



**SPECIAL PROVISIONS
FOR
WETLAND PLUGS**

**Woodbury County
IM-NHS-029-7(46)149--03-97**

**Effective Date
December 15, 2015**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150033.01 GENERAL.

A. General Landscape Notes.

1. The Contractor shall coordinate installation of all plant material with the installation of other improvements such as hardscape elements and related structures. Any damage to existing improvements is the responsibility of the Contractor.
2. The Contractor is responsible to restore all areas of the site, or adjacent areas, where disturbed by operations of or related to the Contractor's work.
3. If conflicts arise between the size of areas and plans, the Contractor is required to contact the Engineer for resolution prior to installation.
4. Where provided, area takeoffs and plant quantity estimates in the plant list are for information only. The Contractor is responsible to do their own quantity take-offs for all plant materials and sizes shown on plans. In case of any discrepancies, plans take precedence over call-outs and/or the plant list(s).
5. All plants shall be nursery grown plants meeting American Nursery and Landscape Association (ANLA) standards set forth in the "American Standard for Nursery Stock" (ANSI Z60.1-2004). Plants are to be typical in shape and size for species. Plants shall not be root-bound or loose in their containers. Handle all plants with care in transporting, planting and maintenance until inspection and final acceptance. Field collected material shall not be used unless approved by the Engineer.
6. All work that needs to occur inside the drip line of the existing trees indicated to remain must be done by hand and witnessed by the Engineer. The work area inside the drip line of the tree is to be prepared by root pruning the area prior to the start of work and as witnessed and approved by the Engineer.

B. Protection of Property.

Contractor shall protect existing conditions at the site against damage.

1. Take precautions to insure that equipment, vehicles, and planting operations do not disturb or damage existing grades, berms, walls, drives, pavement, utilities, plants, lawns, lawn irrigation systems, and other facilities. Keep all pavement and work areas clean and orderly during construction, removing all excess materials and trash from site during and following project completion.
2. Verify locations and depths of all underground utilities prior to excavation and report conflicts with new plantings. Contractor shall hand excavate, as required, to avoid conflicts with utilities.
3. Maintain grade and utility stakes set by others until all involved parties are in acceptance of their removal.
4. Any damage to existing trees or shrubs including branches and root systems shall be repaired and/or pruned by an approved, experienced tree surgeon or arborist.
5. Repair, replace, and/or return to original condition any damaged item, without additional compensation.

C. Submittals.

Contractor shall submit the following items in a format and on a schedule that complies with the Contract.

1. Prior to starting work, Contractor shall submit copy of current certification that the landscape contractor is an Illinois Certified Nursery Dealer, Grower or approved equivalent specializing in landscape installation.
2. Submit manufacturer's certification of the inoculants, root stimulator, and/or soil amendment analysis.
3. All plant materials shall comply with State and Federal laws with respect to inspection for plant disease infestation. Inspection certificates and permits required by law to this effect shall accompany each shipment, invoice, or order of stock. File each certificate or permit, upon arrival with Engineer. All permits and fees shall be provided by the Contractor at no cost to the Contracting Authority.
4. Prior to beginning work, the Contractor shall submit a proposed planting schedule in compliance with the specified planting dates. Any revisions to this schedule must be approved by the Engineer.
5. Contractor to submit content, analysis, and sample of compost and material test reports for imported topsoil used in planting soil mix.

D. Quality Assurance.

1. Contractor shall not make substitutions. Contractor shall verify availability of specified plant material prior to submitting their bid. If materials are unavailable, Contractor must submit proof of inability to locate materials and a proposed equivalent for review prior to bidding the project. Failure to locate material prior to bidding without notifying the Owner shall not result in any additional cost to the Contracting Authority in order to locate and furnish the material.
2. In addition, all plant materials will meet the requirements of size, quantity, and variety as required in the contract documents. When a variance occurs between these two

requirements, the most restrictive will apply.

3. All plants shall be free of injurious insects, insect eggs, borers, and all forms of infestation, plant diseases, moldy or dried roots, or damage to trunk, bark, branches, leaders or root systems, or cut-leaders. All plants shall be free of defects, disfiguring knots, sunscald injuries, and frost cracks. All plants to be free of rodent damage to bark and buds.
4. Plants may be inspected and approved at the place of growth by the Engineer for compliance with specification requirements for quality, size, and variety. Travel, time, accommodations, and expenses shall be at the expense of the Contractor. Such approval does not waive the right to reject any plant material after it has been delivered to the site and/or installed.
5. All plants shall be inspected by the Engineer prior to planting. All rejected plant materials shall be removed from the site immediately.

E. Delivery, Handling, and Storage.

1. Take all precautions customary in good trade practice in preparing plants for delivery to the site to insure arrival of the plants at their destination in good condition for successful growth.
2. Pack, transport, and handle plants with care to insure protection against injury.
3. Plants shall be handled in such a manner as to ensure adequate protection from any damage such as climatic, seasonal, wind damage, or other damage during transportation or temporary storage.
4. Bare root plant material is not acceptable for this project.
5. All shrubs shall be fresh and in excellent condition. Plant material should be delivered to the site only after all preparations for planting are completed. All containerized plants shall remain in containers until they are ready to be planted.
6. If planting is delayed more than 6 hours following the arrival of plant material at the site, contractor shall heel-in plants and maintain during temporary storage by providing moist straw, moss, or other suitable material to protect root systems, watering, and protection from excessive sun, wind, and inclement weather conditions; providing a healthy vigorous plant when planted.
7. Temporary Storage: When approved by Engineer, temporary storage of plants on the project site may be permitted. When temporary on-site storage is not approved, the Contractor shall provide such facilities and location without additional compensation.

F. Plant Material Warranty.

1. Warrant each plant to remain alive and be in healthy, vigorous condition for a period of 2 years after completion of installation and initial acceptance of the plant material.
2. Warranty shall not include damage or loss of plant material caused by fires, acts of God, acts of vandalism, or negligence on the part of the Contracting Authority.

G. Warranty Inspection.

1. Inspection of plants will be made by the Engineer at the expiration of the 2 year warranty period, and following a written request by the Contractor. Contractor shall request inspection a minimum of 7 days prior to proposed inspection date.

2. All plants that are missing or not in a live, healthy growing condition shall be removed from the site by the Contractor. Missing and rejected plant material shall be replaced by the contractor once after the warranty period at no expense to the Contracting Authority and as soon as possible during the specified planting season.
3. Upon notice from the Engineer, the removal from site of rejected plants and the replacement of plant material of the same species and size and installed as originally specified shall be completed by the Contractor with no additional compensation.
4. All replacement plants shall be inspected by the Engineer prior to planting.
5. Maintain replacement plants as specified for original plants until accepted by the Engineer. Contractor shall notify the Engineer when all replacements and repair are complete, and schedule the inspection 7 days prior to the proposed inspection date.

H. Establishment and Plant Warranty Period.

The plant establishment and plant material warranty period of 2 years is for all plant material. This timeframe shall be the period of time once all plant material has been installed and accepted by the Engineer to the end of the plant material warranty.

150033.02 MATERIALS.

A. Detention Channel Planting Soil Mix.

1. Excavation.

If using heavy equipment, keep it outside the perimeter of the detention channel. Avoid soil compaction to preserve infiltrative capacity of the soil. When possible, use excavation hoes to remove original soil. If the areas are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf-type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reducing infiltration rates and storage volumes and is not acceptable and will not be allowed. Compaction will significantly contribute to design failure. Do not use heavy equipment within the detention channel prior to and after installation of the soil mix. Heavy equipment can be used around the perimeter of the basin to supply the soil mix. Grade detention channels with light equipment such as a compact loader or a dozer/loader with marsh tracks. This work for excavation is included in the earthwork quantities.

2. Sub-base layer.

After excavation, break up the existing sub-base (native) soils on the bottom of the detention channel to a depth of 6 inches. This shall be accomplished utilizing a rototiller prior to backfill with soil mix.

3. Backfill and Placement of Soil Mix.

Backfill the detention channels in successive horizontal layers (lifts) of 12 inches or less with the prescribed soil mix. Slightly compress each lift by supersaturating the entire area of the detention channel with water. If pooling occurs, wait until water is drained before placing the next lift. Avoid over compaction by allowing time for natural compaction and settlement. No additional manual compaction of soil is necessary. Rake soil material as needed to level out. Adjacent to the stone edge border the final grade of soil mix shall be 3 inches below the top edge of the stone after settlement. Therefore, overfill above the desired final grade to accommodate natural settlement. Depending upon the soil material, up to 20% natural compaction may occur.

4. Soil Texture and Structure.

The soil mix shall have a sandy loam, loamy sand, or loam texture. Soil mixture shall be 30%

sand (specs below), 30% compost and 40% topsoil. The soil shall be a uniform mix, free of stones, stumps, roots, or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the areas that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda Grass, Quackgrass, Johnson Grass, Mugwort, Nutsedge, Poison Ivy, Canadian Thistle, Tearthumb, or other noxious weeds. Compost is essentially composed of aged leaf mulch and provides added organic matter to improve the health of the soil and ensure adequate soil structure.

5. Soil Mix Inspection Requirements.

- a. Topsoil: Contractor to submit sample of topsoil to Engineer for review. On-site existing native topsoil may be utilized in the soil mix only if less than 10% clay content and if approved by Engineer.
- b. Compost: Contractor to submit sample to Engineer for review.
- c. Sand: Contractor to submit sample of sand to Engineer for review. Provide clean concrete sand, free of deleterious materials. Sand shall meet AASHTO M-6 or ASTM C-33 with grain size of 0.02 - 0.04 inches.

6. Key on-site meetings at critical stages of the project.

The contractor shall arrange a "preconstruction meeting" with the Engineer prior to installing any soil mix in the detention channel areas. Meetings on-site and review of the Engineer shall also occur at the following important stages:

- At the completion of excavation of areas to inspect sub grade preparation and condition prior to placement of soil mix.
- During under drain and underground storage installation
- Back fill of soil mix into the areas. Soil certifications and sign-offs for back fill are required prior to placement of soil mix.
- Additional soil mix backfill should be placed as required to achieve the design top surface elevations.
- The work shall be inspected by the Engineer prior to final stabilization and planting.

B. Landscape Plantings.

Plant the plants at a spacing of one plant every 18 inches on center in a triangular pattern when not mixed with rocks. When mixed with rocks on the bottom of the channel, plant the plants at a spacing of one plant every 24 inches on center in a triangular pattern, evenly spaced between the rocks.

C. Rock Channel.

1. Rock is to be placed at the bottom of detention channels spaced randomly, no closer than 24 inches to each other as detailed in the U sheets. See plans for areas to have rock mixed with plugs.
2. Rocks shall be roughly 6 inches in diameter and buried 2 – 3 inches deep.

D. Water.

1. Water shall be free of substances harmful to plant growth. Contractor to provide water, equipment, methods of transportation, water tanker, hoses, sprinklers, and the application of water.
2. Water plants immediately after planting. Saturate soil mix and mulch to a 6 inch minimum depth.
3. Subsequent waterings shall be the responsibility of the Contractor for the first 6 weeks. Watering and rainfall shall supply a minimum of 1 inch of water per week. For the first 3

weeks after planting water three times per week. For the following 2 weeks water two times per week.

150033.03 CONSTRUCTION.

A. Planting Season.

1. Installation shall be performed between April 15th and June 1st or between August 31st and November 1st. If plantings do not occur during these timeframes the disturbed areas must be stabilized with the following cover crop seed mix per acre.
2. For spring planting install a cover crop of Seed Oats (*Avena sativa*) see mix at 40 pounds per acre.
3. For fall planting install a cover crop of ReGreen (a Winter Wheat x Wheatgrass Sterile Hybrid) at 50 pounds per acre.
4. Under no circumstances shall the site be stabilized with Annual nor Perennial Rye (*Lolium multiflorum* or *perenne*).

B. Size, Percentage Mix and Spacing.

1. Plug size for Wetland Plug mix.

Plugs shall be 2.25 inches by 5 inches deep (typically 38 cells in a flat). Plugs shall be thoroughly rooted through the container. No species shall be substituted without approval of the landscape architect.

2. See U sheets for planting plans, materials schedule, quantities, and application rates.

a. Spacing and Planting Pattern.

Within the areas marked as Wetland Mix plugs shall be placed 18 to 24 inches apart and shall be mixed throughout the area per the percentages listed in the materials schedule on the U sheets. An alternation triangular pattern of plant species should be utilized to minimize massing of the same plant in the same area. The intent is to have a diverse mix of the above listed species throughout the entire area.

b. Preparation.

If vegetation exists on the site, apply a 2% glyphosate herbicide at least 2 weeks prior to installation on all actively growing vegetation. Verify that a good kill has resulted from the herbicide application prior to planting.

C. Plug Installation.

1. Use an auger or other appropriate tool to excavate planting holes in a staggered pattern.
2. Evenly distribute the mix of plugs throughout planting to minimize similar species clumped together.
3. Plant plugs slightly beneath the level of the existing soil mix grade. Be certain that soil is placed around the plugs and firmed into place.
4. Thoroughly soak plugged area with water until soil is moist to a depth of 4 inches.

150033.04 METHOD OF MEASUREMENT.

The Contractor shall be paid at the contract unit price per each Wetland Plug successfully planted per the Engineer.

150033.05 BASIS OF PAYMENT.

- A.** This work shall be paid for at contract unit price per each Wetland Plug – Complete at which price includes, but is not limited to, all equipment, field locates, supplies, materials and labor associated with the construction of items located within the proposed detention channel such as: delivery, excavation, watering, mixing and placement of soil amendment, installation of all plantings noted within the Plant Materials List on the detention channel surface restoration planting plan, herbicide, maintenance during the establishment period and warranty periods, and replacements.
- B.** Payment will be made according to the following schedule.
- 70% of unit price at acceptance.
 - 15% of unit price at end of 1 year establishment period, upon installation of replacements.
 - 15% of unit price at end of 2 year warranty period, upon installation of replacements.