# Section 208 of the Standard Specifications is hereby revised for this project to include the following:

# **DESCRIPTION**

**208.13** This work consists of furnishing and installing construction mats to support equipment working in wetlands, streams, and other locations designated on the plans while protecting the soils and vegetation beneath from damage.

**MATERIALS**

**208.14** Construction mats shall be capable of supporting the anticipated loads on the types of soil that will be encountered. Larger mats shall be used on soils with low bearing strength (e.g., muck or peat) to spread the weight over a larger area. Construction mats shall be free of leachable preservatives or other constituents harmful to aquatic environments. All treated wood shall contain a quality mark or letter of certification from a third party inspection agency assuring the product meets the minimum American Wood Protection Association (AWPA) Use Category 4A standard. The Contractor may fabricate the mats or use prefabricated mats designed for these purposes.

1. *Construction Mats Fabricated by the Contractor.* The construction mats shall be fabricated of wooden cants, sawn dense hardwoods, or round logs fastened together. The mats shall be fabricated of cants or logs of length, width, and thickness to meet anticipated loads, soil strength, and construction equipment sizes. Alternative materials may be used if approved by the Engineer.

The mats shall be capable of being connected using quick links or other heavy-duty connectors if needed for stability or to reduce movement.

The Contractor’s mat design shall be submitted to the Engineer for review and approval at least three weeks before the mats are to be used on the project. The design shall include a list of equipment and materials to be placed on the mats and anticipated loading.

Mats that are determined to be inadequate to support the required loads or protect the soil and vegetation beneath shall be removed from the project and replaced with adequate mats at the Contractor’s expense.

1. *Prefabricated Construction Mats.* Pre-fabricated mats shall be made of natural timber or other material approved by CDOT’s Project Engineer. Mats shall be capable of assembly to form appropriate size mats to be placed directly onto ground surfaces for the purposes of holding or transferring heavy equipment, preventing excessive rutting, and minimizing vegetation disturbance.
2. *Hardware*. Construction mats shall be supplied with all necessary hardware, including all bolts with nuts and washers, timber connectors, drift pins, dowels, nails, screws, spikes, metal pile protectors, steel anchor plates and all other metal fastenings.

**CONSTRUCTION REQUIREMENTS**

**208.15 General.** Prior to placement of mats, woody vegetation (willows, shrubs, trees, etc.) shall be cut or trimmed at or slightly above ground level. Vegetation shall not be uprooted, and the root mat of any vegetation shall not be disturbed.

Crossing sites shall be located where stream channel is narrow for the shortest possible clear span and where stream banks are stable and well defined. When feasible on large wetland complexes, structures shall be accessed from opposite sides to avoid crossing the entire wetland.

**208.16 Installation.** Mats shall be in good condition to ensure proper installation, use, and removal. Mats shall be inspected by the Engineer to ensure they are clean of soil and any invasive plant species seed stock or plant material from previous use. The spread of aquatic nuisance species, including the New Zealand mud snail, shall be prevented. Specifically, if heavy equipment (including mats) is used that was previously working in another stream, river, lake, pond, or wetland, it shall be cleaned using one of the following procedures:

1. Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with a solution of commercial grade quaternary ammonium disinfectant compound containing at least 8.0% active ingredient diluted in solution to achieve at least 0.8% concentration (roughly 12 ounces of product per gallon of water). Treated equipment shall be kept moist for at least 10 minutes, managing rinsate as a solid waste in accordance with local, county, state, or federal regulations, OR
2. Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray or soak equipment with water hotter than 140 °F for at least 10 minutes.

Hand tools, boots, and any other equipment that will be used in the water shall be cleaned using option (1) or (2) as well. The equipment shall be dried before use. Equipment shall not be moved from one water body to another without cleaning.

Equipment and associated materials (including mats) shall not be stored, maintained, fueled or repaired in waters of the U.S. or wetlands.

Operating heavy equipment on mats in wetlands shall be minimized.

Impacts to waters of the U.S. or wetlands areas shall be minimized during installation, use, and removal of construction mats. Mats shall be placed in a location that would minimize the amount needed for crossing the waters of the U.S. or wetlands.

Construction mats shall not be dragged into position. More than one layer of mats may be necessary in areas which are inundated or have deep organic wetland soils.

At crossings where no flow is present or anticipated during project construction, the mats may be placed directly onto the ground in order to prevent excessive rutting, provided stream banks and bottoms are not adversely altered.

For further protection, mats may be installed on top of nonwoven geotextile that covers the crossing area.

Construction mats may be used as a temporary bridge over a stream to allow vehicles access to the work site. Mats shall not be placed so that they restrict the natural flow of the stream. When used for flowing water crossings, small sections of mat shall be placed within and along the stream parallel to the flow of water. Mats shall then be placed perpendicular to the stream, resting on top of the initial construction mat supports. It may be necessary to place additional reinforcement for extra stability and to minimize the amount of sediment that could fall between the spaces of each timber.

In most cases, construction mats shall be placed along the travel area so that the individual cants or logs are resting perpendicular to the direction of traffic. Mats shall be placed far enough on either side of the stream or wetland to rest on firm ground.

Adequate erosion and sediment controls shall be installed at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, construction mats.

Matted crossings of waters of the U.S. or wetlands shall be monitored to assure correct functioning of the mats. Mats shall be inspected during use for any defects or structural problems. Mats which become covered with soils or construction debris shall be cleaned and the materials removed and disposed of in an upland location. The material shall not be scraped and shoveled into the resource area. Mats which become imbedded shall be reset or layered to prevent mud from covering them or water passing over them.

**208.17 Removal** Mats shall be removed by “backing” out of the site, removing mats one at a time. Construction mats shall not be dragged out of position. All other material placed for protection, such as geotextile fabric, straw, etc. shall then be removed. Any rutting or significant indentations identified during mat removal shall be regraded immediately, taking care not to compact soils.

Crossings shall be inspected following mat removal to determine the level of restoration required.

Mats shall be cleaned in an upland area which doesn’t drain directly to waters of the U.S. or wetlands before transport to another wetland or stream location. Cleaning methods may include but are not limited to shaking or dropping mats in a controlled manner with a piece of machinery to knock off attached soil and debris, spraying with water or air, and sweeping.

**208.18 Restoration.** Upon removal of the construction mats, the Contractor and the Engineer shall examine the matted area together to determine what restoration, if any, is required. Restoration shall include, but is not limited to, the following:

Areas of disturbed soil located near waters of the U.S. or wetlands shall be promptly stabilized. Matted areas within wetlands shall be restored to their original condition and elevation. This may involve natural revegetation from existing root and seed stock of native plant species. Conditions may warrant planting and the broadcast of a wetland seed mix over the matted area to supplement the existing seed and rootstock. Seed mixes and vegetation shall contain only native plant species of the appropriate moisture tolerance regime. The use of mulch in wetlands shall consist of weed free mulch to mitigate the risk of the spread of invasive plant species.

**METHOD OF MEASUREMENT**

**208.19** Construction mats will be measured by the square foot. The area to be measured will be the maximum total area of construction mats in place at any one time.

**BASIS OF PAYMENT**

**208.20** The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

**Pay Item Pay Unit**

Construction Mat Square Foot

Payment will be full compensation for all work, materials, and equipment required to construct, install, maintain, and remove the construction mats.

Geotextile, hay or straw, and embankment will be measured and paid for separately in accordance with the appropriate Specification Sections.