

PART 1: GENERAL**1.1 SUMMARY**

- A. This section specifies the use of HydroStraw® StrawLock as an allowable hydraulic tackifier to cover and coat conventionally blown straw together to reduce the ability of the blown straw to be removed by the wind. The blown straw is in contact with the soil and HydroStraw® StrawLock is applied as a high viscosity slurry in direct contact with the blown straw.
- B. Related Sections: Other Specification Sections, which directly relate to the work of this Section may include, but are not limited to the following:
1. *Section XXXXX – EARTHWORK*
 2. *Section XXXXX – LANDSCAPING*
 3. *Section XXXXX – SITE STABILIZATION*
 4. *Section XXXXX – SEEDING, FERTILIZING, AND MULCH*

1.2 APPLICATIONS

- A. Use HydroStraw® StrawLock as a tackifier on sites where slopes, soil conditions or weather call for the extra stabilization of conventional blown straw.

1.3 SUBMITTALS

- A. Submit the manufacturer's product data and installation instructions. This includes but is not limited to the required site preparation, list of required materials and required application rate(s).
- B. Submit a letter from the manufacturer certifying that the hydraulic mulch fiber meets or exceeds all technical and packaging requirements.
- C. Upon request, submit from the manufacturer a *Report of Straw Analysis* test demonstrating the straw contains no viable seed. Ensure the *Report of Straw Analysis* is prepared by registered seed technologist from an accredited ISTA laboratory and is made available per product lot numbers upon request. Samples are taken during the production to represent a uniform sample.

- D. No material will be considered as an equivalent to the HydroStraw® StrawLock material specified herein unless it meets all requirements of this specification, without exception. Manufacturers seeking to supply what they represent as equivalent material must submit records, data, independent test results, samples, certifications, and documentation deemed necessary by the ENGINEER to prove equivalency.

1.4 QUALITY ASSURANCE

- A. At the time of delivery, provide the ENGINEER with the specific packing list containing complete identification, including but not limited to the following:
 - 1. Manufacturer name and location.
 - 2. Manufacturer telephone number and fax number.
 - 3. Manufacturer's e-mail address and web address.
 - 4. Hydraulic mulch name, model and/or serial number.
 - 5. Certification that the specific hydraulic mulch meets the physical and performance criteria of this specification.

1.5 DELIVERY STORAGE AND HANDLING

- A. Deliver all materials in moisture resistant factory labeled packages.
- B. Store and handle HydroStraw® StrawLock in strict compliance with the manufacturer's instructions and recommendations. Protect the packaged hydraulic mulch from damage from weather, excessive temperatures, and construction operations.
- C. Clean all spills promptly.

PART 2: PRODUCTS

2.1 ACCEPTABLE PRODUCTS & MANUFACTURER

- A. HydroStraw® StrawLock

HydroStraw, LLC
22110 S State Route 27
Rockford, WA 99030
Toll Free: 800-545-1755
Fax: 815-468-7450
www.hydrostraw.com
info@hydrostraw.com

2.2 MATERIALS

- A. All materials consist of HydroStraw® StrawLock and conform to the composition requirements of Section 2.3.

2.3 COMPOSITION

The pre-packaged material consists of a specially formulated proprietary blend of heat and mechanically treated straw, natural fibers, crossed-linked tackifiers, and paper fibers that lock down blown straw treatment.

- A. The primary fiber is produced from annually renewable straw fiber.
- B. All fiber materials are free from plastic materials or other non bio-degradable substances.
- C. Fiber is of such character that the fiber will disperse into uniform slurry when mixed with water.
- D. Fiber is colored green and does not stain concrete or other surfaces.
- E. Fiber and other ingredients are free from growth or germination inhibiting ingredients.
- F. All components are pre-packaged by the manufacturer to assure both material performance and compliance with the minimum requirements of Table 2.
- G. Under no circumstances is field mixing of additives or components accepted.

Table 2: Minimum HydroStraw® StrawLock Requirements

Property	Requirement
Physical	
Organic Matter	100%
Toxicity	Non Toxic
Applied Color	Colored green and does stain concrete or other surfaces.
Surface Tension	Material evenly disperses and suspends when agitated in water.
Absorbency	When sprayed uniformly at the recommended rate or blown straw, the mulch fibers form a StrawLock cover which allows percolation of water and increased water infiltration to the underlying blown straw matrix.
Solubility	Mulch Fibers are non water soluble
pH	6.8 +/- 0.5
Average Fiber Length	1.0" +/- 1/4" (2.54 cm +/- .64 cm)
Composition	
Heat & Mechanically Treated (HMT™) - Straw	66.0% +/- 1.0%
Natural Fibers for Matrix Entanglement	10.0% +/- 1.0%
Proprietary Cross-Linked Tackifiers	4.0% +/- 1.0%
Paper	10.0% +/- 1.0%
Moisture Content	10.0% +/- 1.0%

2.4 PACKAGING

A. Ensure all products are packaged in the following manner:

1. Bag Size: 11.5" W x 17" D x 25" H (29.2 cm W x 43 cm D x 63.5 cm H)
2. Bag Weight: 50 lb (22.7 kg) compressed bales
3. Packaging: Moisture resistant package protected
4. Pallet: 40 bags/pallet 52" W x 45" D x 96" H (132 cm W x 114 cm D x 244 cm H)

PART 3: EXECUTION

3.1 EXAMINATION

- A. Use HydroStraw® StrawLock where all components are pre-packaged by the manufacturer to assure material performance.
- B. Examine substrates, blown straw mulch and other conditions before applying materials. Do not proceed with installation until unsatisfactory conditions are corrected. Apply hydraulic mulch to stable slopes that are constructed to divert runoff water away from the face of the slope, eliminating damage to the slope face caused by the surface flow from above the slope.

3.2 INSTALLATION

- A. Use personnel or subcontractors experienced in the proper procedures for mixing and application of hydraulic mulch. Use personnel or subcontractors certified and trained by the manufacturer in the proper procedures for mixing and application of hydraulic mulch.
- B. Strictly comply with the manufacturer's installation and mixing instructions shown in Table 3.

Table 3: HydroStraw® StrawLock Mixture Rates

Mulch Fiber Weight	Amount of Water
60 lb (27 kg)	100 Gallons (379 Liters) hose work
75 lb (34 kg)	100 Gallons (379 Liters) tower work

- C. Loading and Mixing Instructions
 - 1. Start the flow of water into the tank.
 - 2. Pre-wet hoses and prime the pump by running water through the lines.
 - 3. Engage the agitator at ½ speed.
 - 4. **Load all HydroStraw® StrawLock components before the tank reaches ¾ full. Do not hesitate to shut off water before this step is completed.**
 - 5. Resume filling the tank with water until the tank is full.
 - 6. Set the engine to full throttle for approximately ½ minute. Then set the engine throttle to about ½ speed to begin hose application operations.
- D. It is imperative to apply HydroStraw® StrawLock at the specified mixture rate: too wet of a mixture will cause the fibers to be buried into the blown straw and will also dilute the fiber binders reducing effectiveness.

- E. Apply HydroStraw® StrawLock as a slurry solution by means of approved hydraulic seeding/mulching machines with appropriate nozzles for hydraulic mulch applications.
- F. Apply HydroStraw® StrawLock at the specified rates per in Table 4 in a uniform manner.

Table 4: Minimum HydroStraw® StrawLock Application Rates

Slope Gradient	lb / Acre	kg / Hectare
Tackifier	750 – 1,500	840 – 1,681

- G. Ensure the HydroStraw® StrawLock application is uniform and even throughout the blown straw application area. Ensure HydroStraw® StrawLock is not bunched or clumped up on the site.
- H. Ensure the HydroStraw® StrawLock application adequately covers the blown straw treatment to lock the straw down in place to inhibit blowing of the straw mulch.
- I. Avoid creating a “shadowing effect” on the site. Apply HydroStraw® StrawLock from opposing directions to the soil surface in successive layers, reducing the “shadow effect” to achieve maximum coverage of all exposed soil. Start HydroStraw® StrawLock applications on the windward side of the project.

3.3 INSPECTION AND MAINTENANCE

- A. Prepare a maintenance plan that includes the following:
 1. Reapplication as directed by the ENGINEER to disturbed areas that require continued erosion control.
 2. Maintenance of equipment to provide uniform application rates.
 3. Rinsing all mixing and application equipment thoroughly with water to avoid formation of residues and appropriate discharge of rinse water.
- B. Degradation can be expected to occur as a result of mechanical degradation, chemical degradation, biological hydrolysis, sunlight, salt, and temperature. Where necessary, reapply in accordance with the manufacturer’s instructions. Reapplication is not required unless treated areas are disturbed or turbidity or water quality shows the need for an additional application. If treated areas are left undisturbed, the necessity of reapplication is determined by the ENGINEER.
- C. Payment for the reapplication is not made unless the reapplication is approved by the ENGINEER.

PART 4: ACCEPTANCE MEASUREMENT AND PAYMENT

4.1 ACCEPTANCE

Obtain acceptance and approval of HydroStraw® StrawLock installation from the ENGINEER. When requested by the ENGINEER, ensure that a manufacturer's representative is on-site to oversee and approve the initial installation. Obtain a letter from the manufacturer approving the installation when requested by the ENGINEER.

4.2 MEASUREMENT

The quantity for the pay item HydroStraw® StrawLock is the surface area covered by the hydraulic mulch applied at the recommended rate and is measured by the one-acre (acre) or one-hectare (hectare) unit in-place, complete, and accepted. The installation may require written acceptance by the manufacturer's representative before acceptance for payment.

4.3 PAYMENT

Payment for HydroStraw® StrawLock is full compensation for installing the hydraulic mulch as specified or directed by the ENGINEER and includes furnishing, applying, and maintaining the hydraulic mulch including testing and documentation of Quality Control and Quality Assurance programs and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

END OF SECTION