

Document Release Notice

Document Number:	SS 856.1	Title:	Moisture Treated Subgrade
Current Revision #:	SS 856.0	Type of Change:	<input type="checkbox"/> ORIG RELEASE <input checked="" type="checkbox"/> REVISION <input type="checkbox"/> ARCHIVE <input type="checkbox"/> OBSOLETE
New Revision #:	SS 856.1	Document Type:	NTTA Special Specification Choose from Drop Down Menu - left
Date Submitted:	5/10/2010	DRN Number:	10157

Summary of Proposed Changes:

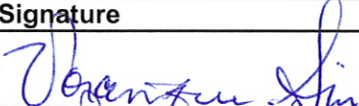
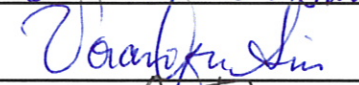


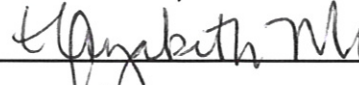



- Include paragraph numbers or other references & attach a copy of the new or revised documents)
- For new documents, indicate "Original Release"

Modified special spec. mainly to reduce frequency of testing. STATISTICAL ANALYSIS OF FIELD RESULTS TO-DATE SUPPORT REDUCING TESTING FREQUENCY TO 1/5 OF ORIGINAL SPEC ONCE CONTRACTOR ESTABLISHES A CONSISTENT PROCESS. EVEN AT REDUCED RATE, THE FREQUENCY IS STILL 5-10X TRDOT MIN. FREQUENCY. CHANGES INCORPORATE BEST PRACTICES LEARNED SINCE ORIGINAL SPEC DEVELOPED BY PMD AND PAVEMENT DESIGN ENGINEER. *mas*

Reason for New Release / Revision / Obsolescence:

Revision to document

Required Signatures:

Title:	Printed Name	Signature	Date:
Originator	Nikki Simon		5/11/10
Specifications Manager	Nikki Simon		5/11/10
	(N/A)		
Deputy Program Manager	Clif Davis		5/20/10
	(Alt - Steve Knobbe)		
Program Manager	Steve Knobbe		5-25-10
	(Alt - Clif Davis)		
Department Director	Elizabeth Mow		5-27-10
	(N/A)		
Assistant Executive Director	Gerry Carrigan		5/28/10
	(Alt - Elizabeth Mow)		
Technical Oversight Leader	Mark Bouma		5/20/10
	(N/A)		
Document Control	Md Omar Faruk		5/28/2010
	(Alt - Peter Claypool)		

Faruk, Omar

From: Faruk, Omar
Sent: Friday, May 28, 2010 5:05 PM
To: Faruk, Omar
Subject: NTTA Special Specification Updates

The following NTTA Special Specification is now released:

Document #	Document Title	Originator	DRN#	Changes
SS-856.1	Moisture Treated Subgrade	Nikki Simon	10157	Modified to reduce frequency of testing.

The above revised document is available at the following location:

<T:\Standards and Specifications\NTTA Specifications\Current - 2004 Specifications\2004 Special Specifications>

Thanks,

Md **Omar** Faruk
Document Control Specialist - Aguirre Roden, Inc.
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Phone: 214-224-2439
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PROPOSED SPECIAL PROVISION OR SPECIAL SPECIFICATION REQUEST

Construction: Project Delivery Maintenance ITS Specification Book Year 2004
Non-review Reviewed

Anticipated Use: System Wide Use Specific Tollway/Turnpike Use One Time Use

County: All Project Number: N/A
City: All Letting: _____
Highway: Systemwide

Proposed Special Provision or Special Specification (Title):
SS-856.1, Moisture Treated Subgrade

Conditions that created the need for the New Special Provision or Special Specification:
Revision to old specification to provide for more cost efficient usage of item.

Is the Proposed Special Provision or Special Specification identical or similar to a previously approved specification or provision? No If yes, then list most recent number: _____

Give a brief summary of content (if similar to previously approved specification or provision, list changes and provide marked up copy):

Revisions to MTS spec. to address after action review concerns.

Reference Items: _____

WORD File Name: SS-856_Moisture Treated Subgrade_Rev_051010.doc
(please Groupwise WORD file and this form to processing office)

Created by: Nikki Simon Phone: 972-628-3095 Date: 5/10/2010

Submitted by: Nikki Simon Phone: 972-628-3095 Date: 5/10/2010

Approved By: Spec. Committee Date: 5/10/10

New special provision/ special specification number _____

Bid Item Number (for new special specification only) 856
Bid Item Code, Abbreviation, and Pay Item Unit * 0856 7001 MOISTURE TREATED SUBGRADE CY

* Abbreviation and Pay Item Units to be provided, if applicable, with the 1814NTTA form. The Item Code will be assigned at the approval of the specification.

NORTH TEXAS TOLLWAY AUTHORITY

SPECIAL SPECIFICATION

ITEM 856

“Moisture Treated Subgrade”

856.1. Description. This work consists of furnishing, placing, moisture conditioning, and compacting existing expansive subgrade or the embankment material with moisture and density control in order to provide a layer of low swelling, strain absorbing material under the pavement section. The work shall be performed to the depths and limits shown on the plans.

856.2. Materials.

- A. Subgrade.** Furnish approved material capable of forming a stable embankment from required excavation in the areas shown on the plans or from sources outside the right-of-way. The materials shall be free of roots, sod, weeds, wood, organic matter, construction debris, and other deleterious materials, and shall be in accordance with Item 132, “Embankment.” The top 2-feet of subgrade shall not contain stones having size larger than 2.5 inches and shall have soluble sulfate levels of 5000 ppm or less when tested in accordance with Tex-145-E.
- B. Polyethylene Sheeting Material.** Furnish polyethylene sheeting that is at least 10 mils thick, 10 feet wide, and free from visible defects. Provide black sheeting when color is not specified on the plans. The sheeting shall meet the requirements of ASTM D 4397.
- C. Water.** Furnish water that is free of industrial wastes, oil, salts, acid, alkali, sugar, vegetative materials, or other deleterious substances which may cause damage to the finished product. All water shall meet the requirements of AASHTO T 26.

856.3. Equipment. Provide machinery, tools, and equipment in good operating condition that are specifically designed and manufactured for proper execution of the work. Maintain all machinery, tools, and equipment in a good working condition, free of leaks, and properly muffled.

- A. Construction Equipment.** Provide water trucks and equipment that are specifically designed and manufactured for excavating, processing, leveling, and compacting subgrade materials.
- B. Processing Equipment.** Provide equipment of appropriate size and capacity so as not to delay the project and capable of processing the soil. Provide discs of sufficient size to effectively mix the soil and water uniformly and effectively.

- C. Compaction Equipment.** Provide compactors in accordance with Item 210, "Rolling". Compaction equipment shall be designed to obtain compaction requirements without adverse shoving, rutting, displacement or loosening of subgrade material. With prior approval, the contractor may operate other compaction equipment that produces equivalent results. The equipment shall be operated by skilled workmen at a normal production rate for the specified type of work.

856.4. Construction.

For cut sections, excavate and remove existing materials to the limits of the moisture treated areas as shown on the plans and in accordance with Item 110, "Excavation." This work will be paid for under Item 110, "Excavation". Scarify, moisture condition, and compact the native soil to 8-inches below the excavation limit in the cut section prior to placing the material for moisture treatment. This work is considered subsidiary to Item 110, "Excavation."

For fill sections, construct embankment to the limits of the moisture treated area as shown on the plans and in accordance with Item 132, "Embankment." Furnish material as specified on the plans or the same material used for embankment below the moisture treated area. Excavated material within the right-of-way or imported material from sources outside the right-of-way is allowed as long as it meets the requirements of Item 132, "Embankment." Construct the embankment in layers approximately parallel to the finished grade for the full width of the individual roadway cross sections, unless otherwise shown on the plans. Begin placement of material at the toe of slopes. This work will be paid for under Item 132, "Embankment."

- A. Moisture Treatment.** After placing each lift of untreated material, perform the following:
1. Mix the material with water by disking and/or blading using approved equipment. Use a scarifier when necessary to loosen material prior to blading.
 2. Compact the layer to at least the minimum percentage of Standard Proctor density as determined by ASTM D 698 (AASHTO T 99) at the moisture content range provided in following Table.

Material Description	Plasticity Index Range	Minimum Required Compacted Density	Required Moisture Range
Clayey Sand	5 – 15	98% of ASTM D 698	-1 to +3 Percentage Points of Optimum
Lean Clay Including Processed Weathered or un-weathered Limestone	16 – 25	95% of ASTM D 698	The minimum moisture content shall be that which reduces the swell to less than 1% for a laboratory compacted sample (ASTM D 698) under an overburden pressure of 200psf. The maximum moisture content shall be 3 percentage points greater than the minimum
Fat Clay	26 or Greater	94% of ASTM D 698	+3 to +6 Percentage Points Above Optimum

3. Each layer is subject to testing by the Engineer for stability, density and moisture content. When required, remove small areas of the layer to allow for testing. Replace the removed material and recompact at no additional cost. When the material fails to meet the moisture or density requirements, rework the material as necessary to obtain the specified compaction.

4. Construct the next moisture treated layer.

B. Maintenance of Moisture. Protect the moisture treated subgrade from traffic and maintain the required moisture content, stability, and density until the upper layer of the subgrade is stabilized. When the material loses required stability, density and moisture content, rework the material to obtain the specified compaction. When utilities, such as sanitary sewer or drainage facilities, are required to be installed within an area of previously constructed MTS, all disturbed / displaced MTS material is required to be replaced, in full conformance with MTS moisture content, stability and density requirements.

C. Polyethylene Sheeting Installation. Install the polyethylene sheeting as shown on the plans, and in accordance with the following requirements:

1. Do not install polyethylene sheeting until all required underground elements such as pipes, conduits, etc. are installed within the area to be covered.

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2. Prior to installation of the polyethylene sheeting, compact and level soil subgrade and remove deleterious material that may puncture the polyethylene sheeting.
3. Install the polyethylene sheeting with the longest dimension parallel with the travel direction of the pavement. A minimum overlap of 3 feet shall be maintained, between adjacent strips of polyethylene sheeting.
4. Inspect and repair moisture barrier, prior to placement of loosely compacted fill. Care should be taken not to rip or tear the polyethylene sheeting during the installation. Seaming or bonding tape shall be used to repair all tears, perforations or similar damage that may occur within the polyethylene sheeting.
5. When patching repair is required, apply the patch of polyethylene sheeting extending a minimum of 6 inches beyond the outermost edges of the damaged area. Install the patch directly over the damaged area, and seal all edges with seaming / bonding tape. If sealing of the edges is not performed, a minimum overlap of 3 feet shall be maintained.
6. When polyethylene sheeting is required to be installed around vertical obstructions as toll or ITS structures, or other similar obstructions, such polyethylene sheeting penetrations shall be repaired by securing/sealing with seaming or bonding tape.
7. Fill material placed above the polyethylene sheeting shall be placed and loosely compacted with rubber tired equipment. Loosely compacted fill shall be placed with an estimated 85-90 percent compaction effort. Any equipment that might damage the polyethylene sheeting shall not be allowed to operate on top of the sheeting.

856.5. Quality Control.

- A. **Construction Quality Control Procedure.** For each type of material as defined in the table under Section 856.4.A.2, the Contractor shall submit a Moisture Treated Subgrade (MTS) Construction Quality Control Procedure for approval by the Engineer prior to initiating MTS construction operations. At a minimum, this MTS Construction Quality Control Procedure shall include the following content:
 1. Proposed lift thickness
 2. Lot size (with lot defined as each day's production within a given lift)
 3. Proposed equipment

4. Detailed construction method / process
5. Process control procedures

B. MTS Test Section Requirements. For each type of material, as defined in the table under Section 856.4.A.2, the Contractor shall construct a test section, in order to demonstrate the effectiveness of the proposed MTS Construction Quality Control Procedure. The MTS test sections can be permanently incorporated into the project, if accepted by the Engineer, and shall be in conformance with the following requirements:

1. Each test section shall be at least 200 feet long and constructed at the full width of the MTS installation, or at the width the Contractor plans to construct during normal production.
2. The Engineer will conduct acceptance inspection and testing of the test sections, where such acceptance testing shall be performed at a minimum frequency of one (1) density test for each 200 lane feet per lift.
3. The Engineer will approve or reject the Contractor's proposed MTS Construction Quality Control Procedures, based upon the effectiveness of the test section construction and the acceptance inspection and testing results of the MTS test sections.

C. Implementation of Approved MTS Construction Quality Control Procedures.

1. The Contractor shall comply with requirements of the approved MTS Construction Quality Control Procedures.
2. The Engineer will monitor ongoing MTS construction, as required to verify the Contractor's ongoing adherence to requirements of the approved MTS Construction Quality Control Procedures.
3. Upon verification by the Engineer of satisfactory execution of the approved MTS Construction Quality Control Procedures, and conditional upon the Engineer's determination of routinely passing test results, the MTS field density and moisture content (Tex-115-E) testing frequency will be reduced to a minimum of one (1) test for each 1,000 lane feet per lift.
4. The Engineer may require a higher frequency of MTS acceptance testing, in the event of variability of soil material as determined by the Engineer, and based

upon the Engineer's assessment of the Contractor's adherence to requirements of the approved MTS Construction Quality Control Procedures.

5. Changes in the Contractor's equipment and/or procedures shall require resubmitted MTS Construction Quality Control Procedures, followed by the above verification of the Contractor's revised MTS Construction Quality Control Procedures.

Testing of moisture treated subgrade will be performed in accordance with the following:

856.6. Schedule for Minimum Materials Sampling and Testing for Moisture Treated Subgrade

Test Type	Test Standard	Minimum Frequency of Tests
In Place Soil Density and Moisture Content	AASHTO T 238 AASHTO T 239	One test for each 200 lane feet (not less than one test per day) (Subject to adjustment per Section 856.5.C.3)
Atterberg Limits	ASTM D 4318 AASHTO T89 AASHTO T90	One test per soil type.
Moisture-Density Relationships	ASTM D 698 AASHTO T 99	One test per soil type.

856.7. Tolerances.

- A. Grade Tolerances.** Correct any deviation in excess of 0.04 feet in cross section and 0.04 feet in 16 feet measured longitudinally by loosening, adding or removing the material, reshaping and recompacting by sprinkling and rolling.
- B. Density Tolerances.** Correct density below the specified minimum set in Section 856.4.A, "Moisture Treatment," of this special specification by recompacting the subgrade until it is accepted.
- C. Moisture Tolerances.** Correct any loss of moisture below the limits set in Section 856.4.A, "Moisture Treatment," of this special specification by moisture conditioning and recompacting the subgrade, in a manner satisfactory to the Engineer. Maintain the required moisture content until the subgrade is stabilized.

856.8. Measurement. Moisture treated subgrade will be measured by the cubic yard in its final position using the average end area method and the depth as shown on the plans. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Item 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

856.9. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Moisture Treated Subgrade." This price is full compensation for development and implementation of MTS Construction Quality Control Procedures, furnishing, hauling, scarifying, placing, mixing, compacting, sprinkling, rolling, finishing, and reworking; disposal of waste material; maintaining and protecting the finished moisture treated subgrade; and equipment, labor, tools, and incidentals.

Furnishing, installation and performing repairs required for polyethylene sheeting materials will not be paid for directly, but will be considered subsidiary to this Item.

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NORTH TEXAS TOLLWAY AUTHORITY
SPECIAL SPECIFICATION
ITEM 856
"Moisture Treated Subgrade"

856.1. Description. This work consists of furnishing, placing, moisture conditioning, and compacting existing expansive subgrade or the embankment material with moisture and density control in order to provide a layer of low swelling, strain absorbing material under the pavement section. The work shall be performed to the depths and limits shown on the plans.

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856.2. Materials.

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A. Subgrade. Furnish approved material capable of forming a stable embankment from required excavation in the areas shown on the plans or from sources outside the right-of-way. The materials shall be free of roots, sod, weeds, wood, organic matter, construction debris, and other deleterious materials, and shall be in accordance with Item 132, "Embankment." The top 2-feet of subgrade shall not contain stones having size larger than 2.5 inches and shall have soluble sulfate levels of 5000 ppm or less when tested in accordance with Tex-145-E.

B. Polyethylene Sheeting Material. Furnish polyethylene sheeting that is at least 10 mils thick, 10 feet wide, and free from visible defects. Provide black sheeting when color is not specified on the plans. The sheeting shall meet the requirements of ASTM D 4397.

C. Water. Furnish water that is free of industrial wastes, oil, salts, acid, alkali, sugar, vegetative materials, or other deleterious substances which may cause damage to the finished product. All water shall meet the requirements of AASHTO T 26.

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856.3. Equipment. Provide machinery, tools, and equipment in good operating condition that are specifically designed and manufactured for proper execution of the work. Maintain all machinery, tools, and equipment in a good working condition, free of leaks, and properly muffled.

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A. Construction Equipment. Provide water trucks and equipment that are specifically designed and manufactured for excavating, processing, leveling, and compacting subgrade materials.

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B. Processing Equipment. Provide equipment of appropriate size and capacity so as not to delay the project and capable of processing the soil. Provide discs of sufficient size to effectively mix the soil and water uniformly and effectively.

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May, 2010

C. **Compaction Equipment.** Provide compactors in accordance with Item 210, "Rolling". Compaction equipment shall be designed to obtain compaction requirements without adverse shoving, rutting, displacement or loosening of subgrade material. With prior approval, the contractor may operate other compaction equipment that produces equivalent results. The equipment shall be operated by skilled workmen at a normal production rate for the specified type of work.

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856.4. Construction.

For cut sections, excavate and remove existing materials to the limits of the moisture treated areas as shown on the plans and in accordance with Item 110, "Excavation." This work will be paid for under Item 110, "Excavation". Scarify, moisture condition, and compact the native soil to 8-inches below the excavation limit in the cut section prior to placing the material for moisture treatment. This work is considered subsidiary to Item 110, "Excavation."

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For fill sections, construct embankment to the limits of the moisture treated area as shown on the plans and in accordance with Item 132, "Embankment." Furnish material as specified on the plans or the same material used for embankment below the moisture treated area. Excavated material within the right-of-way or imported material from sources outside the right-of-way is allowed as long as it meets the requirements of Item 132, "Embankment." Construct the embankment in layers approximately parallel to the finished grade for the full width of the individual roadway cross sections, unless otherwise shown on the plans. Begin placement of material at the toe of slopes. This work will be paid for under Item 132, "Embankment."

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A. **Moisture Treatment.** After placing each lift of untreated material, perform the following:

1. Mix the material with water by disking and/or blading using approved equipment. Use a scarifier when necessary to loosen material prior to blading.
2. Compact the layer to at least the minimum percentage of Standard Proctor density as determined by ASTM D 698 (AASHTO T 99) at the moisture content range provided in following Table.

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- Deleted: Scarify, moisture condition, and compact the subgrade to 8-inches below the excavation limit in the cut section prior to placing the material for moisture treatment. This work is considered subsidiary to this item.
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Material Description	Plasticity Index Range	Minimum Required Compacted Density	Required Moisture Range
Clayey Sand	5 – 15	98% of ASTM D 698	-1 to +3 Percentage Points of Optimum
Lean Clay Including Processed Weathered or un-weathered Limestone	16 – 25	95% of ASTM D 698	The minimum moisture content shall be that which reduces the swell to less than 1% for a laboratory compacted sample (ASTM D 698) under an overburden pressure of 200psf. The maximum moisture content shall be 3 percentage points greater than the minimum
Fat Clay	26 or Greater	94% of ASTM D 698	+3 to +6 Percentage Points Above Optimum

3. Each layer is subject to testing by the Engineer for stability, density and moisture content. When required, remove small areas of the layer to allow for testing. Replace the removed material and recompact at no additional cost. When the material fails to meet the moisture or density requirements, rework the material as necessary to obtain the specified compaction.

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4. Construct the next moisture treated layer.

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B. Maintenance of Moisture. Protect the moisture treated subgrade from traffic and maintain the required moisture content, stability, and density until the upper layer of the subgrade is stabilized. When the material loses required stability, density and moisture content, rework the material to obtain the specified compaction. When utilities, such as sanitary sewer or drainage facilities, are required to be installed within an area of previously constructed MTS, all disturbed / displaced MTS material is required to be replaced, in full conformance with MTS moisture content, stability and density requirements.

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C. Polyethylene Sheeting Installation. Install the polyethylene sheeting as shown on the plans, and in accordance with the following requirements:

1. Do not install polyethylene sheeting until all required underground elements such as pipes, conduits, etc. are installed within the area to be covered.

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2. Prior to installation of the polyethylene sheeting, compact and level soil subgrade, and remove deleterious material that may puncture the polyethylene sheeting.

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3. Install the polyethylene sheeting with the longest dimension parallel with the travel direction of the pavement. A minimum overlap of 3 feet shall be maintained, between adjacent strips of polyethylene sheeting.

4. Inspect and repair moisture barrier, prior to placement of loosely compacted fill. Care should be taken not to rip or tear the polyethylene sheeting during the installation. Seaming or bonding tape shall be used to repair all tears, perforations or similar damage that may occur within the polyethylene sheeting.

5. When patching repair is required, apply the patch of polyethylene sheeting extending a minimum of 6 inches beyond the outermost edges of the damaged area. Install the patch directly over the damaged area, and seal all edges with seaming / bonding tape. If sealing of the edges is not performed, a minimum overlap of 3 feet shall be maintained.

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6. When polyethylene sheeting is required to be installed around vertical obstructions as toll or ITS structures, or other similar obstructions, such polyethylene sheeting penetrations shall be repaired by securing/sealing with seaming or bonding tape.

7. Fill material placed above the polyethylene sheeting shall be placed and loosely compacted with rubber tired equipment. Loosely compacted fill shall be placed with an estimated 85-90 percent compaction effort. Any equipment that might damage the polyethylene sheeting shall not be allowed to operate on top of the sheeting.

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856.5. Quality Control.

A. Construction Quality Control Procedure. For each type of material as defined in the table under Section 856.4.A.2, the Contractor shall submit a Moisture Treated Subgrade (MTS) Construction Quality Control Procedure for approval by the Engineer prior to initiating MTS construction operations. At a minimum, this MTS Construction Quality Control Procedure shall include the following content:

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1. Proposed lift thickness

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2. Lot size (with lot defined as each day's production within a given lift)

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3. Proposed equipment

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4. Detailed construction method / process

5. Process control procedures

B. MTS Test Section Requirements. For each type of material, as defined in the table under Section 856.4.A.2, the Contractor shall construct a test section, in order to demonstrate the effectiveness of the proposed MTS Construction Quality Control Procedure. The MTS test sections can be permanently incorporated into the project, if accepted by the Engineer, and shall be in conformance with the following requirements:

1. Each test section shall be at least 200 feet long and constructed at the full width of the MTS installation, or at the width the Contractor plans to construct during normal production.
2. The Engineer will conduct acceptance inspection and testing of the test sections, where such acceptance testing shall be performed at a minimum frequency of one (1) density test for each 200 lane feet per lift.
3. The Engineer will approve or reject the Contractor's proposed MTS Construction Quality Control Procedures, based upon the effectiveness of the test section construction and the acceptance inspection and testing results of the MTS test sections.

C. Implementation of Approved MTS Construction Quality Control Procedures.

1. The Contractor shall comply with requirements of the approved MTS Construction Quality Control Procedures.
2. The Engineer will monitor ongoing MTS construction, as required to verify the Contractor's ongoing adherence to requirements of the approved MTS Construction Quality Control Procedures.
3. Upon verification by the Engineer of satisfactory execution of the approved MTS Construction Quality Control Procedures, and conditional upon the Engineer's determination of routinely passing test results, the MTS field density and moisture content (Tex-115-E) testing frequency will be reduced to a minimum of one (1) test for each 1,000 lane feet per lift.
4. The Engineer may require a higher frequency of MTS acceptance testing, in the event of variability of soil material as determined by the Engineer, and based

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upon the Engineer's assessment of the Contractor's adherence to requirements of the approved MTS Construction Quality Control Procedures.

5. Changes in the Contractor's equipment and/or procedures shall require resubmitted MTS Construction Quality Control Procedures, followed by the above verification of the Contractor's revised MTS Construction Quality Control Procedures.

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Testing of moisture treated subgrade will be performed in accordance with the following:

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856.6. Schedule for Minimum Materials Sampling and Testing for Moisture Treated Subgrade

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Test Type	Test Standard	Minimum Frequency of Tests
In Place Soil Density and Moisture Content	AASHTO T 238 AASHTO T 239	One test for each 200 lane feet (not less than one test per day) (Subject to adjustment per Section 856.5.C.3)
Atterberg Limits	ASTM D 4318 AASHTO T89 AASHTO T90	One test per soil type.
Moisture-Density Relationships	ASTM D 698 AASHTO T 99	One test per soil type.

856.7. Tolerances.

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A. Grade Tolerances. Correct any deviation in excess of 0.04 feet in cross section and 0.04 feet in 16 feet measured longitudinally by loosening, adding or removing the material, reshaping and recompacting by sprinkling and rolling.

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B. Density Tolerances. Correct density below the specified minimum set in Section 856.4.A, "Moisture Treatment," of this special specification by recompacting the subgrade until it is accepted.

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C. Moisture Tolerances. Correct any loss of moisture below the limits set in Section 856.4.A, "Moisture Treatment," of this special specification by moisture conditioning and recompacting the subgrade, in a manner satisfactory to the Engineer. Maintain the required moisture content until the subgrade is stabilized.

May, 2010

856.8. Measurement. Moisture treated subgrade will be measured by the cubic yard in its final position using the average end area method and the depth as shown on the plans. This is a plans quantity measurement item. The quantity to be paid is the quantity shown in the proposal, unless modified by Item 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

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856.9. Payment. The work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid for "Moisture Treated Subgrade." This price is full compensation for development and implementation of MTS Construction Quality Control Procedures, furnishing, hauling, scarifying, placing, mixing, compacting, sprinkling, rolling, finishing, and reworking; disposal of waste material; maintaining and protecting the finished moisture treated subgrade; and equipment, labor, tools, and incidentals.

Furnishing, installation and performing repairs required for polyethylene sheeting materials will not be paid for directly, but will be considered subsidiary to this item.

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