or working around the utility, the Contractor shall be required to remove and restore, or protect the utility.
2. The inverts of existing sewers (storm & sanitary), culverts, subdrains, etc. shall be protected during construction. The Contractor is responsible to inspect and clean, if necessary, all lines which have become compromised by the construction operations.

B. Excavation Limits and Requirements

1. The trench for all flexible pipe shall be undercut six-inches below the pipe barrel to permit the installation of granular bedding or foundation material.
2. The trench for all rigid pipe shall be undercut three-inches below the pipe barrel to permit the installation of granular bedding or foundation material.
3. The Contractor shall install and operate a dewatering system to maintain all trenches free of water wherever necessary. The Contractor shall make his own subsurface investigations and determine what dewatering methods to utilize to prevent such damage.
4. The Contractor shall be responsible for any damage to adjacent structures or buildings caused by the dewatering operations
5. Use of granular foundation material in lieu of performing dewatering is permitted.
6. All excess excavated material shall become the property of the Contractor and shall be removed from the site and disposed of at a location secured by the Contractor.

C. Preparation and Maintenance of Foundation

© Bolton & Menk, Inc. 2009, All Rights Reserved

1. Flexible Pipe Materials

   (a) Unless otherwise shown on the plans, in ordinary trench conditions, the pipe shall be bedded in compacted granular bedding which extends from 6" below the bottom of the pipe to the spring line of the pipe. The Contractor shall bed and encase the pipe in bedding and encasement material, as shown on the plan details. The bedding and encasement shall be compacted to 90% Standard Proctor Density, or as recommended by the pipe manufacturer, whichever is denser.

   (b) Where the trench foundation has been found to be unstable and/or not suitable, the Contractor shall furnish and install compacted granular foundation material from 6" below the bottom of the pipe to the bottom of the pipe. Bedding material shall then be placed to the spring line of the pipe.

2. Rigid Pipe Materials

   (a) Unless otherwise shown on the plans, in ordinary or stable trench conditions, the pipe shall be placed on the bottom of the pre-shaped excavated trench. The bottom of the excavated trench shall be shaped to fit the circumference of the pipe up to 0.15 of the outside diameter of the pipe. The Contractor shall encase the pipe from the 0.15 outside diameter to the 0.60 diameter height of the pipe with granular bedding and granular encasement material to 95% Standard Proctor Density or as recommended by the pipe manufacturer, whichever is denser.

   (b) Where the trench foundation has been found to be unstable and not suitable for bedding, the trench shall be undercut until acceptable conditions are found. The Contractor shall then install compacted foundation material to meet the line and grade specified on the plan.

3.3 INSTALLATION OF PIPE AND FITTINGS

A. The Contractor shall keep accurate records as to the location of the service connections, field tile, utility crossings, etc. either constructed or encountered during the construction Measurements to service lines shall be taken from the two nearest permanent structures (i.e., hydrants, valves, manholes, buildings).

B. When connection to an existing conduit is required at an existing or proposed manhole, the Contractor shall expose and verify the elevation of the existing conduit prior to laying any pipe toward, or away from, the connection point. If the elevation of the existing conduit does not match the elevation shown on the plans, the Contractor shall notify the City of Elko New Market, at which time the City of Elko New Market may adjust the proposed grades.

C. Sewer Pipe at Structures

   1. The pipe end(s) shall be extended inside the structure a maximum of 3 inches unless approved otherwise by the City of Elko New Market or shown on the plans.

D. Connection and Assembly of Joints

   1. For sanitary sewer, watermain, forcemains, and culverts, all joints shall be water tight.
   2. For storm sewers and subdrains, all joints shall not permit the intrusion of soil or backfill materials.

      (a) If reinforced concrete pipe is used, the Contractor may at its own discretion choose to wrap each joint with a geotextile filter fabric, as specified, rather than place mastic in the joint.

E. Bulkheading Open Pipe Ends

   1. The Contractor shall furnish, install and maintain a temporary, water-tight plug adequately blocked in place to prevent flooding of the existing downstream sewer system. The plug shall be

© Bolton & Menk, Inc. 2009, All Rights Reserved

placed at the beginning of the project or at the end of each working day at the end of the day's operation.

2. When flows are diverted from an existing sewer or tile to be abandoned in place, the Contractor shall construct a water-tight plug on the open end of the abandoned pipe.

3. Permanent watertight plugs shall be constructed with concrete grout with a thickness of not less than 1 pipe diameter.

3.4 BACKFILLING OPERATIONS

A. Backfill material around all manholes, catch basins, valve boxes, curb boxes, and hydrants shall be compacted with hand machines. The maximum lift thickness shall be 6-inches.

Commented [DJ5]: Page: 5From St Peter 5/27/04

B. Flexible Pipe Materials

Commented [DJ6]: Page: 5
Changes from Sleepy Eye. Per dave Palm.

1. Unless otherwise shown on the plans, granular bedding and granular encasement material shall be furnished, placed and compacted to bed and encase the pipe to an elevation 12 inches above the pipe the full width of the trench. The contractor shall bed and encase the pipe in granular bedding and granular encasement material to 95% Standard Proctor Density or as recommended by the pipe manufacturer, whichever is denser. Select native material shall be used above the bedding and encasement material (12-inches above the pipe) up to the bottom of the subgrade excavation zone.

C. Rigid Pipe Materials

Commented [DJ7]: Page: 5
Changes from Sleepy Eye. Per dave Palm.

1. Unless otherwise shown on the plans, in ordinary trench conditions, select native material shall be used above the granular bedding and granular encasement material (0.6 diameters up the pipe) up to the bottom of the subgrade.

2. In conditions where the top of the pipe is less than 12-inches from the bottom of the proposed subgrade, the pipe shall be backfilled with granular bedding and encasement material up to the bottom of the subgrade excavation zone.

D. Structures

Commented [BMI - DJ8]: Page: 5
Requested by Brian Malm regarding N. Mankato

1. All manholes, catch basins, valve boxes, water vaults, headwalls and miscellaneous structures shall be backfilled with granular backfill material and shall be compacted with a hand operated motorized compactor in maximum lifts of eight inches. Lifts must be leveled and of uniform thickness, shoveled by hand if necessary. Compaction of each lift shall continue until all surfaces have been tamped smooth and no further evidence of consolidation is evident.

E. All trench backfill shall be compacted in accordance with the Specified Density Method :

1. Under areas with proposed paved or structural improvements:

(a) 100% Standard Proctor from the proposed pavement subgrade elevation down 3 feet.

(b) 95% Standard Proctor from the bottom of excavation up to 3 feet below the subgrade elevation

2. Under areas with no proposed paved or structural improvements:

(a) 95% Standard Proctor

3.5 SOURCE QUALITY CONTROL

A. The Contractor shall arrange for having the following testing performed:

(a) One (1) gradation test per each 500 tons or 275 cubic yards (CV) of granular material.

© Bolton & Menk, Inc. 2009, All Rights Reserved

3.6 FIELD QUALITY CONTROL

A. The Contractor shall arrange for having the following testing performed:

1. One (1) compaction test (including Standard Proctor) on subgrade per each 300 lineal feet of trench per 3 feet of depth

B. The Contractor shall cooperate fully with the individuals performing the tests.

C. Samples for testing shall be taken from material in place, in the trench at locations approved by the City of Elko New Market. All sampling methods shall be approved by the City of Elko New Market.

D. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the City of Elko New Market that the requirements have been met.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02330 - EXCAVATION AND EMBANKMENT - ROADWAY & PAVEMENT

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performance of all work and services necessary or incidental to the excavation and embankment for roadways and pavements as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2105 shall apply to excavation and embankment, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 MATERIALS

A. All excess excavated material shall become the property of the Contractor and shall be removed from the site and disposed of at a site secured by the Contractor.

B. Stabilizing aggregates for use in backfilling subgrade excavations shall be material generally produced and referred to as "1 ½ -inch dust free aggregate" or other coarse aggregate found to be in general compliance by the City of Elko New Market. Aggregate base, Class 5 may also be used at the direction of the City of Elko New Market.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. At the end of each day the Contractor shall eliminate surface indentations, including those caused by sheeps foot rollers and tractor cletes, and roll the surface with a steel wheel or rubber tired roller.

B. Subgrade excavation shall be performed, as directed by the City of Elko New Market, for the removal of any unstable soils that may be encountered. Such excavation shall be backfilled with suitable excess common excavation material or stabilizing aggregate as directed by the City of Elko New Market.

C. Once the subgrade has been test rolled and accepted by the City of Elko New Market, no traffic or construction equipment shall be permitted to operate directly on the subgrade without the prior approval of the City of Elko New Market. The subgrade shall be relatively smooth prior to the placement of aggregate base. All equipment shall be restricted to operating only in areas where the aggregate base has been installed to its full design depth.

D. Material suitable for curb backfill shall be segregated and stockpiled at a site selected by the Contractor. Following curb construction, the material shall be placed behind the curb to the subgrade level of the topsoil.

© Bolton & Menk, Inc. 2009, All Rights Reserved

E. The Contractor shall salvage and stockpile all topsoil removed during the course of the construction. This topsoil shall be used where required for turf establishment as directed by the Developer.

F. Sufficient excavated material shall be utilized by the Contractor to replace loss volume due to soil shrinkage from trench excavation that may occur through the course of construction. The Contractor shall make his own determination of the amount of shrinkage that will occur.

G. All embankment shall be compacted using the Specified Density Method:

1. Under areas with proposed paved or structural improvements:

(a) 100% Standard Proctor from the proposed pavement subgrade elevation down 3 feet.

(b) 95% Standard Proctor from the bottom of excavation up to 3 feet below the subgrade elevation.

2. Under areas with no proposed paved or structural improvements:

(a) 95% Standard Proctor.

3.2 SOURCE QUALITY CONTROL

A. The Contractor shall arrange for having the following testing performed:

1. One (1) gradation test per each 500 tons or 275 cubic yards (CV) of select granular borrow.

2. One (1) gradation test for stabilizing aggregate.

B. Samples for testing shall be taken from material in stock at locations approved by the City of Elko New Market. All sampling methods shall be approved by the City of Elko New Market.

3.3 FIELD QUALITY CONTROL

A. "Blue top" stakes shall be provided by the Contractor at 100-foot intervals to confirm that the subgrade is constructed to the required grades and elevations. Methods other than "blue top" staking may be allowed, if approved by the City of Elko New Market.

B. The Contractor shall arrange for and pay all costs associated with having the following testing performed:

1. One (1) compaction test (including Standard Proctor) on subgrade per each 500 SY of roadway per each 3 feet of subgrade excavation depth.

C. All testing shall be performed by an <u>independent</u> testing laboratory approved by the City of Elko New Market.

D. The Contractor shall cooperate fully with the individuals performing the tests.

E. Samples for testing shall be taken from material in place, in the roadway at locations approved by the City of Elko New Market. All sampling methods shall be approved by the City of Elko New Market.

F. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the City of Elko New Market that the requirements have been met.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02370 - EROSION & SEDIMENT CONTROL

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to storm water management as indicated on the plans or as specified herein or as directed by the City of Elko New Market.

B. The Contractor and Owner shall identify a person knowledgeable and experienced in the application of erosion and sediment control BMP's who will oversee the implementation of the SWPPP.

C. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001)

1. The **Owner** has developed a **Storm Water Pollution Prevention Plan (SWPPP)** in accordance with Part III (Storm Water Discharge Design Requirements) of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System Permit that is included in the Appendix or in the drawings.
2. As a condition of the Award, the Contractor shall assume the role of "**Operator**" under the NPDES Permit by submitting an ***Application For Permit Transfer/Modification*** within 7 days of acknowledging the *Notice of Award*. Late submittals will not be rejected; however, the MPCA reserves the right to take enforcement for any unpermitted discharges or permit noncompliance for the new registered party that has assumed control of the site.
3. For **storm water** discharges from construction activities where the **Owner** or **Operator (Contractor)** changes, the new **Owner** or **Operator** can implement the original **SWPPP** created for the project or develop and implement their own **SWPPP**.
4. **Permittee(s)** shall ensure either directly or through coordination with other **Permittee(s)** that their **SWPPP** meets all terms and conditions of this permit and that their activities do not render ineffective another party's **erosion prevention** and **sediment control Best Management Practices (BMP's)**."
5. The Contractor shall maintain copies of the SWPPP on the project site at all times and comply with all provisions contained therein.
6. Process Summary:
   (a) Owner issues *Notice of Award* to Contractor
   (b) Contractor acknowledges the *Notice of Award*
   (c) Within 7 days of acknowledgement, the Contractor submits ***Application For Permit Transfer/Modification*** to the MPCA to accept the responsibilities of the "Operator" on the NPDES Permit. Copies of the application shall be sent to the Owner and the City of Elko New Market.
   (d) The Contractor may then review the SWPPP and propose changes or a new SWPPP to the Developer for review and comment; and the City of Elko New Market for approval.
      (1) During the review and modification period, all work performed on the project shall be in compliance with the original SWPPP, including having copies available on the project site.

Commented [DJ9]: Page: 1
PART II, A - http://www.pca.state.mn.us/publications/wq-strm2-51.doc

Commented [DJ10]: Page: 1
Paragraph II. B. 5. Change of Coverage.

© Bolton & Menk, Inc. 2009, All Rights Reserved

(2) Once a SWPPP is modified / amended, the Contractor shall distribute new copies to the City of Elko New Market, the Developer, the on-site project supervisor and the construction observer.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2573 shall apply to temporary erosion control.

B. Mn/DOT Specification Section1717.2 shall apply to erosion control.

C. Section 02930 of these specifications shall apply to Rapid Stabilization, if applicable.

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

PART 2 -- PRODUCTS

A. Erosion Control – Unless otherwise indicated on the plans:
1. Seed shall be Mn/DOT mixture 270 and shall be placed in accordance with Mn\DOT 2575. Seed shall meet Mn/DOT Specification 3876. Mulch shall be Mn/DOT 3882 Type II mulch. Mulch shall be applied at a rate of 2 tons/acre Mulch shall be disc anchored. Fertilizer shall be applied to seeded areas incidental to seeding. Fertilizer shall be a 10—0—10 (%n—p—k) applied at a rate of 200 lb/acre.
2. Sod shall meet Mn/DOT Specification 3878.2A, Type Lawn.
3. Blankets shall be Categories 1 through 5 based on application. Submit manufacturers literature for approval and installation requirements.

B. Sediment Control
1. Inlet protection devices shall conform to the details shown on the plans.
2. "Silt Fence:
   (a) Heavy Duty, as specified in the referenced specification.
   (b) Preassembled, as specified in the referenced specification.
   (c) Machine sliced, as specified in the referenced specification.
3. Infra-Safe prefabricated sediment control barrier as manufactured by Royal Environmental Systems, or approved equal. Unless otherwise shown on the plans, barrier devices shall be wrapped with geotextile fabric or surrounded with aggregate to filter the water during periods of limited flow.
4. Ditch Checks
   (a) Roll-type ditch checks for shallow swales – rock or mulch logs, fiber rolls, etc.
   (b) Rock Checks – required for concentrated flows where roll-type checks are inadequate.
   (c) The use of coconut rolls in any public water for any reason **is strictly prohibited**.

PART 3 -- EXECUTION

3.1 GENERAL

A. Construction and/or installation of all erosion & sediment control devices shall be completed prior to any soil disturbing activities.

© Bolton & Menk, Inc. 2009, All Rights Reserved

B. The Contractor shall construct a rock construction entrance or other approved BMP at the entry point to the project site.

C. Prior to construction, the City of Elko New Market, Developer and Contractor shall observe the existing storm water outfall system and discharge area and shall document the existing conditions. Upon completion of surface restoration (i.e., paving and turf establishment), the storm water outfall system and discharge area shall be observed and all increased sediment deposits shall be removed and disposed of by the Contractor. All increases in sediment deposits shall be considered to have originated from the project site.

D. Prior to construction, the City of Elko New Market, Developer and Contractor shall review the project to identify critical areas that could require rapid stabilization during the construction process, and develop a plan to either mitigate disturbance to those areas or identify the methods of rapid stabilization most appropriate.

E. Exit areas or roads shall be kept clean of excess soil by routine sweeping.

F. The Contractor shall salvage, transport and place cohesive materials excavated from the work for use in constructing berms for temporary sediment traps.

3.2 CONSTRUCTION REQUIREMENTS

A. A goal of the project during construction is to get the cleanest water possible into the storm drainage systems and protect critical and unique areas. Every effort shall be required by the Contractor to achieve these goals.

Commented [BMI - DJ11]: Page: 3
Kevin Suggestion 2/9/07

B. 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 of Elko New Market on areas where the potential for pollution has been increased due to the Contractor's operations.

C. If Contractor fails to install and/or perform the appropriate erosion and sediment control practices, as determined by the City of Elko New Market, the Developer may issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the **required work or be subject to a $500 per calendar day deduction for non-completion.**

D. When the City of Elko New Market determines that the erosion and/or sediment control practices installed by the Contractor have failed, the Contractor shall correct the cause and alleviate all sediment deposition, to the fullest extent possible. If the corrective action is not taken in a timely manner, the Developer may issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the **required work or be subject to a $500 per calendar day deduction for non-completion.**

E. 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 re-stabilize 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 restraints. If precluded, removal and stabilization must take place within 7 calendar days of obtaining access. The Contractor is responsible for contacting all local, regional, State, and Federal authorities before working in surface waters and obtaining applicable permits.

© Bolton & Menk, Inc. 2009, All Rights Reserved

F. 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 application form and information is included an appendix of these specifications. The Owner will initiate the Permit process and pay the required "Application Fee." The Contractor will be required to comply with all of the terms and conditions of the Permit that also includes performing the required inspections of the erosion control devices and maintaining an Inspector's Log for the MPCA Storm Water Permit. A copy of the proposed log form is available from the Developer.

G. Energy dissipation or other outlet treatment must be installed within 24 hours of connection to surface water.

3.3 EROSION CONTROL

A. Unless precluded by snow cover, all exposed soil areas, including topsoil stockpiles, shall have temporary erosion control or permanent cover for the exposed soil areas within the time frames prescribed in the MPCA General Stormwater Permit in effect at the time work is initiate.

B. Sodding shall be in accordance with Mn/DOT 2575.

3.4 SEDIMENT CONTROL

A. The Contractor shall install Sediment Control Devices where control is required and/or where directed by the City of Elko New Market. The control measures as shown on the plans shall be considered the minimum requirements with additional measures required dependent on construction sequencing and scheduling.

B. Inlet Protection shall be used around catch basins and/or other surface water accesses to any existing or proposed storm water conveyance system.

C. 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 City of Elko New Market.

D. The Contractor shall construct temporary sediment traps with granular outlets within the disturbed roadway area and shall stockpile enough suitable fill material to regrade sedimentation ponds and temporary ditches to match the subgrade elevation.

3.5 INSPECTION AND MAINTENANCE:

A. The Contractor shall routinely inspect the construction site once every seven (7) days during active construction and within 24 hours of a rainfall event greater than 0.5 inches in a 24-hour period.

B. All inspections performed during construction must be recorded and records retained with the SWPP in accordance with the Storm Water Permit.

C. Silt fence, erosion control, and other BMP's must be replaced, repaired, or supplemented when they reach 50% design load.

3.6 FINAL STABILIZATION:

A. The Contractor shall ensure final stabilization of the site. The Contractor shall submit a Notice of Termination within 30 days after final stabilization is complete or control has been passed to another owner.

© Bolton & Menk, Inc. 2009, All Rights Reserved

B. The Contractor shall remove all temporary erosion control measures and BMPs as part of the final site stabilization.

C. The storm water permit further defines final stabilization and its requirements.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02377 – RIPRAP

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to construct the rip-rap and geotextile fabric as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2511 shall apply to the construction of rock rip-rap, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 MATERIALS

A. The material to be used shall be the class rip-rap and fine filter aggregate shown on the plans as specified in Mn/DOT Specification 3601.

B. The geotextile fabric shall meet the requirements of Mn/DOT 3733, Type IV, unless otherwise shown on the plans.

C. The Contractor may choose the type of filter material, except as restricted for geotextile filters, unless the type is specified on the plans.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. No exception to the referenced specification is made.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02446 - TRENCHLESS PIPELINE

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to trenchless pipeline construction. Various methods will be considered, providing they can generally follow the design profile in constructing the pipeline from the starting access point to the ending access point without the need to excavate an intermediate access.

B. The INSTALLER for all forms of trenchless pipeline installation shall meet or exceed the experience requirements as stated in CEAM 2600.3.C2.

1.2 SPECIFICATION REFERENCES

A. Reference CEAM Specification No. 2600.3 Non-Open Cut Pipe Installation shall apply, except as modified herein or as shown on the plans.

B. For carrier pipe and fitting materials, see the following specification sections as appropriate:

1. Section 02510 – Domestic Water System
2. Section 02530 – Pipe Sewers – Sanitary
3. Section 02630 – Pipe Sewers - Storm

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

1.3 SUBMITTALS

A. Construction Profile

1. The Contractor shall monitor and plot the constructed pipeline profile to scale throughout the length of the trenchless construction.
   (a) The horizontal profile shall be on a consistent scale where 1 inch measures no more than 100 feet.
   (b) The Contractor shall note on the profile any deviations (horizontal or vertical) from the planned alignment which encroach on the separation space as required by CEAM 2600.3.A2.
   (c) The Contractor shall note on the profile any horizontal deviations in excess of 4 feet from the planned alignment.
   (d) The vertical profile shall be on a consistent scale where 1 inch measures no more than 10 feet.
2. Duplicate copies of the profile shall be submitted.

PART 2 -- PRODUCTS

A. CASING PIPE

1. STEEL CASING PIPE
   (a) Casing pipe shall be welded steel pipe, new material, with a minimum yield strength of 35,000 PSIG (pounds per square inch gauge). The following minimum wall thickness shall be used:

Outside Casing Diameter	Minimum Wall Thickness
12" to 24"	0.250"
30"	0.375"
36" to 42"	0.500"

© Bolton & Menk, Inc. 2009, All Rights Reserved

2. HIGH DENSITY POLYETHYLENE (HDPE) CASING PIPE

(a) The pipe material shall be extra high molecular weight, high density polyethylene (EHMW-HDPE, PE3408) conforming with the minimum structural standards of ASTM D3350 with cell classification 345434C . All HDPE pipe material shall meet the requirements of ASTM D1248 for a Type III, Class C, Category 5, Grade P34.

(1) The Contractor shall verify the lengths of conduit necessary in the field before fabrication.

PART 3 -- EXECUTION

3.1 TRACER WIRE INSTALLATION

A. The installation of any non-conductive mains and/or services that will not extend in a straight line between manholes, catch basin or other surface structures shall include the installation of tracer wire in accordance with the details shown on the plans.

B. Tracer wire must be furnished and installed in accordance with Minnesota Rural Water Association published specifications.

C. The Contractor shall successfully demonstrate that facilities can be located with common sensing equipment using the installed tracer wire system prior to final acceptance.

3.2 CONSTRUCTION REQUIREMENTS:

A. FUSING/FABRICATION

1. The pipe shall be assembled and joined at the site using the butt-fusion method to provide a leak proof joint prior to insertion. All equipment and procedures used shall be in strict compliance with the manufacturer's recommendations and specifications.

2. Threaded or solvent welded joints or connections are not permitted.

3. Fusing shall be performed by personnel certified as fusion technicians by the manufacturer of the pipe and/or the fusing equipment.

4. The butt-fused joints shall maintain true alignment and shall have uniform roll-back beads from the fusing process. The joint shall be watertight and shall have a tensile strength equal to that of the pipe.

5. Adequate cooling time shall be allowed prior to the release of the pressure from the fusing unit.

6. All joints shall be subject to acceptance by the City of Elko New Market prior to insertion.

7. All defective joints shall be cut out and replaced.

B. BLOCKING AND ANCHORING OF PIPE

1. A thrust block of cast-in-place concrete, which covers the installed fitting, is not permitted. Pre-cast concrete thrust blocks and other restraining devices such as adjustable rods or cables shall be provided at all bends or wherever the pipe changes direction.

C. INSTALLATION OF PIPELINES THROUGH CASINGS

1. The Contractor shall install the carrier pipe through the casing pipe using supports or cradles constructed of permanent materials to support the entire length of the carrier pipe in the casing. Support material shall be uniformly spaced and located on three sides of the carrier pipe to prevent shifting of the pipe as detailed on the Plans. The line and grade at any point within the carrier pipe shall not vary by more than 0.5 foot from the horizontal plan line and 0.2 foot from the vertical grade.

© Bolton & Menk, Inc. 2009, All Rights Reserved

2. Following the installation of the carrier pipe in the casing, place 4" PVC riser pipes at both ends of the casing pipe and extend the PVC risers to the surface. Fill annular space at both ends with an appropriate concrete grout to form a watertight seal. The casing pipe and riser pipes shall be completely filled with sand. Riser pipes shall then be cut off 1' below finished grade. Glue PVC caps to the top of each riser pipe.

D. TRENCHLESS METHODOLOGY

1. The remaining specifications in this section pertain to directional drilling techniques as the most common type of trenchless technology. Other trenchless technologies may also be used, provided that the Contractor submits a set of specifications for the proposed alternate technology.

(a) DRILLING EQUIPMENT

(1) The installation shall be by a steerable drilling tool capable of installing continuous runs of pipe, without intermediate pits for a minimum distance of 350 feet.

(b) DRILLING

(1) The Contractor shall initially drill a pilot hole that follows the route of the pipeline to be constructed.

(2) The Contractor shall monitor the route taken by the drilling unit utilizing the downhole survey calculation methods discussed in API Bulletin D20 entitled *Directional Drilling Survey Calculation Methods and Terminology*. A surface monitoring system may be allowed in lieu of the downhole calculation method. Approval of surface monitoring shall be at the discretion of the City of Elko New Market based on the City Engineer's evaluation of the particular system proposed for use.

(3) The Contractor shall provide the City of Elko New Market with an "as-built" profile of the pilot hole prior to the back reaming and pipe insertion as which time the City Engineer shall review it for tolerance compliance.

(4) The back reamer shall be designed to create a void in the surrounding soil through which the new pipe may be threaded.

(5) The size of the reaming tool shall be in accordance with the manufacturer's specifications to achieve the sizing indicated on the plans, or in the Schedule of Unit Prices.

(6) Upon commencement, pipe insertion shall be continuous and without interruption from one structure to another, except as approved by the City of Elko New Market.

(c) INSERTION

(1) Drill holes shall only be allowed at locations approved by the City of Elko New Market.

(2) In so far as possible, the equipment used shall be located in such a way as to minimize the noise impact on surrounding properties.

(3) The Contractor shall utilize a disconnect swivel which shall be set to limit the stress within the pipe to less than its elastic limit.

(4) The Contractor shall install all necessary pulleys, rollers, bumpers, alignment control devices and other equipment necessary to protect the pipe from damage during insertion. Dragging the pipe on the ground is not permitted. All break over bends should be made with a radius long enough to insure that the pipe is not overstressed.

(5) Lubrication, as recommended by the manufacturer, may be used during installation.

(6) Buoyancy control may be used during pull back.

(7) The manufacturer's recommended cooling/relaxation time, but not less than 4 hours, shall pass after insertion is complete and before the connection of services, sealing of the

Commented [BMI12]: Page: 4
Jeff D from St Peter 3/18/05

Commented [DJ13]: Page: 4Submitted Andy 4/13/2004. – CEAM is 200'.

© Bolton & Menk, Inc. 2009, All Rights Reserved

annular space, and/or the backfilling of the insertion pit. A sufficient excess of new pipe, but not less than four inches (4") shall protrude into terminating structures.

(8) The annular space at each structure shall be sealed with a material recommended by the manufacturer for a minimum of eight inches (8") to form a smooth, uniform, watertight joint.

(9) Under no circumstance shall the pipe be stressed beyond its elastic limit.

3.3 FIELD QUALITY CONTROL

A. TOLERANCES

1. General

(a) Terminating connections to existing structures and conduits shall be made with a smooth grade for the adjacent 50 feet and shall permit the appropriate hydraulic operation at the conduit connection.

(b) Periodically, the City of Elko New Market may require the Contractor to excavate a verification pit to expose the conduit for the City of Elko New Market to determine compliance with the line and grade specified. As long as tolerances are being met, as determined by the City of Elko New Market, the frequency shall not exceed 2 excavations in each 500 feet or be required in obviously inaccessible locations. The Contractor shall then backfill, compact and restore the surface of the excavation.

2. Pressure Systems

(a) Horizontal alignment of the finished profile shall be within 0.5 feet of the planned alignment.

(b) Vertical alignment of the finished profile shall be within 0.5 feet of the planned vertical alignment but in no event shall the invert elevation be closer to the existing ground surface or the future proposed ground surface, whichever is lower, than the minimum bury depth shown on the plans.

(c) The final vertical alignment shall not conflict with future proposed gravity conduit grades shown on the plans, if any.

(d) The final vertical alignment of forcemains shall not have high points that could permit the development of air locks at any location other than those identified on the plans.

3. Gravity Systems

(a) Horizontal alignment of the finished profile shall be within 0.5 feet of the planned alignment.

(b) Vertical alignment of the finished profile shall be within 0.2 feet of the planned vertical alignment but in no event shall the invert elevation prevent the appropriate hydraulic operation with upstream or downstream conduits.

(c) The final vertical alignment shall not have sags that could permit sediment to accumulate at any location.

(d) The final vertical alignment shall not conflict with future proposed gravity conduit grades shown on the plans, if any.

(e) The final vertical alignment of gravity conduits (storm and sanitary) shall not be shallower than the basement elevations of adjoining properties less adequate vertical distance to allow gravity piping from the basement to reach the installed conduit.

B. PRESSURE TESTING

1. Trenchless conduit used as carrier pipe:

(a) Watermain – Refer to the requirements in Section 02510 – Domestic Water Systems.

© Bolton & Menk, Inc. 2009, All Rights Reserved

(b) Pressure sewer - The Contractor shall to perform a hydrostatic pressure test as specified in CEAM Specification 2611.3G to a pressure of 100 p.s.i.

2. Trenchless conduit is used as a host pipe (electrical conduits, casings, etc.):

(a) Casings – No pressure test required.

******END OF SECTION*****

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02510 - DOMESTIC WATER SYSTEM

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to water main and service line construction as indicated on the drawings or as specified herein.

1.2 METHODS

A. Trench excavation, bedding and backfill, see Section 02320.

B. Trenchless installation, see Section 02446.

1.3 SPECIFICATION REFERENCES

A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.

B. Reference CEAM Specification No. 2611 shall apply to the water main and service line construction, except as modified herein.

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

1.4 SUBMITTALS

A. Work plan for temporary service.

PART 2 -- PRODUCTS

2.1 OPEN CUT WATER MAIN MATERIAL

~~C.~~ **The following water pipe materials** will be allowed for use on this project:

1. Ductile Iron Pipe, Pressure Class350 with conductive gaskets or conductivity strips shall be used.
2. Polyvinyl Chloride, C900 DR18.

2.2 TRENCHLESS PIPE MATERIAL & STRUCTURAL REQUIREMENTS

A. All pipe shall be made from virgin material. No rework except that obtained from the manufacturer's own production of the same formulation shall be used.

B. The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, and/or other deleterious faults.

C. Any section of pipe with a gash, blister, abrasion, nick scar, or other deleterious fault greater than 10 percent (10%) of the wall thickness, shall not be used and must be removed from the site. However, a defective portion of pipe, as defined above may be cut out and butt-fused in accordance with the procedures herein.

D. Any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing and/or handling shall not be used and shall be removed from site.

E. The actual inside barrel diameter of the pipe used shall not be less than that of PVC DR18, Pressure Class for the corresponding nominal pipe size.

© Bolton & Menk, Inc. 2009, All Rights Reserved

F. Trenchless Piping Materials

1. Fusible C900/C905™

(a) As manufactured by Underground Solutions (www.undergroundsolutions.com). ASTM D 1784-02. with cell classification 12454. The formualtion for extrusion of Fusible C-900™/C-905™/PVC™ shall be compounded to the specific proprietary recipe for Fusible pipe, and meet the requirements of PPI TR-2.

(b) Butt joint fused PVC pressure pipe conforming to AWWA C900 for 150 psi pressure rating (SDR 18). However, structurally stronger pipe may be required to ensure resistance to pulling stresses.

(c) Pipe fusing shall meet manufacturer requirements.

(d) A manufacturer's representative shall be present during fusing and installation.

2. Restrained Joint DIP Pipe and Fittings

(a) Flex-Ring Joint Pipe (DIP), as manufactured by American Ductile Iron Pipe or equal. The pipe shall be pressure pipe with a 350 psi working pressure for diameters up to and including 12 inch, and 250 psi for diameters 14 inch to and including 20 inch. Structurally stronger pipe may be needed to ensure resistance to damaging stresses relative to the trenchless construction technique.

(b) Joints shall be Flex-Ring Restrained Joint couplings as manufactured by American Ductile Iron Pipe or equal.

3. High Density Polyethylene (HDPE) Pipe and Fittings

(a) The pipe material shall be extra high molecular weight, high density polyethylene (EHMW-HDPE, PE3408) conforming with the minimum structural standards of ASTM D3350 with cell classification 345434C. All HDPE pipe material shall meet the requirements of ASTM D1248 for a Type III, Class C, Category 5, Grade P34.

(b) The pipe to be used shall be (HDPE) pressure pipe conforming to the requirement of AWWA C-906 of a 235 psi working pressure. The grade used shall be resistant to aggressive soils or corrosive substances present. Unless otherwise specified, the dimensions and tolerances of the pipe barrel should conform to ductile iron or cast iron pipe equivalent outside diameters.

(c) HDPE pipe shall have butt-fused joints.

(d) The Contractor shall verify the lengths of conduit necessary in the field before fabrication.

(e) Polyethylene fittings and adaptors shall be butt-fused, EHMW-HDPE, PE3408 meeting the same resin requirements as specified for the pipeline. In addition, the fittings shall meet the applicable requirements of ASTM D2513 and ASTM D3261.

(f) Mechanical joint pressure pipe joints shall be restrained using ductile iron clamps (series Ebaa Iron, Inc. or equal) supplied with enough ductile iron bolts to restrain the working and test pressures for this application.

2.3 WATER MAIN FITTING MATERIALS

A. The following pressure pipe fitting materials will be allowed for use on this project:

1. All fittings shall conform to the requirements of ISO,

2. Mechanical Class 350 ductile iron, cement lined fittings shall be used. Adaptors, back-up rings, and oversize sleeves shall be provided for transitions and connections to dissimilar types of pipe materials. All sleeve fittings shall be long mechanical joint.

© Bolton & Menk, Inc. 2009, All Rights Reserved

3. All fittings, valves, hydrants and retaining rods shall be protected by using sacrificial zinc anode caps such as 175P190 Protecto Caps as manufactured by Ebaa Iron or an approved equal. Contractors shall supply 2 Protecto Caps per mechanical joint gland installed.

4. All fittings, valves, hydrants, etc. shall be secured utilizing COR-BLUE T-BOLTS as manufactured by NSS Industries or approved equal.

2.4 FIRE HYDRANTS

~~Z.~~A. All hydrants shall be "Pacer" model WB67~~-100~~-250, UL, 250psi rating as manufactured by the Waterous Company conforming to AWWA C 502.

~~AA.~~B. Unless otherwise specified in the contract, hydrants shall be furnished in conformance with the following supplementary requirements:

~~1.~~C. Hydrants shall have a 4 1/2" Pumper connection (Thread size 5 3/4" O.D., 4" T.P.I.) (AWWA Std. Thread).

~~2.~~D. Hydrants shall have two outlet nozzles for 2 1/2" hose connection. (Thread size 3 1/16" O.D., 7 1/2" T.P.I.) (AWWA ~~Std~~STD Thread).

~~3.~~E. Hydrants shall equipped with Hydrafinder or equal hydrant marker five feet long with 6-inch wide reflective red tape on a 3/8" diameter white fiberglass shaft. The shaft shall be mounted on a chrome plated steel spring mount that allows 360º flexibility. Furnish and deliver to City Hall an extra marker for each hydrant.

~~4.~~F. Hydrant barrels shall be equipped with a 16-inch break-off traffic flange.

~~5.~~G. Hydrants shall have a left-hand operating nut.

~~6.~~H. Hydrants to be ordered for 8'-6" bury.

~~7.~~I. The hydrant bottom shall be ductile iron, epoxy coated inside and out.

J. Drain holes shall be plugged when placed below the water table. A tag shall be attached to the hydrant stating "drain holes plugged" and the hydrant pumper nozzle cap shall be painted black.

K. All hydrant extensions shall be manufactured by the same manufacturer as the hydrant.

L. The local fire department shall be contacted before ordering hydrants to obtain the correct nozzle threads and type of operating nut and cap bolts.

2.5 VALVE AND VALVE HOUSING

A. All water valves shall have been manufactured in the year of construction or prior two calendar years.

B. Valve boxes shall be Mueller H-10357 or equal, with Mueller H10361 drop-in cover marked “Water”.

C. All valve box assemblies shall be furnished with a valve umbrella anchorage assembly. The valve umbrella anchorage assembly shall be manufactured by Adaptor, Inc., Oak Crest, WI, or equivalent.

D. All valves must include internal operators to within two feet of finished grade.

E. High Density Polyethylene valve housings will not be allowed on this project.

2.6 GATE VALVES

A. All valves unless excepted below shall be gate valves conforming to the AWWA specification C-509 or C-515.

© Bolton & Menk, Inc. 2009, All Rights Reserved

2.7 BUTTERFLY VALVES

A. Butterfly valves may only be used in certain non-shutoff-critical locations where approved by the City Engineer. All valves must otherwise be Gate Valves.

B. All butterfly valves shall be manufactured with the rubber seat bonded to the body. Valve discs shall be furnished with 316 stainless steel seating edge.

2.8 WATER SERVICE PIPE AND FITTINGS

A. General

1. Water service pipe and fittings shall conform to the provisions of 2611.2D, AWWA C800 and the following:
2. Valves and fitting models to vary according to water main pipe size. See mfg. catalogue data.
3. Saddles shall be provided for all corporation stops larger than 1½ inches.
4. Curb boxes shall be adjustable to 8 feet in length with Minneapolis Pattern. Stationary rods are required.

B. Copper Service Pipe Notes & Specifications:

1. Copper pipe shall conform to ASTM B88, Seamless Copper Water Tubing, Type K, Soft Annealed Copper.
2. Copper water service pipe connections shall be flared type. Compression couplings are not permitted.

C. Corporation Stops

1. Shall be AY McDonald NL Ball Style Corporation Stop – 74701BQ**,** Ford Ball Valve Curb Stop - Minneapolis Pattern - (B44-xxxM-Q-NL style), Ballcorp Corporation Stops - (FB1000-xx-Q-NL style), or equal, in the sizes indicated on the plans.

D. Curb Stops and Boxes

1. Curb stops shall be Minneapolis pattern, AY McDonald 76104Q or 74701BQ, or equal.
2. Curb boxes shall be 1 ¼-inch risers, extension type with stationary rod, Minneapolis pattern, with pentagon-style plug lids. AY McDonald, Ford, or equal.

2.9 RESTRAINED JOINT RETAINER GLANDS

A. No exception to the referenced specification is made.

2.10 POLYETHYLENE ENCASEMENT

A. The Contractor shall furnish and install polyethylene encasement for the entire main and all appurtenances in accordance with the referenced specification.

PART 3 -- EXECUTION

A. CONSTRUCTION REQUIREMENTS

1. Temporary Service

© Bolton & Menk, Inc. 2009, All Rights Reserved

(a) Before proceeding with the project, the Contractor shall establish a work plan and submit the plan to the City of Elko New Market for review and comment. The plan shall outline the method to be used to maintain service to the affected consumers and estimate the duration of any anticipated interruptions of service. **The plan shall include provisions to fully disinfect all temporary piping, valves and fittings in accordance with CEAM Specification No. 2611.** The Contractor is the sole party responsible to notify the Utility and consumers who may be affected by limitations and/or interruption of water service. Planned service interruptions shall not exceed six (6) hours in any 72 hour period unless previously approved by the Utility.

(b) The Contractor shall coordinate watermain shut-downs with the water utility at least 24 hours prior to the requested shut-down.

3.2 INSTALLATION OF PIPE AND FITTINGS

A. Aligning and Fitting of Pipes

1. The Contractor, together with the utility's personnel, shall jointly examine and operate all curb stops and mainline valves prior to final acceptance.

B. Blocking and Anchoring of Pipe

(a) A thrust block of cast-in-place concrete, which covers the installed fitting, is not permitted. Pre-cast concrete thrust blocks and other restraining devices such as adjustable rods or cables, shall be provided at all bends, tees, hydrants and plugged crosses or wherever the water main changes direction or dead ends. Valves shall be tied to the nearest tee.

C. Polystyrene Insulation

1. The Contractor shall install polystyrene insulation in those areas where the water main or services may be susceptible to frost or freezing, or as directed by the City of Elko New Market.

2. Rigid foam insulation shall be placed between the watermain and storm or sanitary sewer where adequate vertical clearance cannot be maintained. The insulation shall be placed on a bed of sand and sand shall be placed above the insulation to isolate the insulation from rocks and other sharp objects. The ultimate thickness of insulation required shall be achieved by using 2 layers of insulation, the second layer shall be placed perpendicular to first layer and the joints shall be offset.

Commented [BMI - DJ14]: Page: 7
From the City of Ramsey spec. 7/13/05

D. Water Service Installation

1. Field flaring shall be performed with current standards of the plumbing industry and manufacturer recommendations.

2. The Contractor shall imprint the concrete face of curb at the locations of the utility service locations in accordance with City standards.

3. The Contractor shall keep accurate records as to the location of the service connections, as specified in the referenced specification.

4. No warranty is expressed or implied as to the location, size or material type of existing service lines. The Contractor shall furnish and install all fittings required to make the connections.

5. The Contractor shall install new service pipe, at 7 foot bury depth, from the corporation stop to the property line, or as shown on the plans, or as directed by the City of Elko New Market.

6. The water services shall be hydrostatically tested and disinfected

7. The corporation stops shall be opened prior to complete backfilling to verify that no leakage occurs in the service line.

E. Polyethylene Encasement

© Bolton & Menk, Inc. 2009, All Rights Reserved

(a) The Contractor shall furnish and install polyethylene encasement for the entire main and all appurtenances in accordance with the referenced specification.

3.3 FIELD QUALITY CONTROL

A. Electrical Conductivity Test

1. Conductive Pipe Materials

(a) See the referenced Specification CEAM 2611.3.F

2. Non-conductive Pipe Materials

(a) The conductivity requirements shall be to demonstrate the electrical continuity of the tracer wire.

3.4 HYDROSTATIC TESTING AND DISINFECTION

A. Leakage tests shall be conducted at a 150 psig test pressure with no drop in pressure. Individual tests from valve to valve are required. These tests shall be conducted prior to the bacteriological tests required with the disinfection of the main.

B. Water services, including corporation and curb stops, shall be tested. The Contractor may choose to include services at the time of watermain testing (150 psig) or as a separate operation at a reduced pressure of 100 psig. If performed separately, testing shall be done with the corporation stops open.

C. The Contractor shall disinfect the watermain in accordance with the provisions of AWWA Standard Specification C-651, Disinfecting Watermains. After performing and obtaining passing hydrostatic test results, two samples of the water, taken 24 hours apart, shall be taken from each section of the new pipe and sent to an approved testing laboratory to establish the bacteriological conditions prior to placing the line in service. In the event unsatisfactory results are obtained, the Contractor shall take whatever steps are necessary to correct the sanitary conditions. The Contractor shall then re-take the bacteriological tests until satisfactory results are obtained.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02530 - PIPE SEWERS – SANITARY

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to sanitary sewer and service lateral construction as indicated on the drawings or as specified herein.

1.2 METHODS

A. Trench excavation, bedding and backfill, see Section 02320.

B. Trenchless installation, see Section 02446.

1.3 SPECIFICATION REFERENCES

A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.

B. Reference CEAM Specification No. 2621 shall apply to the gravity sewers and service laterals construction, except as modified herein.

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

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

1.4 SUBMITTALS

A. Work plan for temporary service

B. Final DVD and log of post construction televised inspection.

C. See Section 01330 - Submittals for additional requirements.

PART 2 -- PRODUCTS

2.1 OPEN CUT SEWER PIPE AND FITTINGS

A. All pipe and fittings must be laid on a continuous granular bed. Installation must comply with ASTM D2321Solid Wall Polyvinyl Chloride (PVC) Pipe

1. The connection shall be push-on with elastomeric gasketed joints, which are bonded to the inner walls of the gasket recess of the bell socket.

2. The pipe grade used shall be resistant to aggressive soil and corrosive substances in accordance with the requirements of ASTM D-543.

B. Ductile Iron Pipe (DIP)

1. No exception to the referenced specification is made.

C. Reinforced Concrete Pipe (RCP)

1. No exception to the referenced specification is made.

2.2 TRENCHLESS PIPE MATERIAL & STRUCTURAL REQUIREMENTS

A. All pipe shall be made from virgin material. No rework except that obtained from the manufacturer's own production of the same formulation shall be used.

B. The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, and/or other deleterious faults.

© Bolton & Menk, Inc. 2009, All Rights Reserved

C. Any section of pipe with a gash, blister, abrasion, nick scar, or other deleterious fault greater than 10 percent (10%) of the wall thickness, shall not be used and must be removed from the site. However, a defective portion of pipe, as defined above may be cut out and butt-fused in accordance with the procedures herein.

D. Any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing and/or handling shall not be used and shall be removed from site.

E. INTERNAL PIPE DIAMETERS

(a) The actual inside barrel diameter of the pipe used for **gravity pipe** shall not be less than that of PVC – SDR 35 for the corresponding nominal pipe size.

Commented [BMI15]: Page: 2
Requested by Bill Douglass to accommodate questions on sanitary sewers.

F. Trenchless Pipe Materials – Gravity Sewers

1. Fusible C900/C905™

(a) As manufactured by Underground Solutions (www.undergroundsolutions.com). ASTM D 1784-02. with cell classification 12454. The formualtion for extrusion of Fusible C-900™/C-905™/PVC™ shall be compounded to the specific proprietary recipe for Fusible pipe, and meet the requirements of PPI TR-2.

(b) Butt joint fused PVC pressure pipe conforming to AWWA C900 for 150 psi pressure rating (SDR 18). However, structurally stronger pipe may be required to ensure resistance to pulling stresses.

(c) Pipe fusing shall meet manufacturer requirements. See Paragraph 1.4.A Items to be Included With the Bid.

(d) A manufacturer's representative shall be present during fusing and installation.

2. Restrained Joint PVC Pipe and Fittings

(a) Restrained Joint Polyvinyl Chloride (PVC) pressure pipe with a 150 psi working pressure. The working pressure dictates a maximum standard dimension ratio (DR) of 18; however, structurally stronger pipe may be needed to ensure resistance to damaging stresses relative to the trenchless construction technique. The grade used shall be resistant to aggressive soils or corrosive substances in accordance with the requirements of ASTM D-543.

(b) Restrained joints shall be Certa-Lok C900/RJ Restrained Joint PVC couplings as manufactured by Certain Teed, or equal.

3. High Density Polyethylene (HDPE) Pipe

(a) The pipe material shall be extra high molecular weight, high density polyethylene (EHMW-HDPE, PE3408) conforming with the minimum structural standards of ASTM D3350 with cell classification 345434C. All HDPE pipe material shall meet the requirements of ASTM D1248 for a Type III, Class C, Category 5, Grade P34.

(b) The pipe to be used shall be (HDPE) pressure pipe conforming to the requirement of AWWA C-906 of a 160 psi working pressure. The grade used shall be resistant to aggressive soils or corrosive substances present. Unless otherwise specified, the dimensions and tolerances of the pipe barrel should conform to ductile iron or cast iron pipe equivalent outside diameters.

(1) HDPE pipe shall have butt-fused joints with the internal fusing bead removed.

(2) The Contractor shall verify the lengths of conduit necessary in the field before fabrication

2.3 MANHOLES

A. Precast Concrete Manholes

© Bolton & Menk, Inc. 2009, All Rights Reserved

1. Sanitary sewer manholes shall conform to the Mn/DOT Standard Plate No. 4007C, unless otherwise shown on the plans, including integral base sections and rubber gasketed tongue and groove joints. All pipe openings shall have integral cast watertight seal.
2. Reinforced polypropylene plastic steps shall be furnished for all sanitary sewer manholes eight or more feet in depth.

B. 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.
   (a) The type of casting assembly to be used shall be Neenah R-17330078 lid with gasketed cover, concealed pick hole and no lug, unless otherwise specified on the plan. The frame shall be Neenah R-17332007.

C. Chimney Seal

1. Chimney seals accepted for use, when shown in the plans, shall per City Standard Details.

PART 3 -- EXECUTION

3.1 INSTALLATION OF PIPE AND FITTINGS

A. Sanitary Main Installation

1. No exception to the referenced specification is made.

B. Sewer Service Installation

1. The Contractor shall imprint the concrete face of curb at the locations of the utility service locations in accordance with City standards.
2. The Contractor shall dye water test all existing sanitary sewer service line connections cut, severed or encountered during the construction to determine whether they are still active. Those service lines which are no longer in use shall be abandoned by plugging the severed upstream end with a suitable watertight plug approved by the City of Elko New Market.
3. The exact number of service connections, i.e., new service lines or connection to existing service lines is unknown. The quantities listed on the proposal are approximate.
4. The Contractor shall keep accurate records as to the location of the service connections, manholes, cleanouts, wyes, bends, risers, and connections to existing structures, pipe and stubouts as constructed. Measurements to service line shall be taken from the two nearest permanent structures (i.e., hydrants, valves, manholes, buildings) as directed by the City of Elko New Market.
5. The Contractor shall install new service pipe from the wye branch to the property line, as shown on the plans.
6. At the end of all services that are not immediately connected to working services, the Contractor shall furnish and install a wood or metal pole that extends to just below the ground surface. If wood is used, there shall be attached to the top of the pole a 6" x 2" metal piece, capable of being located by a metal detector from the ground surface.

3.2 MANHOLE STRUCTURE

A. Connect to Existing Sanitary Sewer

1. When connection to an existing sanitary sewer is made at an existing or proposed manhole, the Contractor shall expose and verify the elevation of the existing sewer prior to laying any sanitary sewer to, or from, the connection point. If the elevation of the existing sewer does not match the elevation shown on the plans, the Contractor shall notify the Developer, at which time the Developer may adjust the proposed grades.
2. Connections to existing sanitary sewers shall be watertight.

© Bolton & Menk, Inc. 2009, All Rights Reserved

3. Connections to existing structures shall be watertight. The installation of Cor-N-Seal boots, or equal, shall be required.

B. Outside Drop Manhole

1. All pipe materials used to construct the drop section and the incoming pipe shall be PVC – SDR 26 with heavy-duty fittings.

2. The PVC pipe shall extend from the tee to 2 feet beyond the point where the elevation of the virgin soil becomes a uniform 6 inches below the invert elevation of the incoming pipe.

C. Raise / Lower Existing Manhole

1. Raising and/or lowering an existing manhole to meet a proposed finished rim elevation is performed when the addition and/or deletion of 2" adjusting rings will not reach a minimum of 2 rings or exceed a maximum of 6 rings. Typically, it will require: the removal of the manhole cone section or the concrete slab top; the addition, removal, or exchange of barrel sections; the replacement of the cone section or the concrete slab top; the installation of the proper number of adjusting rings; and the replacement of the manhole casting and frame. In some cases, the existing structure may require saw cutting.

D. Manhole Base

1. Pre-cast bases shall be used for all manholes.

2. Integral cast base is required unless otherwise shown on the plans or approved by the City of Elko New Market.

3. Manholes shall be set on a minimum of 6 inches of compacted foundation material.

E. Miscellaneous Work

1. If concrete adjusting rings are used, they shall be set with cement mortar and shall be plastered inside and out, with a minimum thickness of 1/2-inch of mortar. A maximum of 3 individual adjusting rings shall be used. Taller 6" or 12" rings shall be used where adjustment requires more than three 2" rings.

3.3 FIELD QUALITY CONTROL

A. Deflection test

1. No exception to the referenced specification is made.

B. Sanitary sewer leakage testing

1. Leakage tests shall be conducted as described in the referenced specification and shall include all manholes. However, leakage testing will not be necessary where existing services are connected directly to the new sewer as it is being constructed.

C. Air Testing

1. No exception to the referenced specification is made.

D. Televising

1. Televising is required after the installation and backfill are complete and prior to the placement of roadway aggregate base or pavement.

2. Immediately prior to televising, the televisor shall discharge sufficient clear water into the pipe to clean the pipe and assist in identifying sags and misalignment.

3. Televising shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections by close circuit television. All televising videos shall be in color. The interior of the pipeline shall be carefully inspected to determine the location of any conditions which may indicate improper installation. Each individual reach of pipe shall be identified as a 'chapter' on the DVD.

Commented [DJ16]: Page: 5This was modified to match changes from Plan Stds.

© Bolton & Menk, Inc. 2009, All Rights Reserved

4. A DVD and suitable log of all televising shall be submitted to the City of Elko New Market.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02610 - PIPE CULVERTS

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary to construct pipe culverts as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.

B. Mn/DOT Specification Section 2501 shall apply to the construction of pipe culvert and appurtenance items, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 CULVERT PIPE AND FITTINGS

A. Reinforced Concrete Pipe (Mn/DOT 3236)

1. No exception to the referenced specification is made.

B. Corrugated Steel Pipe

1. No exception to the referenced specification is made.

C. Bituminous Coated Corrugated Steel Pipe

1. No exception to the referenced specification is made.

D. Corrugated Polyethylene Pipe

1. No exception to the referenced specification is made for dual-wall pipe. Single-wall pipe will not be accepted.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The Contractor shall install a clay (or an approved impermeable equal) collar around all culverts at a point approximately 4 feet from each apron. The collar shall fill the breadth and height of the trench for a minimum length of 3 feet.

3.2 FIELD QUALITY CONTROL

A. Deflection test - No exception to the referenced specification is made.

B. Televising - No exception to the referenced specification is made.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02620 - SUBSURFACE DRAINS

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary to construct subsurface drains as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification No. 2502 shall apply to the subsurface drains, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 SUBSURFACE PIPE AND FITTINGS

A. Perforated PVC drain pipe, SDR35 (ASTM D3034)

B. Perforated PVC drain pipe, A-2000 (ASTM D2412)

C. Perforated corrugated polyethylene drainage tubing, PE (ASTM D3350)

D. Horizontal and vertical junctions shall consist of wyes only to facilitate televising and cleaning. Tees are not permitted.

E. Cleanout caps on inspection risers shall be cast iron screw in type.

2.2 GRANULAR MATERIALS

A. The filter aggregate shall conform to the requirements of Mn/DOT 3149-H for coarse filter aggregate, unless otherwise shown on the plans.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Geo-textile fabric sock shall be installed per plan details for the application.

B. Contractor shall be required to remove and restore or protect existing utilities.

C. The Contractor shall install and operate a dewatering system to maintain all trenches free of water wherever necessary. The Contractor shall be responsible for any damage to adjacent structures or buildings caused by the dewatering operations. The Contractor shall make his own subsurface investigations and determine what dewatering methods to utilize to prevent such damage.

D. Existing inverts shall be protected during construction. If debris enters culverts or sewers, it shall be the responsibility of the Contractor to clean.

© Bolton & Menk, Inc. 2009, All Rights Reserved

E. Inspection risers shall be installed flush with the finished grade.

F. Where subdrains are connected to catch basins or manholes, rodent protection shall be installed.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02630 - PIPE SEWERS – STORM

PART 1 -- GENERAL

1.1 SUMMARY

1.2 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.

1.3 METHODS

A. Trench excavation, bedding and backfill, see Section 02320.

B. Trenchless installation, see Section 02446.

1.4 SPECIFICATION REFERENCES

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

B. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.

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

D. Mn/DOT Standard Plates Manual with latest revisions.

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

PART 2 -- PRODUCTS

2.1 OPEN CUT SEWER PIPE AND FITTINGS

A. Under Existing or Proposed Buildings

1. All underground sewers installed through areas to be occupied by buildings shall comply with all appropriate provisions of the State of Minnesota Plumbing Code, Minnesota Rules Chapter 4715.0550.

2. All pipe and fittings must be laid on a continuous granular bed. Installation must comply with ASTM D2321.

B. Reinforced Concrete Pipe (Mn/DOT 3236)

1. No exception to the referenced specification is made.

C. Solid Wall Polyvinyl Chloride (PVC) Pipe (Mn/DOT 3245)

1. 4" through 15" Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM D-3034 for the Standard Dimension Ratio (SDR) of 35.

2. Over 15" Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM F679 with a minimum wall thickness for a minimum pipe stiffness of 46.

3. The connection shall be push-on with elastomeric gasketed joints, which are bonded to the inner walls of the gasket recess of the bell socket.

© Bolton & Menk, Inc. 2009, All Rights Reserved

4. The pipe grade used shall be resistant to aggressive soil and corrosive substances in accordance with the requirements of ASTM D-543.

D. Corrugated Polyethylene Pipe and Fittings (Mn/DOT 3247)

1. Smooth interior and corrugated exterior polyethylene pipe and fittings (diameters through 36 inches) shall conform to the requirements of AASHTO M294 and Mn/DOT Specification 3247. All joints shall be installed using an approved watertight sleeve with gaskets meeting the requirements of ASTM-F477.

E. Flexible Pipe Jointing

1. Pipe joints for solid wall and profile wall polyvinyl chloride (PVC) pipe shall be in accordance with ASTM 3212 - 89. This includes the flexible elastomeric seals being rated at sustaining an internal pressure of 10.8 psi for 10 minutes.
2. Pipe joints for high density polyethylene (HDPE) pipe shall be in accordance with ASTM 3261-90.

F. Corrugated Steel Pipe (Mn/DOT 3226)

1. No exception to the referenced specification is made.

2.2 MANHOLES & CATCH BASINS

A. 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 eight feet or more in depth.

B. 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 casting assembly to be used shall be Neenah R-17330067 lid with R-17332007 frame, unless otherwise specified on the plan.
3. The Type of curb and gutter catch basin casting assembly to be used shall be Neenah R-3067-V (Vane Grate).
4. The type of non-street / rear yard inlet casting assembly to be used shall be Neenah R-4342 stood grate.

C. Chimney Seal

1. Chimney seals accepted for use, when shown in the plans, shall be per the City's Standard Detail

2.3 GEOTEXTILE FABRIC

A. Mn/DOT 3733, Type II, non-woven for use in wrapping joints in storm sewer and structures.

© Bolton & Menk, Inc. 2009, All Rights Reserved

PART 3 -- EXECUTION

3.1 MANHOLE AND CATCH BASIN STRUCTURES

A. Locations
   1. Structures with inlets aligning with curbs must be placed so no “stepping” of rings is required to fit castings into curb alignments. The City will require pipe runs and structures to be reset, if necessary, to correct misalignments of more than 1 ½ inches. Preserve or tie-off (under City observation) all offset stakes for structures until curbs are staked to reserve any claims of “improper staking.”

B. Raise / Lower Existing Structure

   1. Raising and/or lowering an existing manhole to meet a proposed finished rim elevation is performed when the addition and/or deletion of 2" adjusting rings will not reach a minimum of 2 rings or exceed a maximum of 6 rings. Typically, it will require: the removal of the manhole cone section or the concrete slab top; the addition, removal, or exchange of barrel sections; the replacement of the cone section or the concrete slab top; the installation of the proper number of adjusting rings; and the replacement of the manhole casting and frame.

C. Miscellaneous Work

   1. Refer to City Standard Details for catch basin adjusting ring requirements.

3.2 FIELD QUALITY CONTROL

A. Deflection test - No exception to the referenced specification is made.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02664 – INFILTRATION/FILTRATION AREA

PART 1 -- GENERAL

1.1 GENERAL

A. 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 infiltration basins, filtration swales, and bioretention areas as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Reference Mn/DOT section 3733

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

PART 2 -- PRODUCTS

2.1 INFILTRATION SOIL MEDIA

A. 50-60% sand, 20-30% topsoil (maximum clay content <5%), 20-30% leaf compost.

B. Provide clean sand, free of deleterious materials. Sand shall meet AASHTO M-6 or ASTM C-33 with grain size of 0.02”-0.04”.

C. The soil shall be a uniform mix, free of stones, stumps, roots, or other similar objects larger than two inches. The planting soil shall be free of Bermuda Grass, Quack Grass, Johnson Grass, Mugwort, Nutsedge, Poison Ivy, Canadian Thistle, Tearthub, or other noxious weeds.

2.2 SUBSURFACE PIPE AND FITTINGS

A. Draintile pipe materials as required in Section 02620 of these specifications.

2.3 GRANULAR MATERIALS

A. Filter aggregate shall conform to the requirements of Mn/DOT 3149-H for coarse filter aggregate.

2.4 GEOTEXTILE FILTER FABRIC

A. Geotextile filter fabric shall conform to Mn/DOT Type I (3733)

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. INFILTRATION/FILTRATION BASIN, MEDIAN AND SWALE CONSTRUCTION

1. Excavate to finished grade during rough grading, working from edges to avoid compacting subsoils to the extent practical.
2. After site stabilized and inlet protection installed at all contributing inlets and catch basins, subcut additional depth, again from edges, for replacement with infiltration/filtration media.

© Bolton & Menk, Inc. 2009, All Rights Reserved

3. Prior to placement of infiltration/filtration media, till base of infiltration area to depth of 12" with a Chisel Plow, Ripper, or Subsoiler if compaction is apparent.
4. Place draintile, filter aggregate and geotextile fabric as required.
5. Place infiltration media in 12" lifts from edges or with wide-track or marsh-track equipment or light equipment with turf-type tires, to avoid compaction as much as possible. (No narrow tracks, narrow tires, rubber tires with large lugs, or high-pressure tires).
6. Surface to be lightly watered to promote natural compaction between lifts. Verify that final elevations of the infiltration basin, median and swale correspond to plan elevations. Rake soil to level out and prepare for plantings.
7. Absolutely no equipment to be driven on infiltration media once in place.
8. Place seed, sod, plantings and erosion control blanket as specified on plans.

3.2 FIELD QUALITY CONTROL

A. The Contractor shall arrange for the following testing performed:

1. One (1) gradation test per each infiltration/filtration area.
2. One (1) PH test per each infiltration/filtration area.
3. One (1) organic matter test per each infiltration/filtration area.

B. All testing shall be performed by an independent testing laboratory approved by the City of Elko New Market.

C. The Contractor shall cooperate fully with the individuals performing the tests.

D. Samples for testing shall be taken from material in place at locations approved by the City of Elko New Market. All sampling methods shall be approved by the City of Elko New Market.

E. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the City of Elko New Market that the specified density requirements have been met.

F. Copies of all test results with maps of testing locations shall be submitted as determined at the pre-construction meeting.

G. All required soils tests and infiltration/filtration area bottom surveys must be approved by the City of Elko New Market prior to plantings.

****** END OF SECTION ******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02705 - MANHOLES & CATCH BASINS - ADJUST CASTING

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to adjusting a casting assembly frame and ring or valve box as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2506 shall apply to adjusting frame and ring, except as modified herein.

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

PART 2 -- PRODUCTS

1. Not used

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The Contractor shall bring manhole castings and valve boxes to grade. The manhole casting shall be placed per City Standard Details.

B. All inverts of manholes and valves boxes shall be cleaned of debris and gravel which may have fallen into the structures during construction.

C. Finished grade of the casting or valve box in paved areas shall be according to the following, unless otherwise specified on the plans:

	Distance Below Adjacent Concrete Pavement	Distance Below Adjacent Bituminous Pavement	Distance Below Adjacent Gravel Surface/Green Area
City Streets	1/8" to 1/4"	3/8" to 3/4"	1"
Sidewalks	1/8" to 1/4"	1/8" to 1/4"	1"
Parking Areas	1/8" to 1/4"	1/4" to 3/8"	1"

D. In no case shall the casting or valve box extend above the finished surface.

E. Raising and/or lowering an existing manhole to meet a proposed finished rim elevation is performed when the addition and/or deletion of 2" adjusting rings will not reach a minimum of 2 rings or exceed a maximum of 6 rings. Typically, it will require the:

1. Removal of the manhole cone section or concrete slab top
2. Addition, removal or exchange of barrel sections
3. Replacement of the cone section or the flat slab top
4. Installation of the proper number of adjusting rings

© Bolton & Menk, Inc. 2009, All Rights Reserved

5. Replacement of the manhole frame and casting. In some cases, the existing structure may require saw cutting.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02720 - AGGREGATE BASE

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to construct the aggregate base course as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2211 shall apply to the construction of aggregate base, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 MATERIALS

A. The material to be used shall conform to the Specifications for Aggregate Base Class 5 per MnDOT Specifications.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. At the end of each day the Contractor shall eliminate surface indentations, including those caused by sheeps foot rollers and tractor cletes, and roll the surface with a steel wheel or rubber-tired roller.

B. The depth and class of aggregate base to be constructed shall be as shown on the plans. Aggregate base construction shall take place only after the street subgrade condition and grade has been examined by test-roll and witnessed by the City of Elko New Market.

C. All aggregate bases shall be compacted to 100% standard Proctor density using the Specified Density Method.

3.2 SOURCE QUALITY CONTROL

A. The Contractor shall arrange for having the following testing performed:

1. One (1) gradation test for each 500 tons or 275 cubic yards (CV) of each class of aggregate base.
2. One (1) percent crushing test.
3. One (1) aggregate quality test.

B. Samples for testing shall be taken from material in stock at locations approved by the City of Elko New Market. All sampling methods shall be approved by the City of Elko New Market.

C. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the City of Elko New Market that the requirements have been met.

© Bolton & Menk, Inc. 2009, All Rights Reserved

3.3 FIELD QUALITY CONTROL

A. "Blue top" stakes shall be provided by the Contractor at 50-foot intervals to confirm that the base is constructed to the required grades and elevations. Methods other than "blue top" staking may be allowed, if approved by the City of Elko New Market.

B. The Contractor shall arrange for having the following testing performed:

1. One (1) compaction test (including Standard Proctor) for each 500 ~~SY of~~SY shall be kept of each class of aggregate base.

C. All testing shall be performed by an independent testing laboratory approved by the City of Elko New Market.

D. The Contractor shall cooperate fully with the individuals performing the tests.

E. Samples for testing shall be taken from material in place, in the roadway at locations approved by the City of Elko New Market. All sampling methods shall be approved by the City of Elko New Market.

F. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the City of Elko New Market that the requirements have been met.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02740 - PLANT-MIXED BITUMINOUS SURFACING

PART 1 -- GENERAL

1.1 SUMMARY

A. 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 plant-mixed bituminous surfacing as indicated on the plans or as specified herein.

B. This is a Certified Plant Project. The supplier shall have sufficient testing facilities and qualified personnel including Certified Technicians. If requested by the City of Elko New Market, the required tests shall be performed in a timely manner and with a good quality control program.

1.2 SPECIFICATION REFERENCE

A. Plant mixed asphalt pavement shall conform to the current Mn/DOT Specification 02350/2360 Plant Mixed Asphaltic Pavement Combined 2350/2360 (Gyratory/Marshall Design Specifications), dated December 12, 2006. Copies of Mn/DOT's current specifications may be downloaded and printed from Mn/DOT's web site at:

http://www.dot.state.mn.us/tecsup/prov/order/2360-2350-combined.pdf

1. Mn/DOT Specification Section 2357 shall apply to the construction of bituminous tack coat, except as modified herein.
2. Mn/DOT Section 02360.7C (Pavement Smoothness Specification – IRI (International Roughness Index)) is hereby DELETED.

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

PART 2 -- PRODUCTS

2.1 MATERIALS

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

B. Bituminous material and aggregate shall be as shown on the typical sections in the plans.

1. **Mn/DOT 2360 Superpave mix design is acceptable for substitution in place of Mn/DOT 2350, as approved by the City of Elko New Market.**

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Bituminous Tack Coat

1. The material shall be applied at the rate of 0.05 gallons per square yard.
2. The contact surfaces of all fixed structures, 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.

© Bolton & Menk, Inc. 2009, All Rights Reserved

B. The bituminous wearing course shall be constructed no sooner than the construction season following the season in which the underground utilities, aggregate base and bituminous base course have been constructed and in conformance with the Development Contract.

C. The Contractor is required to use the self-propelled pneumatic tire roller as an intermediate roller on the wearing courses.

D. The bituminous surfacing shall be constructed with maximum deviation of plus or minus 1/4-inch from the planned compacted thickness.

E. Cut the adjacent asphalt surface prior to construction of the bituminous surface course to obtain a clean, vertical, solid edge.

F. Compaction of all bituminous mixtures shall be by the Ordinary Compaction Method.

3.2 SOURCE QUALITY CONTROL

A. The bituminous mix shall be designed using Contractor Trial Mix Designs. A current Mn/DOT mix design may be accepted provided it represents the aggregate source and bituminous plant being used for the project, and is approved by the City of Elko New Market. No bituminous mixture shall be placed without an approved mix design.

B. Testing of the material bituminous tack coat may be required, if determined by the City of Elko New Market, that the material appears suspect.

3.3 FIELD QUALITY CONTROL

A. 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.

B. Three (3) inch diameter core samples shall be taken by the Contractor to verify the thickness of the compacted finished bituminous structure. Sample locations shall be designated by the City of Elko New Market and made with a drilling device that produces clean sharp, vertical edges.

C. If any cores prove deficient, the Contractor may, at its own cost and expense, take additional core samples to further define the extent of the deficiency.

D. Testing:

	REQUIRED CONTRACTOR TESTING			OWNER ARRANGED INDEPENDENT ASSURANCE TESTING			
Quantity Mixture Type	VMA & Air Voids	Gradation	Spot Check	VMA & Air Voids	Gradation	Spot Check	Extraction
0-500 Ton	2	1	1	1	1		1
500-1000 Ton	3	1	1	1	1		1
1000+ Ton	4 First Day 1/1000 Ton Thereafter, with Min. 2/day	2/Day	2/Day	1	1	1	1

1. Contractor shall send a copy of the testing results to the City of Elko New Market.

© Bolton & Menk, Inc. 2009, All Rights Reserved

2. Should any of the specified tests fail, the Contractor shall notify the Developer immediately and shall arrange and pay for additional test as may be necessary to satisfy the Developer that the requirements have been met.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02741 - BITUMINOUS PATCH

PART 1 -- GENERAL

1.1 SUMMARY

A. 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 plant-mixed bituminous surfacing as indicated on the plans or as specified herein.

1.2 SPECIFICATION REFERENCE

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

B. Removing Existing Bituminous Pavements

1. Mn/DOT Specification Section 2104 shall apply to the removal and disposal of bituminous pavement, except as modified herein.

C. Common Excavation

1. Mn/DOT Specification Section 2105 shall apply to the common excavation, except as modified herein.

~~B.~~D. Subgrade Preparation

1. Mn/DOT Specification Section 2112 shall apply to the subgrade preparation, except as modified herein.

~~C.~~E. Aggregate Base Course

1. Mn/DOT Specification Section 2211 shall apply to the construction of aggregate base, except as modified herein.

~~D.~~F. Bituminous Tack Coat

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

~~E.~~G. Bituminous Paving Materials

1. Mn/DOT Specification Section 2350/2360, Bituminous Quality Assurance, shall apply to the construction of plant-mixed bituminous surfacing, except as modified herein.

(a) Mn/DOT Section 02360.7C (Pavement Smoothness Specification – IRI (International Roughness Index)) is hereby DELETED.

PART 2 -- PRODUCTS

2.1 MATERIALS

A. Subgrade Preparation

1. No exception to the referenced specification is made.

B. Aggregate Base Course

Commented [DJ17]: Dan S recommended – spec committee 4/30/08

© Bolton & Menk, Inc. 2009, All Rights Reserved

1. The material to be used shall conform to the Specifications for Aggregate Base, Class 5.

C. Bituminous Tack Coat

1. The bituminous material for tack coat shall be CSS-1H .Bituminous Paving Materials
2. Bituminous material and aggregates shall conform to the typical sections shown in the plans.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Unless otherwise shown on the typical sections in the plans, the depth and class of aggregate base and bituminous surface to be constructed shall be:

1. Bituminous Patch - 5 Ton
   (a) 2" Type MV Bituminous Wearing Course
   (b) 12" 2211 Aggregate Base, Class 5
2. Bituminous Patch - 7 Ton
   (a) 1" Type MV Bituminous Wearing Course
   (b) 3" Type MV Bituminous Base Course
   (c) 10" 2211 Aggregate Base, Class 5
3. Bituminous Patch - 9 Ton
   (a) 1" Type MV Bituminous Wearing Course
   (b) 4" Type MV Bituminous Base Course
   (c) 12" 2211 Aggregate Base, Class 5

B. The subgrade, aggregate and bituminous base courses of patches whose smallest dimension is less ~~than~~ ~~th~~than the width of the compaction equipment shall be hand tamped.

C. The subgrade shall be compacted using Quality Compaction Method.

D. When the Contractor believes subgrade preparation is complete, he shall notify the City of Elko New Market for a final examination. If the City of Elko New Market requests it, the subgrade shall be test rolled with a fully loaded tandem truck to verify subgrade stability.

E. Aggregate base construction shall take place only after the street subgrade condition and grade has been examined by the City of Elko New Market.

F. Cut the adjacent asphalt surface prior to the Construction of the bituminous surface course to obtain a clean, vertical, solid edge.

G. Compaction of the aggregate base courses shall be by the Quality Compaction Method.

H. The bituminous tack coat shall be applied at the rate of 0.08 gallons per square yard.

I. The contact surfaces of all fixed structures, 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.

© Bolton & Menk, Inc. 2009, All Rights Reserved

J. The bituminous surfacing shall be constructed with maximum deviation of plus or minus 1/4-inch from the planned compacted thickness.

K. Compaction of all bituminous mixtures shall be by the Ordinary Compaction Method. A nuclear density meter and operator shall be provided by the Contractor, if requested by the City of Elko New Market.

3.2 FIELD QUALITY CONTROL

A. The bituminous mix shall be designed using Contractor Trial Mix Designs. A current Mn/DOT mix design may be accepted provided it represents the aggregate source and bituminous plant being used for the project, and is approved by the City of Elko New Market. No bituminous mixture shall be placed without an approved mix design.

B. Final line and grade of the wearing surface shall not exceed the following tolerances from the adjacent pavement surfaces:

	Distance Below Adjacent Bituminous Pavement
City Streets	1/8"
County Highways	1/8"
State Highways	1/8"
Sidewalks	1/8"
Parking Areas	1/4"

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02750 - CONCRETE PAVEMENT

PART 1 -- GENERAL

1.1 SUMMARY

A. 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 concrete paving as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2301 and 2461 shall apply to the construction of concrete pavement, except as modified herein.

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

C. Mn/DOT Standard Plan Sheets.

1.3 SUBMITTALS

A. The mix proportions shall be determined by an independent certified testing laboratory secured by the Contractor. A current mix design may be submitted and accepted, provided the aggregate source is the same as that being used for this project. Two copies of the certified mix design shall be submitted to the City of Elko New Market for review prior to the construction of the project.

B. Test reports and certification by an approved testing laboratory that the following meet all of the requirements of these Specifications.

1. Fine Aggregate for Portland Cement Concrete (Mn/DOT 3126)
2. Coarse Aggregate for Portland Cement Concrete (Mn/DOT 3137)
3. Fine aggregate and cementitious material (ASTM C-1260).

C. In the event ready-mix concrete is used, the Contractor shall furnish the City of Elko New Market with numbered delivery tickets showing the date, time, place of delivery, number of cubic yards, the weight of cement, fine aggregate and coarse aggregates, and amount of mixing water in each load. At the end of each paving day, the Contractor shall obtain from the supplier a summary showing the average component amounts that day.

PART 2 -- PRODUCTS

2.1 MATERIAL

A. Locally or privately funded projects at City of Elko New Market's discretion:

1. The concrete mix shall conform to Mn/DOT Mix. No. 3A26 for vibratory machine placement, 3A36 for non-vibratory machine placed concrete and 3A46 for manual placed concrete.
2. The following provisions of 2301 are waived: A5a, A5c, A5d and A7.
3. The coarse aggregate shall contain a minimum of 50% of Class A material as specified in Mn/DOT Specification 3137.

© Bolton & Menk, Inc. 2009, All Rights Reserved

4. The coarse aggregate designation shall be CA-35.
5. The concrete mix shall be designed and placed at a water cement ratio not greater than 0.40.
6. The source of fine and coarse aggregates shall be one currently approved by the Minnesota Department of Transportation.

B. High early strength concrete, when used and/or specified, shall be accomplished by increasing normal cement content by approximately 30 percent without use of calcium chloride, except as directed by the City of Elko New Market.

C. The source of fine and coarse aggregates shall be one currently approved by the Minnesota Department of Transportation.

D. Deformed tie bars shall be epoxy coated in accordance with Mn/DOT Specification 3301.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The use of dimensional lumber as forms is permitted if the dimension of the lumber is within ½" of the specified dimension of the finished concrete.

B. A bull float with 8-foot minimum width shall be used for finishing the concrete.

C. The provisions of Section 2301.3L for transverse metal tine finish shall be deleted.

D. Transverse control contraction joints shall be sawed at 60 to 75 foot intervals within 24 hours of placing the concrete. Transverse contraction joints shall be sawed at approximately 15 foot intervals in accordance with the Plans.

E. Additional reinforcing bars shall be placed in the concrete pavement around manhole castings as shown in the plan detail.

F. Longitudinal, contraction and expansion joints shall be constructed as specified in Mn/DOT 2301 and as shown on the attached Mn/DOT Standard Plan Sheet 5-297.221 (2 sheets).

G. All joint walls shall be lightly sand blasted and then cleaned with a jet of compressed air under a pressure not less than 85 pounds per square inch immediately prior to sealing. Any joints filled above the permissible level (1/8 inch below the concrete surface) shall be corrected by removing and replacing the sealer at the Contractor's expense.

H. Concrete paving equipment shall be operated so that smooth, continuous movement in the direction of the paving operation is maintained. Starting and stopping the paver for other than safety reasons or for lack of fresh concrete will not be permitted. The City of Elko New Market may require paving operations to be halted if the paver is not being operated to produce pavement conforming to plan elevation, grade or cross-section; if the concrete is not being supplied at an acceptable rate; or if the mechanical operation of the paving equipment is causing unacceptable surface variations not correctable by finishing operations.

3.2 FIELD QUALITY CONTROL

A. The City of Elko New Market may conduct various material tests throughout the construction to determine conformance with these specifications, including but not limited to:

1. Air and slump cone tests.

© Bolton & Menk, Inc. 2009, All Rights Reserved

2. Beam and cylinder testing.

B. The Contractor's shall cooperate with the individuals conducting the testing operations.

C. A 10-foot straight edge or bull float with the capability of checking the deviation in any direction over the entire width of the fresh concrete shall be supplied by the Contractor during all concrete pavement installation. The Contractor shall check the pavement longitudinally in each driving and parking lane by placing the straight edge in a wheel track or center of panel, and moving the straight edge at 5-foot overlaps. The Contractor shall check the pavement transversely where directed by the City of Elko New Market. The acceptable deviation tolerance shall be a 1/8-inch dip or hump as measured in 10-feet. A 1/8-inch deviation in less than 10-feet shall be considered out of tolerance. There shall be no more than one 1/8-incch deviation in 25-feet.The Contractor may make corrections during placement while the concrete is still fresh. Otherwise, the City of Elko New Market may require corrective action after the concrete has cured. Dips shall be corrected by full panel replacement. Humps may be corrected by grinding as directed by the City of Elko New Market.

D. If any random or uncontrolled crack occurs in undoweled or doweled jointed pavement, the pavement shall be repaired in a manner consistent with dowel load--transfer techniques using the latest Mn/DOT's Rehabilitation Standards/Details in use at the time of the construction. The City of Elko New Market may require replacement of the pavement or portions, thereof, or allow repairs. The replacement or repair work shall be performed at the Contractor's expense. Failed repairs shall be replaced at the Contractor's expense. Acceptance of the repairs will be consistent with the acceptance of the pavement portion of the Project.

E. PAVEMENT THICKNESS & CORE SAMPLES

1. It is intended that the finished pavement thickness conform substantially to the thickness shown in the Plans or as modified and staked. Any modifications will be considered as being the planned thickness.

2. Prior to final acceptance of the work, the Contractor will take cores from the pavement for use as test specimens.

3. Coring will not begin until the new pavement has attained an age of 7 days or until control beams have attained a flexural strength of 500 pounds per square inch. The Contractor will be responsible for filling the core holes with 3U18 concrete or another concrete mix approved by the City of Elko New Market. The Contractor will be responsible for all traffic control related to coring. All unacceptable cores and cores taken to delineate deficient pavement as outlined in 2301.3P2 or 2301.3P3 will be at the Contractor's expense.

4. Wherever any core shows a deficiency of more than 0.50 inch from the planned thickness, additional exploratory cores will be taken. The first exploratory cores at any location will be taken 10-feet on each side of the deficient core location and at the same distance from the pavement centerline, and one will be taken in the adjacent traffic lane if it was placed in the same operation. If the length of each one of the first exploratory cores is equal to or greater than the plan thickness of the pavement minus 0.50 inch, no additional cores will be taken in that location. If any or all of these cores are not within such limitations, additional exploratory cores will be taken at intervals of 10 to 25 feet, as directed by the City of Elko New Market, at the same distance from the pavement centerline in the same lane as the original core. The coring will proceed in the direction of the deficiency until cores of satisfactory length are obtained. Any exploratory cores are also the responsibility of the Contractor.

5. Wherever the cores show a thickness deficiency greater than 0.50 inch, the pavement will be considered to be defective and shall be removed and replaced. The defective pavement area will be considered as the entire area surrounding the deficient core (or cores) within a traffic lane and between acceptable cores. The remaining areas in an increment where the cores show a thickness deficiency no greater than 0.50 inch will be considered as acceptable pavement.

© Bolton & Menk, Inc. 2009, All Rights Reserved

6. Where the cores are deficient in length by less than 0.50 inch, or less, and the concrete also has an air content less than 4.0 percent, the Contractor shall remove and replace the defective pavement.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02760 - PAVEMENT MARKINGS

PART 1 -- GENERAL

1.1 SUMMARY

A. 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.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2581 shall apply to temporary, removable pavement markings, except as modified herein.

B. Mn/DOT Specification Sections 2582, 3354, 3590, 3591 and 3592 shall apply to permanent and painted pavement markings, except as modified herein.

C. The following Mn/DOT Specifications, attached hereto, shall apply to permanent, preformed pavement markings, except as modified herein:

1. Specification - High Durability Preformed Pavement Markings - (including stop lines and crosswalks)
2. Specifications – No. 1 Patterned Preformed Polymer Pavement Marking Tape with improved retention of reflectivity for lines and selected symbols and legends

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

PART 2 -- PRODUCTS

2.1 MATERIALS

A. Interim Pavement Markings for application on bituminous base course prior to the construction of the bituminous wearing course shall be :

1. High Solids Water Based Traffic Paints, in accordance with the referenced specification.
2. Drop-On Glass Beads, in accordance with the referenced specification.

B. Permanent Pavement Markings for application on the final bituminous wearing course shall be:

1. Epoxy Resin Pavement Markings, in accordance with the referenced specification.
2. Drop-On Glass Beads, in accordance with the referenced specification.

2.2 EQUIPMENT

A. Application equipment for latex and epoxy resin systems 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.

B. For highway and street applications, the marking material shall be applied with truck mounted traveling units properly equipped to apply the stripes as required. Where two or more lines are to be

© Bolton & Menk, Inc. 2009, All Rights Reserved

applied closely spaced, the machine shall be equipped to apply those stripes simultaneously. For application of broken lines, the applying unit shall include an automatic feed to control device capable of being set to produce the specified stripe gap ratio.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. 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 City of Elko New Market.

B. The Contractor shall sandblast or otherwise remove existing (old) pavement markings on existing pavement areas where a new marking layout is to occur.

C. Pavement markings 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.

D. 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.

E. No striping operations will be permitted between sundown and sunrise without written permission from the City of Elko New Market.

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

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

H. Application for the marking 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.

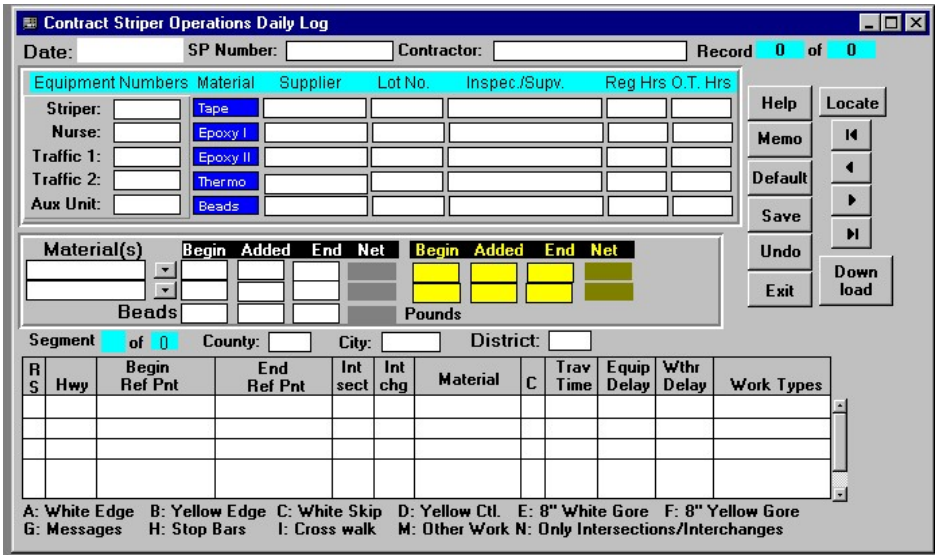
I. All pavement markings not conforming to the requirements of the Contract shall be removed and replaced or otherwise repaired to the satisfaction of the City of Elko New Market. Removal of unacceptable work shall be accomplished with suitable blasting or grinding equipment unless other means are approved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

3.2 ACCEPTANCE

A. The attached “Construction Striper Operations Daily Log” shall be completed as specified.

© Bolton & Menk, Inc. 2009, All Rights Reserved

Construction Striper Operations Daily Log



© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02770 - CONCRETE CURBING AND DRIVEWAY PAVEMENT

PART 1 -- GENERAL

1.1 SUMMARY

A. 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 concrete curbing and driveway paving as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2531 shall apply to the construction of concrete curbing and driveway placement, except as modified herein.

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

C. Mn/DOT Standard Plates.

1.3 SUBMITTALS

A. The mix proportions shall be determined by an independent certified testing laboratory secured by the Contractor. A current mix design may be submitted and accepted, provided the aggregate source is the same as that being used for this project. Two copies of the certified mix design shall be submitted to the City of Elko New Market for review prior to the construction of the project.

PART 2 -- PRODUCTS

2.1 MATERIAL

A. The concrete mix to be used shall conform to Mn/DOT Mix No. 3A32 for manually placed concrete or Mix No. 3A22 for machine placed concrete.

B. 50% of the coarse aggregate shall be Class A material as specified in Mn/DOT Specification 3137.

~~C. Joint sealer shall be a silicone based product.~~

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The use of dimensional lumber as forms is permitted if the dimension of the lumber is within ½" of the specified dimension of the finished concrete.

B. Excavate to the elevation shown on the design detail plate. Salvage material suitable for backfill.

C. The width of all driveways shall be established in the field by the project Developer and approved by the City of Elko New Market.

D. The joints in the driveway pavement shall match with the sidewalk and curb control joints. The Contractor shall be fully responsible for proper jointing patterns. Mismatched jointing will require

© Bolton & Menk, Inc. 2009, All Rights Reserved

removal and replacement of components in order to achieve the desired results. All removal and replacement of rejected construction shall be at the Contractor's expense.

E. The tooling tolerances as outlined in specification 2531 for surface uniformity, alignment and jointing shall be reviewed by the Contractor prior to the construction. Defects found during examinations will require the Contractor to remove and replace those areas. No deduction in unit price will be acceptable to satisfy defective areas found.

F. Backfill along exposed edges of slabs and/or behind the curb with selected salvage material from the excavation to the elevation shown on the design detail plate.

G. The Contractor shall imprint the concrete curb at the locations of the utility service locations in accordance with City standards.

H. When the pavement is placed directly on natural subgrade, earth check dams shall be constructed immediately after passage of the slip forms or removal of the forms to prevent water from flowing along the edge of the pavement and undermining the concrete. They shall not be spaced or be of a width to provide an approach over which a vehicle may be driven onto the pavement.

I. High early strength concrete shall be used for all driveway pavement.

J. No warranty is expressed or implied that all concrete work will be accessible for machine construction.

3.2 FIELD QUALITY CONTROL

A. Testing

1. The City of Elko New Market may conduct various material tests throughout the construction to determine conformance with these specifications, including but not limited to:

   (a) Air and slump cone tests.

   (b) Beam and cylinder testing.

2. The Contractor's shall cooperate with the individuals conducting the testing operations.

B. Warranty Period

1. During the warranty period indicated in the Supplementary Conditions, necessary repairs shall include but not be limited to defects in concrete and workmanship such as cracking, pop-outs, spalling, improper joint placement and settlement.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02775 - WALKS – CONCRETE

PART 1 -- GENERAL

1.1 SUMMARY

A. 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 concrete walks as indicated on the drawings or as specified herein.

1.2 SPECIFICATIONS REFERENCES

A. Mn/DOT Specification Section 2521 shall apply to the construction of concrete walks, except as modified herein.

B. Mn/DOT Technical Memorandum No. 03-19-TS-02 shall apply to the construction of pedestrian curb ramps.

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

D. Mn/DOT Standard Plates, including modifications from the Technical Memorandum listed above.

1.3 SUBMITTALS

A. Two copies of the certified mix design shall be submitted to the City of Elko New Market for review prior to the construction of the project. The mix proportions shall be determined by an independent certified testing laboratory secured by the Contractor. A current Mn/DOT Design Mix may be accepted provided the aggregate sources are the same as that being used for this project.

PART 2 -- PRODUCTS

2.1 MATERIALS

A. CONCRETE

1. The concrete mix to be used shall conform to Mn/DOT Mix No. 3A32 for manually placed concrete or Mix No. 3A22 for machine placed concrete.
2. Fifty percent (50%) of the coarse aggregate shall be Class A material as specified in Mn/DOT Specification 3137.

B. The foundation materials shall be Class 5, Aggregate Base.

C. PEDESTRIAN CURB RAMPS.

1. Pedestrian Curb Ramps will be in accordance with MnDOT Standard Plans.
2. The approved truncated dome products are those listed on the Mn/DOT web site – No Stainless Steel ramps are allowed.
http://www.mrr.dot.state.mn.us/materials/ApprovedProducts/appchart.asp#trdomes

© Bolton & Menk, Inc. 2009, All Rights Reserved

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. The use of dimensional lumber as forms is permitted if the dimension of the lumber is within ½" of the specified dimension of the finished concrete.

B. Excavate the walk alignment to walk sub-grade or the bottom of the topsoil layer, whichever is deeper. If excavation beyond the subgrade is required, the Contractor shall fill the excess excavation with suitable compacted material. Salvage all topsoil for re-use.

C. Backfill along the walk with salvaged topsoil, to an elevation so the sod will match the walk surface and adjacent undisturbed lawn.

D. When the pavement is placed directly on natural subgrade, earth check dams shall be constructed immediately after passage of the slip forms or removal of the forms to prevent water from flowing along the edge of the pavement and undermining the concrete. They shall not be constructed to provide an approach over which a vehicle may be driven onto the pavement.

E. The Contractor is responsible to protect the concrete during the initial hardening period to prevent damage whether accidental or intentional, from traffic, graffiti, or other marring or damage to the surface.

3.2 FIELD QUALITY CONTROL

A. Testing

1. The City of Elko New Market may conduct various material tests throughout the construction to determine conformance with these specifications, including but not limited to:

   (a) Air and slump cone tests.

   (b) Beam and cylinder testing.

2. The Contractor's shall cooperate with the individuals conducting the testing operations.

B. Warranty Period

1. During the warranty period indicated in the Supplementary Conditions, necessary repairs shall include but not be limited to defects in concrete and workmanship such as cracking, pop-outs, spalling, improper joint placement and settlement.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

© Bolton & Menk, Inc. 2009, All Rights Reserved

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02830 - MODULAR BLOCK RETAINING WALL

PART 1 -- GENERAL

1.1 SUMMARY

A. The work under this section of these specifications includes, or is incidental to, the design, furnishing, and constructing a modular block retaining wall as indicated on the drawings or as specified herein. The work shall include the footings, drainage, the modular block, anchoring devices, railings, specified accessories and related items of construction.

B. The retaining wall shall be constructed in the location and configuration as shown on the plans; however, the City of Elko New Market reserves the right to alter this alignment to improve constructibility and/or aesthetics.

C. Geosynthetic wall reinforcement shall be designed as part of the modular block retaining wall system and shall be certified by the designer of the retaining wall system that it meets the necessary strength and durability criteria for the application.

1.2 SPECIFICATION REFERENCE

A. The design shall be per AASHTO and the Mn/DOT Road Design Manual.

B. The materials, design, fabrication and erection of the retaining wall, foundation, geosynthetic wall reinforcement and associated items shall conform to the current Mn/DOT Specification Section 2411 - Minor Concrete Structures and Mn/DOT Technical Memorandum No. 03-07-MRR-03 or updates thereto, except as modified herein.

C. The material, excavation and backfill for the retaining wall and associated items shall conform to the current Mn/DOT Specification Section 2451 - Structure Excavations and Backfill, except as modified herein.

D. Unless otherwise noted, the provisions in this Section are in addition to the referenced specifications.

E. In addition, all work and equipment shall conform to the most current applicable OSHA standards.

1.3 SUBMITTAL

A. See Section 01300.

B. The successful bidder shall submit detailed design drawings and computations for the construction of the modular block retaining wall. The drawings and computations shall include, but not be limited to, footing / foundation drawings, wall details, anchoring requirements, compaction requirements, subdrainage details, railing details, re-bar schedules and other drawings and details that are appropriate for the successful completion of the project.

C. Each manufacturing facility shall provide the State Materials Engineer with a copy of its quality control plan and procedures, including testing rates and material sources. Each manufacturing facility shall also supply test reports and documentation to verify compliance with this Specification.

D. Included shall be a typical section detailing excavation limits, geotextile locations, block embedments, leveling pad dimensions, backfill, etc. Include as many sections and other views necessary for the construction and inspection of the wall. The information on embedment, geotextile locations, and

© Bolton & Menk, Inc. 2009, All Rights Reserved

geotextile lengths as they relate to wall heights may be shown in tabular form. Also included shall be pertinent information on the individual blocks, the geotextile material and compaction requirements.

E. All drawings submitted by the Contractor shall be certified and signed by a Professional Engineer registered in the State of Minnesota. Each plan sheet shall clearly identify the name of the responsible engineering firm and the name of the person certifying the plan.

PART 2 -- PRODUCTS

2.1 MATERIALS

A. The modular block units shall be as manufactured by one of the following firms or an approved equal:

1. Keystone Retaining Wall Systems
2. Rockwood Wall Systems
3. Genesis Wall System
4. Anchor Wall System
5. Risi Stone Wall System
6. Versa-lok
7. Allan Block
8. Interlock Concrete Products
9. Mesa Retaining Wall Systems

B. The units shall be MnDOT certified for salt resistance.

C. SURFACE SEALER

1. Surface sealers shall meet the requirements on file in the Mn/DOT Concrete Engineering Unit (651/779-5572). The list may also be viewed on the Mn/DOT website at: www.mrr.dot.state.mn.us/pavement/concrete/products.asp

D. GEOSYNTHETIC WALL REINFORCEMENT

1. No exception to the referenced specification is made.

E. SUB-SURFACE DRAINS

1. Perforated PVC drain pipe, SDR35 (ASTM D3034)
2. Perforated PVC drain pipe, A-2000 (ASTM D2412)
3. Perforated corrugated polyethylene drainage tubing, PE (ASTM D3350)
4. Cleanout caps on inspection tees shall be cast iron screw in type.

F. GEOTEXTILE SOCK:

1. The geotextile sock shall conform to the requirements of Mn/DOT 3733, Type I.

G. GRANULAR MATERIALS

1. The filter aggregate shall conform to the requirements of Mn/DOT 3149-H for coarse filter aggregate.

© Bolton & Menk, Inc. 2009, All Rights Reserved

2.2 SOURCE QUALITY CONTROL

1. Cap units must have a top surface sloped at minimum of 1 mm fall per 10 mm run (1 inch fall per 10 inches run) front to back or be crowned at the center.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. All work shall be done in accordance with the approved drawings.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02920 - TURF RESTORATION

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to turf restoration as indicated on the drawings or as specified herein.

B. A goal of the project during construction is to get the cleanest water possible into the storm drainage systems as quickly as possible and protect critical and unique areas. Every effort shall be required by the Contractor to achieve these goals.

C. A variety of different seeding mixtures may be utilized on this project. The Contractor shall refer to the plan for the locations of the different turf establishment areas.

D. Temporary seeding may be necessary during construction in erosion sensitive areas. The Contractor shall do temporary seeding work as specified herein or as directed by the City of Elko New Market.

E. Rapid Stabilization - This stabilization process is directed at areas of a critical or unique characteristic to prevent the separation of soil particles from the soil surface. This work may be required at any time during the contract on small areas that may or may not be accessible with normal equipment.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Sections 2575, 3876, and 3878, Controlling Erosion, Establishing Vegetation and Seed shall apply to the establishment of grass and sod as shown on the plans.

B. Mn/DOT Specification Section 2575.3N – Rapid Stabilization shall apply to the securing areas so designated.

C. BWSR Specification *Restoring & Managing Native Wetland & Upland Vegetation* shall apply to the establishment of wetland vegetation as shown on the plans. This manual is available at web site: http://www.bwsr.state.mn.us/wetlands/publications/nativewetveg.pdf

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

PART 2 -- PRODUCTS

2.1 MATERIALS

A. Seeding Items

1. The seed mixtures to be used are shown on the plans.
2. Seeding with the various seed mixture designations shall utilize the following combinations of seed, fertilizer and mulch:
   (a) Type 1 mulch shall consist of clean straw with no pasture hay. Type 1 mulch must be disk-anchored.
   (b) Temporary seeding, if required, shall use Seed Mixture – 110B Oats.
   (c) Fertilizer shall be 22-10-10. (Phosphorous use in fertilizer for first establishment and the first

© Bolton & Menk, Inc. 2009, All Rights Reserved

B. Sodding Items

1. The sod to be used shall be Type A - Lawn Sod.

C. Rapid Stabilization

1. **Method 1 –** Type 1 mulch @ 2 tons/acre and disc anchoring.
2. **Method 2 –** Applying type 1 mulch @3,000 pounds/acre. Type5 hydraulic soil stabilizer @ 750 pounds/acre.
3. **Method 3 –** Seed mixture 190RS @ 10 pounds/1,000 gallons of slurry mix of slurry mix**.**
   (a) Fertilizer 10-10-20 @ 50 pounds/1,000 gallons.
   (b) Type 6 Hydraulic Soil Stabilizer 350 pounds/1,000 gallons of slurry mix.
   (c) Water ratio 875 gallons per 1,000 gallons of slurry mix
   (d) Note – 1,000 gallons of slurry mix will cover 1/6 of an acre
4. **Method 4 –** Erosion Control Blanket, Category III.
   (a) Seed Mixture 190RS @ 2 pounds/100 square yards.
   (b) Fertilizer 10-10-20 @ 8 pounds/100 square yards.
5. **Method 5 –** Rip Rap Class II
   (a) Geotextile Type III.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. GENERAL

1. Prior to construction, the City of Elko New Market, Developer and Contractor shall observe the existing storm water outfall system and discharge area and shall document the existing conditions. Upon completion of surface restoration (i.e., paving and turf establishment), the storm water outfall system and discharge area shall be observed and all increased sediment deposits shall be removed and disposed of by the Contractor. All increases in sediment deposits shall be considered to have originated from the project site.
2. Prior to construction, the City of Elko New Market, Developer and Contractor shall review the project to identify critical areas that could require rapid stabilization during the construction process, and develop a plan to either mitigate disturbance to those areas or identify the methods of rapid stabilization most appropriate.
3. The subgrade shall be shaped to approximate contour of the finished surface. All construction debris shall be removed from the area prior to the placement of the topsoil. The subgrade shall be loosened with a disc or harrow to a depth of six-inches prior to application of the topsoil.
4. The topsoil shall be shaped to design contour of the finished surface meeting required tolerances. All construction debris shall be removed from the area prior to seeding or sodding. The topsoil shall be loosened with a disc or harrow to its full depth prior to seeding or sodding.
5. The Contractor shall be responsible for providing water and maintenance until acceptance of the turf by the Developer and City of Elko New Market. The term maintenance shall include mowing, weed control and watering, as necessary.
6. The Contractor shall remove all rocks, soil clods and debris one-inch in diameter and larger from the surface prior to seeding and mulching to create a surface suitable for mowing with homeowner grade mowing equipment.

© Bolton & Menk, Inc. 2009, All Rights Reserved

B. SEEDING REQUIREMENTS

1. Turf establishment by seeding shall be done utilizing the various combinations of seed mixtures (including aquatic plants), fertilizing and mulching at disturbed areas as shown on the plans.
2. Areas prepared for seeding shall be free of rocks, debris and clumps of soil. The areas shall be graded uniformly and lawned areas shall be raked free of chunks exceeding ¾ inches diameter.
3. Seed, except for mix 25B, shall be applied with a drill seeder, unless otherwise approved in writing by the City of Elko New Market.
4. The Contractor shall furnish weight tickets documenting pounds of hydraulic soil stabilizer placed, pounds of fertilizer placed and pounds of seed placed. The seed tickets shall show individual plant species along with the percent purity and percent germination. The fertilizer tickets shall show mix proportions. The Contractor shall also furnish its QA/QC data to the City of Elko New Market.
5. Dormant seeding and snow seeding may be utilized in accordance with the referenced specification and technical memorandum, provided the final acceptance standards are met.
6. Final acceptance of seeding shall be based on an established growth of 6-inches with a uniform density to cover 70% of the designated area, free of weeds and bare spots. Any re-seeding necessary shall be performed at the Contractor's expense.
7. Maintenance:
   (a) To reduce weed establishment, mow 2 to 3 times (30 days apart) during 1st year with the mower deck about 6”-8” off the ground. Mow one time during the 2nd year before weeds set their seeds. Burn or mow once every 3 to 5 years following the initial 2 years of maintenance to remove dead plant material and stimulate new seed.
8. SEASON OF PLANTING
   (a) Per MnDOT Specifications

C. SODDING REQUIREMENTS

1. Sod shall be placed by the Contractor in the disturbed boulevard areas and in locations shown on the plans as directed by the City of Elko New Market.
2. When placing sod in irregularly shaped locations, the Contractor shall produce sharp, straight joints between sod rolls.
3. Sod shall be placed to create a firm, smooth, uniform surface without ruts, knobs or wrinkles.
4. Sod placed on slopes greater than 1:4 (v:h), in ditch bottoms, and around storm sewer inlets or outlets shall be anchored with staples. Staples shall be U shaped 3 mm (0.12 inch) diameter or heavier steel wire having a span width of 25 mm (1 inch) and a length of 200 mm (8 inches) from top to bottom, after bending.
5. All re-work necessary to repair imperfections in sod placement shall be made at the Contractor’s expense.

3.2 RAPID STABILIZATION

A. Unless otherwise noted on the plans, rapid stabilization shall be performed in accordance with the referenced specification.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02930 - PLANT INSTALLATION

PART 1 -- GENERAL

1.1 SUMMARY

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

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification Section 2571 shall apply to plant installation, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 MATERIALS

A. Nursery Stock

1. Plant materials shall conform to the requirements of Mn/DOT Specification 3861.
2. No substitutions will be accepted without written approval from the City of Elko New Market or Developer.
3. Treated burlap will be allowed on soil balls, as an exception to Mn/DOT Specification 2571.3F, and 3861.2G, if vertical slits are cut through the burlap. The vertical slits shall be made at six (6) inch intervals horizontally around the circumference of the root ball and shall be made from the top of the root ball extending downward and shall be done in a manner which does not damage the root system.

B. Root guard shall be Typar Bio Barrier, or approved equal.

C. Landscaping rock shall be 1 -1/2" washed river gravel, unless otherwise specified in the plans.

D. Weed control landscape fabric shall be non-biodegradable, non-woven, chemically inert and resistant to fertilizers and soil chemicals. Fabric shall be a rot-proof synthetic material and shall contain inhibitors to make the fabric resistant to heat and ultraviolet exposure. It shall be dimensionally stable so that fibers maintain their positions with respect to each other. It shall be water permeable and shall be free from any chemical treatment or coating that might significantly affect its physical properties. Suitable fabrics include Mirascape, Weed-check or Supac 5NP.

E. Shredded hardwood mulch shall be provided free of dirt, ashes, sawdust, rocks, leaves, roots, black bark mold or any other debris.

F. Poly Edging shall be 5" in width and similar to Valley View Black Diamond Brand with interconnects which will allow edging to be installed in a continuous line.

© Bolton & Menk, Inc. 2009, All Rights Reserved

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Planting operations shall not be started, nor shall any planting stock be delivered to the Project site, until all other work has been completed in the area of the proposed planting site as determined by the Developer.

B. The Contractor shall notify the Developer orally or in writing, as designated by the Developer, at least twenty four (24) hours prior to the start of any planting operations during this Contract, including layout staking, clearing, weed spraying, soil preparation, watering, mulching, plant protection, weeding and clean-up.

C. All planting operations shall be performed during normal working hours and under conditions suitable for such work, as determined by the City of Elko New Market, unless otherwise authorized by the City of Elko New Market.

D. Before cultivating isolated plant locations and plant beds, the Contractor shall kill turf and weed growth within the areas that will receive mulch in accordance with the following steps.

1. Step 1. Mow existing vegetation to no less than 75 mm (**3 inches**) at least one week prior to any herbicide spraying. Remove the cuttings. The vegetation shall be allowed to re-grow to a height of at least 100 mm (**4 inches**) and no more than 200 mm (**8 inches**) prior to applying the herbicide.
2. Step 2. At least 3 days prior to the proposed application date; submit labels of all intended herbicides and a copy of a valid pesticide applicator license to the City of Elko New Market for review and approval.
3. Step 3. Spray any regrowth and kill all vegetation (top growth and roots) using a non-selective, non-residual post emergence herbicide containing 41% glyphosate as the active ingredient. Crews licensed by the Minnesota Department of Agriculture and experienced in the use of chemical pesticides shall perform the work in accordance with the manufacturer's recommendations. The herbicide shall be applied to dry foliage on actively growing vegetation. The application shall be made in August or September preceding fall or spring planting or in May if August or September application is not possible. If precipitation occurs within 6 hours after spraying, the Contractor shall respray. Additional herbicides may be applied on a prescriptive basis if approved by the City of Elko New Market.
4. Step 4. Prior to placing any specified soil additives, deep cultivate the planting holes and beds by thoroughly loosening the soil to a minimum depth of 200 mm (**8 inches**), as measured from the existing grade elevation of the soil. Operations (in this step and the following step) shall not result in soil compaction due to excessively wet soil conditions (field capacity or wetter) or improper methods. The Contractor shall demonstrate proper methods and equipment in a competence test for this operation as specified in 2571.3B3.
5. Step 5. Unless otherwise specified, add soil additives and thoroughly incorporate them into the previously deep-cultivated soil to a minimum depth of 200 mm (**8 inches**), as measured from the finished grade elevation of the soil. The equipment and methods shall be in conformance with 2571.3B3 (Competence Test).
6. Step 6. Use a compaction tester to verify that planting areas have been loosened to less than 1400 kPa (**200 psi**) at the initial minimum cultivation depth of 200 mm (**8 inches**) plus the depth of added soil additives as measured from the finished grade elevation of the soil.

E. Select salvaged topsoil shall be used for preparation of planting soil. Grade 2 compost conforming to Mn/DOT Specification 2890.2B shall be mixed with the topsoil at a rate of three (3) parts topsoil to one (1) part compost.

© Bolton & Menk, Inc. 2009, All Rights Reserved

F. In all landscape planting beds, two (2) inches of Grade 2 compost conforming to Mn/DOT Specification 3890.2B shall be applied over the soil surface and shall be roto-tilled uniformly into the top twelve (12) inches of in place soil.

G. The Plant Establishment Period will be in accordance with paragraph 13.07 of the Supplemental Conditions. Replacement of dead, defective or missing plants or incidental materials shall be required immediately or as soon as is practicable within an appropriate period of time as ordered by the City of Elko New Market or Developer. It is anticipated that the plant establishment will be included in the specified warrantee period and that no retainage will be held throughout the plant establishment period unless the City of Elko New Market or Developer determine that the materials or procedures warrant such a retainage.

H. Watering during the Plant Establishment Period shall consist of maintaining adequate (but not excessive) soil moisture at all times. It is recommended that after the initial thorough "watering in", every plant should receive a thorough watering, as necessary, at weekly intervals, on the average, throughout the growing season (approximately May 1 thru October 1). The Contractor shall avoid over watering all plants. General water guidelines for the average condition are as follows:

Plant Type	**Average Amount of Water Per Application**
Machine Transplanted Trees (3" caliper plus)	50 to 100 Gallons
Balled & Burlapped Trees	20 Gallons ±
Bare Root Trees	15 Gallons ±
Balled & Burlapped Shrubs	10 Gallons ±
Bare Root or Container Shrubs	7 Gallons ±

I. The Contractor is expected to carry insurance to cover responsibility for plants lost to acts of vandalism, theft and rodent damage. In the case of repeated and excessive vandalism, theft, and rodent damage, the City of Elko New Market will make a determination as to whether the plants will be deleted or replaced again subsequent to initial replacement with additional compensation in accordance with the Contract prices.

J. The Contractor shall install root guards as specified at all tree grate locations as shown on the plans. The Contractor shall protect tree grate castings from breakage due to vehicular traffic prior to the planting of the trees. If the tree grates are not protected, and breakage occurs due to traffic loading during the construction period, the Contractor will replace the tree grate casting at their expense.

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved

SECTION 02955 - DRAIN TILE REPAIR

PART 1 -- GENERAL

1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to drain tile repair, as indicated on the drawings or as specified herein.

1.2 SPECIFICATION REFERENCES

A. Mn/DOT Specification No. 2502 shall apply to drain tile repair, except as modified herein.

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

PART 2 -- PRODUCTS

2.1 DRAIN TILE REPAIR PIPE AND FITTINGS

A. Solid Wall Polyvinyl Chloride (PVC) Pipe

1. 4" through 15" Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform to the requirements of ASTM D-3034 for the Standard Dimension Ratio (SDR) of 35.
2. The connection shall be push-on with elastomeric gasketed joints, which are bonded to the inner walls of the gasket recess of the bell socket.
3. The pipe grade used shall be resistant to aggressive soil and corrosive substances in accordance with the requirements of ASTM D-543.

B. High Density Polyethylene (HDPE) Pipe

1. Pipe material shall be high-density polyethylene conforming with the minimum requirements of cell classification 424410C or E as defined and described in the latest version of ASTM D3350 or approved equal. The material formulation shall include recycled polyethylene.

C. Fernco Connectors, as needed

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Drain Tile Repair

1. The Contractor shall immediately notify the City of Elko New Market whenever drain tile lines are discovered.
2. If the existing drain tile is determined to be in service, the Contractor shall repair these lines with the same size or larger, solid wall PVC pipe as specified. Utilize Fernco connectors as required.
3. The pipe connection with the existing joint shall be field connected so that the inverts match to form a smooth transition. The connection transition joint shall be given a full circumferential wrap of geotextile fabric meeting the requirements of Mn/DOT Section 3733 for Type II material.

© Bolton & Menk, Inc. 2009, All Rights Reserved

The geotextile shall be not less than 2-1/2 feet wide and shall be centered on the joint. The circumferential wrap shall overlap itself by not less than one foot.

4. The connection shall be sealed with an approved concrete grout collar having a minimum thickness of 6-inches over the entire length of the geotextile wrap or an appropriate Fernco connector.

3.2 INSTALLATION OF PIPE AND FITTINGS

A. Connection and Assembly of Joints

1. All joints shall be water tight.

B. Bulkheading Open Pipe Ends

1. The Contractor shall furnish, install and maintain a temporary, water-tight plug adequately blocked in place to prevent flooding of the existing downstream sewer system. The plug shall be placed at the beginning of the project or at the end of each working day at the end of the day's operation.

2. When flows are diverted from an existing sewer to be abandoned in place, the Contractor shall construct a water-tight plug on the open end of the abandoned sewer.

3.3 FIELD QUALITY CONTROL

A. None

******END OF SECTION******

© Bolton & Menk, Inc. 2009, All Rights Reserved