SPECIFICATIONS

FY23-26 ASPHALT IDIQ PAVING REQUIREMENTS CONTRACT

FORT MCCOY, WISCONSIN

DRAWING NUMBER: 2018

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GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY OF THE WORK

A. GENERAL

1. All construction debris shall be cleaned up daily.
2. Secure all tools and equipment offsite at the end of each work day.
3. Refer to State of Wisconsin Standard Specifications for Highway Structure Construction, Section 460, 2022, or Latest Edition.

B. REMOVAL WORK: Remove all items indicated on the drawings and in the specifications and dispose of off Post at the Contractor's expense including but not limited to:

1. Remove, pulverize, or mill existing pavement as required for each task order.
2. Remove subgrade or subbase material as required for each task order.

C. NEW WORK: Contractor shall provide all labor, equipment, materials, transportation, and supervision necessary to perform the work under this contract including but not limited to:

1. Construct new asphalt roadways and parking areas.
2. Place and compact aggregate base course, subbase, culverts, erosion control, and other work as necessary to construct new work.
3. Install erosion control measures when specified.
4. Supply, deliver, and dump hot mix asphalt into government operated paving equipment to areas located on Fort McCoy, WI in support of Troop Projects.

D. REPAIR WORK: Contractor shall repair any damages caused by this construction, including but not limited to;

1. Reconstruct and maintain existing asphalt roadways and parking areas.
2. Adjust manholes, curb stops, hand holes, catch basins, and water valves.
3. Repair any existing construction damaged during execution of this contract.
4. Repair any landscaping including trees, shrubs, flowers, and grass.
5. Repair vehicle ruts. Level the ruts, place topsoil, and seed the disturbed areas according to the specifications.

1.02 ABBREVIATIONS

A. "KO" = Contracting Officer.

B. "COR" = Contracting Officer's Representative.

C. Industry Standard Abbreviations - See Section 01 42 13.

1.03 TEMPORARY UTILITIES AND FACILITIES

A. General: This section is intended to include temporary utilities and temporary construction facilities to be provided by the Contractor unless otherwise stated below.

1. Temporary electricity, if required, shall be provided by the Contractor by portable generator or temporary power pole. The cost of the generator and fuel and/or temporary power pole shall be the responsibility of the Contractor. The cost of electricity used if the Contractor provides a temporary power pole will be provided by the Government at no cost to the Contractor. The Contractor shall contact Xcel Energy for temporary power.

B. Temporary heating, cooling, and ventilation

1. Furnish, install, and maintain all temporary systems and equipment required to maintain specified or required environmental conditions during the progress of the work. Remove upon completion of work at the expense of the Contractor.

2. Government provided electricity will not be used for heating.

C. Temporary Telephone Service

1. If the Contractor requires landline phone service for this project, the Contractor must contact the phone company business office:

Century Telephone
205 5th Avenue
LaCrosse, Wisconsin 54601
(800) 872-4017

2. The Contractor shall pay for all telephone installation, maintenance, removal, and usage charges.

3. The Contractor is responsible for providing and paying for any and all subcontractor's calls.

4. Existing telephones owned or rented by the Government will not be used by the Contractor under any circumstances.

D. Temporary Water

1. Water for construction purposes is available from an existing water connection in the building scheduled for work to be performed. Capacity is estimated to be not less than 10 GPM at 45 psi. Water is city water quality and contains sodium hypochlorite.

2. The Contractor shall furnish anti-siphon and backflow prevention devices on all temporary water connections. Proof of certification is required.

3. Contractor shall not cause water to be wasted or left running when not in use. Leaks will be repaired immediately. Freeze protection shall be provided by the contractor.

4. The water used will be furnished by the Government.

E. Temporary Sanitary Facilities

1. Existing sanitary facilities in Government building(s) will not be used by the Contractor's personnel.

2. The Contractor shall be responsible for providing and paying for temporary toilet and sanitary facilities. The Contractor shall pay rental fees and cleaning charges and shall remove the facilities when the project is completed.

3. The COR or Construction Inspector shall approve the site location for all temporary sanitary facilities.

4. Contractor shall maintain all such facilities used in a clean and sanitary condition.

F. Barriers and Fences

1. Contractor shall provide, install, maintain, and remove suitable barriers to prevent public entry and to protect the work site.

2. Such barriers shall be erected to provide a safety barrier around such portions of the project that could cause injury or destruction of property and to provide general security for the affected project site.

3. Materials to be used are at the Contractor's option and expense.

4. Barriers and fence shall be posted with appropriate warning signs. Place warning signs at the construction area perimeter designating the presence of construction hazards requiring unauthorized persons to keep out. Signs must be placed on all sides of the project, with at least one sign every 300 feet. All points of entry shall have signs designating the construction site as a hard hat area.

5. Fencing shall be provided along the construction site at all open excavations and tunnels to control access by unauthorized people. Fencing must be installed to restrain a lateral force of at least 200 pounds.

G. Security

1. The Contractor shall provide all materials, labor, and equipment to protect the project site from theft and vandalism.

2. Existing Government buildings and facilities shall be protected by the Contractor during the contract when the work involves openings into existing Government buildings. The degree of protection shall not be less than what currently exists.

3. The Contractor shall provide temporary doors, locks, and barricades to prevent unauthorized access to the construction site and existing buildings.

4. Storage of construction materials is at the risk of the Contractor.

H. Access Roads and Parking Areas

1. Contractor's private vehicles shall be parked at locations designated by the COR.

2. All construction vehicles and Contractor's private vehicles will be parked in an orderly manner at all times and will not block normal traffic in the area. Private vehicles belonging to the contract personnel will be parked in designated parking areas and in no case on grass areas, adjacent to buildings, or along streets.

3. Contractor is responsible for any snow removal required for access or site work.

I. Traffic Work

1. All work around or involving roadways, to include roadway excavations and utility crossings, will be conducted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) – FHWA, Latest Edition.

2. The Contractor shall provide and ensure appropriate road closure and detour signs are established as necessary for traffic management. All road closures shall be coordinated with the Contracting Officer in advance. Road closures shall require a road closure plan showing the location of signage.

J. Waste Reporting

1. The Army has established the requirement for a 50% minimum diversion rate by weight of C&D waste from landfill disposal. In order to achieve those results the Contractor shall submit a solid waste management plan as a required submittal for projects costing over $100,000. At a minimum, the solid waste plan shall include the anticipated waste streams and disposal/recycling facilities. No work shall begin until the Contractor has an approved plan.

2. The Contractor shall submit reports to the Contracting Officer quantifying the total pounds of hazardous, universal, recycled, and non-regulated waste disposed of during the duration of the contract. Contractor shall also submit material(s) disposal location(s).

3. Reporting shall be specific to the month in which waste was disposed of and separated per waste type for Fort McCoy's reporting requirements.

4. Reporting for recycled waste shall also be specific to how much revenue the Contractor received for each type of recycled material.

K. Refuse Disposal and Recycling

1. Provide all solid waste disposal associated with this contract, including but not limited to the container delivery, removal, and disposal fees. Items included under this section are all solid wastes as defined by Wisconsin State Statute 289.01 (33). These items shall be disposed in a licensed sanitary landfill or recycling center in accordance with State of Wisconsin Administrative Code Chapter NR500 series.

2. The Contractor is allowed to use Fort McCoy recycling facilities for concrete, mixed paper, plastics (PETE#1 and HDPE#2), cardboard, trees/woody waste, metals, and aluminum cans. If materials are recycled

at Fort McCoy, provide all labor and delivery to the designated recycling facilities. Materials shall be weighed and weight slips provided to the COR to receive credit toward the 50% requirement in "Waste Reporting" above. Materials not weighed can be delivered to the designated recycling facilities, but the material will not count toward the 50% waste reporting requirement.

3. Provide for the recycling of all other construction/demolition debris including drywall, lumber, reinforcing steel, piping, wiring, brick, plaster, wall board, roofing material, insulation, plumbing fixtures, doors, and windows to the greatest extent possible. Only utilize licensed recycling facilities.

4. Provide a certificate of recycling for universal waste as defined in Wisconsin Administrative Code Chapter NR600.

L. Material Sales

1. Materials shall not be stockpiled for sale purposes on Post.

2. Public advertised sales of materials will not be permitted on Post.

3. Prior arranged sale of materials may be permitted on Post.

M. Access and General Protection/Security Policy and Procedures

1. The contractor and all associated subcontractors' employees shall provide all information required for background checks to meet installation access requirements to be accomplished by Director of Emergency Services or Security Office.

2. Contractor workforce must comply with all personal identity verification requirements (FAR clause 52.204-9, Personal Identity Verification of Contractor Personnel) as directed by DOD, HQDA and /or local policy.

3. The contractor and all associated subcontractors' employees shall also comply with adjudication standards and procedures using the National Crime Screening Database (TSDB) (Army Directive 2014-05/AR 190-13), applicable installation, facility and area commander installation/facility access and local security policies and procedures (provided by government representative).

4. In addition to the changes otherwise authorized by the changes clause of this contract, should the Force Protection Condition (FPCON) at any individual facility or installation change, the Government may require changes in contractor security matters or processes.

5. The Government may require monthly participation in the Installation Random Antiterrorism Program.

1.04 QUALITY CONTROL

A. The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The Contractor Quality Control (CQC) Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and

shall be keyed to the proposed construction sequence. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The site project superintendent is responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract.

B. All plumbing work shall be performed by a state certified journeyman plumber. All plumbing work shall be supervised full time on site by a state certified Master plumber. Proof of certification is required. The cost of the work shall include all State permit fees and approval for the installation of backflow prevention devices.

C. All electrical work shall be supervised full time on site by a state certified journeyman electrician. All electrical work shall be overseen by a state certified Master electrician. Proof of certification is required.

D. All hazardous material abatement shall be supervised by a certified asbestos supervisor and a certified lead base paint supervisor.

E. All work associated with air-conditioning refrigerant shall be conducted by an Air-Conditioning Refrigerant Institute Certified Technician; Type-Universal. All work shall also be conducted in accordance with Federal Law "40 CFR Part 82 subpart F and Parts 273, 279, and 761" and U.S. Environmental Protection Agency "Clean Air Act (1990) Section 608" and all EPA final regulations associated with section 608.

1.05 APPLICABLE STANDARDS, GUIDES AND SPECIFICATIONS

A. References are made in these specifications to published codes, standards, and specifications of manufacturers' societies, associations, and other standards. All referenced documents are included in this specification as if written in their entirety.

B. Where referenced documents are not specified by date, the latest edition published as of the bid or proposal request date shall apply.

1.06 OPERATION AND MAINTENANCE MANUALS

A. Provide one (1) PDF copy of equipment maintenance and operation manuals for all major pieces of equipment and fixtures. Where the Contractor has installed entire systems or has assembled or interconnected several subsystems such as heating, ventilating, or special electrical systems, the Contractor shall include a written narrative of how each system or subsystem operates and how the overall system is intended to be operated, complete with diagrams showing flow routes or electrical interconnections.

B. Drawings:

1. Supplement product data with drawings as necessary to clearly illustrate:

a. Relations of component parts of equipment and systems.

b. Control and flow diagrams.

2. Coordinate drawings with the information in project record documents to assure correct illustration of completed installation.

C. Written text, as required to supplement product data for the particular installation:

1. Organize in consistent format under separate headings for different procedures.

2. Provide logical sequence of instructions for each procedure.

D. Content, for each unit of equipment and system, as appropriate:

1. Description of unit and component parts;

a. Function, normal operating characteristics, and limiting conditions.

b. Performance curves, engineering data, and test results.

c. Complete nomenclature and commercial number of replaceable parts.

2. Operating procedures;

a. Start-up, break-in, routine, and normal operating instructions.

b. Regulation, control, stopping, shut-down, and emergency instructions.

c. Summer and winter operating instructions.

d. Special operating instructions.

3. Maintenance procedures;

a. Routine operations.

b. Guide to “Trouble-Shooting.”

c. Disassemble, repair, and reassemble.

d. Alignment, adjusting, and checking.

4. Servicing and lubrication schedule including a list of required lubricants.

5. Manufacturers printed operating and maintenance instructions.

6. Description of sequence of operations by control manufacturer.

7. Original manufacturers parts list, illustrations, assembly drawings, and diagrams required for maintenance:

a. Predicted life of parts subject to wear.

b. Items recommended to be stocked as spare parts.

8. As-installed control diagrams by controls manufacturer.

9. Each Contractor’s coordination drawings:

a. As-installed color coded piping diagrams.

b. As-installed color coded electrical and systems diagrams.

10. Charts of valve tag numbers, with location and function of each valve.

11. List of manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

12. Other data as required under pertinent sections of specifications.

E. Prepare and include additional data when the need for such data becomes apparent for the training of government personnel.

1.07 DELIVERY AND STORAGE

A. Contractor shall insure that any items which are stored at the site prior to installation are stored in an environment that will not cause rusting, warping, staining, or any physical breakage or damage.

B. All labor and equipment required for loading, unloading, transporting, and moving materials shall be provided by the Contractor.

C. Storage buildings will not be provided by the Government.

1.08 TRAILERS OR STORAGE BUILDINGS, INCLUDING OFFICE TRAILERS

A. Trailers or storage buildings will be permitted, where space is available, subject to the approval of the COR.

B. The trailers or buildings shall be in good condition, free from visible damage, rust, and deterioration, and meet all applicable safety requirements. Trailers shall be roadworthy and comply with all appropriate State and local vehicle requirements. Failure to maintain storage trailers or buildings to these standards shall result in the removal of non-complying units at the Contractor's expense.

C. A sign not smaller than 2-feet by 2-feet shall be conspicuously placed on the trailer depicting the company name, business phone number, and emergency phone number.

D. Trailers shall be anchored to resist high winds and must meet applicable state and local standards for anchoring mobile trailers.

E. Provide metal or fiberglass skirting completely around office trailers within 30 days after placement of the trailer on the lot and after being approved by the COR.

F. Grass and weeds shall be cut weekly or as needed to a height not to exceed three inches. Trash shall be picked up and disposed of properly on a daily basis.

G. The Contractor shall be responsible for the installation and removal of all temporary utility connections at no cost to the Government.

1.09 STORAGE SITE

A. All stored materials shall be neatly stacked at all times.

B. Trash shall be picked up and properly disposed of on a daily basis.

C. Grass and weeds shall be cut on a regular basis to a height not to exceed three inches. In Cantonment, uncut height shall not exceed 6 inches. Outside Cantonment, uncut height shall not exceed 12 inches.

D. Welding equipment shall be handled and stored in accordance with applicable regulations.

E. Fire extinguishers shall be provided where flammable liquids are stored.

1.10 SCHEDULING AND COORDINATING WORK

A. Contractor shall submit the proposed construction schedule, in accordance with the FAR clause entitled schedule for construction contracts. Attached to the construction schedule shall be a horizontal bar chart with a separate line for each major portion of work, identifying the first work day of each week. Distribute copies of the approved schedule to the project site file, subcontractors, suppliers, and other concerned parties.

1. The Contractor shall at the Pre-construction Conference or if no Pre-con is held, within 20 calendar days of award, prepare and submit their schedule in the form of a Gantt Chart for approval. This schedule shall show at a minimum critical path, float, owner of float, milestones, baseline, elements of work, and duration of each significant element of work. The submitted schedule shall be approved prior to beginning work.

2. The Contractor shall maintain the original schedule/Gantt Chart throughout the life of the project and show actual schedule achievement in tandem with the original schedule and shall update the approved schedule bi-weekly to display time gained or lost against the original schedule.

3. If in the opinion of the Contracting Officer the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve progress, including those steps that may be required by the Contracting Officer, without additional cost to the Government.

4. The Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved increased effort shall regain the original schedule of progress. FAR 52.236-15

B. The Contractor shall be specifically responsible for the coordination of all phases of work under this contract within the approved construction schedule.

C. The Contractor may be required to allow Government personnel or other Contractors to carry out work within the work site. Such work will be scheduled and coordinated through the COR.

D. The Contractor shall provide a phone number and address where a key, and/or approval, to enter may be obtained for the work sites during the workday for times when the Contractor may not be at the work site.

E. The Contractor shall provide 10 working days' notice for any utility outage. Outages shall be shown on the schedule provided. Emergency utility outages shall be reviewed by the Contracting Officer/Inspector prior to utility outage.

F. Expenses/damages caused by unscheduled or unapproved utility outages shall be chargeable to the Contractor.

1.11 WARRANTIES

A. All materials and workmanship shall be warranted by the Contractor for a period of not less than one year from the date of final acceptance by the Government, except when longer warranties are required from the Contractor as stated in each specification section.

B. For products and materials that are normally warranted by the manufacturer or supplier for more than one year, the Contractor shall provide the Government with a written warranty, or certification, indicating the manufacturers or supplier's terms and conditions of the warranty.

C. The Contractor shall populate and submit a Warranty Item Tracking spreadsheet; that which is covered under par A. The spreadsheet shall be provided to the contractor upon request of the government COR. The spreadsheet shall outline each piece of extended warranty equipment provided. Extended warranty shall be anything beyond one calendar year from the Beneficial Occupancy Date. Item information will include the following: warranty item, equipment description, make, model, serial number, capacity, capacity unit of measure, warranty start date, warranty length, and Maintenance Information as indicated on the Provided Spreadsheet.

PART 2 PRODUCTS

2.01 EXISTING MATERIALS

A. Materials to be demolished:

1. All materials identified to be demolished and removed from the existing facilities shall be the responsibility of the Contractor to remove completely from Fort McCoy.

2. Under limited conditions and as specified on the plans, deliver scrap metal/materials to a location designated by the COR. Contractor will be responsible for hauling all demolished materials to the designated locations.

B. Existing materials may only be reused/relocated as specifically allowed per the contract drawings and specifications.

2.02 NEW MATERIAL AND EQUIPMENT

A. Materials and equipment shall be essentially the standard products of a manufacturer regularly engaged in the manufacture of those products, shall meet the requirements of the specification, and shall essentially duplicate material and equipment that have been in satisfactory use.

B. All materials shall be of the latest type or model currently being produced by the manufacturer.

C. Seconds or otherwise substandard materials will not be allowed.

PART 3 EXECUTION

3.01 INSPECTION

A. The Contractor shall not begin successive phases of work until an inspection has been completed and the work is accepted by the COR. Notify the COR 48 hours prior to completing a phase requiring inspection.

1. Any work that will be covered by successive work must be inspected prior to performing successive work.

2. Work to be covered includes, but is not limited to, underground utilities, utilities located behind walls, and work located below finish floors.

B. When the contractor considers the work complete, submit written certification confirming:

1. Contract documents have been reviewed.

2. Project submittals have been completed.

3. Work has been inspected by the Contractor for compliance with the contract.

4. Equipment and systems have been tested, balanced, and adjusted for proper operations.

5. Work is complete and ready for final inspection.

6. Contractor shall provide a requested date for punch list inspection to the Contracting Officer, in writing, not less than 7 working days prior to the proposed date of inspection. Punch list inspections shall be scheduled and conducted to ensure compliance with the contract completion date.

C. The COR will coordinate with the members of the inspection party and establish the punch list inspection date.

1. Should the COR consider the work incomplete or defective, a written punch list will be provided to the Contractor from the Contracting Officer.

2. The Contractor will be given 10 calendar days, unless otherwise determined by the Contracting Officer, to remedy the stated deficiencies.

3. The Contractor shall provide a second written certification and request re-inspection to be scheduled not later than the 10 calendar days, unless otherwise determined by the Contracting Officer. This re-inspection shall also be completed during the contract performance period to be in accordance with the contract.

4. If any further re-inspections are required, the Contractor may be charged the additional cost of the inspections.

5. Final acceptance of the work occurs upon the Contracting Officer's acceptance of the work subsequent to successful final inspection by the COR and receipt of all contract requirements.

D. If the Government requires beneficial occupancy of the facility prior to completion of the work by the Contractor, an inspection shall be conducted by the COR to determine the completed work, and either accept or document any work not complete. The Contractor will then complete the remaining work and correct any deficiencies.

3.02 TRANSITION FROM EXISTING TO NEW WORK

A. When new work abuts or finishes flush with existing work, make a smooth transition. Patched work shall match existing adjacent work in texture and appearance.

B. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and provide trim appropriate to the finished surface.

3.03 OPERATING TESTS

A. After equipment installations are completed, the Contractor shall conduct an operating test for approval. The test shall demonstrate that the operating and installation requirements of the specifications have been met. The test shall be performed in the presence of the COR.

3.04 ENVIRONMENTAL CONSIDERATIONS

A. Migratory Bird Nesting Season

1. This project is subject to the Migratory Bird Treaty Act. Land clearing activities for construction, maintenance, and repair activities should generally be scheduled outside the migratory nesting season which is generally considered to be from 1 May thru 30 August. If the contractor intends to disturb or clear any project area of undeveloped land or demolish any trees, bushes or potential nesting sites they shall submit a Migratory Bird Treaty Act Deconfliction Notification. The notification shall be submitted not later than two weeks prior to scheduled clearing activities. Contractors are not allowed to proceed with construction until after the site has been cleared by the Fort McCoy Natural Resources Branch. The Submittal Notification shall state: "This project is subject to the Migratory Bird Treaty Act. Request that Fort McCoy, DPW, Natural Resources Branch if necessary, conduct a site investigation to ensure the project location(s) does not have naturally conflicting species."

B. Northern Long-Eared Bat

1. The Fish and Wildlife Service has proposed that the Northern Long-Eared Bat (NLEB) be listed as endangered. The final decision on this listing will be made on or about April 2, 2015. If the NLEB is listed as endangered, it is likely that there will be restrictions on when trees can be cut or removed. The Contractor shall submit an Endangered Species Act Deconfliction Notification before disturbing or removing any trees over 3 inches diameter at breast height (dbh). The notification shall be submitted no less than 14 days prior to the scheduled clearing activities. The contractor shall not be permitted to proceed with the clearing, cutting, or removal of trees until approval has been provided by the Fort McCoy, DPW, Natural Resources Branch. The submittal notification shall state: "This project is subject to the Endangered Species Act. Request Fort McCoy, DPW, Natural Resources Branch approval for the removal of trees as required by the project specifications."

C. Invasive Species

1. Contractor shall document the washing of equipment prior to arrival on Fort McCoy and upon departure from the work site to control the spread

of invasive species. Spotted knapweed, crown vetch, and garlic mustard are documented to be in, adjacent, or near the work site. Any fill material transported to the work site shall be free of invasive weeds and/or seeds to the greatest extent practical.

D. Oak Wilt Season

1. Contractor shall not perform tree removal during the oak wilt season (April 1 thru 31 July) for tree removal. If tree removal is required during oak wilt season any oak trees not scheduled for removal shall be protected from damage. If non-scheduled live trees are damaged, tree wound dressing shall be immediately applied to the damaged area. All trees and/or stumps that require removal shall be transported to the stump disposal site on South Post or removed from the installation.

3.05 OBJECTS AFFECTING NAVIGABLE AIRSPACE

A. FAA notification is required IAW CFR 14 part 77, Objects Affecting Navigable Airspace for the following:

1. Definition of Construction /Objects

a. Any object of natural growth, terrain, of permanent or temporary construction or alteration, including equipment or materials used therein, and apparatus of a permanent or temporary character.

b. Any alteration of any permanent or temporary existing structure by a change in its height (including appurtenances, or lateral dimensions, including equipment or materials used therein.

2. Any construction/object or alteration of more than 200 feet in height above the ground level at its site.

3. Any construction/object or alteration of greater height than an imaginary surface extending outward and upward at the following slopes:

a. 100 to 1 for a horizontal distance of 50,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length, excluding heliports.

b. 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length, excluding heliports.

c. 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport (helipad).

4. Notification to the Airfield is required in addition to FAA notification of any object of permanent or temporary construction or alteration, including equipment or materials used therein:

a. Greater than 25 feet in open areas (open areas are defined as an area that does not contain other objects within 300 feet).

b. 50 feet in all other areas.

5. Objects shall be marked/lighted when greater that the above criteria as follows:

a. A red beacon for nighttime (or inclement weather conditions)

b. Either a beacon or checkered flag for daytime.

6. Objects lowered below the above criteria during nighttime shall only require marking.

3.06 CLEANING

A. During Construction:

1. The Contractor shall, at all times, keep the work area, including storage areas, free from accumulations of waste materials. The Contractor shall ensure all affected areas are "broom clean" at the end of each workday. Before completing the work, the Contractor shall remove from the work and premises, any rubbish, tools, scaffolding, equipment, and materials that are not the property of the government. Upon completing the work, the Contractor shall leave the work area in a fully cleaned, neat, and orderly condition, satisfactory to the Contracting Officer. FAR 52.236-12.

B. Dust Control

1. Clean interior spaces prior to the start of finish coatings and continue cleaning on an as-needed basis until coatings are finished.

2. Schedule operations so that dust and other contaminants resulting from the cleaning process will not fall on wet or newly-coated surfaces.

3. The amount of dust resulting from demolition shall be controlled to prevent the spread of dust and to avoid creation of a nuisance in the surrounding areas. The use of water will not be permitted when it will create or result in hazardous or objectionable conditions such as ice, flooding, and pollution.

4. All buildings, materials, and equipment, including ductwork and diffusers, shall be cleaned of all dust and dirt resulting from the performance of the work under this contract.

C. Final Cleaning

1. Final cleaning shall be performed and completed prior to punch list inspection.

2. Clean interior and exterior surfaces exposed to view.

a. Remove temporary labels, stains, and foreign substances.

b. Polish transparent and glossy surfaces.

c. Vacuum carpeted and soft surfaces. Mop floors.

d. Wash windows and dust walls and trim.

e. Clean equipment and fixtures to a sanitary condition.

f. Clean or replace filters of mechanical equipment.

g. Clean roofs, gutters, downspouts, and drainage systems.

3. Clean project site.

a. Sweep paved areas.

b. Rake clean other surfaces.

4. Remove waste and surplus materials, rubbish, and construction facilities from the project and from the site.

3.07 RECORD AND ASBUILT DRAWINGS

A. As-Built Drawings:

1. With red pencil or red ink, neatly inscribe all COR approved changes to show final locations and types of partitions, walls, doors, electrical, fire alarm system, communication system, plumbing, heating, ventilating, air conditioning services and equipment, and similar work.

2. With red pencil or red ink, neatly inscribe the location of all existing and new exterior utilities. The locating may be accomplished by traditional survey methods or by global positioning system (GPS) satellite equipment supplemented by traditional methods where required. Include the size, material, and depth.

3. With red pencil or red ink, neatly inscribe the location of all new wire routing of electrical and fire alarm, layout and size of the plumbing, valves and duct access points.

4. Locations may be from existing buildings or from base monument system. Any existing structures used as a survey reference must be checked for conformity to NAD 83 surveying coordinates.

5. Contractor shall keep two sets of redlined As-built drawings on the job site at all times during construction. One set shall be considered the contractor's set and the other shall be the Government's set. The Government set shall be submitted to the COR immediately upon completion of construction. The contractor's set shall be used for CAD corrections and submittal of the Record Drawings.

B. Record Drawings:

1. Contractor will receive an original AutoCAD drawing package upon request from the COR. Contractor shall incorporate all redline As-built changes made during the construction period that were authorized by the COR into the record AutoCAD files. All design documents shall be completed in accordance with the Fort McCoy CAD Standard. A copy of the Fort McCoy CAD Standard can be obtained from the COR.

2. The Record Drawings shall be submitted to the Government on compact disks (CD) in both DWG and PDF formats. All design documents shall be completed in accordance with the Fort McCoy CAD Standard.

3. Prior to punch list inspection, present these corrected prints to the Government. Note all data and changes on these record drawings in

sufficient detail and clarity and provide information necessary for the preparation of "Record Drawings" drawings. Submitted Record Drawings shall be marked "Record Drawing" and shall be submitted NLT 14 days prior to contract completion.

END OF
SECTION

SECTION 01 12 30

CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.01 Each task order issued under this contract shall have a scheduled completion date. The method of determining the completion time shall be as specified in this section.

1.02 Each of the bid items covered by this contract has a performance time. The performance time for each project shall be calculated using the following production quantities.

A. The CLIN 0001 line items are identified in Part 2 and can be defined as those for which the quantities can be determined prior to the work proceeding through a review of the proposed scope of work and a negotiation between the Contractor and the Government in a Joint Scoping Meeting. Once these quantities are agreed upon, they will be fixed for the duration of the work.

B. The CLIN 0002 line item is also identified in Part 2 and can be defined as that for which the quantity will be a delivery quantity of hot mix asphalt. The delivery area is Fort McCoy, Wisconsin located between Sparta and Tomah, WI on State Highway 21. Projects may be located throughout the installation, which is 60,000 acres, with boundary distances approximately 20 miles north to south and 7 miles east to west.

The quantities for this line item will be estimated by the Government and will be definitized at the completion of the deliveries. The final quantities must be agreed upon by both the contractor and the Government, after which a contract modification will be issued to adjust the task order amount.

Contractor shall deliver asphalt on an as-needed basis and may be needed within 48 hours of contact by customer POC. No delivery shall be made in excess of funded amount. All deliveries shall be completed between the hours of 0700 – 1600 (4:00 PM) Monday through Friday, excluding Federal Holidays unless otherwise requested and approved by contracting officer, or designated representative. Deliveries outside the 0700 – 1600 hours are expected to be infrequent, but shall be coordinated between the delivery order POC and Contractor at no additional expense. Contractor shall be held accountable and liable for any damages to facilities, equipment, or grounds caused by Contractor or their employees.

Task orders will state a period of performance, with the actual delivery dates and times to be coordinated with the vendor by the delivery point of contact. The government delivery point of contact will provide as much notice as possible, but may require delivery of material with a 48 hour notice.

DESCRIPTION PRODUCTION	QUANTITIES
Full Depth Patch	100 SY/Day
Pavement Removal ≤ 4”	1,000 SY/Day
Pavement Removal > 4”	1,000 SY/Day
Pulverizing, 6” Depth	1,000 SY/Day
Pavement Milling	1,000 SY/Day
Subgrade/Subbase Preparation	1,000 SY/Day
Excavation	200 CY/Day

Subbase Material	300 CY/Day
Base Course Material	400 CY/Day
Prepare Existing Base	2,000 SY/Day
2” Asphalt Lower Layer	2,000 SY/Day
2” Asphalt Upper Layer	2,000 SY/Day
Shoulder Aggregate	200 CY/Day
Tack Coat	2,000 SY/Day
Pavement Marking Roads	5,000 LF/Day
Parking Lot Marking	200 SP/Day
Paint Symbols	5 EA/Day
Striping Crosswalks	4000 LF/Day
12” Dia. HDPE Smooth Bore Culvert	100 LF/Day
18” Dia. HDPE Smooth Bore Culvert	100 LF/Day
24” Dia. HDPE Smooth Bore Culvert	100 LF/Day
12” Dia. HDPE Smooth Bore Apron	10 EA/Day
18” Dia. HDPE Smooth Bore Apron	10 EA/Day
24” Dia. HDPE Smooth Bore Apron	10 EA/Day
Topsoil	50 CY/Day
Seeding	8,000 SY/Day
Saw Cut Pavement	400 LF/Day
Adjust Water Valve	10 EA/Day
Adjust Curb Stop	10 EA/Day
Adjust Manholes	5 EA/Day
Install and Remove Silt Fence	1,000 LF/Day
Install Erosion Control Blanket	2,000 SY/Day
Supply and Deliver Hot Mix Asphalt	640 TON/Day
Geotextile Fabric	2,000 SY/Day
Repair Finch Avenue	1 EA/68 Days

1.03 The task order completion time.

A. The project performance time for each project on the task order shall be determined as follows:

1. The quantities of each bid item required to complete a project shall be negotiated by the COR and the Contractor.

2. The quantity of each bid item shall be divided by the production quantity for that bid item to determine the time allowed. The time shall be rounded to the next whole day.

3. The total of the times for all bid items used on the project shall be added to determine the project performance time.

B. If a Storm Water Management Permit is required on the project, a minimum of 45 calendar days will automatically be added to the project performance time. The cost for the permit, design work and any additional work required will be compensated via a modification to the task order.

1.04 Completion time on a task order starts on the day the order is issued unless stated otherwise. Individual task orders could require concurrent performance dependent upon the issue date of the delivery order.

1.05 Winter Exclusion

A. Contractor may be allowed to work during the winter exclusion of 1 December through 1 April, at their own risk, with prior approval from the Contracting Officer. The Contractor may not submit for a contract adjustment for any delays encountered during the exclusion period. Performance days will not be charged for days worked during the exclusion period.

B. The government reserves the right to coordinate work during the winter exclusion at no additional cost.

C. Task orders may be issued at any time during the contract period. The Contractor is required to meet the Bona Fide Need Rule as discussed in the Bona Fide Need Clause of the contract documents.

1.06 Measurement and Payment

A. Construction work under CLIN 0001 of this contract shall be measured by the unit as indicated in the bid schedule and in this section. The quantities for each road, parking area, or patching project are determined through negotiation between the COR and the Contractor. The total project cost is a total of the negotiated quantities at the unit price for each respective bid item.

B. The task order shall reflect the total cost for each project which is a fixed price. This price shall be full compensation for furnishing all materials, labor, tools, equipment, transportation, supervision, and any incidentals necessary to complete the work.

C. Work under CLIN 0002 of this contract shall be measured by the unit indicated in the bid schedule. The quantity shown on the CLIN is an estimate not to be exceeded without prior approval in the form of a contract modification from the Contracting Officer.

D. Patching, shallow depth or full depth, shall be paid as actual area patched as measured in the field by the Construction Inspector and the Contractor.

PART 2 PRODUCTS

2.01 CONTRACT LINE ITEM (CLIN) 0001: BID SCHEDULE

A. Full depth pavement patching shall be paid for by the Square Yard of patch complete and shall be full compensation for saw cutting, removal and disposal of existing materials, placing of base course material, placing of new asphalt material, testing, and compaction of new asphalt material by vibrating roller or hand tamping.

B. Pavement removal for pavement up to 4” inches thick shall be paid in Square Yards and shall be full compensation for removal, loading, hauling, and disposal of the pavement at a location off of Fort McCoy.

C. Pavement removal for pavement greater than 4" thick shall be paid by the Cubic Yard of the entire pavement section to be removed and shall be full compensation for removal, loading, hauling, and disposal of the pavement at a location off of Fort McCoy.

D. Pulverizing shall be paid in Square Yards and shall be full compensation for pulverizing all material to a depth of 6", grading, and compacting pulverized material as base course. For depths over 6" but less than 12", 2x Square Yards will be used; for depths over 12" but less than 18", 3x Square Yards will be used; for depths over 18" but less than 24", 4x Square Yards will be used.

E. Pavement milling shall be paid in Square Yards up to a depth of 2 inches and shall be full compensation for milling equipment and labor; and haul of millings. For depths over 2 inches but less than or equal to 5 inches the square yards will be doubled.

F. Preparation of subgrade or subbase shall be paid by the Square Yard and shall be full compensation for scarification of subgrade or subbase, watering, grading, compaction, and testing.

G. Excavation shall be paid for as in-place Cubic Yards and shall be full compensation for excavation of subgrade material, topsoil, vegetation, and trees up to 6" in diameter and hauling of excess material to a location off of Fort McCoy or a location designated by the COR.

H. Subbase material shall be paid for as in-place, compacted Cubic Yards and shall be full compensation for haul of material, staking/survey, grading, compaction, and field density testing.

I. Base course material shall be paid for as in-place, compacted Cubic Yards and shall be full compensation for haul of material, staking/survey, grading, compaction, and field density testing.

J. Preparation of existing base course shall be paid for by the Square Yard and shall be full compensation for grading, watering, compaction, and testing of existing base course material. If additional material is required to augment existing base, this will be paid as base course material.

K. Hot mix asphalt shall be paid for in Square Yards of compacted asphalt and shall be full compensation for placement of hot mix asphalt, compaction, and testing.

L. Installation of shoulder aggregate shall be paid for as in-place, compacted Cubic Yards and shall be full compensation for material, transportation, placement, watering, and compaction.

M. Tack coat will be paid for in Square Yards and shall be full compensation for materials and equipment.

N. Pavement markings shall be full compensation for mobilization, layout, furnishings of paint and beads, and installation of paint and beads. The pavement marking items shall be measured as follows:

1. Pavement marking roads: Paid by Linear Feet of 4" wide lines for roads or parking areas.

2. Parking Lot Marking: Parking stalls shall be paid as each parking space marked.

3. Paint Symbols: Paid as each symbol with a symbol being one handicap symbol, one arrow, or one word such as "Stop" or "One" in ONE WAY.

4. Striping Crosswalks: Striping Crosswalks shall be paid by linear feet of roadway width for which the crosswalk is to be installed.

O. Installation of specified diameter (12", 18", 24") High Density Polyethylene (HDPE) culvert pipe shall be paid for by the Linear Foot of culvert installed and shall be full compensation for excavation of material, installation of culvert, backfill, and compaction.

P. Installation of HDPE culvert apron shall be paid for by Each culvert installed and shall be full compensation for installation of 2 aprons per culvert, fastening to the culvert, and the final blending and shaping to coincide with the surrounding ground surface. Need to update the specification section for this. There will be 3 line items on the bid schedule, one for each size.

Q. Topsoil shall be paid by the in-place Cubic Yard of topsoil required and shall be full compensation for the grading, hauling, and placement of soil to the site location.

R. Seeding shall be paid by the Square Yard and shall be full compensation for preparation of soil, application of seed, fertilizer, mulch, and maintenance of seeded area. Areas utilized by the Contractor shall be seeded at no additional cost to the Government.

S. Saw cut pavements shall be paid for by the Linear Foot of cut, up to 12 inches, and shall be full compensation for labor and equipment.

T. Adjustments of each of the following when installed in pavement. Payment shall be paid for each item adjusted and shall be full compensation for labor, materials, and equipment needed to adjust to final elevation. Contractor will receive payment per each item listed below:

1. water valve,
2. manhole.
3. hand hole,
4. catch basin,

U. Installation and removal of silt fence shall be paid for by the Linear Foot and shall be full compensation for excavating, installation of posts, installation silt fence fabric, and for the removal of silt fence when vegetation has been established.

V. Erosion control blanket shall be paid for by the Square Yard and shall be full compensation for the transport, installation, and staking in accordance with manufacturer's published instructions.

W. Geotextile Fabric shall be paid for by the Square Yard covered (matches subbase and base area) and shall be full compensation for material and labor to install and anchor.

X. Seed Project to Repair Western Installation Boundary Road (Finch Avenue), Fort McCoy, Wisconsin, per the attached drawings and the contract specifications. Work is to be done in accordance with all existing Federal, State and local codes.

1. Contractor shall provide all tools, labor, equipment, supervision, transportation and materials necessary to repair Treatment Drive and Finch Avenue from State Highway 21 to Western Installation Boundary on Fort McCoy, Wisconsin, per the attached drawings. Work is to be done in accordance with all existing Federal, State and local codes.

2. Saw cut and mill pavement areas to be repaired. Coordinate with DPW to saw cut adjacent asphalt and concrete areas as needed to provide a proper sealed

joint. Other existing concrete drives, entrances, or other concrete surfaces shall not be disturbed.

3. Existing wear course on Treatment Drive from Hwy 21 through the intersection of Ski Hill Drive is approximately 24’-0” wide. Excavate shoulder areas three feet beyond pavement on both sides, and taper gravel, or adjust to the road condition as allowed. Prepare existing road base, provide six inches of compacted gravel base course on top of compacted milled paving, two inches of asphalt binder, two inches of asphalt wearing course and minimum 3-foot wide compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade wherever possible. Roads will not require striping.
4. Existing wear course on Finch Avenue is approximately 22’-0” wide. Roadway width at Town of LaFayette boundary with Fort McCoy is approximately 20’-0”. Make proper transition to Town of LaFayette paved surface. Excavate shoulder areas 2’-0” beyond pavement on both sides, and taper gravel or adjust road condition as allowed. Prepare existing road base, provide 6 inches of compacted gravel base course on top of compacted milled paving, two inches of asphalt binder, two inches of asphalt wearing course and minimum 2-foot wide compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade wherever possible. Road will not require restriping.
5. Remove three turnouts, culverts and road base material from Treatment Drive to fenceline at the Recycling Center as shown on the drawings. Restore road ditches to existing slope and elevation and provide seeding for disturbed areas.
6. Remove and replace culvert at cemetery driveway and provide a 10’-0” x 10’-0” paved turnout with minimum 2’-0” compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade.
7. Replace turnout at Ski Hill Drive approximately 100’ x 24’ with minimum 3’-0” compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade.
8. Provide new turnout at Firefly Road approximately 100’ x 24’ with minimum 3’-0” compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade.
9. Provide new turnouts at military vehicle turnaround point at boundary with town of LaFayette with minimum 2’-0” compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade.
10. Provide a new turnout at the gravel road entrance to the tactical training base located along Finch Avenue with minimum 2’-0” compacted gravel shoulders tapered at no steeper than 4-1 pitch down to existing grade.
11. Striping will be performed under separate contract and is not included on this task order.

2.02 CONTRACT LINE ITEM (0002): BID SCHEDULE

A. Supply and deliver hot mix asphalt shall be paid for by the net ton, and must be weighed at a certified scale. The scale house located at the corner of South B Street and 10th Avenue, Fort McCoy, WI may be used. The scales are self-serve and have directions for use at the site. For problems with the scales, please call the Help Desk at 608-388-HELP(4357). Weight tickets shall be signed by the worksite designated government representative. This shall be full compensation for the production of, transportation, weighing, and coordinating the delivery of hot mix asphalt, positioning trucks at the site, and dumping into a government operated asphalt paver used in Troop Projects at locations on Fort McCoy.

PART 3 NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

1.01 SUBMITTALS

The following paragraphs indicate the requirements for submittals by the Contractor. All items listed in the Schedule of Material Submittals shall be submitted in accordance with the following paragraphs.

A. At all times the Contractor remains responsible for ensuring that the work is performed in strict accordance with the contract requirements. The fact that a non-conforming submittal may be accepted and inadvertently approved by the Government does not, in any way, relieve the Contractor of this responsibility. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in the submittals, nor from the responsibility of complying with the requirements of the contract, unless the variations have been described and approved in strict accordance with the procedures set forth in the Code of Federal Regulations, 48CFR 52.236-21, Specifications and Drawings for Construction clause, paragraph (f).

B. Definitions

1. Submittal - General term that includes any item that is required to be provided by the Contractor to the Government to identify product descriptive literature, drawings, sketches, and schematics that indicate and show a fabrication or installation method or technique; or any other model or sample of actual items or methods to include product data sheets, shop drawings, or samples.

2. Product Data - Descriptive literature or data that describes the physical properties of a product or material item that the Contractor intends to use in doing the work. Such descriptive data should enable the Contracting Officer to verify that the intended item meets the necessary requirements of the specifications.

3. Shop Drawings - A sketch, drawing, or schematic that is prepared by or for the Contractor that illustrates or shows how certain products or material items will be assembled, installed, interconnected, or fabricated for this contract.

4. Sample - An actual piece of material, product, or equipment that the Contractor intends to furnish, use, or install on the project.

1.02 PRODUCT DATA

A. Preparation:

1. Clearly mark each copy to identify pertinent products or models.

2. Show performance characteristics and capacities.

3. Show dimensions and clearances required.

4. Show wiring or piping diagrams and controls.

5. Show any other information requested in the specification sections.

B. Modify drawings and diagrams to delete information that is not applicable to the work.

C. Supplement standard information to provide information specifically applicable to the work.

1.03 SHOP DRAWINGS

A. Drawings shall be presented in a clear and thorough manner.

B. Details shall be identified by reference to sheet, detail, schedule, and room numbers shown on the project drawings.

1.04 SAMPLES

1.05 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, product data and samples prior to submission. All submittals shall be made through and approved by the General Contractor. Submittals will not be accepted directly from sub-contractors.

B. Determine and verify:

1. Field measurement.

2. Field construction criteria.

3. Catalog numbers and similar data.

4. Conformance with specifications.

C. Coordinate each submittal with the requirements of the work and of the Contract Documents.

1.06 SUBMISSION REQUIREMENTS

A. Make submittals promptly in accordance with the approved schedule in such sequence as to cause no delay in the work or in the work of any contractor.

B. Contractor shall develop a complete list of preconstruction and construction submittals. Contractor shall identify required submittals of the RFP and use the list to prepare the submittal register. The list may not be all inclusive and additional submittals may be required by other parts of the contract.

1. The contractor must prepare a Submittal Register listing all submittals, in the format of the attached Schedule of Material Submittals.

2. A preliminary Register is attached to the end of this section; the Designer of Record shall verify its completeness, and make any corrections, or additions required.

3. The Submittal Register shall be submitted to the Contracting Officer for acceptance in accordance with the schedule below.

4. Once accepted by the Government, the contractor shall input the Submittal Register into an Excel spreadsheet suitable for use by the contractor and Government.

5. The approved/accepted Submittal Register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period.

6. The submit dates and need dates used in the submittal register shall be coordinated with dates in the Contractor prepared progress schedule.

7. Updates to the submittal Register codes and actual dates shall be submitted monthly or until all submittals have been satisfactorily completed.

8. When the progress schedule is revised, the submittal register shall also be revised and both submitted for approval.

C. The contractor shall make submittals as required by the specifications.

1. The contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.

2. Units of weights and measures used on all submittals shall be the same as those used on the contract drawings, or required per the contract documents.

3. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

4. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) system Manager and each CQC System Manager indicating action taken.

5. Proposed deviations from the contract requirements shall be clearly identified.

D. Number of submittals required:

1. Shop Drawings: The Contractor shall submit complete shop drawings to demonstrate compliance with the contract drawings. The shop drawings shall include complete details for the installation of the work. Submit one copy of shop drawings.

2. Product Data: Contractor shall receive approval by the COR on each submittal item prior to ordering or installing each item. Submit one copy of product data.

3. Samples: Submit the number stated in each specification section. Samples submitted will not be returned to the Contractor for incorporation into the project. Samples retained by the Government will be used for comparison of materials installed on site.

4. All submittals shall be sent directly to DPW either electronically (preferred method) or in paper copy, but not both. Please do not duplicate as this will cause for delays in the turnaround time of your submittals. There will be a box at the main entrance desk in Building 2171 for submittals. Electronic submissions shall be sent to: usarmy.mccoy.imcom-northeast.mail.dpw-inspections@army.mil .

E. Submittals shall contain:

1. Transmittal cover sheet, ENG FORM 4025-R, Mar 2012.
2. The date of submission and the dates of any previous submissions.
3. The project title and number.
4. Contract identification.
5. The names of:
    a. Contractor.
    b. Supplier.
    c. Manufacturer.
6. Identification of the product with the specification section number.
7. Field dimensions, clearly identified as such.
8. Applicable standards such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on re-submittals.

F. Resubmission Requirements:

1. Make any corrections or changes in the submittals required by the COR and resubmit until approved.

SAMPLE OF SECTION 01300 SUBMITTAL REGISTER

SCHEDULE OF MATERIAL SUBMITTALS

A. To be submitted 20 calendar days or sooner after the Notice to Proceed is issued.

B. To be submitted 20 days or sooner after installation or completion of the work.

C. To be submitted at the Pre-Construction Conference.

D. To be submitted 14 days before Final Inspection.

PROJECT DESCRIPTION: Asphalt IDIQ Contract FY 16/19 Fort McCoy, WI				PROJECT NUMBER: 47-018-1405 FILE# 1405				
ITEM NO.	SECTION, PARA NO, LETTER	DESCRIPTION OF MATERIAL	DATE REQ	DATE Received	DATE Returned	SUBMIT NO.	CODE	COMMENT
1.00	01000, 1.07 A	Operation & Maintenance Manuals	D					
2.00	01000, 1.11 A	Construction Schedule	A					
3.00	01000, 1.12 A, B, C, & D	Material Warranties	D					
4.00	01000, 3.06 B	Record Drawings & redline drawings	D					
5.00	01400, 1.03 A	Accident Prevention Plan	C					

END OF SAMPLE

END OF SECTION

SECTION 01 35 26

SPECIAL SAFETY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. This section provides guidelines for the preparation of accident prevention plans and the implementation of the accident prevention clause which is this specification, Federal Acquisition Regulation (FAR) clause 52.236-13, and the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1. The required Safety Plan shall be developed using Appendix A of the latest edition of the EM-385-1-1.

B. The U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1 is available from Government bookstores operated by the Government Printing Office. Government bookstores are located in most major cities including Milwaukee, Chicago, Kansas City, Denver, and Pueblo, Colorado. An electronic copy of the EM 385-1-1 is available at: http://www.usace.army.mil/SafetyandOccupationalHealth/SafetyandHealthRequirementsManual.aspx

1.02 PRECONSTRUCTION CONFERENCE

A. A preconstruction conference will be scheduled prior to beginning of site work at which time the Contracting Officer will review and discuss requirements relative to planning and administration of the overall safety program.

1.03 SUBMITTALS

A. The following shall be submitted in accordance with Section 01300 Submittal Procedures:

1. Accident Prevention Plan

1.04 ACCIDENT PREVENTION PLAN

A. Shall be developed by a qualified person.

B. Shall be job specific.

C. Shall interface with the contractor’s overall safety and health program.

D. Shall meet the minimum basic requirements of an Accident Prevention Plan found in Appendix A of the latest edition of the EM 385-1-1.

1.05 OBJECTS AFFECTING NAVIGABLE AIRSPACE

A. FAA notification is required IAW CFR 14 part 77, Objects Affecting Navigable Airspace for the following:

1. Definition of Construction /Objects

a. Any object of natural growth, terrain, of permanent or temporary construction or alteration, including equipment or materials used therein, and apparatus of a permanent or temporary character.

b. Any alteration of any permanent or temporary existing structure by a change in its height (including appurtenances, or lateral dimensions, including equipment or materials used therein.

2. Any construction/object or alteration of more than 200 feet in height above the ground level at its site.

3. Any construction/object or alteration of greater height than an imaginary surface extending outward and upward at the following slopes:

   a. 100 to 1 for a horizontal distance of 50,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length, excluding heliports.

   b. 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length, excluding heliports.

   c. 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport (helipad).

4. Notification to the Airfield is required in addition to FAA notification of any object of permanent or temporary construction or alteration, including equipment or materials used therein:

   a. Greater than 25 feet in open areas (open areas are defined as an area that does not contain other objects within 300 feet).

   b. 50 feet in all other areas.

5. Objects shall be marked/lighted when greater that the above criteria as follows:

   a. A red beacon for nighttime (or inclement weather conditions)

   b. Either a beacon or checkered flag for daytime.

6. Objects lowered below the above criteria during nighttime shall only require marking.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 SUMMARY

A. All work performed under this contract is subject to the safety requirements found in the latest edition of the EM 385-1-1, and OSHA 1926/1910 CFR.

B. At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor. FAR clause 52.236-6 as incorporated by reference in the basic contract.

END OF SECTION

SECTION 01 42 13

INDUSTRY STANDARD ABBREVIATIONS AND CODES

PART 1 GENERAL

A. INDUSTRY STANDARD

1. Organizations and/or published documents representing Industry Standards are referred to throughout the Project Specifications by the following abbreviations.
2. Names are believed to be accurate and up-to-date as of the date of the Contract Documents, but are subject to change.

B. APPLICABLE CODES

1. The Ft McCoy Army installation has adopted the 1 July 2013 with change 1, 20 June 2016 UFC (Unified Facilities Criteria) as the primary building code.
2. For all General Building Requirements, see UFC 1-200-01. The following web link provides an index on each specific construction disciplines codes (and year) presently adopted and enforced by DPW. http://www.wbdg.org/ccb/browse_cat.php?o=29&c=4
3. Where ever there is a conflict between code models, the primary code (UFC) shall govern.

C. ABBREVIATIONS

1. Abbreviations used throughout the Specifications and in Contract documents are:

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer’s Association
AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
ABA	Architectural Barriers Act
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AGA	American Gas Association
AHRI	Air Conditioning, Heating and Refrigeration Institute (AHRI)
AI	Asphalt Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ARI	Air-conditioning Refrigerant Institute
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AVATI	Asphalt and Vinyl Asbestos Tile Institute

AWI	Architectural Woodwork Institute
AWS	American Welding Society
AWPA	American Wood Preservers Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards of U.S. Department of Standards
DOE	Department of Energy
EIA	Electronic Industries Alliance
EPA	Environmental Protection Agency
EWA	Engineered Wood Association (formerly APA)
FEMP	Federal Energy Management Program
FGJA	Flat Glass Jobbers Association
FM	Factory Mutual
FRP	Fiber Reinforced Plastic
FS	Federal Specifications
GA	Gypsum Association
IBC	International Building Code
IEEE	Institute of Electrical and Electronic Engineers
ISO	International Organization for Standardization
MICA	Midwest Insulation Contractors Association
MSS	Manufacturer’s Standardization Society
NAAMM	National Association of Architectural Metal Manufacturers
NAIMA	North American Insulation Manufacturers Association
NBIC	National Board Inspection Code
NBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NBS	National Bureau of Standards
NBFU	National Bureau of Fire Underwriters
NCMA	National Concrete Masonry Association
NEC	National Electric Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NPC	National Plumbing Code

NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NWMA	National Woodwork Manufacturing Association
NWAHHA	National Warm Air Heating and Air Conditioning Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PPI	Plastic Pipe Institute
PS	Product Standard of NBS
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SNAP	Significant New Alternatives Policy
SPIB	Southern Pine Inspection Bureau
SSPC	Steel Structures Painting Council
TIA	Telecommunications Industry Association
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specification
UL	Underwriters Laboratories
USAS	United States of American Standards (formerly ASA)
WCLIB	West Coast Lumber Inspection Bureau
WDNR	Wisconsin Department of Natural Resources
WWPA	Western Wood Products Association (WPA and WCLA)

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 57 19

ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 SCOPE

A. Provide environmental controls as specified. The materials specified in this section may also be used on delivery orders requiring erosion control measures on projects where a storm water discharge permit is not needed.

B. If a storm water discharge permit is required for a delivery order, a modification will be negotiated and issued prior to work being performed.

1.02 PERMITS

A. Storm Water Discharge Permit: The Contractor shall:

1. Complete the "Notice of Intent - Storm Water Discharges Associated with Land Disturbing Construction Activities General Permit".

2. Submit completed Notice of Intent Permit in accordance with the submittal log with a check for the permit cost. Checks shall be made payable to “Wisconsin DNR” and the check amounts are as follows:

a.	Less than 5 acres	$140.00
b.	5 acres to 25 acres	$235.00
c.	More than 25 acres	$350.00

3. These costs are current as of the time of origination of this document. Consult the Wisconsin Administrative Code NR 216 Storm Water Discharge Permits for any changes. The Contractor is responsible for the total permit cost.

a. With the Notice of Intent, submit a site erosion control plan. This information will be reviewed and submitted to the DNR by the Environmental Department. The DNR will issue the permit. No construction may occur until the Contractor receives this permit.

b. Keep copies of the permit and erosion control plan on site at all times during construction.

c. File the Notice of Termination after the construction site has undergone final stabilization. It may be the following year before final stabilization occurs. Final stabilization occurs when all stabilization methods are established and functioning properly. Do not file Notice of Termination until that time.

1.03 SUBMITTALS

A. Notice of Intent Permit Application and Erosion Control Plan: Submit with check to obtain permit prior to construction. NOTE: No construction may commence until the NOI has been approved by the DNR. The standard processing time for the DNR is 15 working days but on occasions may take longer.

B. Inspection Reports: Submit one copy of weekly inspection reports for erosion and sediment controls.

C. Notice of Termination.

PART 2 PRODUCTS

2.01 SILT FENCE

A. Woven or non-woven material complying with the requirements of WIDOT Standard Specification, Subsection 628.2.5, in 3 foot wide rolls, with minimum 1-1/8 inch x 1-1/8 inch oak or hickory wood posts of sufficient length to fully support fence.

2.02 EROSION CONTROL BLANKET

A. Erosion control blankets shall conform to the State of Wisconsin Product Acceptability List (PAL) for Class I Type B. The netting and stitching shall be photodegradable and biodegradable. Netting shall be bonded sufficiently to the parent material. Stakes for securing the blankets shall be biodegradable and shall conform to the PAL.

PART 3 EXECUTION

3.01 EROSION CONTROL

A. Maintain erosion control measures to protect the project site and prevent sediment pollution of adjacent water courses and properties.

B. Install erosion control measures in accordance with the plan prior to the start of construction and maintain them until final completion of the work. Unless otherwise instructed, remove temporary erosion control measures prior to final application for payment.

C. Limit stripping of sod and vegetation to a period that will expose bare soil to the least amount of possible erosion.

D. Prevent tracking of soils and sediments onto public and private streets by constructing temporary graveled access roads and parking areas as needed at the construction site. At the end of each work day, remove soils and sediment reaching public and private streets not a part of this construction site.

E. Erosion control measures shall comply with the "Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit" for storm water discharges associated with construction activities and, unless otherwise shown or specified, shall comply with the planning, design, and maintenance provisions of Chapter 3 of the WDNR "Wisconsin Construction Site Best Management Practice Handbook."

F. Installation of erosion control blanket shall conform to Section 628 of Wisconsin Department of Transportation Standard Specifications for Bridge and roadway Construction.

3.02 SILT FENCE INSTALLATION AND MAINTENANCE

A. Install silt fence at locations and in a manner as specified on the Erosion Control plan.

B. When possible, construct silt fence in an arc or horseshoe shape with its ends pointed up-slope. Space posts as per manufacturer’s specifications. Attach fabric to posts with wire staples or wooden lath and nails. Adequately bury the bottom of fabric in a 6 inch trench cut into the ground to prevent sediment from escaping under fence.

C. Inspect silt fences immediately after each rainfall and at least daily during prolonged rainfall.

D. Remove and dispose of sediment deposits when deposit reaches approximately one-half the volume capacity of silt fence.

E. Remove silt fences after slopes and ditches have been stabilized and turf has developed to the extent that future erosion is unlikely.

3.03 MONITORING AND REPORTING

A. Contractor shall conduct the following inspections:

1. Weekly inspections of implemented erosion and sediment controls.

2. Inspections of erosion and sediment controls within 24 hours after a precipitation event of 0.5 inch or greater which results in runoff during active construction periods.

B. Contractor shall prepare weekly written reports of all inspections that include:

1. Date, time, and exact place of inspection.

2. Name of individual who performed inspection.

3. An assessment of the condition of erosion and sediment controls.

4. A description of any erosion and sediment control implementation and maintenance performed.

5. A description of the present phase of construction at site.

3.04 DUST CONTROL

A. Minimize dispersion of dust from construction operations by application of water or other dust control materials. Controls shall confine dust and dirt within the immediate area of the project. Masonry and debris shall be thoroughly soaked during cutting, demolition, and loading operations.

3.05 NOISE CONTROL

A. Provide noise control measures to limit the amount of noise and prevent nuisance. Properly equip all equipment with mufflers. Limit construction activities generating significant noise to normal working hours.

3.06 HAZARDOUS ENVIRONMENTAL CONDITIONS

A. If petroleum contaminated soils or other hazardous environmental conditions are encountered, and are not identified to be part of the work, Contractor shall immediately stop all work in connection with the hazardous condition and shall notify COR.

END OF SECTION

SECTION 31 10 00

SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Provide site preparation as shown and as specified.

B. Work includes, but is not limited to:

1. Protection of improvements, plants, and utilities.
2. Location of utilities and coordination with utility companies.
3. Topsoil salvage.
4. Clearing trees and vegetation.
5. Demolition.
6. Debris disposal and recycling.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 PROTECTION OF IMPROVEMENTS, PLANTS, UTILITIES

A. Protect improvements on site and on adjoining properties. Provide barricades, coverings, or other types of protection as necessary to prevent damage and to safeguard against injury. Restore to original condition improvements damaged by the work or improvements which required temporary removal during construction.

B. Protect existing vegetation indicated to remain against unnecessary cutting, breaking, bruising, or smothering by stockpiling excavated materials or parking of vehicles within drip line. Provide temporary fences, tree wells, barricades, or guards; repair or replace trees and vegetation damaged by construction operations.

C. Protect existing vegetation from invasive species by washing equipment prior to transporting it from one project to another.

D. Protect survey monuments, reference points, and benchmarks from movement. Should removal be necessary, notify COR who will set reference stakes and give notice that monument may be removed. Government will reset monument after construction at no cost to Contractor. Contractor shall pay cost for re-establishing monuments lost due to its negligence or failure to notify COR.

E. No extra payment or time will be allowed for protection of work that could have been suspected or anticipated by site inspection and interpretation of bidding documents prior to execution of contract.

3.02 UTILITIES

A. Any utilities and structures shown on plan drawings are approximate in location and description and are based on records available to the Government or on surface features indicating their existence. There may be other utilities within the project area which are not shown. The lack of utilities on plan drawings is not an indication of a utility-free project site.

B. Notify all affected utility companies of construction operations at least three working days before beginning work near their facilities. Do not begin excavation work until underground utility locations have been marked or the utility company has sent notice that the area is clear.

C. Use caution when excavating so that the exact location of underground utilities, both known and unknown, may be determined. Provide adequate protection and support for utilities during construction operations.

D. If uncharted or incorrectly charted utilities are encountered during excavation work, or if proposed construction conflicts with existing utilities, give prompt notice and submit a proposed solution to the COR for approval. If required, make arrangements with utility companies for relocation of interfering utilities. No extra cost or time will be allowed for unexpected delays or coordination work, except for authorized alterations. When a change is permitted to avoid a utility relocation, the COR will determine whether such change constitutes extra work.

E. Underground utilities and structures located outside of the construction limits which the Contractor wishes to have moved to facilitate construction shall be arranged with each owner of such facilities. The Contractor shall pay all costs of relocations for convenience.

3.03 TOPSOIL STRIPPING

A. Topsoil shall include all friable, fertile, organic clay loam soil suitable for grass and plants, found at surface to a depth of approximately 4 inches, reasonably free of subsoil, clay lumps, stones, objects over 2 inches in diameter, weeds, large roots, root clusters, and other objectionable material.

B. Strip topsoil from project area to whatever depth encountered. Prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping topsoil.

C. Where trees are indicated to remain, terminate stripping a sufficient distance from such trees to prevent damage to root systems.

D. Stockpile topsoil in storage piles in areas where designated. Construct storage piles to freely drain surface water. Cover or sprinkle water on storage piles to prevent windblown dust.

E. Topsoil stockpiles shall be located to eliminate migration of sediment into wetlands and surface waters. If piles cannot be located to do this, silt fence shall be placed around the stockpiles to keep sediment on the site and out of wetlands and surface waters.

3.04 SITE CLEARING

A. Remove trees, stumps, snags, shrubs, brush, heavy growths of grass, weeds, and other vegetation, improvements, rubbish and debris, and obstructions that interfere with proposed construction. Remove items only as necessary for completion of the work or to provide access to the work site.

B. Cut brush and vegetation flush with ground. Grub out stumps and roots having a diameter of 2 inches or larger, and root clusters to a depth of at least 6 inches below embankments and 2 feet below slabs or structures.

C. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Cut back roots to a depth of not less than 6 inches below embankments.

3.05 DEMOLITION

A. Remove structures, pavements, and improvements within construction limits as shown and as required for construction. Remove below-grade items encountered, such as slabs and foundations, that interfere with construction.

B. Government shall have first right to retain all useful salvage. All items not retained by the Government and all construction debris shall become the property of the Contractor.

3.06 DEBRIS DISPOSAL AND RECYCLING

A. Comply with requirements of Section 01000.

B. Stumps, soil, and other debris infested with invasive plant species shall be disposed of in locations specified by the Fort McCoy Wildlife Program (608-388-2308 or 608-388-5374).

END OF SECTION

SECTION 31 23 16

TRENCHING

PART 1 GENERAL

1.01 SCOPE

A. Excavate trenches and horizontal bore as necessary to install direct burial electrical wiring, electrical conduit, and/or plumbing pipe of any size (WCP). Soil to be excavated is generally sand.

B. Compact bedding around WCP.

C. Backfilling and compaction.

D. The water table varies from just under the surface to a depth of ten feet. Dewatering must be planned by and provided by the Contractor. Failure to meet this requirement is not grounds for later consideration by the Government.

1.02 REFERENCES

A. ANSI/ASTM C136 – Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D698 – Test Methods for Moisture-Density Relations of Soil and Soil-Aggregate Mixtures. Using 5.5 LB Rammer and 12 inch Drop.

C. ANSI/ASTM D1556 – Test Method of Density of Soil in Place by the Sand-Cone Method.

D. Standard Specifications for Sewer and Water Construction in Wisconsin.

E. U.S. Army Corps of Engineers Safety and Health Manual, EM 385-1-1, 3 Sep 96.

F. OSHA 29 CFR 1926.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. Fill trenches and other excavated areas with material that was excavated. If additional backfill is needed, it can be obtained at a designated borrow area.

2.02 BED MATERIALS

A. Type 1 – Filler Material: Crushed stone or natural stone; free of shale, clay, friable material, sand, debris; graded in accordance with ANSI/ASTM C136 within the following limits:

Sieve Size	Percent Passing
One Inch	100
¾ Inch	80 to 100
5/8 Inch	45 to 100
3/8 Inch	0 to 45
No. 4	0 to 0

B. Type 2 – Sand: Natural bank sand; free of silt, clay, loam, friable or soluble materials, or organic matter; available at the designated Fort McCoy borrow area.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify fill material to be reused is acceptable.

3.02 PREPARATION

A. Maintain and protect existing utilities remaining which pass through work area.

B. Protect plant life, lawns, and other features remaining as a portion of final landscaping. Removal of trees shall only be upon approval of COR.

C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

3.03 EXCAVATION

A. Excavate subsoil required for the installation of WCP.

B. Cut trenches sufficiently wide to enable installation of WCP and allow inspection.

C. Hand trim excavation. Hand trim at the electric pedestals.

D. Remove lumped subsoil, boulders and rock.

E. Correct unauthorized excavation and areas over-excavated at no additional cost to the Government.

3.04 BACKFILLING

A. Install warning tape 12 inches above buried WCP.

B. Backfill trenches with unfrozen materials.

C. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

D. Employ a placement method that does not damage WCP in the trench.

E. Maintain optimum moisture content of backfill materials to attain required compaction density.

F. Remove surplus backfill materials from site to a designated disposal area.

G. Leave fill materials stockpile areas completely free of excess fill materials.

3.05 TOLERANCES

A. Top Surface of Backfilling: Plus or minus one inch from required elevations.

B. Contractor must repair areas that settle more than 2” during the warranty period.

3.06 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed by the Contractor.

B. Tests and analysis of fill material will not be necessary.

3.07 PROTECTION OF FINISHED WORK

A. Protect finished work until the start of the next stage of construction or until accepted by the COR.

B. Compact fills subjected to vehicular traffic.

END OF SECTION

SECTION 31 23 23

FILL AND BACKFILL MATERIAL

PART 1 GENERAL

1.01 SCOPE

A. Install fill material as required for this project.

1.02 SUBMITTALS

A. Field Data: Density Tests

B. Test Data: Sieve analysis gradation

1.03 TESTING

A. Contractor shall arrange and pay for soil sampling and testing by a qualified testing agency, acceptable to the Government and independent of the Contractor. Test soil materials for suitability for intended purpose.

B. Test subgrade and fill materials for gradation in accordance with ASTM C136 for conformance with ASTM D2487 gradation limits.

C. Provide one optimum moisture-maximum density curve for each type of soil encountered in subgrade and fills under structural slabs and foundations and paved areas; determine maximum densities in accordance with ASTM D1557.

D. During the course of the work, the testing agency shall inspect and test the subgrade. The COR shall approve the subgrade before further construction work is performed.

E. Perform field density tests in accordance with standard, recognized procedures. Take tests as follows:

1. For general fills: In each compacted fill layer, perform one field density test for every 2000 square feet of area, but in no case less than 3 tests.

2. For utility trench fills: Perform at least one field density test for every 200 linear feet of trench for each lift, but not less than 3 tests.

3. For utility trench fills which will be under pavement: Perform at least one field density test for every 100 linear feet of trench per lift, but not less than 3 tests.

F. If, in the opinion of the COR, based on reports of the testing agency and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional cost to the Government.

1.04 PROTECTION

A. Protect existing improvements, utilities, trees and shrubs.

B. If the project site is known to have invasive plant species, equipment shall be washed before transporting it to a different site on Fort McCoy.

PART 2 PRODUCTS

2.01 FILL MATERIALS, GENERAL

A. Fill materials shall be free of organic matter, debris, frozen soils, ice, and other objectionable materials.

B. Select existing material from required excavations may be used for fill or backfill if it meets the specified product requirements.

C. Material imported from a different location on Fort McCoy should be free of invasive plant species. These invasive species include but are not limited to:

1. Wild Parsnip
2. Leafy Spurge
3. Spotted Knapweed
4. Garlic Mustard
5. Buckthorn
6. Reed Canary Grass
7. Purple Loosestrife

D. Contact Fort McCoy Wildlife Program (608-388-2308 or 608-388-5374) to inspect a borrow site prior to using the site for fill material.

E. Do not bring fill material into the project from outside sources without prior approval from the COR and from Fort McCoy Wildlife Program (608-388-2308 or 608-388-5374).

2.02 GRANULAR FILL

A. Select natural sand or a mixture of sand with gravel, crushed gravel, crushed stone, or other broken or fragmented material.

B. Aggregate shall pass a 1-1/2 inch sieve and not more than 35% shall be retained on a No. 10 sieve. A maximum 5% by weight shall pass a No. 200 sieve.

2.03 STRUCTURAL FILL

A. Select natural sand or a mixture of sand with gravel, crushed gravel, crushed stone, or other broken or fragmented material.

B. Aggregate shall pass a 1-1/2 inch sieve and not more than 35% shall be retained on a No. 10 sieve. Maximum 12% by weight shall pass a No. 200 sieve.

2.04 GRANULAR BEDDING AND BACKFILL

A. Select soils suitable for use as Granular Fill, except course aggregate shall pass a ¾ inch sieve.

2.05 BACKFILL

A. Previously excavated soils, free of aggregate larger than 3 inches, and suitable for intended purpose.

PART 3 EXECUTION

3.01 PREPARATION

A. Remove all vegetation, rubbish, and other unsatisfactory materials within the area upon which fill is to be placed.

B. Lay out work to be performed in accordance with the project specifications and/or drawings.

3.02 EXAMINATION OF SUBGRADE

A. Examine subgrade prior to placement of fill or backfill. Do not place materials on frozen subgrade. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that material will bond with subgrade.

B. When subgrade has a density less than that specified for the particular area, break-up ground surface, pulverize, moisture-condition to optimum content, and compact top 12 inches to the density specified in PART 4 SCHEDULES.

3.03 FILLING AND BACKFILLING, GENERAL

A. Construct fills starting at the lowest point of the fill. Construct the fill in layers by spreading and leveling the material during placement. Spread individual layers evenly to uniform thickness throughout and approximately parallel with the finished grade for the full width of the fill, unless directed otherwise. Place materials in lift thicknesses as determined by PART 4 SCHEDULES. Compact and density test a complete lift prior to placing material for successive lifts.

B. Do not place fill or backfill until required excavation and subgrade preparation have been inspected and approved by the Inspector.

C. Adjacent to structures, place fill or backfill to prevent damage and to allow structures to assume loads gradually and uniformly, at approximately the same rate on all sides of the structure. Adjacent to earth-retaining structures, do not place fill or backfill until concrete has reached its specified 28-day compressive strength. Do not travel heavy equipment over cast-in-place concrete work until it has reached specified 28-day compressive, unless otherwise approved. If after 14 days of curing the specified 28-day compressive strength has been achieved, work may proceed.

D. Backfill all spaces excavated and not occupied by new structures to the specified section.

E. If there is water in the excavation, dewater the excavation, or, upon approval of the COR, perform backfilling so that the backfill material displaces the water and does not trap it within the fill.

F. Backfill excavations as promptly as work permits, but not until completion of the following:

1. Acceptance by the COR of construction below finish grade.

2. Removal of concrete formwork.

3. Removal of shoring and bracing and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

4. Removal of trash and debris.

G. Warning tape for Utility Trenches

1. Install warning tape not more than 12 inches above the direct burial cable or pipe.
2. Tape shall be 4 inches wide.
3. The tape shall be manufactured with integral wires, foil backing, or other means to enable detection by a metal detector when the tape is buried up to three feet deep.
4. The tape shall be of a type specifically manufactured for marking and locating underground utilities.
5. The tape shall be of the correct color for the utility and shall bear a continuous printed inscription describing the specific utility.

H. Tracer wire

1. Install tracer wire at all nonconductive pipe.
2. Tape to pipe at 5’ intervals.
3. Wire shall be #14 magnetic detectable conductor with polyethylene insulation rated for direct burial.

3.04 CONTROL OF MOISTURE CONTENT

A. During placement and compaction, maintain moisture content of materials within optimum range.

B. Apply water to fill materials after placement as necessary. Obtain uniform moisture distribution by disking, plowing, or other approved mixing methods prior to the compaction of a layer.

C. If material is too wet when deposited on fill, remove or dry it to the required moisture content prior to compaction.

D. If top surface of a preceding layer of compacted fill becomes too dry to permit suitable bond, scarify and moisten it to the required moisture content prior to placement of the next layer of fill.

3.05 COMPACTION

A. Compact all fills using standard compaction methods unless the contract specifies special compaction.

B. Provide the required compaction for each layer before placing any material for a succeeding layer.

C. Compact each layer of soil material to not less than the percentage of maximum density specified in PART 4 SCHEDULES.

D. Provide compaction equipment required to obtain specified compaction. Compaction by travel of grading equipment is not considered adequate for uniform compaction. Small vibratory compactors are required wherever fill is placed adjacent to foundation walls, footings, and piers.

3.06 MAINTENANCE

A. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

B. Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add fill or backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work and eliminate evidence of restoration to greatest extent possible.

PART 4 SCHEDULES

4.01 COMPACTION SCHEDULE

Material Type	Usage	Lift Thickness (1)	Min Compaction (2)
Granular Bedding	Below pipe and conduit	6”	90%
Granular Backfill	Below pipe and conduit	6”	90%
Backfill	Unpaved areas 10’ or less outside structure line.	8”	90%
	Unpaved areas more than 10’ outside structure line	12”	85%

(1) Place manually compacted materials in maximum 4” layers.

(2) Percent of maximum density determined in accordance with ASTM D1557 (Modified Proctor Test).

END OF SECTION

SECTION 31 34 15

GEOTEXTILE STABILIZATION FABRIC

PART 1 GENERAL

1.01 SUMMARY

A. Provide and install Geotextile Stabilization Fabric Type C under the aggregate base course material as shown on the plans.

1.02 SUBMITTALS

A. Product Data: Submit fabric product data.

1.03 STORAGE AND HANDLING

A. Store and handle fabric in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 GEOTEXTILE STABILIZATION FABRIC

A. Fabric shall be a woven polypropylene, polyethylene, or polyamide material with very high installation survivability whose function is to provide subgrade reinforcing.

B. Provide fabric with the following performance and in-service properties (properties shall be in both principal fabric directions where applicable):

Property	Value Type C	Test
Weight	6 oz/yd^2 (min.)	ASTM D3776
Grab Tensile Strength	205 lb (min)	ASTM D4632
Minimum Apparent Breaking Elongation	-----	ASTM D4632
Puncture Strength	70 lb (min.)	ASTM D6241
Maximum Apparent Opening Size	No. 50 (max.)	ASTM D4751
Permittivity	0.12 s^(-1) (min.)	ASTM D4491

PART 3 EXECUTION

3.01 FABRIC INSTALLATION

A. Install fabric as shown and in accordance with manufacturer's recommendations.

B. Areas to be covered by fabric shall be cleared of debris and other items which could tear or puncture material. Roll out fabric on surface and manually pull taut to remove wrinkles.

C. If lapping of fabric is required, minimum overlap shall be 2 ft on parallel strips and 3 ft on butt strips. Overlaps may be eliminated if fabric sections are either factory or field sewn. Seam strength shall be at least 80% of fabric tensile strength.

D. After placement, make provisions to prevent lifting or movement of fabric by wind. Repair or replace torn or punctured fabric in accordance with manufacturer's instructions; no extra compensation will be allowed. Cover fabric within 48 hr of placement.

END OF SECTION

SECTION 32 11 00

IN-PLACE BASE COURSE MATERIAL

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide and install base course material, compact and grade.

1.02 REFERENCED STANDARDS

AASHTO T27: Sieve Analysis of Aggregates.

AASHTO T96: Los Angeles Abrasion of Coarse Aggregates.

AASHTO T99: Moisture–Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

AASHTO T104: Soundness of Aggregate.

ASTM D1140: Test for Amount of Material in Soils Finer than the No. 200 Sieve.

ASTM D2216: Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.

ASTM D2950: Density of Bituminous Concrete in Place by Nuclear Method.

ASTM D4318: Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.01 TESTING AND INSPECTION

A. Contractor shall have, on site, a qualified testing firm to test materials for compliance with standards set forth in this specification. Submit report to KO for all materials as required.

B. Density Testing

1. Installation Testing

a. Determine maximum density and optimum moisture content for compaction in accordance with AASHTO T99 (one test for each type of material for each source).

b. Conduct field density tests in accordance with ASTM D2950.

c. Minimum frequency for field density testing for aggregate base course shall be one (1) acceptable tests per 125 cubic yards of aggregate placed.

(1.) Payments and continuation of base coarse placement may be delayed until test reports are fully reported per lift.

d. When a lift of aggregate base course is less than 125 cubic yards, the minimum frequency for the field density testing shall be one (1) acceptable test per lift per type of aggregate.

e. Personnel who either use nuclear gauges or directly supervise the use of nuclear gauges must be trained in radiation safety and transportation of radioactive materials, and must maintain the appropriate Highway Technician Certification Program (HTCP) certifications.

f. Up to date personnel and equipment certification records must be maintained and submitted to the Government.

g. Technician must be certified by the HTCP programs, Nucdensitytec-1 class by the University of Wisconsin Platteville as part of the HTCP.

1.02 SUBMITTALS

A. Submit product data on the following items. Submittal shall clearly show compliance to the specifications for each item and maximum densities as appropriate.

1. ¾ Inch Dense graded base course aggregates.

2. 1 ½ Inch Dense graded base course aggregates.

B. Test data for field and laboratory tests required by the COR for:

1. Density of base course materials.

1.03 STOCKPILES

A. Stockpile locations shall be coordinated with the COR if the Contractor requires them.

PART 2 PRODUCTS

2.01 BASE COURSE AGGREGATES

A. Aggregates shall conform to the following gradation when tested IAW AASHTO T27 and ASTM D1140.

Percentage by Weight Passing

Sieve Size	¾" Dense Graded	1 1/4" Dense Graded
1 ¼ inch	---	95-100
1 inch	100	---
¾ inch	95-100	70-93
3/8 inch	50-90	42-80
No. 4	35-70	25-63
No. 10	15-55	16-48
No. 40	10-35	8-28
No. 200	5-15	2-12

B. Aggregates shall consist of hard durable particle of crushed stone or gravel. Aggregate shall be free of organic material, shale, and clay lumps.

C. The aggregate shall have a percentage of wear of not more than 50, as determined by ASSHTO Designation: T96.

D. The aggregates shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 IAW ASTM D4318.

E. When the fraction of the aggregates retained on the No. 4 sieve is subjected to five cycles of the sodium sulfate soundness test, AASHTO T104, the weighted loss shall not exceed 18 percent by weight.

F. At least 58 percent, by count, of the number of particles of aggregate retained on the No. 4 sieve shall have at least one fractured face.

PART 3 EXECUTION

3.01 BASE COURSE MATERIAL—DENSE GRADED

A. Provide material meeting the requirements of paragraph 2.01.

B. Place and compact new base course in maximum compacted 6 inch lifts.

C. Compact the base course material to minimum 95% of maximum density in compliance with ASTM D698 and to meet the requirements of paragraph 1.01.

3.02 PREPARATION OF EXISTING BASE

A. Prepare the existing base for asphalt pavement by restoring, preparing, and conditioning of aggregate bases.

B. Scarify, shape, trim and compact the surface of the aggregate base to produce the required cross-sectional contour; a profile free from abrupt changes in elevation; and a surface without pits, hollows, depressions, or projections.

END OF SECTION

SECTION 32 12 18

HOT MIX ASPHALT PAVEMENT

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Reconstruct and maintain existing asphalt roads and parking areas.

B. Construct new hot mix asphalt roads and parking areas.

C. Construction, reconstruction, and maintenance projects may include:

1. Excavation of soil and haul of excess soil.

2. Grade and compact subgrade and subbase material.

3. Furnish, grade, and compact base course material.

4. Furnish and compact hot mix asphalt pavement.

5. Furnish, install, grade, and compact shoulder material.

6. Install pavement markings.

7. Removal work including milling and pulverizing.

8. Patching of existing asphalt pavement.

10. Landscape restoration.

11. Delivery of hot mix asphalt to locations on Fort McCoy in support of Troop Projects.

1.02 REFERENCED STANDARDS

A. AASHTO M208: Cationic Emulsified Asphalt.

B. ASTM D995: Mixing Plants for Hot Mixed, Hot Laid, Bituminous Paving Mixture.

C. ASTM D2950: Density of Bituminous Concrete in Place by Nuclear Method.

D. WISDOT: Standard Specifications for Highway and Structure Construction, 2019 edition.

1.03 TESTING AND INSPECTION

A. Contractor shall have on site a qualified testing firm to test materials for compliance with standards set forth in this specification. Submit report to COR for all materials as required.

B. Density Testing for Hot Mix Asphalt Pavement.

1. Conduct field density tests in accordance with ASTM D2950.

2. Minimum field density testing for hot mix asphalt pavement shall be IAW paragraph 3.10.C and the following:

a. Testing frequency for parking lots: Paving for each layer is to have one test for every 750 SY of paving. For areas less than 750 SY, one test is required. Acceptance of the parking lot is based on the average of the density tests meeting requirements of paragraph 3.10.C

b. Testing frequency for streets/roadways: Paving for each layer is to be broken into 4000 SY sub-lots, three density tests shall be performed per sub-lot. Frequency for sub-lots less than 4000 SY shall be tested at a frequency of no less than 1 test per 1000 SY. Acceptance of the street/roadway will be made in sub-lots and each sub-lot acceptance is based on the average of the density tests taken for that sub-lot.

c. Testing pattern: Test locations shall be evenly spaced.

d. Provide test results to the Inspector/COR within 24 hours of testing.

e. Paving of subsequent layers should not occur unless the layer being tested meets the requirements of paragraph 3.10.C. The contractor may be required to remove and repave any area not meeting density requirements.

(1.) Payments and continuation of paving may be delayed until test reports are fully reported to Inspector/COR.

f. Personnel who either use nuclear gauges or directly supervise the use of nuclear gauges must be trained in radiation safety and transportation of radioactive materials, and must have a current Highway Technician Certification Program (HTCP) certification from Nucdensitytec-1 class.

(1.) Copies of those records must be submitted to the government prior to preforming any testing.

g. Nuclear gages used must have current certification/calibration records with WISDOT.

(1.) Copies of those records must be submitted to the government prior to performing any testing.

1.04 SUBMITTALS

A. Submit product data on the following items. Submittal shall clearly show compliance to the specifications for each item and maximum densities as appropriate.

1. Hot mix asphalt aggregates sieve analysis.

2. Hot mix asphalt binder.

3. Hot mix asphalt mix design.

4. Pavement marking paint and beads.

B. Test data for field and laboratory tests are required by the COR for:

1. Density of hot mix asphalt pavements.

1.05 STOCKPILES

A. Stockpile locations shall be coordinated with the COR if the Contractor requires them.

PART 2 – PRODUCTS

2.01 HOT MIX ASPHALT PAVEMENT

A. The hot mix asphalt pavements used shall conform to the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction (WISDOT Std. Spec.), Section 460.2.1.

2.02 ASPHALTIC CONCRETE AGGREGATES

A. Hot mix asphalt aggregates shall conform to the WISDOT Std. Spec., Section 460.2.2.

2.03 MINERAL FILLER

A. Mineral filler shall meet requirements of WISDOT Standard Spec, Paragraph 450.3.1.1.2, be free from lumps, loosely bonded aggregates, and shall be non-plastic.

1. Type I filler shall be thoroughly dry stone dust or Portland cement.

2. Type II filler shall consist of finely ground limestone or dolomite produced commercially as agriculture lime.

3. Type III filler may be bank run fine or silty sand, rock fines or other natural or artificially powdered mineral dust approved by the COR.

2.04 ASPHALTIC BINDERS

A. Hot mix asphalt binders shall be PG 58-28, conform to WISDOT Standard Spec. Section 455.2.3.1.

2.05 ADDITIVES

A. Hot mix asphalt additives shall conform to the WISDOT Std. Spec., Section 460.2.4.

2.06 HMA MIX DESIGN

A. Use an approved WISDOT mix design IAW WISDOT Std. Spec., Section 460.2.7, MT mix with nominal aggregate size #4.

B. The upper layer asphalt pavement shall conform to the WISDOT mixture type MT.

C. The lower layer asphalt pavement shall conform to the WISDOT mixture type MT.

D. Patching material shall conform to the WISDOT mixture type MT.

E. Asphalt overlays shall conform to the WISDOT mixture type MT.

F. Follow WISDOT Specification 460.2.5 for recycled asphaltic materials except no recycled asphalt shingle (RAS) material is allowed.

2.07 TACK COAT

A. Shall be an emulsified asphalt CSS-1h or CSS-1 diluted with an equal amount of water.

2.08 BASE COURSE AGGREGATES

A. Base course aggregates shall be ¾ inch or 1 ¼” inch dense graded material conforming to Section 02310.

2.09 SHOULDER AGGREGATES

A. Shoulder aggregates shall be ¾ inch dense graded material conforming to Section 02310.

2.10 SUBBASE MATERIAL (FILL)

A. Sub-base material shall be provided by the contractor. No borrow pit will be provided to the contractor.

B. Fill materials shall be provided by the contractor free of organic matter, debris, frozen soils, ice, and other objectionable materials.

C. Imported material should be free of invasive plant species. These invasive species include but are not limited to:

1. Wild parsnip
2. Leafy Spurge
3. Spotted Knapweed
4. Garlic Mustard
5. Buckthorn
6. Reed Canary Grass
7. Purple Loosestrife

2.11 PAVEMENT MARKING

A. Furnish paint from a WISDOT approved products list.

B. Furnish glass beads conforming to AASHTO M 247.

C. Paint for crosswalks shall be an epoxy traffic paint from a current WISDOT approved products list.

PART 3 – EXECUTION

3.01 FULL DEPTH OR SHALLOW PATCHING

A. Areas to be patched shall be identified by the COR.

B. The road shall be kept open and patching operations restricted to one lane at a time unless prior approval is obtained from the COR.

C. Saw cut pavement and remove failed pavement and base course as indicated on the patching detail for shallow or full depth patching.

D. Place and compact base course in accordance with Section 02310.

E. Place and compact hot mix asphalt patch.

3.02 PAVEMENT REMOVAL

A. Remove all existing asphalt or concrete pavement.

B. Removed asphalt shall become the property of the Contractor. Concrete shall be hauled to the Fort McCoy concrete dump site located on North Post.

3.03 PULVERIZING

A. The work shall consist of pulverizing existing pavement or stabilized base to a depth of up to 6 inches, stockpiling material and placing the pulverized material into the finished base course.

3.04 PAVEMENT MILLING

A. This work shall consist of removing existing asphalt pavement by milling at the location and to the thickness indicated in the delivery order. Material may be salvaged and incorporated in the binder course or in the subbase.

B. The milling machine shall be self-propelled and specifically designed and constructed for milling pavements. The milling operation shall be performed in a manner to preclude damage to the remaining pavement and adjacent curbs or pavements and which results in a reasonably uniform surface free of excessively large scarification marks. The finished surface shall have a uniform transverse slope.

C. Asphalt millings shall become property of the Contractor.

3.05 SUBGRADE/ SUBBASE PREPARATION

A. Scarify, excavate, grade, and compact existing subgrade or subbase to required elevation for placement of base course material or topsoil.

B. Proof roll finished cut or fill with a pneumatic roller or a minimum ten ton rubber-tired vehicle. Remove material that is soft or yields under the weight of the roller or rubber-tired vehicle upon the direction of the COR.

3.06 EXCAVATION

A. Includes removal and haul of sod, topsoil, and other material including trees up to 12 inches in diameter.

B. Remove material that is soft or yields under the weight of a pneumatic roller or a ten ton rubber-tired vehicle. Material shall be removed to the depth necessary to provide a solid foundation for the base course. Soft or yielding material removal that is not part of the negotiated quantities must be approved by the COR before the work is performed.

3.09 PREPARE EXISTING BASE COURSE

A. Prepare existing base course in accordance with Section 02310.

3.10 HOT MIX ASPHALT PAVEMENT

A. Provide and place asphaltic concrete in one two-inch lift for an overlay and one or two two-inch lifts for new pavements.

B. Compact asphalt as soon as pavement will bear equipment without checking or undue displacement. Carry out compaction in a pass sequence ensuring that roller overlaps previous passes to provide a smooth surface free of roller marks.

C. Density in all new asphalt conditions must meet WISDOT 460.3.3.1 for WISDOT mixture type MT.

D. Perform hand tamping in areas not accessible to rolling equipment.

E. No vehicular traffic shall be allowed on newly paved areas until surface has cooled to ambient air temperature or enough not to become marked.

F. Hot mix asphalt shall be placed only when the ambient air temperature is 40°F or greater. Hot mix asphalt to be placed should meet paragraph 4-53.3 of Wisconsin CMM May, 2018.

G. No hot mix asphalt shall be placed on a wet surface, during rainy weather.

H. Conduct density tests for compacted hot mix asphalt in accordance with paragraph 1.03 above.

I. New sections of road shall match existing road elevations.

J. Any new asphalt damaged, including damage by vehicular traffic, shall be removed and replaced by the Contractor.

K. On task orders where only delivery of asphalt is required, contractor shall supply and deliver hot mix asphalt and dump into a government operated asphalt paver at the rate of 80 tons per hour.

3.11 SHOULDER AGGREGATE

A. Place and compact shoulder aggregates after paving is completed. Shoulder shall match the pavement surface and slope away from pavement to allow for proper drainage.

3.12 TACK COAT

A. Apply tack coat only during daylight hours and when the air temperature is 40°F and rising.

B. Existing surface shall be dry and free of loose dirt, dust, and other foreign matter.

C. Only apply tack coat to areas that will be paved in the same phase of the same day.

D. Apply tack coat at a uniform rate of 0.05 to 0.15 gal/SY. Ensure that all nozzles are functioning properly on the distributor.

E. Tack coat shall be applied for overlays of existing pavements and between pavement lifts not paved on the same day.

3.13 PAVEMENT MARKINGS

A. Pavement marking shall consist of the furnishing and application of reflectorized traffic stripes of the specified width and color to produce centerlines, no passing zone lines, lane lines, edge lines, parking spaces, and symbols.

B. The pavement surface shall be dry and free from frost. Dust, dirt, glaze, oil, grease, loose paint, gravel, debris, or other materials and contaminants which would prevent proper bonding of the marking to the pavement shall be removed by the Contractor prior to application of the marking.

C. The applied lines shall have a uniform cross section and the bead distribution shall be uniform throughout the specified thickness. The lines shall have a reasonably sharp cut-off on both sides and the ends.

3.14 TOPSOIL AND SEEDING

A. See Section 02923 for topsoil requirements.

B. See Sections 02930 and 02931 for seeding requirements.

3.15 SAW CUT PAVEMENT

A. Saw cut existing pavements to a clean edge prior to placing new pavements against existing.

3.16 ADJUST WATER VALVES, CURB STOPS, MANHOLES

A. Adjust water valves and curb stops to remain in operation. Top of adjusted valves and curb stops shall be ¼ to ½ inch below the finish grade of the pavement.

B. Manholes shall be adjusted by adding or removing adjusting rings. Top of the manhole cover shall be ¼ to ½ inch below finish grade of the pavement.

END OF SECTION

SECTION 32 91 19

LANDSCAPE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Install and prepare topsoil for finish landscaping in areas disturbed by construction activities.

1.02 DEFINITIONS

A. Salvage Topsoil—Existing organic soil to be removed from construction site prior to commencing construction.

B. Stockpile Topsoil—Place salvaged topsoil in stockpile and use to finish grade prior to landscaping. Stockpile shall be shaped to shed water and be located where it will not be contaminated by construction activities.

C. Import Topsoil—Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from a drained site. Soil shall be free of subsoil, clay or impurities, plants, weeds, invasive species, and roots. The pH value shall be between 5.4 and 7.0.

PART 2 PRODUCTS

2.01 MATERIAL

A. In Cantonment area, around buildings in maintained areas:

1. Mixture of Salvage Topsoil and Import Topsoil

B. In Cantonment area, adjacent to natural areas not maintained weekly:

1. Salvage Topsoil from project site only

C. Outside of Cantonment area, in natural areas such as ranges and prairies and other areas not maintained weekly:

1. Salvage Topsoil from project site only

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify all underground work and backfilling has been completed and inspected.

B. Verify subgrade or subbase has been compacted and properly contoured.

3.02 SUBGRADE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, roots, branches, and stones in excess of 1/2 inch in size. Remove subgrade material contaminated with petroleum products. Remove all excess material from project site.

C. Scarify subgrade to depth of 3 inches where topsoil is scheduled. Scarify areas where hauling equipment has compacted the subgrade.

3.03 PLACING TOPSOIL

A. Place topsoil in areas of seeding to a nominal depth of 4 inches. Place topsoil during dry weather.

B. Fine grade topsoil eliminating rough or low areas. Maintain profiles and contours of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to trees, plants, buildings, and paving to prevent damage.

E. Stockpile area and project site shall be left clean and raked and ready to receive landscaping.

3.04 TOLERANCES

A. Place topsoil within ½ inch of finish grade elevation.

3.05 PROTECTION

A. Protect landscaping and other features remaining as final work.

B. Protect existing structures, sidewalks, utilities, paving, and curbs.

END OF SECTION

SECTION 32 92 18

SEEDING, NOT MAINTAINED AREAS

PART 1 GENERAL

1.01 SUMMARY

A. Provide seeding, plant species, and mulch in areas disturbed by construction to meet requirements and as specified herein.

B. This section applies to seeding and related work in areas outside of or adjacent to the Cantonment. Areas outside of or adjacent to the Cantonment area are defined as areas that are not mowed, groomed, or maintained on a regular schedule (weekly or biweekly).

C. For areas with slopes greater than 6% (3/4 inch per foot), provide stabilization using approved grass seed mixtures and plant species as specified herein.

1.02 RELATED SECTIONS

A. Section 32 91 19 Landscaping.

B. Section 32 92 20 Seeding, Maintained Areas.

1.03 DEFINITIONS

A. Fort McCoy Prohibited Plant Species: All prohibited and invasive plant species including grasses, weeds, and seeds. Refer to Appendix A: Fort McCoy Prohibited Plant Species List for a complete list of all invasive plant species that are prohibited and not authorized for use, delivery, or transport on Fort McCoy.

B. Fort McCoy Approved Plant Species: All approved plant species without contaminants including grasses, wildflowers, forbs, trees, conifers, and shrubs. Refer to Appendix B: Fort McCoy Approved Plant Species List for a list of approved plant species that are authorized for use, delivery, and transport on Fort McCoy.

C. Contaminants: Prohibited plant species, invasive plant species, propagules or invasive propagules, noxious weeds, hazardous or toxic substances, chemicals or foreign matter detrimental to plant life, or any type of material that may hinder plant growth and plant maintenance.

D. Propagules: Specimens or parts of a species that are capable of producing additional specimens including seeds, roots, stems, rhizomes, tubers and spores.

E. Forb: An herbaceous flowering plant that is not grass, sedge, or rush.

F. Herbaceous Plant: Plants that do not have an above ground woody stem (may be annuals, biennials, or perennials).

1.04 SUBMITTALS

A. Submit product data documentation for the following:

1. Seed or Seed Mixture.

2. Plant species.

3. Mulch.

B. Product data documentation shall include all of the following:

1. Producer or manufacturer name, harvesting and production location, chemical analysis data (percentages by weight for mixtures), species type and details, certification, and indication of conformance to meet requirements as specified herein, and federal and state laws, regulations, standards, and codes.

2. Seed certification tags for each type of seed including producer name, source of production, harvesting location, certifying agency name, lot number, variety name and kind, and class of certified seed.

3. Seed labels for each type of seed including certification tag requirements, purity, composition (percentages by weight), percentage of purity and germination, year of production, net weight, and date of packaging.

1.05 PROTECTION

A. All seed, seed mixtures, plant species, and mulch delivered to Fort McCoy shall be free of prohibited and invasive plant species including contaminants as defined herein. Refer to Appendix A: Fort McCoy Prohibited Plant Species List.

B. Deliver approved seed, seed mixtures, and mulch to Fort McCoy in original, unopened and undamaged containers bearing certification tags and labels as specified herein. Deliver approved plant species to Fort McCoy bearing labels as specified herein.

C. Upon delivery, inspect all containers, products, and documentation to verify all products delivered are approved for use on Fort McCoy and requirements are met as specified herein. Refer to Appendix B: Fort McCoy Approved Plant Species List.

D. Verify that all containers (seed and mulch) are unopened and sealed without any type of damage, tags and labels match approved product data documentation, and grass seed is properly certified and tagged. Grass seed from opened or damaged containers is prohibited.

E. Upon delivery and inspection, immediately secure, separate, and remove all unapproved products, seed mixtures, and opened or damaged containers from Fort McCoy.

F. After inspection and verification, provide storage of approved seed, seed mixtures, plant species, and mulch in a cool, dry location away from contaminants for protection. Container openings shall remain closed except when seed is being placed.

PART 2 PRODUCTS

2.01 GRASS SEED

A. Seed and seed mixtures shall meet the requirements of the Fort McCoy Invasive Program and as specified herein. All seed and seed mixtures shall be pure live seed, sourced, produced, and harvested within a 250 mile radius of Fort McCoy.

B. All grass seed shall be certified by the Wisconsin Crop Improvement Association, or equivalent state certification within one year prior to seeding. Seed and seed mixtures shall be in conformance with all federal and state laws, codes, regulations, and local ordinances.

C. Verify grass seed and seed mixtures meet all requirements as specified herein prior to transport and delivery to Fort McCoy. Obtain written approval from the Fort McCoy Invasive Program for any substitutions or modifications to approved seed and seed mixtures prior to transport and delivery.

D. Deliver approved grass seed in containers with certification tags and labels for inspection and verification. Refer to Paragraph 1.05 Protection for inspection and verification requirements.

E. Upland Areas: Grasses, grass seed mixtures, and forbs shall conform to Table 1: Upland Areas below including mix proportions (percentages by weight). Alternative mixtures may be use with approval from Fort McCoy.

Table 1: Upland Areas

Mix Proportions (%)	Common Name	Scientific Name
Grasses		
6.3	Big Bluestem	*Andropogon gerardi*
12.5	Side Oats Grama	*Bouteoloua curtipendula*
25	Canada Wild Rye	*Elymus canadensis*
6.3	Switchgrass	*Panicum virgatum*
12.5	Little Bluestem	*Schizachyrium scoparium*
9.4	Indian Grass	*Sorgastrum nutans*
Forbs		
1.5	Leadplant	*Amorpha canescens*
1.5	Butterfly Weed	*Asclepias tuberosa*
0.4	Common Milkweed	*Asclepias syriaca*
0.8	Sky Blue Aster	*Aster azureus*
0.1	Heath Aster	*Aster ericoides*
1.0	Smooth Blue Aster	*Aster laevis*
2.0	Prairie Coreopsis	*Coreopsis palmata*
1.5	White Prairie Clover	*Dalea candida*
1.2	Purple Prairie Clover	*Dalea purpurea*
0.4	Sawtooth Sunflower	*Helianthis grosseserratus*
6.2	Early Sunflower	*Heliopsis helianthoides*
1.0	Rough Blazing Star	*Liatris aspera*
2.0	Wild Bergamot	*Monarda fistulosa*
0.4	Dotted Mint	*Monarda punctata*
0.2	Prairie Cinquefoil	*Potentilla arguta*
3.8	Blackeyed Susan	*Rudbeckia hirta*
0.6	Stiff Goldenrod	*Solidago rigida*
0.8	Showy Goldenrod	*Solidago speciosa*
1.1	Ohio Spiderwort	*Tradescantia ohiensis*
1.5	Hoary Vervain	*Verbena stricta*

F. Riparian Areas: Grasses, grass seed mixtures, and forbs shall conform to Table 2: Riparian Areas below including mix proportions (percentages by weight). Alternative mixtures may be use with approval from Fort McCoy

Table 2: Riparian Areas

Mix proportions (%)	Common Name	Scientific Name
Grasses/Sedges		
28.1	Fringed Brome	*Bromus ciliatus*
3.9	Brown Fox Sedge	*Carex vulpinoidea*
28.1	Virginia Wild Rye	*Elymus virginicus*
1.6	Fowl Manna Grass	*Glyceria striata*
0.2	Wool Grass	*Scirpus cyperinus*
12.5	Indian Grass	*Sorghastrum nutans*
6.3	Prairie Cord Grass	*Spartina pectinata*
Mix Proportions (%)	**Common Name**	**Scientific Name**
Forbs		
0.4	Meadow Anemone	*Anemone canadensis*
3.9	Marsh (Red) Milkweed	*Asclepias incarnata*
0.8	New England Aster	*Aster novae-angliae*
0.8	Swamp Aster	*Aster puniceus*
1.5	Wild White Indigo	*Baptisia leucantha (alba)*
0.4	Spotted Joe Pye Weed	*Eupatorium maculatum*
0.1	Bottle Gentian	*Gentiana andrewsii*
0.2	Sneezeweed	*Helenium autumnale*
1.2	Early Sunflower	*Heliopsis helianthoides*
1.6	Prairie Blazing Star	*Liatris pycnostachya*
1.6	Wild Bergamot	*Monarda fistulosa*
0.1	Grass-leaved Goldenrod	*Solidago graminifolia*
0.8	Ohio Goldenrod	*Solidago ohioensis*
1.5	Blue Vervain	*Verbena hastata*
0.2	Culver's Root	*Veronicastrum virginicum*
3.0	Ironweed	*Vernonia fasciculata*
1.2	Golden Alexanders	*Zizia aurea*

2.02 FERTILIZER – NOT REQUIRED

2.03 LIME

A. Standard agricultural ground limestone with a moisture content not in excess of 10%.

2.04 MULCH

A. Mulch shall be certified by the Wisconsin Crop Improvement Association, or equivalent state certification to meet requirements of the North American Weed Free Forage Certification Program.

B. Mulch shall consist of dry oat or wheat straw, and shall be free of prohibited and invasive plant species including contaminants, grasses, weeds, and seeds. Hay and chopped corn stalks are not acceptable.

C. Deliver mulch in bales with certification tags attached. Tags shall clearly indicate conformance to requirements as specified herein, and to federal and state laws, regulations, standards, and codes.

2.05 OTHER PLANT SPECIES

A. Seed and plantings for other plant species (wildflowers, forbs, trees, conifers, and shrubs) shall meet the requirements of the Fort McCoy Wildlife Program and as specified herein. Plant species shall be sourced, produced, and harvested within a 250 mile radius of Fort McCoy.

PART 3 EXECUTION

3.01 GENERAL

A. All seeding, plant species, mulch, and work shall meet requirements as specified herein.

3.02 TOPSOIL PLACEMENT

A. Place topsoil in accordance with Section 32 91 19 Landscaping.

3.03 SOIL PREPARATION

A. Loosen topsoil by raking to a depth of 3 inches. Rake out surface irregularities, and remove rocks and hard soil clods.

B. Apply lime in sufficient quantity to produce soil pH of 6.5. Mix the lime thoroughly into the soil.

3.04 SEEDING

A. All seeding rates are based upon pure live seed (PLS). Apply seed evenly in two intersecting directions at the following rate:

1. Mechanical or Hand Seeding - minimum seeding rate is 8 pounds per acre. For seeding areas greater or less than an acre, calculate the equivalent mechanical seeding rate to meet the minimum rate requirement.

B. During germination of seed mixture, add approved Annual Rye at 15 pounds per acre to provide protective cover for the seed.

C. Seeding shall be completed within 3 days of completion of grading and preparatory work. If seeding cannot be completed within this time frame, Contractor shall be responsible to notify the COR prior to completion of grading work and shall implement alternate methods of soil stabilization at no additional cost to the Government. The COR shall determine an appropriate adjusted time frame to meet project requirements.

D. The planting season for seeding extends from May 1 to July 1 and from October 1 to ground freeze. If seeding is not completed during these time frames for any reason, the Contractor shall provide soil stabilization in project areas using an approved method at no additional cost to the Government.

3.05 MULCHING

A. Mulch seeded areas within one day of placing seed.

B. Place the mulch to a loose depth of ½ to 1 ½ inches.

C. Immediately after spreading the mulch, crimp the mulch into the soil to 1 to 2 inches deep.

D. Apply water with a fine spray immediately after each area has been mulched. Saturate soil to 4 inches.

3.06 HYDRO SEEDING

A. At the Contractor's option, seed and mulch may be applied by the hydro seed method.

1. Mix components in water using equipment specifically designed for hydro seed application.

2. Apply hydro seed mixture uniformly with equipment designed for hydro seed and provide seeding at a minimum rate of 8 pounds per acre as specified herein.

3.07 PROTECTION AND MAINTENANCE

A. All plant species shall be maintained until satisfactory growth is achieved using industry accepted methods and practices to meet requirements as specified herein.

B. Maintain seeded areas and plant growth for 30 days or until satisfactory growth has been achieved, whichever is longer. Maintenance shall include replacement of eroded areas, watering as needed to prevent burn off, and other work as necessary to establish healthy growth. Satisfactory growth for seeded areas shall be considered healthy grass growth under the following conditions:

1. No bare spots larger than 6 square inches and total bare spots not exceeding 2 percent of total seeded area.

C. Areas stabilized after July 1 shall be seeded by October 31 if the ground is not frozen. Areas stabilized after ground freeze shall be seeded the following spring by June 1.

3.08 APPENDICES

A. The following appendices form part of this specification.

1. Appendix A: Fort McCoy Prohibited Plant Species List.

2. Appendix B: Fort McCoy Approved Plant Species List.

END OF SECTION

APPENDIX A: FORT MCCOY PROHIBITED PLANT SPECIES LIST (List is based on the Wisconsin Invasive Species Rule: Chapter NR 40 and is regularly updated. Check the WDNR website for any changes. Go to: **dnr.wi.gov** type keyword: **invasives**)	
COMMON NAME	**SCIENTIFIC NAME**
Amur cork tree	*Phellodendron amurense*
Amur honeysuckle	*Lonicera maackii*
Amur maple	*Acer tataricum subsp. ginnala*
Aquatic forget-me-not	*Myosotis scorpioides*
Asian loeseneri bittersweet	*Celastrus loeseneri*
Autumn olive	*Elaeagnus umbellata*
Balfour's touch-me-not	*Impatiens balfourii*
Bell's or showy bush honeysuckle	*Lonicera x bella*
Bishop's goutweed	*Aegopodium podagraria*
Black (European) alder	*Alnus glutinosa*
Black knapweed	*Centaurea nigra*
Black locust	*Robinia pseudoacacia*
Black or Louise's swallow-wort	*Vincetoxicum nigrum* or *Cynanchum louiseae*
Bohemian knotweed	*Fallopia x bohemicum* or *F. x bohemica* or *Polygonum × bohemicum* or *Reynoutria x bohemica*
Brown knapweed	*Centaurea jacea*
Bull thistle	*Cirsium vulgare*
Burning bush	*Euonymus alatus*
Butterfly dock	*Petasites hybridus*
Canada thistle	*Cirsium arvense*
Celandine	*Chelidonium majus*
Chinese elm	*Ulmus parvifolia*
Chinese wisteria	*Wisteria sinensis*
Chinese yam	*Dioscorea batatas* or *Dioscorea polystacha*
Colt's foot	*Tussilago farfara*
Common barberry	*Berberis vulgaris*
Common buckthorn	*Rhamnus cathartica*
Common teasel or Fuller's teasel	*Dipsacus sylvestris* or *Dipsacus fullonum*
Cow vetch	*Vicia cracca*
Creeping bellflower	*Campanula rapunculoides*
Crown vetch	*Coronilla varia*
Cut−leaved teasel	*Dipsacus laciniatus*
Cypress spurge	*Euphorbia cyparissias*
Dalmatian toadflax	*Linaria dalmatica*
Dame's rocket	*Hesperis matronalis*
Diffuse knapweed	*Centaurea diffusa*
Continued on next page	

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COMMON NAME	**SCIENTIFIC NAME**
European marsh thistle	*Cirsium palustre*
False spirea	*Sorbaria sorbifolia*
Field scabiosa	*Knautia arvensis*
Fiveleaf akebia or Chocolate vine	*Akebia quinata*
Flowering rush	*Butomus umbellatus*
Garden heliotrope or Valerian	*Valeriana officinalis*
Garden yellow loosestrife	*Lysimachia vulgaris*
Garlic mustard	*Alliaria petiolata*
Giant hogweed	*Heracleum mantegazzianum*
Giant reed	*Arundo donax*
Giant knotweed	*Fallopia sachalinensis* or *Polygonum sachalinense* or *Reynoutria sachalinense*
Glossy buckthorn	*Rhamnus frangula* or *Frangula alnus*
Graceful cattail	*Typha laxmannii*
Grecian foxglove	*Digitalis lanata*
Hairy willow herb	*Epilobium hirsutum*
Helleborine orchid	*Epipactis helleborine*
Hemp nettle, brittlestem hemp nettle	*Galeopsis tetrahit*
Hill mustard	*Bunias orientalis*
Himalayan blackberry	*Rubus armeniacus*
Hound's tongue	*Cynoglossum officinale*
Hybrid cattail	*Typha x glauca*
Indian yam	*Dioscorea oppositifolia*
Japanese barberry	*Berberis thunbergii*
Japanese chaff flower	*Achyranthes japonica*
Japanese hedgeparsley or erect hedgeparsley	*Torilis japonica*
Japanese honeysuckle	*Lonicera japonica*
Japanese hops	*Humulus japonicus*
Japanese knotweed	*Fallopia japonica* or *Polygonum cuspidatum* or *Reynourtria japonica*
Japanese stilt grass	*Microstegium vimineum*
Japanese wisteria	*Wisteria floribunda*
Jimsonweed	*Datura stramonium*
Johnsongrass	*Sorghum halepense*
Kudzu	*Pueraria montana* or *P. lobata*
Leafy spurge	*Euphorbia esula*
Lesser celandine	*Ranunculus ficaria*
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APPENDIX A: FORT MCCOY PROHIBITED PLANT SPECIES LIST (List is based on the Wisconsin Invasive Species Rule: Chapter NR 40 and is regularly updated. Check the WDNR website for any changes. Go to: **dnr.wi.gov** type keyword: **invasives**)	
COMMON NAME	**SCIENTIFIC NAME**
Lyme grass or sand ryegrass	*Leymus arenarius* or *Elymus arenarius*
Medusahead	*Taeniatherum caput-medusae*
Mile−a−minute vine	*Polygonum perfoliatum* or *Persicaria perfoliata*
Moneywort	*Lysimachia nummularia* or *L. nummelaria*
Morrow's honeysuckle	*Lonicera morrowii*
Multiflora rose	*Rosa multiflora*
Musk thistle or Nodding thistle	*Carduus nutans*
Narrow-leaf bittercress	*Cardamine impatiens*
Narrow-leaf cattail	*Typha angustifolia*
Oriental bittersweet	*Celastrus orbiculatus*
Pale or European swallow-wort	*Vincetoxicum rossicum* or *Cynanchum rossicum*
Perennial or broadleaved pepperweed	*Lepidium latifolium*
Phragmites or Common reed non-native ecotype	*Phragmites australis* non-native ecotype
Plumeless thistle	*Carduus acanthoides*
Poison hemlock	*Conium maculatum*
Policeman's helmet	*Impatiens glandulifera*
Porcelain berry or Amur peppervine	*Ampelopsis brevipedunculata*
Princess tree	*Paulownia tomentosa*
Purple loosestrife	*Lythrum salicaria*
Queen of the meadow	*Filipendula ulmaria*
Ribbon grass or gardener's garters including ornamental variegated varieties and cultivars	*Phalaris arundinacea* var. *picta*
Rose acacia or Bristly locust	*Robinia hispida*
Russian knapweed	*Centaurea repens*
Russian olive	*Elaeagnus angustifolia*
Sawtooth oak	*Quercus acutissima*
Scarlet pimpernel or Burnet saxifrage	*Pimpinella saxifraga*
Scotch broom	*Cytisus scoparius*
Seaside goldenrod	*Solidago sempervirens*
Sericea or Chinese lespedeza	*Lespedeza cuneata* or *Lespedeza sericea*
Siberian elm	*Ulmus pumila*
Siberian peashrub	*Caragana arborescens*
Soapwort or Bouncing bet	*Saponaria officinalis*
Southern cattail	*Typha domingensis*
Spotted knapweed	*Centaurea biebersteinii* or *Centaurea maculosa* or *Centaurea stoebe*
Spreading hedgeparsley	*Torilis arvensis*
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COMMON NAME	**SCIENTIFIC NAME**
Tall or reed mannagrass	*Glyceria maxima*
Tansy	*Tanacetum vulgare*
Tartarian honeysuckle	*Lonicera tatarica*
Tree of heaven	*Ailanthus altissima*
Tyrol knapweed	*Centaurea nigrescens*
Wanded loosestrife	*Lythrum virgatum*
Wavy leaf basket grass	*Oplismenus hirtellus* ssp. *undulatifolius*
White bedstraw	*Galium mollugo*
White mulberry	*Morus alba*
White poplar	*Populus alba*
Wild chervil	*Anthriscus sylvestris*
Wild parsnip	*Pastinaca sativa*
Wineberry or wine raspberry	*Rubus phoenicolasius*
Woodland forget-me-not	*Myotsotis sylvatica* or *M. sylvaticum*
Wormwood	*Artemisia absinthium*
Yellow iris	*Iris pseudacorus*
Yellow star thistle	*Centaurea solstitialis*
OTHER FORT MCCOY PROHIBITED PLANT SPECIES	
Common Name	**Scientific Name**
Baby's breath	*Gypsophila paniculata*
Big-leaf lupine	*Lupinus polyphyllus*
Bird's-foot trefoil	*Lotus corniculata*
Bittercress or Hairy bittercress	*Cardamine hirsuta*
Blackberry lilly	*Belamcanda chinensis*
Butter and eggs	*Linaria vulgaris*
Callery pear	*Pyrus calleryana*
Cheat grass, Downy brome	*Bromus tectorum*
Chinese silvergrass or Eulalia	*Miscanthus sinensis*
Climbing euonymus or Winter creeper	*Euonymus fortunei*
Common St. John's-wort	*Hypericum perforatum*
Creeping Charlie	*Glechoma hederacea*
English ivy	*Hedera helix*
European cranberry bush, European highbush	*Viburnum opulus*
Field bindweed	*Convolvulus arvensis*
Hoary alyssum	*Berteroa incana*
Lily-of-the-valley	*Convallaria majalis*
Continued on next page	

OTHER FORT MCCOY PROHIBITED PLANT SPECIES	
Common Name	**Scientific Name**
Norway maple	*Acer platanoides*
Orange daylily	*Hemerocallis fulva*
Orange hawkweed	*Hieracium aurantiacum*
Periwinkle	*Vinca minor*
Quackgrass	*Elytrigia repens*
Queen Anne's-lace	*Daucus carota*
Reed canary grass	*Phalaris arundinacea*
Scotch pine	*Pinus sylvestris*
Smooth brome	*Bromus inermis*
Star-of-Bethlehem	*Ornithogalum umbellatum*
Watercress	*Nasturtium officinale*
White sweet-clover	*Melilotus alba*
Wild privet or European privet	*Ligustrum vulgare*
Yellow bedstraw	*Galium verum*
Yellow sweet-clover	*Melilotus officinalis*

APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resources Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
GRASSES:	
Annual rye	*Lolium italicum*
Big bluestem	*Andropogon gerardii*
Canada wild rye	*Elymus canadensis*
Indiangrass	*Sorghastrum nutans*
June grass	*Koeleria cristata*
Little bluestem	*Schizachyrium scoparium*
Oats	*Avena sativa*
Prairie dropseed	*Sporobolus heterolepsis*
Sideoats grama	*Bouteloua curtipendula*
Slender wheatgrass	*Agropyron trachycaulum*
Switchgrass	*Panicum virgatum*
WILDFLOWERS:	
Aromatic aster	*Aster oblongifolia*
Black-eyed Susan	*Rudbeckia hirta*
Blue vervain	*Verbena hastata*
Boneset	*Eupatorium perfoliatum*
Bottle brush grass	*Hystrix patula*
Butterfly milkweed	*Asclepias tuberosa*
Button blazing star	*Liatris aspera*
Canada milk vetch	*Astragalus canadensis*
Christmas fern	*Polystichum acrostichoides*
Cinnamon fern	*Osmunda cinnamomea*
Compass plant	*Silphium laciniatum*
Culver's root	*Veronicastrum virginicum*
Cup plant	*Silphium perfoliatum*
Elm-leaved goldenrod	*Solidago ulmnifolia*
False indigo	*Amorpha fruticosa*
Flat-topped aster	*Aster umbellatus*
Flowering spurge	*Euphorbia corollata*
Giant Solomon seal	*Polygonatum biflorum*
Glade mallow	*Napea dioica*
Golden Alexander	*Zizia aurea*
Golden groundsel	*Packera aurea*
Great blue lobelia	*Lobelia siphilitica*
Hairy wild petunia	*Ruellia humilis*
Heath aster	*Aster ericoides*
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APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
Hoary vervain	*Verbena stricta*
Ironweed	*Vernonia fasciculata*
Jack-in-the-pulpit	*Arisaema triphyllum*
Joe-Pye weed	*Eupatorium maculatum*
Lady fern	*Athyriium filix-femina*
Lead plant	*Amorpha canescens*
Leatherwood fern	*Dryoptris marginalis*
Native bluegrass	*Poa palustris*
New England aster	*Aster novae-angliae*
Nodding onion	*Allium cernuum*
Northern sea oats	*Chasmanthium latifolium*
Obedient plant	*Physostegia virginiana*
Ohio spiderwort	*Tradescantia ohiensis*
Ostrich fern	*Matteuccia struthiopteris*
Ox-eye sunflower	*Heliopsis helianthoides*
Pale indian plantain	*Cacalia atriplicifolia*
Pennsylvania sedge	*Carex pensylvanica*
Prairie blazing star	*Liatris pycnostachya*
Prairie cinquefoil	*Potentilla arguta*
Prairie dock	*Silphium terebinthinaceum*
Prairie phlox	*Phlox pilosa*
Prairie smoke	*Geum triflorum*
Purple meadow rue	*Thalictrum dasycarpum*
Purple prairie clover	*Dalea purpurea*
Red banebarry	*Actea rubra*
Red milkweed	*Asclepias incarnata*
Round-headed bush clover	*Lespedeza capitata*
Showy goldenrod	*Solidago speciosa*
Showy tick trefoil	*Desmodium canadense*
Sky blue aster	*Aster azureus*
Smooth blue aster	*Aster laevis*
Smooth Solomon seal	*Polygonatum biflorum*
Spike blazing star	*Liatris spicata*
Spikenard	*Aralia racemosa*
Spotted bee balm	*Monarda punctata*
Stiff coreopsis	*Coreopsis palmata*
Stiff goldenrod	*Solidago rigida*
Western sunflower	*Helianthus occidentalis*
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APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
White baneberry	*Actea pachypoda*
White prairie clover	*Dalea candidum*
Whorled milkweed	*Asclepias verticillata*
Wild bergamot	*Monarda fistulosa*
Wild columbine	*Aquilegia canadensis*
Wild geranium	*Geranium maculatum*
Wild ginger	*Asarum canadense*
Wild iris	*Iris shrevei*
Wild lupine	*Lupinus perennis*
TREES:	
Alleghany serviceberry	*Amelanchier laevis*
Apple serviceberry	*Amelanchier x grandiflora*
Basswood or American linden	*Tilia americana*
Bitternut hickory	*Carya cordiformis*
Black cherry	*Prunus serotina*
Black maple	*Acer saccharum* ssp. *nigrum*
Black oak	*Quercus velutina*
Bog birch	*Betula pumila* var. *grandulifera*
Bur oak	*Quercus macrocarpa*
Chinkapin oak	*Quercus muhlenbergii*
Chokecherry	*Prunus virginiana*
Common hackberry	*Celtis occidentalis*
Downy serviceberry	*Amelanchier arborea*
Freeman maple	*Acer x freemanii*
Ginkgo	*Ginkgo biloba*
Ironwood	*Ostrya virginiana*
Littleleaf linden	*Tilia cordata*
Miyabei maple	*Acer miyabei*
Moosewood	*Acer pennsylvanicum*
Mountain maple or Moose maple	*Acer spicatum*
Musclewood	*Carpinus caroliniana*
Pagoda dogwood	*Cornus alternifolia*
Paper birch	*Betula papyrifera*
Pin cherry	*Prunus pensylvanica*
Quaking aspen	*Populus tremuloides*
Red maple	*Acer rubrum*
Red oak	*Quercus rubra*
River birch	*Betula nigra*
Continued on next page	

APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
Roundleaf serviceberry	*Amelanchier sanguinea*
Shagbark hickory	*Carya ovata*
Showy mountain ash	*Sorbus decora*
Silver maple	*Acer saccharinum*
Speckled alder	*Alnus rugosa*
Sugar maple	*Acer saccharum*
Swamp white oak	*Quercus bicolor*
Thornless common honeylocust	*Gleditsia tri.* var. *inermis*
White oak	*Quercus alba*
Yellow birch	*Betula alleghaniensis*
CONIFERS:	
American arborvitae or White cedar	*Thuja occidentalis*
Canadian hemlock	*Tsuga canadensis*
Common juniper	*Juniperus com.* var. *depressa*
Creeping juniper	*Juniperus horizontalis*
Eastern red cedar	*Juniperus virginiana*
Eastern white pine	*Pinus strobus*
Tamarack or American larch	*Larix laricina*
White spruce	*Picea glauca*
SHRUBS:	
Alder buckthorn	*Rhamus alnifolia*
American bladdernut	*Staphylea trifolia*
American elderberry	*Sambucus canadensis*
American filbert	*Corylus americana*
American hazelnut	*Corylus americana*
American plum	*Prunus americana*
Beaked filbert	*Corylus ovatus*
Beautybush	*Kolkwitzia amabilis*
Black chokeberry	*Aronia melanocarpa*
Blackhaw viburnum	*Viburnum prunifolium*
Bog birch	*Betula pumila* var. *glandulifera*
Buffaloberry	*Shepherdia canadensis*
Buttonbush	*Cephalanthus occidentalis*
ChokecherryCommon Ninebark	*Physocarpus opulifolius*
Common Snowberry	*Symporicarpos albus*
Common Winterberry	*Ilex verticillata*
Common Witch-hazel	*Hamemelis virginiana*
Continued on next page	
APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST	

(Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
Cranberry-bush viburnum or American cranberry-bush	*Viburnum trilobum* or *V. opulus* var. *americanum*
Dwarf alder	*Rhamnus alnifolia*
Dwarf Bush honeysuckle	*Diervilla lonicera*
Eastern wahoo	*Euonymous atropurpureus*
Fragrant sumac	*Rhus aromatica*
Gray dogwood	*Cornus racemosa*
Hardhack spirea	*Spiraea tomentosa*
High-bush cranberry	*Viburnum opulus* ssp. *trilobum*
Shrubby St. John's wort	*Hypericum prolificum*
Inland tea	*Ceanothus ovatus*
Meadowsweet	*Spiraea alba*
Mountain fly honeysuckle	*Lonicera villosa*
Nannyberry viburnum	*Virburnum lentago*
New Jersey tea	*Ceanothus americanus*
Rabbit-berry	*Shepherdia canadensis*
Rafinesque viburnum	*Viburnum rafinesquianum*
Red honeysuckle	*Lonicera dioica*
Round-leaved dogwood	*Cornus rugosa*
Running serviceberry	*Amelanchier stolonifera*
Scarlet elderberry	*Sambucus pubens*
Seven-son flower	*Heptacodium miconioides*
Serviceberry	*Amelanchier arborea* or *A. laevis* or *A. spicata*
Silky dogwood	*Cornus amomum*
Silky willow	*Salix sericea*
Silverberry	*Elaeagnus commutata*
Smooth sumac	*Rhus glabra*
Speckled alder	*Alnus incana*
Spreading cotoneaster	*Cotoneaster divaricatus*
Staghorn sumac	*Rhus typhina*
Swamp fly honeysuckle	*Lonicera oblongifolia*
Sweet fern	*Comptonia peregrina*
Thimbleberry	*Rubus parviflorus*
Witherod viburnum	*Viburnum cassinoides*

SECTION 32 92 20

SEEDING, MAINTAINED AREAS

PART 1 GENERAL

1.01 SUMMARY

A. Provide seeding, plant species, fertilizer, and mulch in areas disturbed by construction to meet requirements and as specified herein.

B. This section applies to seeding and related work in maintained areas located inside the Cantonment. Maintained areas are defined as areas that are mowed or groomed on a regular schedule (weekly or biweekly).

C. For areas with slopes greater than 6%, provide stabilization using approved grass seed mixtures and plant species as specified herein.

1.02 RELATED SECTIONS

A. Section 32 91 19 Landscaping.

B. Section 32 92 18 Seeding, Not Maintained Areas.

1.03 DEFINITIONS

A. Fort McCoy Prohibited Plant Species: All prohibited and invasive plant species including grasses, weeds, and seeds. Refer to Appendix A: Fort McCoy Prohibited Plant Species List for a complete list of invasive plant species that are prohibited and not authorized for use, delivery, or transport on Fort McCoy.

B. Fort McCoy Approved Plant Species: All approved plant species without contaminants including grasses, wildflowers, forbs, trees, conifers, and shrubs. Refer to Appendix B: Fort McCoy Approved Plant Species List for a list of approved plant species that are authorized for use, delivery, and transport on Fort McCoy.

C. Contaminants: Prohibited plant species, invasive plant species, propagules or invasive propagules, noxious weeds, hazardous or toxic substances, chemicals or foreign matter detrimental to plant life, or any type of material that may hinder plant growth and plant maintenance.

D. Propagules: Specimens or parts of a species that are capable of producing additional specimens including seeds, roots, stems, rhizomes, tubers and spores.

E. Forb: An herbaceous flowering plant that is not grass, sedge, or rush.

F. Herbaceous Plant: Plants that do not have an above ground woody stem (may be annuals, biennials, or perennials).

1.04 SUBMITTALS

A. Submit product data documentation for the following:

1. Seed or Seed Mixture.

2. Plant species.

3. Fertilizer.

4. Mulch.

B. Product data documentation shall include all of the following:

1. Producer or manufacturer name, harvesting and production location, chemical analysis data (percentages by weight for mixtures), species type and details, certification, and indication of conformance to meet requirements as specified herein, and federal and state laws, regulations, standards, and codes.

2. Seed certification tags for each type of seed including producer name, source of production, harvesting location; certifying agency name, lot number, variety name and kind, and class of certified seed.

3. Seed labels for each type of seed including certification tag data requirements, purity, composition (percentages by weight), percent of purity and germination, year of production, net weight, and date of packaging.

1.05 PROTECTION

A. All seed, seed mixtures, plant species, fertilizer, and mulch delivered to Fort McCoy shall be free of prohibited and invasive plant species including contaminants as defined herein. Refer to Appendix A: Fort McCoy Prohibited Plant Species List.

B. Deliver approved seed, seed mixtures, fertilizer, and mulch to Fort McCoy in original, unopened and undamaged containers bearing certification tags and labels as specified herein. Deliver approved plant species to Fort McCoy bearing certification tags and labels as specified herein.

C. Upon delivery, inspect containers, bags, products, and documentation to verify that all products delivered are approved for Fort McCoy and requirements are met as specified herein. Refer to Appendix B: Fort McCoy Approved Plant Species List.

D. Verify that all containers and bags (seed, fertilizer, and mulch) are unopened and sealed without any type of damage, tags and labels match approved product data documentation, and grass seed is properly certified and tagged. Grass seed, fertilizer, and mulch from opened or damaged containers is prohibited.

E. Upon delivery and inspection, immediately secure, separate, and remove all unapproved products, seed mixtures, and opened or damaged containers from Fort McCoy.

F. After inspection and verification, provide storage of seed, seed mixtures, plant species, fertilizer, and mulch in a cool, dry location away from contaminants for protection. Container openings shall remain closed except when seed is being placed.

PART 2 PRODUCTS

2.01 GRASS SEED

A. Seed and seed mixtures shall meet the requirements of the Fort McCoy Invasive Program and as specified herein. All seed and seed mixtures shall be pure live seed, sourced, produced, and harvested within a 250 mile radius of Fort McCoy.

B. All grass seed shall be certified by the Wisconsin Crop Improvement Association, or equivalent state certification within one year prior to seeding. Seed and seed mixtures shall be in conformance with all federal and state laws, codes, regulations, and local ordinances.

C. Verify grass seed and seed mixtures meet all requirements as specified herein prior to transport and delivery to Fort McCoy. Obtain written approval from the Fort McCoy Invasive Program for any substitutions or modifications to approved seed and seed mixtures prior to delivery.

D. Deliver approved grass seed in containers with certification tags and labels for inspection and verification. Refer to Paragraph 1.05 Protection for inspection and verification requirements.

E. Approved lawn seed mixtures for maintained areas on Fort McCoy (percentages by weight):

1. No Mow Lawn Seed Mixture (drought tolerant, sunny and shady areas)

a.	Creeping Red Fescue	30 %
b.	Chewings Fescue	30 %
c.	Hard Fescue	20 %
d.	Sheep Fescue	10 %
e.	Annual Ryegrass	10 %

2. Sunny Lawn Seed Mixture

a.	Alene Kentucky Bluegrass	20 %
b.	Appalachian Kentucky Bluegrass	20 %
c.	Blue Bonnet Kentucky Bluegrass	20 %
d.	Polar Green Perennial Ryegrass	20 %
e.	Boreal Creeping Red Fescue	20 %

3. Shady Lawn Seed Mixture

a.	Alene Kentucky Bluegrass	10 %
b.	Blue Bonnet Kentucky Bluegrass	10 %
c.	Southport Chewings Fescue	30 %
d.	Polar Green Perennial Ryegrass	25 %
e.	Boreal Creeping Red Fescue	25 %

4. Economy Lawn Seed Mixture

a.	Park Kentucky Bluegrass	33.3 %
b.	Arctic Green Perennial Ryegrass	33.3 %
c.	Boreal Creeping Fescue	33.3 %

2.02 FERTILIZER

A. Fertilizer shall meet the requirements of the Fort McCoy Invasive Program, shall be free of contaminants, and shall consist of the following composition:

1. Nitrogen, not less than 11%.

2. Phosphoric Acid, not less than 23%.

3. Potash, not less than 10%.

B. Deliver fertilizer in properly labeled waterproof bags. Labels shall clearly indicate conformance to requirements as specified herein, and federal and state laws, regulations, standards, and codes.

2.03 MULCH

A. Mulch shall be certified by the Wisconsin Crop Improvement Association, or equivalent state certification to meet requirements of the North American Weed Free Forage Certification Program.

B. Mulch shall consist of dry oat or wheat straw, and shall be free of prohibited and invasive plant species including contaminants, grasses, weeds, and seeds. Hay and chopped corn stalks are not acceptable.

C. Deliver mulch in bales with certification tags attached. Tags shall clearly indicate conformance with requirements as specified herein, and federal and state laws, regulations, standards, and codes.

2.04 OTHER PLANT SPECIES

A. Seed and plantings for all other plant species (wildflowers, forbs, trees, conifers, and shrubs) shall meet the requirements of the Fort McCoy Invasive Program and as specified herein. Plant species shall be sourced, produced, and harvested within a 250 mile radius of Fort McCoy.

PART 3 EXECUTION

3.01 GENERAL

A. All seed, plant species, fertilizer, mulch and work shall meet requirements as specified herein.

3.02 TOPSOIL PLACEMENT

A. Place topsoil in accordance with Section 32 91 19 Landscaping.

3.03 SOIL PREPARATION

A. Loosen topsoil by raking to a depth of 3 inches. Rake out surface irregularities and remove rocks and hard soil clods.

B. Immediately prior to seeding, apply fertilizer in accordance with the manufacturer's published data and recommendations at a rate of 5 pounds per 1000 square feet.

3.04 SEEDING

A. All seeding rates are based upon pure live seed (PLS). Apply seed evenly in two intersecting directions at the following rate:

1. Mechanical or Hand Seeding – minimum mechanical seeding rate is 8 pounds per acre. For seeding areas greater or less than an acre, calculate the equivalent seeding rate to meet the minimum rate requirement.

B. Seeding shall be completed within 3 days of completion of grading and preparatory work. If seeding cannot be completed within this time frame, Contractor shall be responsible to notify the COR prior to completion of grading work and shall implement alternate methods of soil protection and stabilization at no additional cost to the Government. The COR shall determine an adjusted time frame to meet project schedule requirements.

C. The planting season for seeding extends from May 1 to September 15. If seeding is not completed by September 15, the Contractor shall sod and stake the project site at no additional cost to the Government. Sod shall be free of prohibited and invasive plant species including contaminants, grasses, weeds, and seeds.

3.05 MULCHING

A. Mulch seeded areas within one day of placing seed.

B. Place the mulch to a loose depth of ½ to 1 ½ inches.

C. Immediately after spreading the mulch, crimp the mulch into the soil to 1 to 2 inches deep.

D. Apply water with a fine spray immediately after each area has been mulched. Saturate soil to 4 inches.

3.06 HYDROSEEDING

A. At the Contractor's option, seed, fertilizer, and mulch may be applied by the hydro seed method.

1. Mix components in water using equipment specifically designed for hydro seed application.

2. Apply hydro seed mixture uniformly with equipment designed for hydro seed and provide seeding at a minimum rate of 8 pounds per acre as specified herein.

3.07 PROTECTION AND MAINTENANCE

A. All plant species shall be protected and maintained until satisfactory growth is achieved using industry accepted methods and practices to meet requirements as specified herein.

B. Cover seeded slopes where grade is greater than 1 inch per foot with erosion control blankets. Install erosion control blankets in accordance with the manufacturer's published data and recommendations.

C. Maintain seeded areas and plant growth for 30 days or until satisfactory growth has been achieved, whichever is longer. Maintenance shall include replacement of eroded areas, watering as needed to prevent burn off, and other work as necessary to establish healthy growth. Satisfactory growth for seeded areas shall be considered healthy grass growth under these following conditions:

1. No bare spots larger than 6 square inches and total bare spots not exceeding 2 percent of total seeded area.

2. Provide three cuttings to maintain a uniform height of 3" after an average height of 6" is achieved during the satisfactory growth period above.

D. Areas sodded after September 15 which fail to become established in the fall shall be resodded or seeded and fertilized the following spring before June 1.

3.08 APPENDICES

A. The following appendices form part of this specification.

1. Appendix A: Fort McCoy Prohibited Plant Species List.

2. Appendix B: Fort McCoy Approved Plant Species List.

END OF SECTION

APPENDIX A: FORT MCCOY PROHIBITED PLANT SPECIES LIST (List is based on the Wisconsin Invasive Species Rule: Chapter NR 40 and is regularly updated. Check the WDNR website for any changes. Go to: **dnr.wi.gov** type keyword: **invasives**)	
COMMON NAME	**SCIENTIFIC NAME**
Amur cork tree	*Phellodendron amurense*
Amur honeysuckle	*Lonicera maackii*
Amur maple	*Acer tataricum subsp. ginnala*
Aquatic forget-me-not	*Myosotis scorpioides*
Asian loeseneri bittersweet	*Celastrus loeseneri*
Autumn olive	*Elaeagnus umbellata*
Balfour's touch-me-not	*Impatiens balfourii*
Bell's or showy bush honeysuckle	*Lonicera x bella*
Bishop's goutweed	*Aegopodium podagraria*
Black (European) alder	*Alnus glutinosa*
Black knapweed	*Centaurea nigra*
Black locust	*Robinia pseudoacacia*
Black or Louise's swallow-wort	*Vincetoxicum nigrum* or *Cynanchum louiseae*
Bohemian knotweed	*Fallopia x bohemicum* or *F. x bohemica* or *Polygonum × bohemicum* or *Reynoutria x bohemica*
Brown knapweed	*Centaurea jacea*
Bull thistle	*Cirsium vulgare*
Burning bush	*Euonymus alatus*
Butterfly dock	*Petasites hybridus*
Canada thistle	*Cirsium arvense*
Celandine	*Chelidonium majus*
Chinese elm	*Ulmus parvifolia*
Chinese wisteria	*Wisteria sinensis*
Chinese yam	*Dioscorea batatas* or *Dioscorea polystacha*
Colt's foot	*Tussilago farfara*
Common barberry	*Berberis vulgaris*
Common buckthorn	*Rhamnus cathartica*
Common teasel or Fuller's teasel	*Dipsacus sylvestris* or *Dipsacus fullonum*
Cow vetch	*Vicia cracca*
Creeping bellflower	*Campanula rapunculoides*
Crown vetch	*Coronilla varia*
Cut−leaved teasel	*Dipsacus laciniatus*
Cypress spurge	*Euphorbia cyparissias*
Dalmatian toadflax	*Linaria dalmatica*
Dame's rocket	*Hesperis matronalis*
Diffuse knapweed	*Centaurea diffusa*
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APPENDIX A: FORT MCCOY PROHIBITED PLANT SPECIES LIST (List is based on the Wisconsin Invasive Species Rule: Chapter NR 40 and is regularly updated. Check the WDNR website for any changes. Go to: **dnr.wi.gov** type keyword: **invasives**)	
COMMON NAME	**SCIENTIFIC NAME**
European marsh thistle	*Cirsium palustre*
False spirea	*Sorbaria sorbifolia*
Field scabiosa	*Knautia arvensis*
Fiveleaf akebia or Chocolate vine	*Akebia quinata*
Flowering rush	*Butomus umbellatus*
Garden heliotrope or Valerian	*Valeriana officinalis*
Garden yellow loosestrife	*Lysimachia vulgaris*
Garlic mustard	*Alliaria petiolata*
Giant hogweed	*Heracleum mantegazzianum*
Giant reed	*Arundo donax*
Giant knotweed	*Fallopia sachalinensis* or *Polygonum sachalinense* or *Reynoutria sachalinense*
Glossy buckthorn	*Rhamnus frangula* or *Frangula alnus*
Graceful cattail	*Typha laxmannii*
Grecian foxglove	*Digitalis lanata*
Hairy willow herb	*Epilobium hirsutum*
Helleborine orchid	*Epipactis helleborine*
Hemp nettle, brittlestem hemp nettle	*Galeopsis tetrahit*
Hill mustard	*Bunias orientalis*
Himalayan blackberry	*Rubus armeniacus*
Hound's tongue	*Cynoglossum officinale*
Hybrid cattail	*Typha x glauca*
Indian yam	*Dioscorea oppositifolia*
Japanese barberry	*Berberis thunbergii*
Japanese chaff flower	*Achyranthes japonica*
Japanese hedgeparsley or erect hedgeparsley	*Torilis japonica*
Japanese honeysuckle	*Lonicera japonica*
Japanese hops	*Humulus japonicus*
Japanese knotweed	*Fallopia japonica* or *Polygonum cuspidatum* or *Reynourtria japonica*
Japanese stilt grass	*Microstegium vimineum*
Japanese wisteria	*Wisteria floribunda*
Jimsonweed	*Datura stramonium*
Johnsongrass	*Sorghum halepense*
Kudzu	*Pueraria montana* or *P. lobata*
Leafy spurge	*Euphorbia esula*
Lesser celandine	*Ranunculus ficaria*
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COMMON NAME	**SCIENTIFIC NAME**
Lyme grass or sand ryegrass	*Leymus arenarius* or *Elymus arenarius*
Medusahead	*Taeniatherum caput-medusae*
Mile−a−minute vine	*Polygonum perfoliatum* or *Persicaria perfoliata*
Moneywort	*Lysimachia nummularia* or *L. nummelaria*
Morrow's honeysuckle	*Lonicera morrowii*
Multiflora rose	*Rosa multiflora*
Musk thistle or Nodding thistle	*Carduus nutans*
Narrow-leaf bittercress	*Cardamine impatiens*
Narrow-leaf cattail	*Typha angustifolia*
Oriental bittersweet	*Celastrus orbiculatus*
Pale or European swallow-wort	*Vincetoxicum rossicum* or *Cynanchum rossicum*
Perennial or broadleaved pepperweed	*Lepidium latifolium*
Phragmites or Common reed non-native ecotype	*Phragmites australis* non-native ecotype
Plumeless thistle	*Carduus acanthoides*
Poison hemlock	*Conium maculatum*
Policeman's helmet	*Impatiens glandulifera*
Porcelain berry or Amur peppervine	*Ampelopsis brevipedunculata*
Princess tree	*Paulownia tomentosa*
Purple loosestrife	*Lythrum salicaria*
Queen of the meadow	*Filipendula ulmaria*
Ribbon grass or gardener's garters including ornamental variegated varieties and cultivars	*Phalaris arundinacea* var. *picta*
Rose acacia or Bristly locust	*Robinia hispida*
Russian knapweed	*Centaurea repens*
Russian olive	*Elaeagnus angustifolia*
Sawtooth oak	*Quercus acutissima*
Scarlet pimpernel or Burnet saxifrage	*Pimpinella saxifraga*
Scotch broom	*Cytisus scoparius*
Seaside goldenrod	*Solidago sempervirens*
Sericea or Chinese lespedeza	*Lespedeza cuneata* or *Lespedeza sericea*
Siberian elm	*Ulmus pumila*
Siberian peashrub	*Caragana arborescens*
Soapwort or Bouncing bet	*Saponaria officinalis*
Southern cattail	*Typha domingensis*
Spotted knapweed	*Centaurea biebersteinii* or *Centaurea maculosa* or *Centaurea stoebe*
Spreading hedgeparsley	*Torilis arvensis*
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APPENDIX A: FORT MCCOY PROHIBITED PLANT SPECIES LIST (List is based on the Wisconsin Invasive Species Rule: Chapter NR 40 and is regularly updated. Check the WDNR website for any changes. Go to: **dnr.wi.gov** type keyword: **invasives**)	
COMMON NAME	**SCIENTIFIC NAME**
Tall or reed mannagrass	*Glyceria maxima*
Tansy	*Tanacetum vulgare*
Tartarian honeysuckle	*Lonicera tatarica*
Tree of heaven	*Ailanthus altissima*
Tyrol knapweed	*Centaurea nigrescens*
Wanded loosestrife	*Lythrum virgatum*
Wavy leaf basket grass	*Oplismenus hirtellus* ssp. *undulatifolius*
White bedstraw	*Galium mollugo*
White mulberry	*Morus alba*
White poplar	*Populus alba*
Wild chervil	*Anthriscus sylvestris*
Wild parsnip	*Pastinaca sativa*
Wineberry or wine raspberry	*Rubus phoenicolasius*
Woodland forget-me-not	*Myotsotis sylvatica* or *M. sylvaticum*
Wormwood	*Artemisia absinthium*
Yellow iris	*Iris pseudacorus*
Yellow star thistle	*Centaurea solstitialis*
OTHER FORT MCCOY PROHIBITED PLANT SPECIES	
Common Name	**Scientific Name**
Baby's breath	*Gypsophila paniculata*
Big-leaf lupine	*Lupinus polyphyllus*
Bird's-foot trefoil	*Lotus corniculata*
Bittercress or Hairy bittercress	*Cardamine hirsuta*
Blackberry lilly	*Belamcanda chinensis*
Butter and eggs	*Linaria vulgaris*
Callery pear	*Pyrus calleryana*
Cheat grass, Downy brome	*Bromus tectorum*
Chinese silvergrass or Eulalia	*Miscanthus sinensis*
Climbing euonymus or Winter creeper	*Euonymus fortunei*
Common St. John's-wort	*Hypericum perforatum*
Creeping Charlie	*Glechoma hederacea*
English ivy	*Hedera helix*
European cranberry bush, European highbush	*Viburnum opulus*
Field bindweed	*Convolvulus arvensis*
Hoary alyssum	*Berteroa incana*
Lily-of-the-valley	*Convallaria majalis*
Continued on next page	

OTHER FORT MCCOY PROHIBITED PLANT SPECIES	
Common Name	**Scientific Name**
Norway maple	*Acer platanoides*
Orange daylily	*Hemerocallis fulva*
Orange hawkweed	*Hieracium aurantiacum*
Periwinkle	*Vinca minor*
Quackgrass	*Elytrigia repens*
Queen Anne's-lace	*Daucus carota*
Reed canary grass	*Phalaris arundinacea*
Scotch pine	*Pinus sylvestris*
Smooth brome	*Bromus inermis*
Star-of-Bethlehem	*Ornithogalum umbellatum*
Watercress	*Nasturtium officinale*
White sweet-clover	*Melilotus alba*
Wild privet or European privet	*Ligustrum vulgare*
Yellow bedstraw	*Galium verum*
Yellow sweet-clover	*Melilotus officinalis*

APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resources Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
GRASSES:	
Annual rye	*Lolium italicum*
Big bluestem	*Andropogon gerardii*
Canada wild rye	*Elymus canadensis*
Indiangrass	*Sorghastrum nutans*
June grass	*Koeleria cristata*
Little bluestem	*Schizachyrium scoparium*
Oats	*Avena sativa*
Prairie dropseed	*Sporobolus heterolepsis*
Sideoats grama	*Bouteloua curtipendula*
Slender wheatgrass	*Agropyron trachycaulum*
Switchgrass	*Panicum virgatum*
WILDFLOWERS:	
Aromatic aster	*Aster oblongifolia*
Black-eyed Susan	*Rudbeckia hirta*
Blue vervain	*Verbena hastata*
Boneset	*Eupatorium perfoliatum*
Bottle brush grass	*Hystrix patula*
Butterfly milkweed	*Asclepias tuberosa*
Button blazing star	*Liatris aspera*
Canada milk vetch	*Astragalus canadensis*
Christmas fern	*Polystichum acrostichoides*
Cinnamon fern	*Osmunda cinnamomea*
Compass plant	*Silphium laciniatum*
Culver's root	*Veronicastrum virginicum*
Cup plant	*Silphium perfoliatum*
Elm-leaved goldenrod	*Solidago ulmnifolia*
False indigo	*Amorpha fruticosa*
Flat-topped aster	*Aster umbellatus*
Flowering spurge	*Euphorbia corollata*
Giant Solomon seal	*Polygonatum biflorum*
Glade mallow	*Napea dioica*
Golden Alexander	*Zizia aurea*
Golden groundsel	*Packera aurea*
Great blue lobelia	*Lobelia siphilitica*
Hairy wild petunia	*Ruellia humilis*
Heath aster	*Aster ericoides*
Continued on next page	

APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
Hoary vervain	*Verbena stricta*
Ironweed	*Vernonia fasciculata*
Jack-in-the-pulpit	*Arisaema triphyllum*
Joe-Pye weed	*Eupatorium maculatum*
Lady fern	*Athyriium filix-femina*
Lead plant	*Amorpha canescens*
Leatherwood fern	*Dryoptris marginalis*
Native bluegrass	*Poa palustris*
New England aster	*Aster novae-angliae*
Nodding onion	*Allium cernuum*
Northern sea oats	*Chasmanthium latifolium*
Obedient plant	*Physostegia virginiana*
Ohio spiderwort	*Tradescantia ohiensis*
Ostrich fern	*Matteuccia struthiopteris*
Ox-eye sunflower	*Heliopsis helianthoides*
Pale indian plantain	*Cacalia atriplicifolia*
Pennsylvania sedge	*Carex pensylvanica*
Prairie blazing star	*Liatris pycnostachya*
Prairie cinquefoil	*Potentilla arguta*
Prairie dock	*Silphium terebinthinaceum*
Prairie phlox	*Phlox pilosa*
Prairie smoke	*Geum triflorum*
Purple meadow rue	*Thalictrum dasycarpum*
Purple prairie clover	*Dalea purpurea*
Red banebarry	*Actea rubra*
Red milkweed	*Asclepias incarnata*
Round-headed bush clover	*Lespedeza capitata*
Showy goldenrod	*Solidago speciosa*
Showy tick trefoil	*Desmodium canadense*
Sky blue aster	*Aster azureus*
Smooth blue aster	*Aster laevis*
Smooth Solomon seal	*Polygonatum biflorum*
Spike blazing star	*Liatris spicata*
Spikenard	*Aralia racemosa*
Spotted bee balm	*Monarda punctata*
Stiff coreopsis	*Coreopsis palmata*
Stiff goldenrod	*Solidago rigida*
Western sunflower	*Helianthus occidentalis*
Continued on next page	

APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
White baneberry	*Actea pachypoda*
White prairie clover	*Dalea candidum*
Whorled milkweed	*Asclepias verticillata*
Wild bergamot	*Monarda fistulosa*
Wild columbine	*Aquilegia canadensis*
Wild geranium	*Geranium maculatum*
Wild ginger	*Asarum canadense*
Wild iris	*Iris shrevei*
Wild lupine	*Lupinus perennis*
TREES:	
Alleghany serviceberry	*Amelanchier laevis*
Apple serviceberry	*Amelanchier x grandiflora*
Basswood or American linden	*Tilia americana*
Bitternut hickory	*Carya cordiformis*
Black cherry	*Prunus serotina*
Black maple	*Acer saccharum* ssp. *nigrum*
Black oak	*Quercus velutina*
Bog birch	*Betula pumila* var. *grandulifera*
Bur oak	*Quercus macrocarpa*
Chinkapin oak	*Quercus muhlenbergii*
Chokecherry	*Prunus virginiana*
Common hackberry	*Celtis occidentalis*
Downy serviceberry	*Amelanchier arborea*
Freeman maple	*Acer x freemanii*
Ginkgo	*Ginkgo biloba*
Ironwood	*Ostrya virginiana*
Littleleaf linden	*Tilia cordata*
Miyabei maple	*Acer miyabei*
Moosewood	*Acer pennsylvanicum*
Mountain maple or Moose maple	*Acer spicatum*
Musclewood	*Carpinus caroliniana*
Pagoda dogwood	*Cornus alternifolia*
Paper birch	*Betula papyrifera*
Pin cherry	*Prunus pensylvanica*
Quaking aspen	*Populus tremuloides*
Red maple	*Acer rubrum*
Red oak	*Quercus rubra*
River birch	*Betula nigra*
Continued on next page	

APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST (Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
Roundleaf serviceberry	*Amelanchier sanguinea*
Shagbark hickory	*Carya ovata*
Showy mountain ash	*Sorbus decora*
Silver maple	*Acer saccharinum*
Speckled alder	*Alnus rugosa*
Sugar maple	*Acer saccharum*
Swamp white oak	*Quercus bicolor*
Thornless common honeylocust	*Gleditsia tri.* var. *inermis*
White oak	*Quercus alba*
Yellow birch	*Betula alleghaniensis*
CONIFERS:	
American arborvitae or White cedar	*Thuja occidentalis*
Canadian hemlock	*Tsuga canadensis*
Common juniper	*Juniperus com.* var. *depressa*
Creeping juniper	*Juniperus horizontalis*
Eastern red cedar	*Juniperus virginiana*
Eastern white pine	*Pinus strobus*
Tamarack or American larch	*Larix laricina*
White spruce	*Picea glauca*
SHRUBS:	
Alder buckthorn	*Rhamus alnifolia*
American bladdernut	*Staphylea trifolia*
American elderberry	*Sambucus canadensis*
American filbert	*Corylus americana*
American hazelnut	*Corylus americana*
American plum	*Prunus americana*
Beaked filbert	*Corylus ovatus*
Beautybush	*Kolkwitzia amabilis*
Black chokeberry	*Aronia melanocarpa*
Blackhaw viburnum	*Viburnum prunifolium*
Bog birch	*Betula pumila* var. *glandulifera*
Buffaloberry	*Shepherdia canadensis*
Buttonbush	*Cephalanthus occidentalis*
ChokecherryCommon Ninebark	*Physocarpus opulifolius*
Common Snowberry	*Symporicarpos albus*
Common Winterberry	*Ilex verticillata*
Common Witch-hazel	*Hamemelis virginiana*
Continued on next page	
APPENDIX B: FORT MCCOY APPROVED PLANT SPECIES LIST	

(Use of other species must be approved by the Natural Resource Branch - Fort McCoy)	
COMMON NAME	**SCIENTIFIC NAME**
Cranberry-bush viburnum or American cranberry-bush	*Viburnum trilobum* or *V. opulus* var. *americanum*
Dwarf alder	*Rhamnus alnifolia*
Dwarf Bush honeysuckle	*Diervilla lonicera*
Eastern wahoo	*Euonymous atropurpureus*
Fragrant sumac	*Rhus aromatica*
Gray dogwood	*Cornus racemosa*
Hardhack spirea	*Spiraea tomentosa*
High-bush cranberry	*Viburnum opulus* ssp. *trilobum*
Shrubby St. John's wort	*Hypericum prolificum*
Inland tea	*Ceanothus ovatus*
Meadowsweet	*Spiraea alba*
Mountain fly honeysuckle	*Lonicera villosa*
Nannyberry viburnum	*Virburnum lentago*
New Jersey tea	*Ceanothus americanus*
Rabbit-berry	*Shepherdia canadensis*
Rafinesque viburnum	*Viburnum rafinesquianum*
Red honeysuckle	*Lonicera dioica*
Round-leaved dogwood	*Cornus rugosa*
Running serviceberry	*Amelanchier stolonifera*
Scarlet elderberry	*Sambucus pubens*
Seven-son flower	*Heptacodium miconioides*
Serviceberry	*Amelanchier arborea* or *A. laevis* or *A. spicata*
Silky dogwood	*Cornus amomum*
Silky willow	*Salix sericea*
Silverberry	*Elaeagnus commutata*
Smooth sumac	*Rhus glabra*
Speckled alder	*Alnus incana*
Spreading cotoneaster	*Cotoneaster divaricatus*
Staghorn sumac	*Rhus typhina*
Swamp fly honeysuckle	*Lonicera oblongifolia*
Sweet fern	*Comptonia peregrina*
Thimbleberry	*Rubus parviflorus*
Witherod viburnum	*Viburnum cassinoides*

SECTION 33 42 13
PIPE CULVERTS

PART 1 GENERAL

1.01 SCOPE

A. Provide pipe culverts including accessories, bedding and cover materials to meet project requirements and as specified herein.

B. Provide verification of pipe culvert locations prior to the start of construction and provide visual representation of locations on drawings.

C. Provide pipe culverts in compliance with the following requirements.

1. Polyethylene (PE) culverts are generally to be used under sidewalks and non-vehicular crossings.
2. Galvanized steel culverts are generally appropriate for use at gravel entry ways to buildings, small alleys and parking lot entrances.
3. Concrete culvert must be used on all main streets at Ft McCoy including areas and crossings subject to abuse from military tracked vehicles.

D. Section Includes:

1. Polyethylene pipe culvert where indicated on approved drawings, or bid schedules.
2. Corrugated steel pipe culvert when specified on drawings, or bid schedules.
3. Concrete pipe culvert when specified on drawings, or bid schedules.
4. Gaskets and connecting bands.
5. Joints and accessories.
6. Bedding.
7. Slope protection at pipe end.
8. End pipe culvert sections.

1.02 RELATED SPECIFICATION SECTIONS

1. Section 32 11 00, Base Course.
2. Section 31 23 17, Excavation.
3. Section 31 23 23, Fill and Backfill.
4. Section 03 30 00, Cast-in-Place Portland Cement Concrete.

1.03 REFERENCES

A. AASHTO T99 Standard Specification for the Moisture-Density Relations of Soils Using a 5.5 lb. Rammer and a 12 in. Drop.

B. AASHTO T180 Standard Specification for Moisture-Density Relations of Soils Using a 10-lb Rammer and an 18-in. Drop.

C. ASTM A929 Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe.

D. ASTM C14 Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.

E. ASTM C76 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

F. ASTM C443 Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.

G. ASTM C506 Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.

H. ASTM C507 Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.

I. ASTM C655 Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe.

J. ASTM D698 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort 12,400 ft-lbf/ft3.

K. ASTM D1557 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort 6,000 ft-lbf/ft3.

L. ASTM D2922 Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

M. ASTM D3017 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.04 SUBMITTALS

A. Product Data: Provide product data submittals for pipe, fittings and accessories.

B. Product data submittals must include sufficient detail to determine compliance with requirements as specified herein including certifications and salient characteristics.

C. Manufacturers must have minimum experience of three years in the manufacture of pipe culverts and similar products.

D. Manufacturer's Published Data and Instructions: Submit manufacturer’s published data and recommendations for all products including installation instructions.

E. Project Record Documents:

1. Accurately record actual locations of pipe runs, connections, and invert elevations.

2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

F. Operation and Maintenance Data: Submit in compliance with Section 01 33 00.

PART 2 PRODUCTS

2.01 PRODUCT NAME

A. Polyethylene (PE) Pipe.

1. Polyethylene Drainage Pipe: ASTM F2648/F2648M, Polyethylene pipe and fittings meeting the requirements of cellular classification C424420C or 424420E with oxidative resistance of CC2 for pipe sizes 2 through 12 inch.

a. Shape: Circular with nominal diameter in sizes as indicated on the drawings.

2. Coupling Bands: Rotationally molded fittings made with PE plastic compounds meeting the requirements of cellular classification of 213320C or 213320E.

3. Apron Endwalls: Not applicable.

B. Corrugated Steel Pipe Culvert.

1. Corrugated Steel Pipe: ASTM A929, galvanized: conforming to WIDOT Standard Specification Section 521.

a. Shape: Circular with nominal diameter specified on the drawings.

2. Coupling Bands: Galvanized steel, connected with two neoprene "O" ring gaskets and two galvanized steel bolts.

3. Apron Endwalls: As specified in WIDOT Standard Specification Section 521.2.

C. Concrete Pipe Culvert.

1. Reinforced Concrete Pipe, ASTM C 76, Class IV wall thickness, conforming to WIDOT Standard Specification Section 522.

2. Joints: Flexible watertight joints must be made with plastic or rubber type gaskets for concrete pipe.

3. Apron Endwalls: As specified in WIDOT Standard Specification Section 522.2.4.

D. Bedding and Cover Materials.

1. Bedding: Fill Type, as specified in WIDOT Standard Specification Section 209.

2. Cover: Fill Type, as specified in WIDOT Standard Specification Section 209.

E. Accessories.

1. Geotextile Fabric: As specified in Section 02348. Provide where riprap is required.

2. Riprap at Pipe Ends: Riprap as specified in Section 31 37 00 (riprap for inclines steeper than a 2 to 1 slope).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify culvert requirements as indicated on site plan, in this Section, and other relevant specifications.

B. Verify trench cut or excavation base is ready to receive work and excavations, dimensions, and elevations are as indicated on layout drawings.

3.02 PREPARATION

A. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

3.03 INSTALLATION

A. Follow WIDOT Standard Specification Section 520 for placement of culvert sections in addition to the subsections below.

B. Follow WIDOT Standard Specification Section 209.2 for backfilling and compaction requirements. Do not damage or displace pipe when compacting.

C. Maintain optimum moisture content of bedding material to attain required compaction density.

D. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

E. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.

F. Repair surface damage to pipe protective coating with two coats of compatible bituminous paint coating if culverts are corrugated steel.

G. Install cover at sides and over top of pipe. Install top cover to minimum compacted thickness of 12 inches.

H. Maintain optimum moisture content of bedding material to attain required compaction density.

I. Install apron endwalls.

J. Lay pipe to alignment and slope gradients noted on Drawings; with maximum variation from indicated slope of 1/8 inch in 10 feet.

K. Request inspection prior to and immediately after placing aggregate cover over pipe.

L. Compaction Testing: In compliance with ASTM D1557, ASTM D698, AASHTO T99, AASHTO T180, ASTM D2922 and ASTM D3017.

M. When tests indicate Work does not meet specified requirements, remove Work, replace and retest. Additional testing as a result of non-conformance must be at no cost to the government.

N. Protect pipe and bedding from damage or displacement until backfilling operation is in progress.

END OF SECTION