DANE COUNTY DEPT. OF PUBLIC WORKS, HIGHWAY & TRANSPORTATION

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Public Works Engineering Division
Public Works Solid Waste Division

ADDENDUM 1

JULY 20, 2018

ATTENTION ALL REQUEST FOR BID (RFB) HOLDERS

RFB NO. 318019 - ADDENDUM NO. 1

RETAINING WALL REPLACEMENT

BIDS DUE: TUESDAY, SEPTEMBER 4, 2018, 2:00 PM. DUE DATE AND TIME ARE NOT CHANGED BY THIS ADDENDUM.

This Addendum is issued to modify, explain or clarify the original Request for Bid (RFB) and is hereby made a part of the RFB. Please attach this Addendum to the RFB.

PLEASE MAKE THE FOLLOWING CHANGES:

1. **Table of Contents**
   Delete current Table of Contents; replace with new Table of Contents issued with this Addendum.

2. **Bid Form**
   Page BF-3: Delete current page BF-3; replace with new page BF-3 issued with this Addendum.

3. **Section 01 11 00 - Summary of Work**
   Add Section 01 11 00 - Summary of Work to the Project Manual.

4. **Section 01 14 00 - Work Restrictions and Provisions**
   Add Section 01 14 00 - Work Restrictions and Provisions to the Project Manual.

5. **Section 01 32 23 - Survey and Layout Data**
   Add Section 01 32 23 - Survey and Layout Data to the Project Manual.

6. **Section 01 33 00 - Submittals**
   Add Section 01 33 00 - Submittals to the Project Manual.

7. **Section 01 50 00 - Temporary Facilities and Controls**
   Add Section 01 50 00 - Temporary Facilities and Controls to the Project Manual.

8. **Section 01 56 26 - Temporary Fencing**
   Add Section 01 56 26 - Temporary Fencing to the Project Manual.

9. **Section 01 77 00 - Closeout Procedures**
   Add Section 01 77 00 - Closeout Procedures to the Project Manual.

10. **Section 02 41 19 - Selective Structure Demolition**
    Add Section 02 41 19 - Selective Structure Demolition to the Project Manual.

11. **Section 06 10 10 - Rough Carpentry**
    Add Section 06 10 10 - Rough Carpentry to the Project Manual.

12. **Section 31 22 00 - Grading**
    Add Section 31 22 00 - Grading to the Project Manual.

13. **Section 31 23 23.14 - Granular Fill**
    Add Section 31 23 23.14 - Granular Fill to the Project Manual.

14. **Section 31 25 00 - Erosion and Sedimentation Controls**
    Add section 31 25 00 - Erosion and Sedimentation Controls to the Project Manual.

15. **Section 32 32 29 - Timber Retaining Wall**
    Add Section 32 32 29 - Timber Retaining Wall to the Project Manual.

16. **Section 32 91 19 - Topsoil Grading and Placement**
    Add Section 32 91 19 - Topsoil Grading and Placement to the Project Manual.

17. **Section 32 92 19 - Seeding**
    Add Section 32 92 19 - Seeding to the Project Manual.

If any additional information about this Addendum is needed, please call Ryan Shore at 608/266-4475, shore@countyofdane.com.

Sincerely,
Ryan Shore
Project Manager

Enclosures:
- Addendum No. 1 Table of Contents
- Addendum No. 1 Bid Form Page BF-3
- Section 01 11 00 - Summary of Work
- Section 01 14 00 - Work Restrictions and Provisions
- Section 01 32 23 - Survey and Layout Data
- Section 01 33 00 - Submittals
- Section 01 50 00 - Temporary Facilities and Controls
- Section 01 56 26 - Temporary Fencing
- Section 01 77 00 - Closeout Procedures
- Section 02 41 19 - Selective Structure Demolition
- Section 06 10 00 - Rough Carpentry
- Section 31 22 00 - Grading
- Section 31 23 23.14 - Granular Fill
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- Section 32 92 19 - Seeding

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D 2 – Wall Details
D 3 – Railing Detail

THIS PAGE IS FOR BIDDERS' REFERENCE AND NEED NOT BE SUBMITTED WITH BID FORM.

BID CHECK LIST:
These items **must** be included with Bid:
☐ Bid Form ☐ Bid Bond ☐ Fair Labor Practices Certification

BIDDERS SHOULD BE AWARE OF THE FOLLOWING:

DANE COUNTY VENDOR REGISTRATION PROGRAM

All bidders are strongly encouraged to be a registered vendor with Dane County. Registering allows vendors an opportunity to receive notifications for RFBs & RFPs issued by the County and provides the County with up-to-date company contact information. Complete a new form or renewal online at:
danepurchasing.com/Account/Login?

DANE COUNTY BEST VALUE CONTRACTING PRE-QUALIFICATION

Contractors must be pre-qualified as a Best Value Contractor with the Dane County Public Works Engineering Division before the award of contract. Obtain a *Best Value Contracting Application* by calling 608/266-4018 or complete one online at:
countyofdane.com/pwht/BVC_Application.aspx

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section includes project description of the demolition and replacement of the existing retaining wall at Mendota County Park. The existing retaining wall and chain barrier has failed and requires replacement. Contractor shall remove existing wall, excavate for drainage behind the replacement wall and fill with clean stone, replace retaining wall, and add railings as shown on the drawings.

B. Related Sections- See project manual.

1.02 REFERENCES (NONE)

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION

SECTION 01 14 00

WORK RESTRICTIONS AND PROVISIONS

PART 1 GENERAL

1.01 SUMMARY

A. Applicable provisions of Division 01 shall govern work of this section.

1.02 APPLICABLE PUBLICATIONS

A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
   1. Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, current edition.
   2. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition at time of bid opening.

1.03 Related Sections

A. Procurement and Contracting Requirements - Division 00 (All Sections)

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EXAMINATIONS

A. Contractor shall obtain complete data at the site and inspect surfaces that are to receive the work before proceeding with assembling, fitting or erecting his work under this contract. The Contractor shall notify the Engineer in writing in the case of discrepancies between existing work and drawings, and of any defects in surfaces that are to receive the Contractor's work. The Engineer will direct the remedy of applicable surfaces.

B. Information pertaining to existing conditions that appear on the drawings is based on available records. While such data has been collected with reasonable care, there is no expressed or implied guarantee that conditions so indicated are entirely representative of those actually existing or that unexpected developments may not occur. All data included was provided to assist the Contractor in the investigation of conditions. The Contractor is responsible for the interpretation of the data provided.

C. The Contractor shall become acquainted with the location of underground service, utilities, structures, etc., which may be encountered or be affected by the Contractor's work, and shall be responsible for any damage caused by neglect to provide proper precautions or protection.

D. Utility Locations. Contractor shall be responsible for locating and verifying all utilities on the project and also all relocations where necessary. Typically the utilities require the request for locate be made a minimum of three working days before the Contractor begins work in the area. The utilities shown on the contract drawings are approximate in location, depth, number, and type.

E. Contractor shall verify grades, lines, levels, locations, and dimensions as shown on drawings and report any errors or inconsistencies to the Engineer before commencing work. Starting of work by the Contractor shall imply acceptance of existing conditions.

3.02 STORAGE AND HANDLING

A. Contractor or the Contractor's authorized representative must be present to accept delivery of all equipment and material shipments. The Owner's employees will not knowingly accept, unload, or store anything delivered to the site for the Contractor's use. Inadvertent acceptance of delivered items by any representative of the Owner shall not constitute acceptance or responsibility to assume all liability for any equipment or material delivered to the job site.

B. Any material or equipment removed from the present construction shall be the property of the Owner and disposition shall be as directed by the Owner or stockpiled at locations shown on the contract drawings. All salvaged materials shall be removed in a workmanlike manner and carefully transported to Owner's storage area. The Contractor shall coordinate the salvaging of items with the Owner.

C. Contractor shall confine all operations, equipment, apparatus, and storage of materials to the immediate area of work to the greatest possible extent. Contractor shall ascertain, observe, and comply with all rules and regulations in effect on the project site, including, but not limited to parking and traffic regulations, use of walks, security restrictions and hours of allowable ingress and egress.

D. The storage of materials on the grounds shall be in strict accordance with the instructions of the Owner.
   1. All materials affected by moisture shall be stored on platforms and protected from the weather in accordance with manufacturer recommendations.
   2. Should it be necessary at any time to move material storage platforms, the Contractors shall move same at the Contractor's expense, when directed by the Owner.

3. Areas used for storage of materials shall be repaired and restored by the Contractor.

E. The Owner assumes no responsibility for materials stored on the site. The Contractor shall assume full responsibility for damage due to the storage of materials.

F. During the construction of this project, materials, storage areas, and earth stockpiles shall be located so as not to interfere with the installation of the utilities nor cause damage to existing structures or utilities.

3.03 WORK RESTRICTIONS AND PROVISIONS

A. Notification. The Contractor shall notify the Owner and the Engineer 72 hours in advance of beginning work. Notice must also be given to the Owner and the Engineer for each subsequent day the Contractor will be working.

B. Operation During Construction. The existing facilities shall remain completely operational during construction. The Contractor shall be responsible to see that the facilities are operating as they should. Sequence of operations or place of commencement may be determined by the Engineer as deemed to best serve the needs and convenience of the Owner, or as necessity of occasion requires.

C. Starting of work implies acceptance of the work of others. Removal and replacement of work applied to defective surfaces, in order to correct defects, shall be done at the expense of the Contractor who applied work to defective surfaces.

D. Access to Work. Representatives of the State and Federal Regulatory Agencies and Owner shall have access to the work and on-site records at all times.

E. Project Log. A project log shall be maintained showing daily progress of work. Engineer and Owner shall have access to this logbook and the project schedule at all times.

F. Existing pipes, electrical work, and all other utilities encountered, which may interfere with new work, shall be rerouted, capped, cut off, or replaced by the Contractor.

G. Dust and Noise. Contractor shall make an effort to keep dust and noise to a minimum during construction. The dispersion of dust from construction related activities shall, until acceptance of work, be minimized by the application of water or other acceptable materials or covers. Noise from any construction activities shall only be allowed during approved working hours. This includes preparation, organizational and clean-up work. Work hours are limited to weekdays between 7 a.m. and 7 p.m. unless specifically stated elsewhere in these specifications or approved during construction by the Owner and Engineer in

writing. Only maintenance of traffic and/or erosion control activities are allowed outside of these times.

H. Contractor shall confine equipment, apparatus, storage of materials and operations to limits by specific direction of the Owner or Engineer and shall not bring material onto the site until they are needed for the progress of the work.

I. Cleaning. Contractor shall be responsible for all cleaning required within the technical sections of the specifications governing work under the Contractor's jurisdiction as well as for keeping all work areas, passageways, and all other areas of the premises free of rubbish, debris and scrap which may be caused by the Contractor's operations or that of the Subcontractors.

1. Remove rubbish, debris, and scrap promptly upon its accumulation and in no event later than the end of each week.
2. Combustible waste shall be removed immediately or stored in fire resistive containers until disposed of in an approved manner.
3. Spillage of oil, grease, or other liquids which could cause a slippery or otherwise hazardous situation or stain a finished surface, shall be cleaned up immediately.
4. Dust, dirt, and other foreign matter shall be removed completely from all internal surfaces of all mechanical and electrical units, cabinets, ducts, pipes, etc.
5. Dirt, soil, fingerprints, stains and the like, shall be completely removed from all exposed finished surfaces.
6. If rubbish and debris is not removed, or surfaces cleaned as specified above, the Owner reserves the right to have said work done by others and the related cost(s) will be deducted from monies due the Contractor.

J. Disposal of Demolished Materials. Remove from the site all debris, rubbish, and other materials resulting from demolition operations. Storage of removed materials will not be permitted on the site. If burning is allowed, the Contractor shall obtain all required permits.

1. Final relocation of mailboxes. If the Postal Carrier can deliver mail to affected properties during construction, Contractor shall maintain reasonable access to said mailboxes. Upon completion of the project, Contractor shall relocate mailboxes to a location and height that meets the US Postal Service requirements along affected roadways.

K. Street Signs. The Contractor shall salvage and reinstall all signs affected by construction. All signs to be removed shall be done in a workmanlike manner and carefully transported to Owner's storage area. If signs, sign bases or posts are damaged during removal, it shall be the Contractor's responsibility to replace said sign, base or post prior to reinstallation.

L. Garbage Collection. Garbage and/or recycling collection will continue throughout the project. Contractor shall provide temporary access to garbage

vehicles throughout the project area or assist with garbage collection in areas inaccessible to vehicular traffic during the project.

3.04 OPERATION AND PROTECTION

A. Contractor shall schedule his work as to minimize the inconvenience to the Owner and residents adjacent to the project.

B. Traffic Control. The Contractor shall meet the requirements for traffic control in accordance with the Manual on Uniform Traffic Control Devices. All structures and equipment shall be constructed, installed, and operated with guards, controls, and other devices in place.

C. The Contractor shall provide protection as follows:

1. Protection. The Contractor shall provide and maintain proper barricades, fences, signal lights, or watchmen to properly protect the work, persons, animal and property against injury. The cost of protection shall be incidental to the contract and no extra payment will be allowed therefore.
2. Provide, erect, and maintain all required barricades, guard rails, temporary walkways, etc., of sufficient size and strength necessary for protection of stored material and equipment; adjacent to or within project area; adjoining property and the building(s) as well as to prevent accidents to the public and the workmen at the job site.
3. Provide and maintain proper shoring and bracing for existing underground utilities encountered during excavation work, to protect them from collapse or other type of damage until such time as they are to be removed, incorporated into the new work, or can be properly backfilled upon completion of new work.
4. Provide protection against rain, snow, wind, ice, storms or heat so as to maintain all work, materials, apparatus, and fixtures, incorporated in the work or stored on the site, free from injury or damage. At the end of the day's work, cover all new work likely to be damaged. Remove snow and ice as necessary for safety and proper execution of the work.
5. Protect the building and foundations from damage at all times from rain and groundwater. Provide all equipment and enclosures as necessary to provide this protection.
6. Damaged property shall be repaired or replaced in order to return it to preconstruction conditions.
7. Protect materials, work, and equipment, not normally covered by above protection, until construction proceeds to a point where the general building protection of the area where located, dispenses with the necessity therefore. Protect work outside of the building lines such as trenches and open excavations, as specified above.
8. Take any and all necessary precautions to protect Owner's property as well as adjacent property, including trees, shrubs, buildings, sanitary sewers, water piping, gas piping, electric conduit or cable, etc., from any and all damage which may result due to work on this project.

9. Repair work outside of property line in accordance with the requirements of the authority having jurisdiction.
10. Repair any work damaged by failure to provide proper and adequate protection to its original state to the satisfaction of the Owner or remove and replace with new work at the Contractor's expense.
11. Tree Protection. Trees shall be protected from damage and scarring. Do not injure trunks, branches, or roots of trees that are to remain. No trees shall be removed without the approval of the Owner. Tree branches in the way of construction operations shall be carefully pruned prior to construction. Do cutting and trimming only as approved and as directed by the Owner. Do not operate equipment or vehicles within the drip line of a tree to be preserved. Any roots exposed during construction shall be cut clean. Ripping of the roots with excavation equipment shall not be allowed.
12. All survey monuments, property stakes, etc., which are encountered during the construction are to be preserved and undisturbed. The Engineer shall be notified of all such items immediately upon discovery. Failure to preserve such monuments will not be allowed and replacement shall be at the Contractor's expense.

END OF SECTION

SECTION 01 32 23

SURVEY AND LAYOUT DATA

PART 1 GENERAL

1.01 APPLICABLE PROVISIONS

A. Applicable provisions of Division 1 shall govern work of this section.

1.02 APPLICABLE PUBLICATIONS (NONE)

1.03 DESCRIPTION OF WORK

A. The Contractor will stake and layout all work. The Contractor shall immediately upon entering the site for purpose of beginning work, locate general reference points and take such action as necessary to prevent their destruction. The Contractor shall layout the work and be responsible for all lines, elevations and measurements. The Contractor must exercise proper precaution to verify dimensions of the drawings before laying out work and will be held responsible for any error resulting from failure to exercise such precaution.

1.04 RELATED WORK ELSEWHERE

A. Procurement and Contracting Requirements - Division 00 (All Sections)

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

A. The work under this section shall cover furnishing submittal information as required by the contract drawings, other specification sections and as specified herein.

B. Related Sections

1. Procurement and Contracting Requirements - Division 00 (All Sections)
2. 01 33 23 Submittal Log

1.02 REFERENCES

1.03 SUBMITTALS

A. As soon as possible after Notice to Proceed, submit brochures of catalog cuts and specifications for all new equipment. Submittal of product data shall comply with the requirements for Submittals.

B. Prior to fabrication or installation, submit Submittals for review. Each submittal shall consist of the minimum number of copies as listed on the submittal log. Two will be returned to the Contractor. Should more than two copies of reviewed Submittals be necessary for Contractor's use and distribution, the Contractor shall supply additional sufficient number of Submittals for review as required.

C. If information on previously submitted Submittals is altered, in addition to the notations made by the Engineer, the Contractor shall bring all changes to the attention of the Engineer. Corrections or changes indicated on reviewed Submittals shall not be considered an order for extra work.

D. Submittals will not be considered reviewed unless they bear the stamp of review and signature of the Engineer. Drawings will be reviewed for general design only. Dimensions and fit of units of various parts shall be the Contractor's responsibility.

E. Prior to work at the site, submit samples allowing reasonable time for review and testing. Submit samples in sufficient quantity (minimum of five), of adequate size showing quality, type, color range, finish and texture. Label each sample stating material, description, applicable specification sections, intended use, project name, and Contractor's name.

F. Order no materials subject to sample review until receipt of written shop drawing review. Materials installed shall match reviewed samples. No review of samples

shall be taken in itself to change or modify contract requirements beyond the expressed stipulations of the review letter.

1.04 PERMITS AND APPROVALS

A. Obtain and submit copies of all permits, code inspections, and approval documents, as specified.

1.05 CONSTRUCTION SCHEDULE

A. Submit a minimum of five copies of a schedule of operation prior to construction. The schedule shall provide for activities of the various trades and shall be sequenced to provide a minimum of interruption to the operation of existing facilities. Allow ample time for the Owner to alter operations as required by the construction of the various components of the work. Revised and updated construction schedule shall be provided throughout the construction as deemed necessary and requested by the Engineer.

B. The construction schedule shall be supplemented by a list of Submittals, dates they will be submitted for approval and a reasonable time allowance for review.

1.06 RECORD DRAWINGS

A. The Engineer will provide the Contractor with a suitable set of contract drawings on which daily records of changes and deviations from contract shall be recorded. All buried or concealed piping, conduit, or similar items shall be located by dimensions and elevations on the record drawings.
   1. The daily record of changes shall be the responsibility of Contractor's field superintendent. No arbitrary mark-ups will be permitted.
   2. At completion of the project, the Contractor shall submit the marked-up record drawings to the Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. The work under this section shall cover all materials, equipment, tools, labor, and supervision necessary to execute the temporary facilities and controls required for the work. Nothing in this Section is intended to limit types and amounts of temporary work required.

B. Contractor shall be responsible to obtain from authorities of each respective utility the necessary service for water, electricity, telephone, etc., or arrange with the Owner for some or all of these services as specified below.

C. Dispose of temporary construction facilities when no longer needed or at completion of the Contract. Repair any damage caused by the installations.

D. Related Sections
   1. 01 41 26 Permits
   2. 31 25 00 Erosion and Sedimentation Control

1.02 REFERENCES

A. The Associated General Contractors of America (AGC), Manual of Accident Prevention.

B. Occupational Safety & Health Administration (OSHA) 29 CFR 1926, Construction

1.03 TEMPORARY FIELD OFFICES

A. Contractor shall provide temporary offices at the project site for its use to meet its requirements and the limitations of the site. Location of field offices shall be approved by the Owner.

B. Contractor shall provide suitable interior or exterior sanitary facilities conforming to State and local health requirements, in clean and good working condition, and socked with sanitary supplies for the duration of the contract.

C. Contractor shall supply and maintain an adequate supply of bottled drinking water.

D. Supply a first aid kit in each field office and field laboratory provided under the contract. Ensure the kits are readily available to project personnel.

1.04 VEHICLE ACCESS

A. Contractor is responsible for providing onsite parking for all employee and construction vehicles. No parking on public streets or highways will be allowed.

B. Contractor is responsible for maintaining control of site access for the duration of the project.

C. Keep public roads free of construction spillage at all times. Repair damage caused to these roads by contract related construction vehicles by replacing damaged pavement and curbing to match pre damaged condition.

D. Provide unimpeded access for emergency vehicles. Maintain 20-foot wide driveways with turning space between and around combustible materials.

E. Provide and maintain access to fire hydrants and control valves free of obstructions.

F. Provide means of removing mud from vehicle wheels before entering streets.

G. Permanent Pavements and Parking Facilities:
   1. Avoid traffic loading beyond paving design capacity. Tracked vehicles not allowed.
   2. Use of permanent parking structures is not permitted.

H. Maintenance:
   1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
   2. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

I. Mud from Site Vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.05 TEMPORARY ELECTRIC

A. The Contractor shall be responsible for coordinating the installation of primary electric service to the site. Contractor shall be responsible for all work associated with obtaining temporary electric service.

B. Construction electrical service shall comply with regulations and requirements of the local electrical utility company.

C. Meter for temporary electric service shall be in Contractor's name, and Contractor shall be responsible for all electric power bills for the temporary service until Substantial Completion has been granted by Owner.

1.06 TEMPORARY WATER

A. Provide, maintain and pay for temporary water. Exercise measures to conserve water. Coordinate access to and use of water with utility provider, extend and supplement with temporary devices as needed to maintain specified conditions for construction operations.

B. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.07 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of project mobilization.

1.08 TEMPORARY FIELD OFFICES AND SHEDS

A. Do not use existing facilities for field offices or for storage.

B. Do not use permanent facilities for field offices or for storage.

C. Provide space and facilities for Project as required.

D. Removal: At completion of Work, remove buildings, foundations, utility services, and debris. Restore areas.

1.09 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by authorities having jurisdiction for public rights-of-way.

C. Provide protection for facilities designated to remain. Replace damaged facilities.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.10 TEMPORARY ENCLOSURES

A. Exterior Enclosures:
   1. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

B. Interior Enclosures:
   1. Provide temporary partitions and ceilings as indicated on contract drawings to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
   2. Construction: Framing and plywood sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.11 TEMPORARY SECURITY

A. Security Program:
   1. Protect Work, existing premises and Owner's operations from theft, vandalism, and unauthorized entry.
   2. Initiate program in coordination with Owner's existing security system at project mobilization.
   3. Maintain program throughout construction period until Owner acceptance precludes need for Contractor security.

B. Entry Control:
   1. Owner will control entrance of persons and vehicles related to Owner's operations.
   2. Coordinate access of Owner's personnel to site in coordination with Owner's security forces.

1.12 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.13 TEMPORARY WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.14 TEMPORARY DUST CONTROL

A. Execute Work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.15 TEMPORARY EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize surface area of bare soil exposed at one time.

C. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials, prior to Substantial Completion inspection.

B. Remove underground installations to minimum depth of 2 feet. Grade site as indicated on contract drawings.

1.17 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.18 TEMPORARY WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.19 TEMPORARY DUST CONTROL

A. Execute Work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.20 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials, prior to Substantial Completion inspection.

B. Remove underground installations to minimum depth of 2 feet. Grade site as indicated on contract drawings.

C. Clean and repair damage caused by installation or use of temporary work. Restore existing facilities used during construction to original condition.

D. Restore permanent facilities used during construction to specified

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 56 26

TEMPORARY FENCING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Temporary site construction fencing.

B. Related Sections
1. 01 50 00 Temporary Facilities and Controls

1.02 DESCRIPTION OF WORK

A. Protective vinyl fencing shall be installed around the soccer fields as protection of seeded areas at locations identified in the drawings.

1.03 SUBMITTALS

A. Provide product sheets for vinyl fencing.

PART 2 PRODUCTS

2.01 Vinyl (snow) fencing shall be 4’ tall and supported with steel posts on 6’ centers.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to installation, discuss fencing location with Engineer.

B. Remove fencing upon direction from Engineer.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. The work under this section shall cover: starting of systems; demonstration and instructions; testing, adjusting and balancing; operation and maintenance data; protecting installed and completed construction; final cleaning; manuals for materials and finishes; manual for equipment and systems; spare parts and maintenance products; product warranties, guarantees and bonds; project closeout procedures; and maintenance service.

B. The Contractor shall assume the responsibility for the protection of all finished construction until accepted by the Owner. The Contractor shall repair and restore any and all damage to finished work to the satisfaction of the Engineer.

C. The Contractor shall require each trade to clean the premises of accumulations of surplus materials and rubbish caused by their activities. Burning of rubbish on site will not be permitted.

D. Related Sections
   1. 01 50 00 Temporary Facilities and Controls

1.02 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Prohibit traffic from landscaped areas.

1.03 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.

5. Reviewed Shop Drawings, Product Data, and Samples.
6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
4. Field changes of dimension and detail.
5. Details not on original Contract Drawings.

G. Submit documents to Engineer prior to claim for final Application for Payment.

1.04 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.

B. Provide submittals to Engineer for presentation to Owner required by authorities having jurisdiction.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

D. Owner will occupy all portions of building as specified in Summary of Work – Division 01.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Clean filters of operating equipment.

E. Clean debris from roofs, gutters, downspouts, and drainage systems.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and construction facilities from site.

END OF SECTION

SECTION 02 41 19

SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. The work under this section shall consist of the removal of existing retaining wall as shown on the contract drawings.

B. Related Sections
1. 01 56 26 Temporary Fencing
2. 31 22 00 Grading
3. 31 25 00 Erosion and Sedimentation Controls

1.02 SUBMITTALS

A. Provide a detailed sequence of operation for demolition and removal work in accordance with Submittals - Division 01 of these specifications to ensure the uninterrupted progress of the Owner's operations.

1.03 EXISTING CONDITIONS

A. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable.

PART 2 PRODUCTS

2.01 EXPLOSIVES

A. The use of explosives will not be permitted.

PART 3 EXECUTION

3.01 PROTECTION OF UTILITIES

A. Before commencing demolition work, preserve in operating condition active utilities traversing the project site; protect property, including but not limited to mains, manholes, catch basins, valve boxes, poles, guys and other appurtenances.

3.02 TREE PROTECTION

A. Trees adjacent to the project site are to be protected from damage to the greatest extent possible. Avoid crushing roots with construction vehicles.

B. If any tree is located within the work zone, it is to be tagged and the OWNER is to be notified of the concern. Trees are not to be removed without the OWNER's written authorization.

3.03 DEMOLITION, GENERAL

A. Proceed with demolition in accordance with approved sequence of operations. Provide controls as practicable to confine dust and dirt in the immediate area of demolition. See contract drawings for specific areas of demolition.

3.04 BELOW GRADE DEMOLITION

A. Demolish all abandoned structures to a depth of not less than 6 inches below the existing ground surface.

3.05 FILLING OF VOIDS

A. Completely fill below grade areas and voids resulting from the demolition of structures. Use satisfactory soil materials consisting of stone, gravel, and sand, free from debris, trash, frozen materials, roots and other organic matter, and stones larger than 6 inches in any dimension. Prior to placement of fill materials, ensure that areas to be filled are free of standing water, frost, frozen material, trash and debris. Place fill materials in horizontal layers not exceeding 6 inches in loose depth. Compact each layer at optimum moisture content of the fill material to a density equal to the original adjacent ground. After fill placement and compaction, grade the surface to meet adjacent contours and to provide flow to surface drainage structures.

3.06 PARTIAL REMOVAL

A. Items of salvageable value to the Contractor, not desired by the Owner, must be transported from the site as they are removed. Storage or sale of removed items on the site will not be permitted.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from the site all debris, rubbish, and other materials resulting from demolition operations. Storage of removed materials will not be permitted on the site. Coordinate with Owner all salvaged items to be removed by Contractor.

3.08 DAMAGES

A. Promptly repair damages caused to adjacent facilities by demolition operations, as directed by the Engineer and at no cost to the Owner.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural roof, wall and floor framing.

B. Roof, wall and floor sheathing.

C. Pressure treated lumber.

D. Laminated veneer lumber.

E. Blocking, nailers, fascia, and fasteners.

F. Pre-Manufactured shear walls.

1.02 RELATED SECTIONS

A. Section 04 20 00 - Unit Masonry.

B. Section 06 17 53 - Shop-Fabricated Wood Trusses.

1.03 REFERENCES

A. American Lumber Standards Committee (ALSC):
   1. Softwood Lumber Standards.

B. American National Standards Institute (ANSI):
   1. ANSI A135.4 - Basic Hardboard.
   2. ANSI A208.1 - Wood Particleboard and Flakeboard: Types, Grades, and Uses.

C. American Plywood Association (APA).

D. American Wood Protection Association (AWPA) U1-12.

E. National Forest Products Association (NFPA).

F. National Institute of Standards and Technology (NIST):
   1. NIST PS 20 - American Softwood Lumber Standard.

G. Southern Pine Inspection Bureau (SPIB):
   1. SPIB - Standard Grading Rules for Southern Pine Lumber.

H. Western Wood Products Association (WWPA):
   1. WWPA G5 - Western Lumber Grading Rules.

1.04 SUBMITTALS

A. Submit product data on the sawn lumber, LVL lumber, wood sheathing, shear walls, shearwalls anchors, and metal connectors.

1.05 QUALITY ASSURANCE

A. All lumber and plywood shall bear a grading stamp exposed to view.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements [Material and Equipment]: Product storage and handling provisions.

PART 2 PRODUCTS

2.01 LUMBER MATERIALS

A. Lumber Grading Rules: SPIB and WWPA.

B. Lumber Framing, nailers, and blocking: 19 percent maximum moisture content.
2x4s, 2x6s and 2x8s: SPF No 2 and better, F_b = 875 psi
2x10s and 2x12s: DF No. 2 and better, F_b = 825 psi.

C. Rafter Framing: Hem Fir No. 2 or better, 19 percent maximum moisture content.

D. Nailers and Blocking: Spruce-Pine-Fir or Hem Fir No. 2 or better, 19 percent maximum moisture content.

E. Pressure Treated Lumber: Southern Pine No. 2 or better, preservative treated conforming to the U1-12 Standards of the American Wood Protection Association. Each piece shall be treated in accordance with AWPA standards and certified by an approved inspection agency. The wood shall be pretreated to the following Use Categories:
   1. Wood in an interior location in with concrete or masonry: UC2
   2. Wood in an exterior location in contact with concrete or masonry: UC4A.
   3. Wood in an exterior location in contact with or embed in the ground: UC4B.
   4. Structural wood posts embedded in the ground: UC4B.

2.02 LAMINATED VENEER LUMBER

A. Laminated Veneer Lumber:
   1. 1.75 inch x 5.5 inch stud size.
   2. 1.75 inch x depth noted on the drawings for headers

3. Strength minimums:
    a. 2900 psi bending strength.
    b. 2750 psi compression parallel to the grain.
    c. 285 psi horizontal shear.
    d. E = 2.0 x 10^6 psi modulus of elasticity.

B. Manufacturers:
1. Pacific Woodtech (via Wausau Supply)
2. Louisiana-Pacific Corporation LP Building Products.
3. Weyerhaeuser
4. Georgia-Pacific Building Products.

2.03 SHEATHING MATERIALS

A. Roof and Wall Sheathing: Plywood, APA Rated Sheathing, Exposure 1, unsanded, Group 2; or OSB, APA Rated Sheathing, Exposure 1.

B. Pressure Treated Plywood: APA Rated Sheathing, Grade C-D, Exterior, unsanded, Group 2, preservative treated same as lumber.

C. Floor Sheathing: 3/4 inch thick plywood, tongue-and-groove edges, APA Rated Sturd-I-Floor, exterior.

D. Fire retardant roof sheathing: Plywood, APA Rated Sheathing, Exposure 1, unsanded, fire retardant treated for Class A/ Class 1 per ASTM E-84.

2.04 PRE-MANUFACTURED SHEAR WALLS

A. Simpson Strong-Wall Shearwalls SSW24x10.

B. Foundation Anchors: Simpson SSWAB1x30.

2.05 TIMBER

A. Timber Beams and Columns: Rough sawn cedar.

2.06 ACCESSORIES

A. Wall Framing Base Plate Anchor: Powers Fasteners Wedge-Bolt Plus 316 Stainless Steel ½ inch diameter by 5 inches long.

B. Masonry Screws: Powers Fasteners Tapper 304 ¼ inch diameter by 3.25 inch long stainless steel.

C. Aluminum screws.

D. Aluminum ring shank nails.

E. Self drilling and tapping screws.

F. Hot dipped galvanized ring shank nails.

G. Metal Connectors:
   1. Hot dipped galvanized steel.
   2. Connector type as noted on the drawings.
   3. Manufactured by Simpson.
   4. Or equal by USP Structural Connectors, Kant Sag.

H. Nails.

I. Wood to Metal Screws: Hilti Self-Drilling screws, #3 point, #10 fastener diameter.

J. Sill Gasket: Closed cell polythene foam in continuous rolls. Gasket shall be as wide as wall plate.

K. H clips.

L. Plate Steel: A36, prime painted.

M. Site applied preservative treatment.

PART 3 EXECUTION

3.01 ANCHORS

A. Fasteners and connectors in contact with treated wood shall be hot dipped galvanized steel or stainless steel.

3.02 FRAMING

A. Set structural members level and plumb, in correct position.

B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Place horizontal members crown side up.

D. Construct framing members full length without splices.

E. Set members level and plumb, in correct position.

F. Fasten members in place:
   1. Anchor lumber together with nails.

2. Anchor treated lumber with hot dipped galvanized nails approved for use with the treatment type of the lumber.
3. Anchor treated lumber to masonry and concrete with stainless steel masonry screws or bolts as detailed.
4. Anchor lumber to metal with self-drilling and tapping screws.
5. Anchor lumber to existing lumber with galvanized ring shank nails.
6. Anchor plywood to lumber with nails.
7. Anchor plywood to treated lumber with hot dipped galvanized nails.

G. Provide pressure treated lumber at all locations in contact with concrete or masonry.

H. Pressure treated lumber that is cut or drilled shall have the cut or drilled areas filed coated with a preservative treatment.

I. Anchors to be used in contact with treated sheathing and lumber shall be hot dipped galvanized or stainless steel.

J. Provide headers for all openings regardless if headers are shown on the drawings.

K. Place sill gasket directly on cementitious foundation. Puncture gasket clean and fit tight to protruding anchor bolts.

L. For any walls with vertical cavities taller than 10 feet, provide equally spaced continuous horizontal solid wood blocking at no more than 10 feet on center.

3.03 ROOF SHEATHING

A. Install with the long dimension of the panel across supports, and with panel continuous over two or more spans. Suitable edge support shall be provided where indicated on drawings or in recommendations of the American Plywood Associates by use of panel clips, tongue-and-groove panels, or lumber blocking between joists. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges, unless otherwise recommended by the panel manufacturer.

B. Nail 6 inches on center along panel edges and 12 inches on center at intermediate supports; except, when supports are spaced 48 inches on center or more, space nails 6 inches on center at all supports. Use 6d common nails for panels 1/2 inch and less and 8d for greater thicknesses; except, when panels are 1-1/8 inch or 1-1/4 inch, use 8d ring-shank or 10d common.

3.04 WALL SHEATHING

A. At wood studs, nail 6 inches on center along panel edges and 12 inches on center at intermediate support with 6d common nails for panels 1/2 inch and less, and 8d for greater thicknesses.

B. At metal studs, screw 6 inches on center along panel edges and 12 inches on center at intermediate supports. Screws shall be self-drilling with a head to be flush in plywood surface.

C. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges, unless otherwise recommended by the panel manufacturer.

3.05 FLOOR SHEATHING

A. Install with the long dimension of the panel across supports and with panel continuous over two or more spans. Panel edges shall be tongue-and-groove or supported on 2-inch lumber blocking installed between joists. Protect against damage until finish floor is installed.

B. Stagger panel end joints. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and edges, unless otherwise recommended by the panel manufacturer. For nailed floors, nail panel 6 inches on center at all supports.

C. Use 6d ring-shank or screw-shank nails for panels 3/4 inch thick or less, and 8d for thicker panels. With 1-1/8 inch panels, 10d common nails may be used if supports are well seasoned.

D. For field-glued floors, use adhesives meeting APA Specification AFG-01, applied in accordance with the manufacturer's recommendations. If nonveneer panels with sealed surfaces and edges are used, use only solvent-based glues; check with panel manufacturer. Apply continuous line of glue on joists, and continuous or spaced line of glue in groove of tongue-and-groove panels. Use 6d ring- or screw-shank nails spaced 12 inches on center at panel ends and intermediate bearings.

3.06 NAILERS

A. Fasten wood nailers to masonry with stainless steel masonry screws. Use one (1) screw at 24 inches on center for 2x4's. Use two (2) screws at 24 inches on center for 2x6's, 2x8's, and plywood on top of masonry walls. Fasten to metal with self-drilling, self-tapping wood to metal screws.

B. Pressure treated lumber that is cut or drilled shall have the cut or drilled areas filed coated with a preservative treatment.

3.07 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floors: 1/4 inch in 10 feet, maximum.

END OF SECTION

SECTION 31 22 00

GRADING

PART 1 GENERAL

1.01 SUMMARY

A. The work covered under this section shall consist of furnishing all material, equipment, and labor required to execute the grading for this project.

B. Related Sections
   1. 21 23 33 Trenching and Backfilling
   2. 31 25 00 Erosion and Sedimentation Controls
   3. 32 19 19- Seeding
   4. 32 91 19.13 Topsoil Placement

1.02 REFERENCES

A. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition at time of bid opening.

B. ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

1.03 SUBMITTALS

A. Certified Test Reports: Prior to construction submit certified test reports for Contractor supplied materials as identified herein.

B. Field Test Reports: During construction, submit field test reports as identified herein.

1.04 QUALITY CONTROL

A. Testing and Inspection Service

   1. The Contractor shall engage a soil testing and inspection service to perform sampling and testing of soil materials proposed for use in the work, and field testing facilities for quality control during earthwork operations.

   2. Laboratory Tests

      a. Conduct soil classification tests in accordance with ASTM D2487.

      b. Conduct mechanical analysis and consistency tests of excavated material or other material that may be proposed by the Contractor for use. Determine also the amount of non-durable and organic material.

      c. Determine the bearing capacity of the soil under foundations by calibrated penetrometers.

      d. After testing, the testing laboratory shall inform the Owner's representative in writing of its recommendations for compaction of the soil samples submitted of testing. One copy of each report

shall be sent to the Contractor and the Owner's representative. The Contractor shall comply with such recommendations.

3. Field Control Tests

a. The soil testing laboratory shall conduct field tests for density of subgrade soils in cut areas and for compacted fill areas.

b. When, in the judgement of the Owner's representative, there is reasonable doubt that a fill or backfill material exhibits characteristics of the material that has been proposed for use, a field conducted one point proctor test shall be conducted. It the moisture-density coordinates of the one point proctor test do not fall on the curve that has been established by laboratory tests, a sample of that material shall be tested in the laboratory for conformance to the specifications.

c. Density of soil in place test in accordance with ASTM D1556, sand cone method, or ASTM D2922 nuclear method, shall be made for each 5,000 square feet of subgrade and each compacted layer of backfill and fill 24 inches or less in depth and as directed by the Owner's representative.

d. One copy of each report shall be submitted to the Contractor. Reports will designate the location of the work tested.

B. Deliver and store materials in a manner to prevent contamination or segregation. Storage areas will be as designated by the Owner's representative.

1.05 SITE CONDITIONS

A. Site Information

1. Examine the site to ascertain the conditions under which the work is to be done.

2. Log of test borings, if available, shall be furnished upon request, but is not part of the contract documents.

a. The data on indicated subsurface conditions are not intended as representations or warrantees of the accuracy or continuity between soil borings. It is expressly understood that the Owner will not be responsible for interpretations of conclusions drawn therefrom by the Contractor.

b. Additional test borings and other exploratory operations may be made by the Contractor at no cost to the Owner.

3. The Contractor shall assume full responsibility for interpreting boding data and for the conclusions drawn from the information furnished, and form inspection o available information at the site.

B. The use of explosives is not permitted.

C. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having Jurisdiction.

2. Protect utilities, pavements, and other facilities from damage caused by hazards caused by operations.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 PROTECTION OF EXISTING UTILITIES

A. Locate existing underground utilities in the areas of work before starting grading operations and provide adequate means of protection during earthwork operations. Should uncharted or incorrectly charted piping or other utilities be encountered during grading, consult the Engineer immediately for directions on how to proceed. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation.

B. Repair damaged utilities to the satisfaction of the utility owner.

3.02 PRESERVATION OF TREES AND SHRUBS

A. Trees and shrubs to be preserved shall be thoroughly protected from scarring or other injury during grading operations. Excavation operations shall not disturb the original ground around trees within a distance of one foot or twice the diameter of the tree, whichever is greater. Exposed roots resulting from excavation shall be cut cleanly and covered with humus-bearing soil.

B. When necessary or required by the Contract Documents, trees or shrubs around which embankment is placed shall be protected by tree wells built in accordance with detailed drawings or as laid out in the field by the Owner or Engineer.

3.03 GRADING

A. General. All areas within the project limits shall be graded to the finished grades, lines and details less an allowance for topsoil and/or sod depth, pavement, base and structures.

B. Construction Methods. Grading shall be performed in accordance with Sections 205, 206, 207, and 208, of the State of Wisconsin, Department of Transportation Standard Specifications. If borrow is needed to provide the grades and elevations required, a borrow area will be selected by the Owner. The borrow area shall be restored to smooth lines, topsoiled with a minimum of 6 inches of salvaged or imported topsoil and seeded.

C. Tolerance. Finish earth grades shall be in reasonably close conformity with the lines, grades and thickness shown on the contract drawings or established by the Engineer with particular concern for drainage and appearance. Finish earth

grades along buildings or structures, under and adjacent to pavements and in drainageways shall be within 0.10 foot of those staked or shown on the contract drawings. Grades in all other areas shall be within 0.50 foot unless drainage considerations require more accuracy.

3.04 DRAINAGE

A. During construction, ditches and channels shall be drained by keeping the excavation areas and embankment sloped to the approximate section of the final earth grade. If existing surface drainage must be interrupted, temporary drainage shall be provided.

B. Construction in and adjacent to flowing streams shall be performed to avoid washing, sloughing or deposition of materials into the channel which may obstruct or impair stream flow, or which may result in contamination and/or silting of the stream.

C. Precautions shall be taken to preserve, protect, and continue service of all existing tile drains, sewers, and other subsurface utilities; repair any damage to drains, sewers, and utilities.

END OF SECTION

SECTION 31 23 23.14

GRANULAR FILL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes of furnishing all material, equipment, and labor required to execute the filling, compaction, and testing of all subgrade excavations for this project.

B. Related Sections
   1. 01 57 13 Temporary Erosion and Sediment Control

1.02 REFERENCES

A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
   1. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition at time of bid opening.
   2. ASTM-D1557-12e1, Standard Test Methods.for Laboratory Compaction Characteristics of Soul Using Modified Effort

PART 2 PRODUCTS

2.01 GRANULAR FILL

A. All granular subbase and granular fill materials shall conform to Section 209 of the State of Wisconsin, Department of Transportation, Standard Specifications.

PART 3 EXECUTION

3.01 COMPACTION

A. Granular fill materials shall be mechanically compacted in 6 inch to 8-inch lifts to 93 percent maximum dry density per modified proctor (ASTM-D1557).

END OF SECTION

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. The work under this section shall cover providing the necessary materials, equipment and labor to control erosion and sedimentation controls by the methods specified herein. If no specific quantities are shown on the contract drawings, the Contractor shall use whatever quantities are necessary to prevent sediment transport off the job site, into permanent manmade storm water conveyances or management facilities or to Waters of the State.

B. The Contractor will be required to provide erosion control as per the current edition of the applicable State of Wisconsin, Department of Natural Resources (WDNR), Conservation Practice Standards. Copies of these standards can be obtained by contacting the following:

State of Wisconsin Department of Natural Resources
Non-Point Source and Land Management Section
101 South Webster Street, P.O. Box 7921
Madison, WI 53707-7921

or by visiting the following website:
http://dnr.wi.gov/topic/stormwater/standards/const_standards.html

C. Related Sections
1. 01 50 00 Temporary Facilities and Controls
2. 31 22 00 Grading
3. 31 23 23.14 Granular Fill
4. 32 92 19 Seeding

1.02 REFERENCES

A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
1. State of Wisconsin, Department of Natural Resources (WDNR), Conservation Practice Standards, Current Edition.
2. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition at time of bid opening.

PART 2 PRODUCTS

2.01 TOPSOIL

A. Topsoil shall be fertile, friable, natural loam surface soil, reasonably free of subsoil, clay lumps, brush, weeds and free of roots, stumps, stones larger than 2 inches in any dimension, and other matter harmful to plant growth. Topsoil to supplement insufficient topsoil on the site shall originate from local sources, but not from bogs or marshes.

2.02 MULCH FOR CONSTRUCTION SITES

A. Mulching for construction sites shall conform with Wisconsin DNR Conservation Practice Standard 1058.

B. Mulch shall consist of natural biodegradable material such as plant residue (including but not limited to straw, hay, wood chips, bark and wood cellulose fiber), or other equivalent materials of sufficient dimension (depth or thickness) and durability to achieve the intended effect for the required time period.

C. Mulch shall be environmentally harmless to wildlife and plants. Materials such as gravel, plastic, fabric, sawdust, municipal solid waste, solid waste byproducts1, shredded paper, and non-biodegradable products shall not be used.

D. Mulch shall be free of diseased plant residue (i.e., oak wilt), noxious weed seeds, harmful chemical residues, heavy metals, hydrocarbons and other known environmental toxicants.

E. Marsh hay shall not be used as mulch in lowland areas but may be used on upland sites to prevent the spread of invasive, nonnative species (i.e., reed canary grass) commonly found in marsh hay.

F. Straw and hay mulch that will be crimped shall have a minimum fiber length of 6 inches.

G. Wood chips or wood bark shall only be used for sites that are not seeded.

2.03 EROSION MAT

A. Non-Channel Erosion Mat products shall conform with Wisconsin DNR Conservation Practice Standard 1052.

B. Erosion mat shall conform to the requirements of the State of Wisconsin, Department of Transportation, Product Acceptability List (PAL) for Erosion Control Revegetative Mat (ECRM) and Turf-Reinforcement Mat (TRM).

C. For mats that utilize netting, the netting shall be bonded to the parent material to prevent separation of the net for the life of the product.

D. For urban class mats the following material requirements shall be adhered to:
   1. Only 100% organic biodegradable netted products are allowed, including parent material, stitching, and netting.
   2. The netting shall be stitched with biodegradable thread/yarn to prevent separation of the net from parent material.
   3. All materials and additive components used to manufacture the anchoring devices shall be completely biodegradable as determined by ASTM D 5338.
   4. Mats with photodegradable netting shall not be installed after September 1st.
   5. Steel wire pins or stables shall not be used in lawns.

2.04 SEEDING AND SODDING

A. Seeding and sodding shall conform to 32 92 19 Seeding.

2.05 STRAW BALE EROSION BARRIERS

A. Straw Bale (Sediment Bale Barriers) shall conform with Wisconsin DNR Conservation Practice Standard 1055.

B. Bales used for erosion control shall be either hay or straw, shall have rectangular surfaces, and shall be tightly bound with twine, not wire. The material in the bales shall be reasonably free of grain, weed seed and mold, and shall be dry and suitable for the purpose intended.

C. The minimum cross sectional area for wood stakes shall be 2.0 by 2.0 inches nominal.

D. The minimum diameter of steel (rebar) stakes shall be one-half inch.

2.06 SEDIMENT CONTROL FENCE (SILT FENCE)

A. Silt Fence shall conform with Wisconsin DNR Conservation Practice Standard 1056.

B. Silt fence shall be in accordance with Section 628.2.6 of the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction.

C. Wood Posts:
   1. Wood Posts used to support the fabric shall be at least 2 inch x 2 inch in cross-section and shall be a minimum of 12 inches longer than the height of the silt fence. Posts shall be made from kiln-dried hickory or Oak.
   2. Staples used to attach silt fence to wood posts shall be at least 0.5-inches in length.

D. Steel Supports:
   1. Steel posts shall be at least 5 feet long with a strength of 1.33 pounds per foot and shall have projections for the attachment of fasteners.
   2. The silt fence fabric shall be attached in at least three places on the upslope side with 50 pound plastic tie straps or wire fasteners.

E. Silt fence shall have a support cord.

F. The Contractor shall furnish upon request a manufacturer's Certificate of Compliance that the geotextile fabric as furnished meets the above requirements.

G. Silt Fence shall be installed in accordance with Wisconsin DNR Conservation Practice Standard 1056.

2.07 TEMPORARY SEDIMENT TRAPS

A. Temporary Sediment Traps shall conform with Wisconsin DNR Conservation Practice Standard 1063.

B. The stone outlet of a Sediment Trap shall consist of a stone section of embankment located at the discharge point. Stone shall consist of angular well graded 3 to 6 inch clear washed stone.

C. If filter fabric is indicated for the up-slope side of the stone outlet, a monofilament type fabric shall be used (such as WisDOT Type FF or equivalent).

2.08 DUST CONTROL

A. Dust Control measures shall be implemented in accordance with Wisconsin DNR Conservation Practice Standard 1068.

B. Asphalt and petroleum based products shall not be used for dust control.

C. Mulch or seed and mulch may be applied to protect exposed soil from wind erosion according to the provisions of WDNR Conservation Practice Standard 1058 Mulching for Construction Sites and 1059 Seeding for Construction Site Erosion Control.

D. Polymers may be used for dust control according to the provisions of WDNR Conservation Practice Standard 1050 Erosion Control Land Application of Polymers.

E. Tackifiers and Soil Stabilizers Type A – Products must be selected from the WisDOT Erosion Control PAL.

F. Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material may be used to control air currents and blown soil.

2.09 CONSTRUCTION SITE DE-WATERING

A. Construction Site Dewatering activities shall be conducted in accordance with Wisconsin DNR Conservation Practice Standard 1061.

PART 3 EXECUTION

3.01 EROSION CONTROL REQUIREMENTS

A. The erosion control requirements specified in the project Storm Water Management Plan shall be adhered to at all times.

B. Temporary and permanent erosion control measures shall be performed by the Contractor. The Contractor shall control water pollution, erosion, and siltation through the use of intercepting embankments, berms, dikes, dams, settling basins, slope paving, ditch checks, riprap, mulches, erosion mats, seeding, sodding, plantings and other erosion control devices or methods.

C. The Contractor shall submit for approval his plan of operations for accomplishing temporary and permanent erosion control work relating to grubbing, grading, paving and other work which might create erosion.

D. The area of erosive land exposed to the elements by grubbing, excavation, borrow and fill operations at any one time shall be minimized to the maximum extent practicable and the duration of such exposure prior to final trimming, finishing and seeding or application of temporary erosion control measures shall be as short as practicable. Construction in and adjacent to rivers, streams, lakes, or other waterways shall be performed in such a manner as to avoid washing, sloughing or deposition of materials into such waterways which would obstruct or impair the flow thereof thus endangering the roadway or stream banks, or which would result in undue or avoidable contamination, pollution or siltation of such waterways.

E. The Owner or Designated Representative shall have full authority to suspend or limit grading and other operations pending adequate performance of such permanent erosion control measures as finish grading, topsoiling, mulching, matting and seeding and any temporary erosion control measures ordered by the Engineer.

F. Grubbing and grading operations shall be performed in proper sequence with other work to minimize erosion. Intercepting ditches or dikes shall be constructed as soon as practical after clearing and grubbing operations are completed and prior to or during the operations of excavating the cuts. Where erosion is likely to be a problem, the permanent erosion control measures shall follow immediately after the grading operations if conditions permit, unless the Engineer shall authorize temporary erosion control measures.

G. Water pumped from the site shall be treated by temporary sedimentations basins, grit chambers, sand filters, upslope chambers, hydro-cyclones, swirl concentrators, or other appropriate controls designed and used to remove total suspended solids (TSS) to 40 mg/l or less for the highest dewatering pumping rate. If the water is demonstrated to contain less than 40 mg/l TSS during dewatering operations, then no control is needed before discharge. Water may not be discharged in a manner that causes erosion of the site or receiving channels. Construction Site Dewatering activities shall be conducted in accordance with Wisconsin DNR Conservation Practice Standard 1061.

H. The Contractor shall take all possible precautions to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before the end of each workday.

I. All storm drain or culvert inlets shall be protected with appropriate erosion control practices as identified in the appropriate Conservation Practice Standard. Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise, the channel shall be protected. Sheet flow runoff from adjacent areas greater than 10,000 square feet in area shall also be diverted around disturbed areas unless shown to have resultant runoff velocities of less than 0.5 ft/sec across the disturbed area for one-year design storms having a duration of from 0.5 to 24 hours. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels.

J. All disturbed ground left inactive for seven (7) or more days shall be stabilized by seeding or sodding (only prior to October 15) or by mulching or covering, or other equivalent control measure.

K. For sites with more than 10 acres disturbed at one time, or if a channel originates in the disturbed area, one or more Temporary Sediment Traps shall be constructed in accordance with Wisconsin DNR Conservation Practice Standard 1063. The basin discharge rate shall also be sufficiently low as to not cause erosion along the discharge channel or the receiving water.

L. For sites with less than 10 acres disturbed at one time, sediment control fences, hay bales, or equivalent control measures shall be placed along all sideslope and downslope sides of the site. If a channel or area of concentrated runoff passes through the site, sediment control fences shall be placed along the channel edges to reduce sediment reaching the channel.

M. Any soil or dirt storage piles containing more than ten cubic yards of material should not be located with a downslope drainage length of less than 25 feet to a roadway or drainage channel. If remaining for more than seven (7) days, they shall be stabilized by mulching, vegetative cover, tarps, or other means. Erosion from piles which will be in existence for less than seven (7) days shall be

controlled by placing hay bales or sediment control fence barriers around the pile. In-street utility repair or construction soil; or dirt storage piles located closer than 25 feet to a roadway or drainage channel must be covered with tarps or a suitable alternative control must be used if exposed for more than seven (7) days, and storm drain or culvert inlets must be protected with straw bales or other appropriate filtering barriers (CPS 1060).

3.02 TEMPORARY SEEDING

A. Seeding for Construction Sites shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1059.

B. Temporary Seeding (Cover Crop) - Areas needing protection during periods when permanent seeding is not applied shall be seeded with annual species for temporary protection. See table below for seeding rates of commonly used species. The residue from this crop may either be incorporated into the soil during seedbed preparation at the next permanent seeding period or left on the soil surface and the planting made as a no-till seeding.

Species	Lbs/Acre	Percent Purity
Oats	131[1]	98
Cereal Rye	131[2]	97
Winter wheat	131[2]	95
Annual Ryegrass	80[2]	97

[1] Spring and summer seeding
[2] Fall seeding

C. Permanent Seeding - Rates shall be based on pounds or ounces of Pure Live Seed (PLS) per acre. If a nurse crop is used in conjunction with permanent seeding, the nurse crop shall not hinder establishment of the permanent vegetation. A nurse crop shall be applied at 50% its temporary seeding rate when applied with permanent seed.

D. Inoculation - Legume seed shall be inoculated in accordance with the manufacturer's recommendations. Inoculants shall not be mixed with liquid fertilizer.

E. Sowing
1. Seed grasses and legumes no more than 1/4 inch deep. Distribute seed uniformly. Mixtures with low seeding rates require special care in sowing to achieve proper seed distribution.
2. Seed may be broadcast, drilled, or hydroseeded as appropriate for the site.
3. Seed when soil temperatures remain consistently above 53°F. Dormant seed when the soil temperature is consistently below 53°F (typically November 1st until snow cover). Seed shall not be applied on top of snow.

F. Turf seedlings must not be mowed until the stand is at least 6 inches tall. Do not mow closer than 3 inches during the first year of establishment.

G. Alternate plans must be submitted for approval.

3.03 APPLICATION OF STRAW OR HAY MULCH

A. Mulching for Construction Sites shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1058.

B. Application Rate:
1. Mulch shall cover a minimum of 80% of the soil surface for unseeded areas. For seeded areas, mulch shall be placed loose and open enough to allow some sunlight to penetrate and air to circulate but still cover a minimum of 70% of the soil surface.
2. Mulch shall be applied at a uniform rate of 1½ to 2 tons per acre for sites that are seeded, and 2 to 3 tons per acre for sites that are not seeded. This application results in a layer of ½ to 1½ inches thick for seeded sites, and 1½ to 3 inches thick for sites not seeded.
3. Wood chips or wood bark shall be applied at a rate of 6 to 9 tons per acre to achieve a minimum of 80% ground cover. This application should result in a layer of wood chips or wood bark ½ to 1½ inches thick.

C. In areas where mulch is to be placed over seed, mulch shall be placed within 24 hours of seeding.

D. Mulch Anchoring Methods - Anchoring of mulch shall be based on the type of mulch applied, site conditions, and accomplished by one of the following techniques:
1. Crimping: Immediately after spreading, the mulch shall be anchored by a mulch crimper or equivalent device consisting of a series of dull flat discs with notched edges spaced approximately 8 inches apart. The mulch shall be impressed in the soil to a depth of 1 to 3 inches.
2. Polypropylene Plastic, or Biodegradable Netting: Apply plastic netting over mulch application and staple according to manufacturer's recommendations.
3. Tackifier: Tackifier shall be sprayed in conjunction with mulch or immediately after the mulch has been placed. Tackifiers must be selected from those that meet the WisDOT Erosion Control Product Acceptability List (PAL). Asphalt based products shall not be applied.
   a. The tackifiers shall be applied at the following minimum application rates per acre:
      1) Latex-Base: mix 15 gallons of adhesive (or the manufacturer's recommended rate which ever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as a tracer with 375 gallons of water.

2) Guar Gum: mix 50 pounds of dry adhesive (or the manufacturer's recommended rate which ever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as tracer with 1,300 gallons of water.

3) Other Tackifiers: (Hydrophilic Polymers) mix 100 pounds of dry adhesive (or the manufacturer's recommended rate which ever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as a tracer with 1,300 gallons of water.

3.04 VEGETATIVE BUFFERS

A. Vegetative Buffers for Construction shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1054.

B. Trees should not be cut down to establish a vegetative buffer.

C. A stand of dense vegetation shall be maintained to a height of 3 – 12 inches.

D. Vegetative buffers shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period. Vegetative buffers shall be inspected for proper distribution of flows, sediment accumulation and signs of rill formation.

E. If the vegetative buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other perimeter sediment control measures shall be installed. Eroded areas shall be repaired and stabilized. Repair shall be completed as soon as possible with consideration to site conditions.

3.05 TEMPORARY SOD PLACEMENT

A. The Contractor shall place sod with edges in close contact and with joints staggered. Sod placement on slopes shall commence at the bottom of the slope, and the rows shall be laid perpendicular to the slope. The edge of the sod at the tops of slopes shall be turned slightly under, and a layer of soil shall be compacted over the edge to direct surface drainage over the edge onto the top of the sod. Sod placement in areas other than on slopes shall be made so that the top sod surface is flush with adjoining surfaces.

B. On slopes steeper than 4:1 horizontal to vertical, the Contractor shall stake the sod with split cedar shingles, or other equally effective stakes, spaced from 18 to 36 inches apart along the longitudinal axis of the sod strip. These stakes shall be placed near the top edge of the sod strip and shall be driven flush with the sod.

C. After the sod is placed, it shall be rolled or firmly tamped to press the sod onto the underlying soil. The Contractor shall, at the end of the day in which the sod is laid, thoroughly soak all sodded areas by sprinkling them with water.

D. Sod shall be maintained in a moist, growing condition. The Contractor shall repair all areas damaged by erosion or traffic of any kind.

3.06 PLACING HAY BALE BARRIERS

A. Straw Bale (Sediment Bale Barriers) shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1055.

B. Sufficient bales shall be on the site to create the necessary barriers prior to the start of groundbreaking operations. The bales shall be stacked and covered with plastic sheeting until required for use.

C. At a minimum, sediment bale barriers shall be placed in a single row, lengthwise on the contour, with the ends of adjacent sediment bale barriers tightly abutting one another. The holes between bales shall be chinked (filled by wedging) with straw, hay or equivalent material to prevent water from escaping between the bales.

D. The maximum allowable slope lengths contributing runoff to a sediment bale barrier are specified below:

Slope	Barrier Row Spacing
< 2%	100 feet
2 to 5%	75 feet
5 to 10%	50 feet
10 to 33%	25 feet
33 to 50%	20 feet
> 50%	Not Permitted

E. Sediment bale barriers shall not be placed perpendicular to the contour.

F. The end of the sediment bale barrier shall be extended upslope to prevent water from flowing around the barrier ends.

G. Installed sediment bale barrier shall be a minimum of 10 inches high and shall not exceed a maximum height of 20 inches from ground level.

H. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a sediment bale barrier and the length of the proposed barrier to a minimum depth of 4 inches. After bales are staked and chinked, the excavated soil shall be backfilled and compacted against the barrier. Backfill to ground level on the down slope side. On the upslope side of the sediment bale barrier backfill to 4 inches above ground level.

I. At least two wood stakes, “T” or “U” steel posts, or 1/2 inch rebar driven through at equidistance along the centerline of the barrier shall securely anchor each bale. The first stake in each bale shall be driven toward the previously laid bale to force

the bales together. Stakes shall be driven a minimum 12-inches into the ground to securely anchor the sediment bale barriers.

J. Bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings.

K. Sediment bale barriers shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.

L. Damaged or decomposed sediment bale barriers, any undercutting, or flow channels around the end of the sediment bale barriers shall be repaired.

M. Sediment shall be properly disposed of once the deposits reach 1/2 the height of the sediment bale barrier.

N. Sediment bale barriers and anchoring devices shall be removed and properly disposed of when they have served their usefulness, but not before the upslope areas have been permanently stabilized.

O. Any sediment deposits remaining in place after the sediment bale barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded.

3.07 CONSTRUCTION OF SEDIMENT CONTROL FENCE (SILT FENCE)

A. Silt Fence shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1056.

B. When installed as a stand-alone practice on a slope, silt fence shall be placed on the contour. The parallel spacing shall not exceed the maximum slope lengths for the appropriate slope as specified:

Slope	Fence Spacing
< 2%	100 feet
2 to 5%	75 feet
5 to 10%	50 feet
10 to 33%	25 feet
> 33%	20 feet
> 50%	Not Permitted

C. Silt fences shall not be placed perpendicular to the contour.

D. The ends of the fence shall be extended upslope to prevent water from flowing around the ends of the fence.

E. When attached to wooden posts the silt fence fabric shall be stapled, using at least 0.5-inch staples, to the upslope side of the posts in at least 3 places.

F. When attached to steel supports the silt fence fabric shall be attached in at least three places on the upslope side with 50 pound plastic tie straps or wire fasteners. To prevent damage to the fabric from fastener, the protruding ends shall be pointed away from the fabric.

G. The maximum spacing of posts for nonwoven silt fence shall be 3 feet and for woven fabric 8 feet.

H. Where joints are necessary, each end of the fabric shall be securely fastened to a post. The posts shall then be wrapped around each other to produce a stable, secure joint or shall be overlapped the distance between two posts.

I. On the terminal ends of silt fence the fabric shall be wrapped around the post such that the staples are not visible.

J. A minimum of 20 inches of the post shall extend into the ground after installation.

K. Anchoring – Silt fence shall be anchored by spreading at least 8 inches of the fabric in a 4 inch wide by 6 inch deep trench, or 6 inch deep V-trench on the upslope side of the fence. The trench shall be backfilled and compacted. Trenches shall not be excavated wider and deeper than necessary for proper installation.

L. Removal – Silt fences shall be removed once the disturbed area is permanently stabilized and no longer susceptible to erosion.

M. Silt fences shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24 hour period.

N. Damaged or decomposed fences, undercutting, or flow channels around the end of barriers shall be repaired or corrected.

O. Sediment shall be properly disposed of once the deposits reach 1/2 the height of the fence.

3.08 STONE TRACKING PAD

A. Stone Tracking Pads shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1057.

B. The tracking pad shall be installed prior to any traffic leaving the site.

C. The aggregate shall be placed in a layer at least 12 inches thick. On sites with a high water table, or where saturated conditions are expected during the life of the

practice, stone tracking pads shall be underlain with a WisDOT Type R geotextile fabric to prevent migration of underlying soil into the stone.

D. Tracking pads and tire washing stations shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.

E. The tracking pad performance shall be maintained by scraping or top-dressing with additional aggregate.

F. A minimum 12-inch thick pad shall be maintained.

3.09 TEMPORARY SEDIMENT TRAPS

A. Temporary Sediment Traps shall be installed and maintained in accordance with Wisconsin DNR Conservation Practice Standard 1063.

B. Sediment traps shall be constructed prior to disturbance of up-slope areas and placed so they function during all phases of construction.

C. The depth of the sediment trap measured from the sediment trap bottom to the invert of the stone outlet, shall be at least three feet to minimize re-suspension and provide storage for sediment.

D. The sediment trap shall have a length to width ratio of at least 2:1. The position of the outlet to the inlet shall be as such to minimize short-circuiting of the water flow path.

E. Side slopes shall be no steeper than 2:1.

F. Embankments of temporary sediment traps shall not exceed five feet in height measured from the downstream toe of the embankment to the top of the embankment. Construct embankments with a minimum top width of four feet, and side slopes of 2:1 or flatter. Earthen embankments shall be compacted.

G. Sediment traps shall be constructed with both a principal and emergency spillway. The stone outlet of a sediment trap shall consist of a stone section of embankment (stone outlet) located at the discharge point. The stone outlet section provides a means of dewatering the basin back to the top of the permanent storage between storm events, and also serves as a non-erosive emergency spillway for larger flow events.

H. The stone outlet shall have a minimum top width of 2 feet and a maximum side-slope of 2:1.

I. The stone outlet shall be protected from undercutting by excavating a keyway trench across the stone foundation and up the sides to the height of the outlet.

J. Sediment Traps shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period. Sediment may need to be removed more frequently.

K. Deposits of sediment shall be removed when they reach a depth of one foot.

L. If the outlet becomes clogged it shall be cleaned to restore flow capacity.

M. Maintenance shall be completed as soon as possible with consideration given to site conditions.

N. Sediment traps shall be removed and the location stabilized after the disturbed area draining to the sediment trap is stabilized and no longer susceptible to

END OF SECTION

SECTION 32 32 29

TIMBER RETAINING WALLS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes heavy timber retaining wall and anchorage.

B. Related Sections
1. 02 41 19 Selective Structure Demolition
2. 31 22 00 Grading
3. 31 23 23.14 Granular Fill

1.02 REFERENCES

A. American Lumber Standards Committee (ALSC): Softwood Lumber Standards.

B. American Wood Protection Association (AWPA) U1-12.

1.03 QUALITY ASSURANCE

A. All lumber shall bear a grading stamp exposed to view.

PART 2 PRODUCTS

2.01 TIMBER

A. Timber Retaining Wall: Class 4A C-AC treated (.15) S4S Brown Treated White or Red Pine.

B. Railing: Class 4A C-AC treated (.15) S4S Brown Treated White or Red Pine

2.02 ACCESORIES

A. 3/8” Lag screws on 4’ centers to interlock the timbers. (Timberlok or equal)

B. ½” Stainless Steel bolts for posts.

C. Galvanized nails for lumber connections.

D. Manta Ray Earth Anchors (or approved equal).

PART 3 EXECUTION

3.01 ANCHORS

A. Fasteners and connectors in contact with treated wood shall be hot dipped galvanized steel or stainless steel.

3.02 FRAMING

A. Set structural members level and plumb, in correct position.

B. Make provisions for erection loads, for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Place horizontal members crown side up.

D. Construct framing members full length without splices.

E. Set members level and plumb, in correct position.

F. Fasten members in place:
   1. Anchor lumber together with nails.
   2. Anchor treated lumber with hot dipped galvanized nails approved for use with the treatment type of the lumber.
   3. Anchor treated lumber to masonry and concrete with stainless steel masonry screws or bolts as detailed.

G. Anchors to be used in contact with treated sheathing and lumber shall be hot dipped galvanized or stainless steel.

END OF SECTION

SECTION 32 91 19

TOPSOIL GRADING AND PLACEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. The work under this section includes the types of acceptable topsoil, final grading, and placement prior to seeding.

B. Related Sections

1. 32 92 19 Seeding

1.03 REFERENCES

A. U. S. Department of Agriculture (USDA), Natural Resources Conservation Service, 2003, National Soil Survey Handbook, title 430-VI.

B. USDA Agricultural Handbook 60 Saline and Alkali Soils, Diagnosis and Improvement

C. Federal Specifications (FS), Specifications and Standards FS O-F-241 - Fertilizers, Mixed, Commercial, Current Edition.

1.02 SUBMITTALS

A. Sample

1. Provide (3) 1-quart samples obtained from the topsoil stockpile source.

2. Each sample to be a composite of five to seven subsamples taken the full depth of stockpile source. On stockpiles, discard upper 6 inches of soil before sampling.

B. Test Reports

1. Prior to starting work, submit two certified copies of soil test reports to Engineer for approval. These test results shall include recommended fertilizer application rates.

2. Cost of all testing to be borne by Contractor.

1.03 QUALITY ASSURANCE

A. All soil sampling and testing shall comply with procedures specified in: USDA Ag. Handbook 60: Diagnosis and Improvement of Saline and Alkali Soils.

B. Testing Laboratories: Certified facilities normally engaged in agronomic soil testing shall be utilized

C. Required Topsoil Tests

1. Chemical analysis indicating fertility: pH, phosphate phosphorous, potassium, calcium, magnesium, zinc, iron, manganese.

2. Physical properties including organic content and particle size distribution.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Weather: Do not mix, deliver, place or grade soils when frozen or with moisture above field capacity.

B. Protect soil and soil stockpiles, including the stockpiles at the soil blender's yard, from wind, rain and washing that can erode soil or separate fines and coarse material, and contamination by chemicals, dust and debris that may be detrimental to plants or soil drainage. Cover stockpiles with plastic sheeting or fabric at the end of each workday.

C. All manufactured packaged products and material shall be delivered to the site in unopened containers and stored in a dry enclosed space suitable for the material and meeting all environmental regulations. Biological additives shall be protected from extreme cold and heat. All products shall be freshly manufactured and dated for the year in which the products are to be used.

D. Deliver all chemical amendments in original, unopened containers with original labels intact and legible, which state the guaranteed chemical analysis. Store all chemicals in a weather protected enclosure.

E. Bulk material: Coordinate delivery and storage with Owner's Representative and confine materials to neat piles in areas acceptable to Owner's Representative.

PART TWO - PRODUCTS

2.01 TOPSOIL

A. Topsoil: Topsoil should be fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter. It shall comply with ASTM D 5268, pH range of 5.5 to 7.4, and 4 percent organic material minimum. It shall also be free of roots, stumps, stones larger than 1 inch in any dimension, and other extraneous material harmful to plant growth.

B. Topsoil Source: Import topsoil from off-site sources. Obtain topsoil only from naturally, well drained sites where topsoil occurs in a depth of not less than 4 inches. Do not obtain from bogs, marshes, or farm fields that can contain weed seeds that could be problematic to establishing perennial plants.

2.02 FERTILIZER as recommended by topsoil test analysis results.

PART THREE - EXECUTION

3.01 SITE EXAMINATION

A. Prior to installation of Planting Soil, examine site to confirm that existing conditions are satisfactory for the work of this section to proceed.

1. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope toward the under drain lines as shown on the drawings.

2. Confirm that surface all areas to be filled with Planting Soil are free of construction debris, refuse, compressible or biodegradable materials, stones greater than 2 inches diameter, soil crusting films of silt or clay that reduces or stops drainage from the Planting Soil into the subsoil; and/or standing water. Remove unsuitable material from the site.
3. Confirm that no adverse drainage conditions are present.
4. Confirm that no conditions are present which are detrimental to plant growth.
5. Confirm that irrigation work, which is shown to be installed below prepared soil levels, has been completed.

B. If unsatisfactory conditions are encountered, notify the Owner's Representative immediately to determine corrective action before proceeding.

3.02 COORDINATION WITH PROJECT WORK

A. The Contractor shall coordinate with all other work that may impact the completion of the work.

B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.

C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.

3.03 GRADE AND ELEVATION CONTROL

A. Provide grade and elevation control during installation of Planting Soil. Utilize grade stakes, surveying equipment, and other means and methods to assure that grades and contours conform to the grades indicated on the plans.

3.04 SITE PREPARATION

A. Excavate to the proposed subgrade. Maintain all required angles of repose of the adjacent materials as shown on the drawings or as required by this specification. Do not over excavate compacted subgrades of adjacent pavement or structures. Maintain a supporting 1:1 side slope of compacted subgrade material along the edges of all paving and structures where the bottom of the paving or structure is above the bottom elevation of the excavated planting area.

B. Remove all construction debris and material including any construction materials from the subgrade.

C. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope approximately parallel to the finished grade and/or toward the subsurface drain lines as shown on the drawings.

D. In areas where Planting Soil is to be spread, confirm subgrade has been scarified.

E. Protect adjacent walls, walks and utilities from damage or staining by the soil. Use 1/2 inch plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.

1. At the end of each working day, clean up any soil or dirt spilled on any paved

surface.

2. Any damage to the paving or site features or work shall be repaired at the Contractor's expense.

3.05 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.

1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner's Representative seals are to remain on the trees and removed at the end of the warranty period.

1. Make all repairs to grades, ruts, and damage to the work or other work at the site.

2. Remove and dispose of all excess Planting Soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

3.06 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

B. The date of substantial completion of the planting soil shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

3.07 FINAL ACCEPTANCE / SOIL SETTLEMENT

A. At the end of the plant warrantee and maintenance period, (see Specification section - Planting) the Owner's Representative shall observe the soil installation work and establish that all provisions of the contract are complete and the work is satisfactory.

1. Restore any soil settlement and or erosion areas to the grades shown on the drawings. When restoring soil grades remove plants and mulch and add soil before restoring the planting. Do not add soil over the root balls of plants or on top of mulch.

B. Failure to pass acceptance: If the work fails to pass final acceptance, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owner's Representative.

END OF SECTION

SECTION 32 92 19

SEEDING

PART 1 GENERAL

1.01 SUMMARY

A. The work covered under this section shall consist of furnishing all material, equipment, and labor required to execute the seeding for this project. All areas disturbed by the construction and not covered with pavement, aggregate base course, sod, or other structures shall be seeded, fertilized and mulched.

B. Related Sections

1. 01 33 00 Submittal Procedures
2. 31 25 00 Erosion and Sedimentation Controls
3. 32 91 19.13 Topsoil Placement and Grading
4. 31 23 33 Trenching and Backfilling

1.02 REFERENCES

A. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition at time of bid opening.

1.03 SUBMITTALS

A. Certification of Conformance or Compliance

1. Seed: From seed vendor for each grass seed mixture stating the botanical and common names, percentage by weight for each species and variety, and percentage of purity, germination and weed seed. Include the year of production and date of packaging.
2. Fertilizer: Provide date of fertilizer identifying type, composition and manufacturer.
3. Herbicides and Pesticides: Product label and manufacturer’s application instructions.
4. Mulch: Provide data regarding mulch supplier and assurance that mulch is free of weed seeds.
5. Watering/ Irrigation: Provide plans with system design and identify methods for maintaining seed bed moisture per requirements. Reliance on natural precipitation will not be allowed.

B. Contractor shall submit such product literature and catalog cuts of materials to be supplied to relate these materials to these specifications. Information shall be in conformance with requirements of 01 33 00 Submittal Procedures.

1.04 SCHEDULING

A. Within two weeks of Notice to Proceed submit a project work schedule to Engineer indicating dates for:

1. Seed installation, verifying compliance with seeding schedules for each mix.

2. Substantial completion.

1.05 REGULATORY REQUIREMENTS

A. Comply with applicable regulations for fertilizer and herbicide composition and application. Include evidence of compliance from applicable agencies having jurisdiction over herbicide/pesticide application and copies of applicator's current license.

B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixtures.

PART 2 PRODUCTS

2.01 SEED

A. Mixture. Unless specified otherwise, the Contractor shall select a seed mixture or mixtures from the following:

1. Madison Parks Mix by La Crosse Seed LLC, or equal, shall be used in lawn and park areas with full sun to light shade and moist soils.

2.02 FERTILIZER

A. Fertilizer shall contain the following percentages by weight:

Nitrogen	(N)	20%
Potash	(K)	10%
Phosphorus	(P)	10%

B. If local ordinances restrict the use of phosphorus in fertilizer, the local restrictions shall supersede the above percentages.

2.03 MULCH

A. Class 1 Type A Urban Erosion Mat over all newly seeded areas.

2.04 WATER

A. Water shall be clean and free of impurities or substances that might injure the seed or grass.

PART 3 EXECUTION

3.01 FERTILIZER

A. Uniformly distribute fertilizer by mechanical means at the rate of 10 pounds per 1,000 square feet or as specified by topsoil analysis.

B. Work fertilizer into the top 3 inches of soil. Cultivating equipment shall be set so that the fertilizer will not penetrate into the soil more than 3 inches. Do not apply fertilizer when there is a possibility of rain before lawn areas can be seeded or sodded.

C. At the Contractor's option, the Contractor may perform soil tests and apply fertilizer based on the results.

3.02 SEEDING

A. Sow seed during the months of April, May, August and September, unless otherwise approved by the Engineer. Do not sow seed when weather conditions are unfavorable, such as during drought or high winds.

B. Perform drill seeding using approved equipment such as cultipacker seeders and grass seed drills.

C. Drill the seed uniformly to an average depth of 1/2 inch and at a rate of 4 pounds per 1,000 square feet. All areas shall be seeded in at least two directions. Turf grass seeds shall not be covered by more than 1/4 inch of soil. The seeding device shall lightly roll the seed bed to provide good moisture contact between the seed and soil.

D. Water thoroughly and immediately with a fine mist until soil is soaked to a depth of 3 inches. Maintain soil in a moist condition until seeds have sprouted and reached a height of 1 inch. Water thereafter at least once every 14 days unless natural rainfall has provided equivalent watering.

E. Seed shall be tested when required in accordance with the methods and procedures used in making purity analyses and germination tests as adopted by the U.S. Department of Agriculture in the Administration of the Federal Seed Act.

F. All seed shall conform to the requirements of the Wisconsin Statutes regarding noxious weed seed content. No seed shall be used on the work later than one year after the germination test date that appears on the label.

3.03 MULCHING

A. Class 1 Type A Urban Erosion Mat over all seeded areas,

3.04 WATERING

A. If weather conditions are not suitable establishing turf, the seeded areas shall be watered twice weekly. Water shall be applied uniformly and in such a manner as not to waterlog the topsoil, dislodge the seed, or cause erosion.

B. If water is provided by a water utility, the Contract shall maintain a record of the amount of water obtained and provide it to the utility.

3.05 MAINTENANCE

A. Control growth of weeds: Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides. Coordinate application of herbicides with Owner.

B. Mowing: Contractor is responsible for providing first two mowings of the newly established grass. Mow grass at regular intervals to maintain at a maximum height of 2 1/2 inches. Do not cut more than 1/3 of grass blade at any one mowing. The first mowing shall take place when seedlings are 40 percent higher than desired height. Neatly trim edges and hand clip where necessary. Do not let clippings lay in clumps.

C. The Contractor shall do additional seeding, fertilizing and mulching in areas failing to show an acceptable stand of grass within 30 days of initial seeding.

3.06 ACCEPTANCE

A. Payment for seeding will be based on an acceptable stand of grass grown on the site as determined by the Engineer. The work will be considered acceptable after a 3-inch uniform stand of grass is attained and all gullies, rivulets, and washouts have been repaired to the satisfaction of the Engineer. If an acceptable stand of grass is not produced within 60 days of initial seeding, the Owner reserves the right to reseed the unacceptable areas and **cost of this work will be deducted from the Contract**. The 60 days applies to the growing period, nominally April 1 to November 1, but dependent upon actual weather conditions as decided by Owner.

B. The Contractor shall request the Engineer's inspection and acceptance will be made in writing when the above conditions have been met. Contractor shall make all corrective actions necessary to attain acceptance.

C. Seeding shall be completed and approved before final acceptance of the project by the Engineer. This includes two mowings as described under the Maintenance Section.

END OF SECTION