

## **PART II – EARTHWORK AND SITE PREPARATION**

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## **Section 201**

### **Clearing and Grubbing**

**201.01 DESCRIPTION.** Clear, grub, and remove vegetation and debris within the limits of the right-of-way and easement areas, except such items that are designated to remain or to be removed under other pay items.

Cut trees, logs, brush, stumps and debris; excavate and remove stumps, roots, submerged logs, snags, and other vegetative or objectionable material; dispose removed material in accordance with 202.02; and clean the area.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication titled *Application of Quality Assurance Specifications for Embankment and Base Course*.

Erosion control shall be in accordance with Section 204.

**201.02 MATERIALS.** Vacant

**201.03 GENERAL CONSTRUCTION REQUIREMENTS.** Preserve the items to remain as designated by the engineer. Do not store equipment, materials, and supplies in proximity of items designated to remain. Remove trees without damaging items marked to remain. Repair damage to bark, trunks, limbs, or roots of vegetation marked to remain using horticultural and tree surgery practices published by the American Association of Nurserymen (AAN) under the supervision of a licensed landscape arborist at no cost to the department. Do not fell trees outside of the right-of-way. Damage outside the right-of-way caused by the contractor's operations shall be the contractor's responsibility.

**201.04 CLEARING AND GRUBBING.** Clear and grub to the limits of the right-of-way, or to the construction limits, whichever is greater, unless otherwise designated on the plans. When fencing or utility relocation is required, an area 10 foot wide, adjacent to and inside the right-of-way line, shall be cleared and grubbed. Mow when required by the engineer. Some loose limbs and roots approximately 2 inch x 2 foot and smaller may be allowed to remain; however, excessive amounts will not be allowed.

Explosives, when used, shall be in accordance with 107.11.

Fill stump holes and other holes left from clearing and grubbing by blading the area and backfilling with existing materials or soil complying with 203.06.1 and compact to a condition similar to surrounding soils.

Submit a plan for burning operations to the engineer for review and comment. Burning of materials shall not jeopardize anything designated to

remain on the right-of-way, the surrounding forest cover, or other adjacent property. Burn in accordance with all laws and ordinances, including, but not limited to, the current regulations of the Louisiana Department of Environmental Quality and 107.13 and 107.14.

Remove materials and debris which cannot be burned and materials which are not burned from the right-of-way and dispose of in accordance with 202.02.

Merchantable timber in the area to be cleared, not removed from the right-of-way prior to the beginning date stipulated in the Notice to Proceed, becomes the property of the contractor.

Remove low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain as directed. Trim branches of trees extending over the roadbed to a height of 20 foot above the pavement in accordance with accepted horticultural and tree surgery practices published by AAN.

**201.05 MEASUREMENT.** No measurement of area will be made for payment.

**201.06 PAYMENT.** When a pay item is included in the contract, payment for clearing and grubbing will be made at the contract lump sum price. Partial payment will be limited to 10 percent of the original total contract amount until the contractor has earned 40 percent of the original total contract amount. When clearing and grubbing consists of more than 50 percent of the contract amount, payment will be made for the work completed.

Payment will be made under:

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
201-01	Clearing and Grubbing	Lump Sum

## **Section 202**

### **Removing or Relocating Structures and Obstructions**

**202.01 DESCRIPTION.** This work consists of the removal or the relocation of structures, facilities or obstructions, hereinafter referred to as “structures” from the project right-of-way unless specified otherwise.

The removal of a structure from the project right-of-way is the razing, demolishing, and disposal of the structure after salvageable parts, components, and materials, as designated on the plans, have been recovered by the contractor.

The relocation of a structure from the project right-of-way is its movement, reassembly, restoration, reconstruction, or equivalent replacement at a new location outside of, and adjacent to, the project right-of-way including all service connections, appurtenances, and accessories as directed.

For the purposes of this section, remove structures and obstructions visible at the time of bid, including all related structures or as designated in the plans. Structures may include buildings, floor slabs, foundations, fuel tanks, septic tanks, fences, pipes, bridges, drainage structures, pavements, walks, curbs, abandoned pipelines and other similar facilities, or obstructions not designated or permitted to remain within the project right-of-way. This work also includes backfilling of resulting trenches, holes, and pits. If structures or obstructions are encountered which differ materially from those ordinarily encountered, the provisions of 105.18 shall apply.

Quality assurance requirements shall be as specified in the latest edition of the Department’s publication titled *Application of Quality Assurance Specifications for Embankment and Base Course*.

Erosion control shall be in accordance with Section 204.

**202.02 GENERAL CONSTRUCTION REQUIREMENTS.** Remove and dispose of all portions of structures or obstructions on the right-of-way, except items for which other provisions have been made for removal or relocation. When specified, remove structures and appurtenances that extend beyond the right-of-way or that are entirely on private property. Remove specified salvageable material in sections which may be readily transported without unnecessary damage. Stack salvageable material at specified storage areas. When no storage sites are specified, deliver salvaged

materials to the nearest dotd maintenance unit. Dispose of materials not specified to be salvaged off the project right-of-way outside the view of the traveling public with written permission of the property owner on whose property the material is placed. Furnish copies of agreements (including rights of entry, etc.) With property owners to the engineer prior to beginning of work. The agreement must contain language holding the department harmless regarding any liabilities of the contractor or property owners. A certificate of release from the property owner will be required before final acceptance. Fill holes left by structure removal or the removal of materials associated with contaminated soils or sites by blading the area with surrounding soil or backfilling with soil complying with 203.06.1. Compact to a condition similar to the surrounding soils or as directed.

If any fuel storage tanks or other environmentally sensitive or contaminated sites are located during construction, stop construction activity in the immediate vicinity of the environmentally sensitive or contaminated site and notify the project engineer who in turn will notify the Department's Materials and Testing Section immediately for guidance. Testing and clean-up by the contractor shall be coordinated with the Materials and Testing Section.

The Department reserves the right to eliminate work items in accordance with 104.02.4.

**202.03 REMOVING STRUCTURES.** Unsalvageable materials in a structure designated for removal shall become the property of the contractor and shall be removed and disposed of by the contractor.

Demolish and remove appurtenances forming a part of a structure to be demolished, whether integral or not integral to the structure. Demolish and remove washhouses, garages, cisterns, and other buildings and appurtenances used in conjunction with a structure in the same manner as the structure. Remove existing yard fences, drives, walks, and shrubbery. The above are all considered part of the structure to be demolished and removed.

Plug and seal all abandoned water wells in accordance with 202.06.

Demolishing of a structure, any part of which is used as a service station, shall include the removal of gasoline pumps, tanks, pipes, signs and other appurtenances. Remove underground fuel tanks in accordance with 202.05.2. Existing underground fuel tanks shall not be reused or used for other purposes.

Remove and dispose of material in existing foundations, concrete or masonry floors, chimneys, and other appurtenances.

Remove and dispose of cattle pens, cane derricks, cattle guards, or other such structures.

**202.03.1 Pavement, Base Courses, Walks, and Curbs:** Dispose of pavements, stabilized or treated base courses, walks, curbs, and gutters, designated for removal as shown on the plans and as directed.

When the existing shoulder underdrain at the pavement edge is to remain in place and in service but removal of the shoulder surfacing and base is required, do not damage the existing shoulder underdrains. Damaged shoulder underdrains shall be satisfactorily repaired at no direct pay.

**202.03.2 Pipe:** Remove and store pipe that is to be re-laid so that there will be no loss or undue damage before relaying. Replace sections lost from storage or unduly damaged at no direct pay. When specified, pipe not to be re-laid and considered usable shall be salvaged, cleaned of soils or other materials, stored and stacked.

**202.03.3 Bridges and Drainage Structures:** Bridges, including approach slabs, and drainage structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate traffic.

Unless otherwise directed or shown on the plans, remove substructures to natural stream bottom and those parts outside the stream to one foot below natural ground surface. Remove existing structures within the limits of a new structure as necessary to accommodate construction of the new structure.

Dismantle steel or wood bridges to be salvaged without unnecessary damage. Dismantling shall include stripping all hardware. Match-mark structural members before dismantling.

Explosives, when used, shall be in accordance with 107.11. Complete blasting or other operations necessary for removal of an existing structure or obstruction, which may damage new construction, prior to placing the new work.

**202.04 RELOCATING STRUCTURES.** Place structures to be relocated in their new locations as directed and restore to their original condition. Place structures to be relocated on foundations of the same type and character as the original foundations.

Relocate appurtenances forming a part of a structure to be relocated, whether integral or not integral to the structure, in the same manner as the structure. Relocate or replace appurtenances associated with the structure as directed with appurtenances of the same size, type, and character as existed before the structure was relocated.

Disconnect sanitary sewers, water, gas, electric, television cable, and telephone service lines connected to structures being relocated and reconnect as quickly as possible. The contractor shall be responsible for all notices to public utility companies and for all fees charged by them. Relocate existing yard fences, drives, and walks; extend same as necessary. Remove and replant existing shrubbery at new locations as designated. All of the above shall be considered as appurtenances not integral to the structures to be removed and relocated.

Remove material in existing foundations, concrete or masonry floors, chimneys and other appurtenances, when not used in reconstruction of appurtenances, and dispose of in accordance with 202.02. Furnish new material required in performing any of these operations at no direct pay.

Relocate contents of structures with the structure to its new site. When not feasible to relocate structures with contents therein, remove the contents from the structure at its original location and properly store and replace in the relocated structure without damage or loss to contents.

Relocate cattle pens, cane derricks, cattle guards, or other such structures on or beyond the right-of-way line as directed. Use materials in structures suitable for reuse in their reconstruction. Furnish new materials similar in kind to that in place at no direct pay, including foundations.

Prior to removal of butane or propane gas tanks, obtain the written approval of the Louisiana Liquefied Petroleum Gas Commission. Do not use or reuse existing underground butane or propane gas tanks for other purposes. The Department will reimburse the contractor for the cost of the new tank when the contractor presents the original receipted bill.

Furnish the engineer a Certificate of Release from each property owner; in case of separate ownerships of structure and property, furnish a Certificate of Release from each owner. This certificate shall state that the relocated structures are in an acceptable condition and that said owner waives all claims for damages to the property and structures relocated. When a Certificate of Release cannot be secured from the property owner, submit to the engineer a notarized letter documenting the inability to obtain the release.

**202.05 REMOVING ENVIRONMENTALLY SENSITIVE MATERIALS.** When removal or remediation of any environmentally sensitive or contaminated sites is required during construction, coordinate construction operations through the materials and testing section. If failure to follow the guidelines of the materials and testing section subsequently

causes or increases harm or damage to the environment, then all resulting fines and clean-up costs shall be the responsibility of the contractor.

**202.05.1 Asbestos:** When information is available, the Department will indicate on the plans which structures contain friable or non-friable asbestos. When a structure is identified on the plans or discovered on the project to contain asbestos and will be demolished or renovated, contact the Materials and Testing Section to coordinate disposal prior to commencing asbestos removal. Use a certified asbestos abatement contractor for proper removal and disposal. All applicable requirements for proper handling of asbestos material shall then be followed by the contractor for the continued removal of the asbestos containing material. Notify the Department of Environmental Quality (DEQ), Air Quality Division through the use of the proper notification form, DEQ AAC2, at least 10 calendar days prior to initiation of demolition or renovation of structure(s). The contractor shall maintain and furnish to the engineer, all records pertaining to the disposal of the asbestos containing material, either as non-friable or friable asbestos, within 21 calendar days of the material being removed from the site for disposal.

Asbestos-containing materials in structures that are removed or relocated without disturbing asbestos will not be abated. Provide a Certificate of Release to the engineer.

**202.05.1.1 Non-Friable Asbestos:** When a structure contains non-friable asbestos, carefully remove the asbestos without excessive breakage or crushing before demolition or renovation of the structure. Dispose of the non-friable asbestos material at an approved industrial landfill.

**202.05.1.2 Friable Asbestos:** When a structure contains friable asbestos, request that DEQ provide a confirmation letter with an Asbestos Disposal Verification Form (ADVF). Complete the ADVF within 90 calendar days from the date of issue. Only contractors or subcontractors certified by DEQ as Asbestos Abatement Entities shall remove friable asbestos from structures. Remove the asbestos before structure demolition or renovation. Perform friable asbestos removal, handling, and disposal in accordance with the latest requirements for asbestos abatement of the DEQ Air Quality Division.

Maintain, and furnish to the engineer within 21 calendar days, Chain of Custody verification records for the friable asbestos from the work site to the disposal site. These records will become part of the permanent project records.

**202.05.2 Underground Fuel Tanks:** Before removal, underground fuel tanks will be registered with the DEQ by the DOTD Materials and Testing Section as abandoned underground storage tanks. The contractor shall notify the project engineer in writing at least 45 calendar days prior to removal of tanks. Upon receipt of the contractor's notification, the engineer will immediately notify the Materials and Testing Section. All site activities, including the collection of closure samples and tank removal, as defined in the latest DEQ Underground Storage Tank (UST) regulations, shall be performed by a DEQ approved contractor. Submit closure test results, all documentation, and all necessary forms to the Materials and Testing Section to be approved and forwarded to DEQ. The contractor and/or the certified UST subcontractor shall note that all contact and/or coordination with the DEQ is to be the responsibility of the Materials and Testing Section.

Take all necessary precautions to prevent the infiltration of water into tanks and tank excavations during the work.

During routine site closure, the removal, transportation, and disposal of tanks, and the handling of contaminated soil and contaminated fluid, shall be in accordance with all local, state, and federal laws and regulations. Limits of excavation and quantities of contaminated soil and contaminated fluid to be removed, transported, and disposed shall be as specified or as directed.

When underground storage tanks (UST) have been filled with concrete, sand, or other such material and are designated on the plans for removal, the contractor or certified UST subcontractor shall remove, transport and dispose of such tanks in accordance with the recommendations of the American Petroleum Institute (API) and the requirements of the Louisiana Department of Environmental Quality (DEQ) or other regulatory agency of jurisdiction. When such UST are discovered during construction, stop construction activity in the immediate vicinity of the UST and notify the project engineer in accordance with this subsection. The DOTD Materials and Testing Section will verify the closure status of such filled UST discovered during construction prior to any UST site activity by the contractor or certified UST subcontractor. The contractor or certified UST subcontractor shall collect and submit for laboratory analysis+<sup>x</sup> a representative sample of non-solidified fill material within the storage tank for landfill acceptance. The results of the laboratory analysis shall be used to determine the disposition of the UST fill material. Provide a copy of all laboratory analyses to the Department's Materials and Testing Section for verification prior to profiling materials for landfill acceptance.

**202.05.3 Contaminated Soils:** Soil in areas of underground fuel tanks or other areas contaminated with petroleum products or other identified

toxic materials at levels above the regulatory limits and is non-protective of groundwater shall be excavated as shown on the plans or as directed. Determination of groundwater protection shall be through the use of the Synthetic Precipitation Leachate Procedure (SPLP) or as directed by the Materials and Testing Section.

Remove the overburden above the contaminated soil to the dimensions shown on the plans or as directed. Also, excavate the contaminated soil at the locations shown on the plans or as directed. Contaminated soil determined to be protective of groundwater, through the use of the SPLP, shall be excavated by the contractor and placed in the roadbed when the soil is determined to be "suitable soil" by the engineer, and when the volume of soil is within quantities specified on the plans. No additional cover of the contaminated soil, other than the specified paved surfaces courses, will be required in the roadbed.

All remaining contaminated soil determined to be protective of groundwater, but not used in the roadbed, shall be placed in other embankment areas within the limits of the project.

Contaminated soil placed in other embankment areas shall be covered with 2 feet of compacted soil by the contractor in accordance with Section 203. Final grade shall be maintained in accordance with the plans. Load the contaminated soil determined not to be protective of groundwater into approved hauling vehicles and dispose of in a site approved by the DEQ. Furnish the engineer, within 21 calendar days, Chain of Custody verification records for the contaminated soil. The Materials and Testing Section will verify that all contaminated soil has been removed.

While the excavation is open, construct and maintain a soil berm around the excavation to prevent surface water runoff from entering the excavation. The removed overburden may be used to construct the berm and backfill the excavation.

Removal and disposal of contaminated soils will be in accordance with all local, state, and federal laws and regulations.

**202.05.4 Contaminated Fluids:** Remove and dispose of contaminated fluid, in underground fuel tanks, in areas of underground fuel tanks, or other areas as shown on the plans or as directed.

The Department will determine the quantity of contaminated fluid to be removed.

Pump the contaminated fluid into approved hauling vehicles. Remove contaminated fluid from underground fuel tanks before tank removal.

Dispose or recycle of contaminated fluid in a site approved by the Department of Environmental Quality. Furnish the engineer, within

21 calendar days, Chain of Custody verification records for the contaminated fluid.

The Department will verify the removal of the contaminated fluid.

Removal and disposal of contaminated fluids will be in accordance with all local, state, and federal laws and regulations.

**202.05.5 Paint Containing Lead or Other Hazardous Materials on Metal Surfaces:** Remove steel members of structures protected by paint containing lead or other hazardous materials as shown on the plans or as discovered in the field and prepare for transport in accordance with Section 107.

Prior to removal, transport, treatment, or disposal of any steel members, submit the following to the engineer:

1. Plan of removal or treatment of steel members.
2. Plan for transport of steel members and any hazardous materials.
3. Name and address of the licensed recycling center.

Deliver such steel members to a licensed recycling center capable of processing steel members coated with paint identified as hazardous by the Resource Conservation and Recovery Act (RCRA).

The DOTD or the Owner will be the Generator and obtain the generator number. The contractor will be responsible for obtaining an approved disposal site, arranging for transporting the material and/all testing required. The manifest for transportation will have the DOTD Generator number on it and should be signed by the contractor, DOTD Inspector, and the Disposal Operator with copies to each upon completion.

Unless otherwise directed or shown on the plans, the contractor will be allowed to retain any steel member once the lead paint has been removed and disposed of prior to steel leaving the jobsite in accordance with procedure above at no cost to the Department.

Transport all steel members or hazardous material in accordance with all federal, state, and local laws. Provide Certificates of Disposal, Chain of Custody forms, or other applicable documents within 21 calendar days following each shipment.

**202.05.6 Treated Timber:** Remove creosoted and other treated timber or lumber shown on the plans or discovered in the field; and prepare for transport by methods approved by the Department. Dispose of all materials that are not designated to be salvaged by the Department or salvaged by the contractor in an appropriate landfill. Provide Certificates of

Disposal, Chain of Custody forms, or other applicable documents within 21 calendar days following each shipment.

**202.05.7 Universal Wastes:** Universal wastes are hazardous wastes defined in LAC Title 33, Part V, Chapter 38, Section 3813 to include batteries, pesticides, thermostats, lamps and antifreeze. Universal wastes shall be removed in accordance with the plans and shall be stored and prepared for transport as specified in LAC Title 33, Part V, Chapter 38 and herein.

Inform all employees who handle universal wastes of the proper handling and emergency procedures appropriate to the type of waste.

**202.05.8 Other Regulated Materials (ORM):** Items for removal under this subsection are defined as any material not considered in the above subsections and may be disposed of as a solid waste in the appropriate solid waste landfill. Such materials may include asphalt shingles, noninfectious medical waste, etc. not covered in other items.

## **202.06 PLUGGING OR RELOCATING EXISTING WATER WELLS.**

Plug and seal all abandoned water wells at the locations shown on the plans, or as directed by the engineer, in accordance with the *Water Well Rules, Regulations, and Standards, State of Louisiana*. This document is available at the department of transportation and development, water resources section. Water well abandonment must be accomplished by a DOTD licensed water well contractor. Relocated water wells shall conform to the Sanitary Code of the State of Louisiana as prepared and promulgated by the Louisiana State Board of Health.

**202.07 MEASUREMENT.** Removing structures and obstructions will be measured on a lump sum basis or by the unit as stipulated in the contract and shall include appurtenances, foundations, etc.

Hauling salvaged materials to storage sites will not be measured for payment.

When an item is included for removal of bridges, the removal of the approach slabs, superstructure, and substructure will be considered part of the work unless otherwise specified or shown on the plans.

Removing or relocating structures will be measured by the unit stipulated in the contract. Each principal structure with its associated appurtenances, whether integral or not integral to the structure being removed or relocated, will be considered as a separate unit including its associated appurtenances.

Plugging of existing abandoned water wells or relocating water wells will be measured per each well plugged and accepted or relocated.

Measurement for removal of contaminated soil and non-contaminated overburden will be by the cubic yard using the in-place quantities as determined by cross-sections.

Measurement for contaminated fluid will be by the gallon.

Removal, transportation, and related fees for disposal of steel members of structures protected by paint containing lead or other hazardous materials, or creosoted timbers or lumber, will be considered part of the work when shown on the plans and will not be measured for payment.

When a structure to be removed or relocated is shown on the plans to contain universal wastes, the removal, storage and transport of the universal waste to an approved disposal site or destination facility will not be measured for payment but will be included in the structure to be removed or relocated.

Measurement for removal of Other Regulated Materials (ORM) will be as designated on the plans.

**202.08 PAYMENT.** Payment for removal of structures or specific obstruction items stipulated for removal and disposal under unit price or lump sum pay items will be made at the contract price per unit or lump sum as specified. This will include demolishing, removing and disposing of such items as well as the excavation and backfill incidental to their removal when required. When the removal is in an area to be excavated and payment for excavation is made under other items, no deduction will be made from the excavation quantities. The price shall also include salvage of materials, their custody, preservation, storage on the right-of-way or as designated on the plans, and disposal.

Payment for the removal of bridges will include removal of the approach slabs, superstructure, and substructure.

Payment for the relocation of structures will be made at the contract unit price which will include all costs for moving, reassembly, restoration, reconstruction, or equivalent replacement of the structures.

Payment for plugging and sealing existing abandoned water wells or relocating existing water wells will be made at the contract unit price which will include all labor, material, tools, equipment, and incidentals necessary to complete the work.

If a structure is to be removed or relocated as a unit under Pay Items 202-01, 202-02, or 202-03 and;

1. The contractor enters into an agreement with a property owner for disposition of the structure other than as shown on the plans; or if it is subsequently determined that said structure can remain in place, in whole or in part, with or without minor adjustments, and;

2. The contractor enters into an agreement with the property owner incorporating such revised determination and any accompanying adjustments regarding said structure, including any damages for leaving the structure in place, then;

3. The contractor shall furnish such agreement to the engineer for approval. If approval is given by the engineer, the contractor shall furnish the Department with a Certificate of Release from the property owner for the unit.

In case of multiple ownership interest in the structure and/or property, a Certificate of Release from each owner shall be furnished. This certificate shall state that said owner waives all claims for damages to the property and structure to be removed, relocated, left in place, or otherwise handled to the owner's satisfaction.

Except as provided hereinafter, the contractor will be paid for removing, relocating, or other handling of the structure at the contract unit price as listed under Pay Items 202-01, 202-02, or 202-03. However, a deduction will be made in such amount if:

1. A determination to allow the structure to remain in place results in a decrease in cost to the contractor;

2. An allowance is made to the owner for damages to the property or structure caused by the contractor, or its subcontractor, agent, or assign; or

3. Any other adjustment of the contract amount for removal, relocation, or other handling of said unit under Pay Items 202-01, 202-02, or 202-03, is deemed justified.

When a structure has been identified on the plans as containing friable or non-friable asbestos, the price for asbestos removal and disposal will be included in the bid price for removal, relocation, or demolition of the structure. When a structure is found to contain friable or non-friable asbestos and it has not been identified on the plans as containing asbestos, payment for the removal and disposal of the asbestos will be made in accordance with 109.04, including the cost of all testing.

Payment for removal, transportation, and disposal of contaminated soils and fluids will be in accordance with rates specified in applicable appendices (currently Appendices A and B) of the *Louisiana Motor Fuels Underground*

*Storage Tank Trust Fund Cost Control* guidance document as maintained and updated by the Louisiana Department of Environmental Quality (DEQ). The DEQ cost control guidance document can be obtained at DEQ website. All payments under this item will be in accordance with industry standards, which include all equipment, labor, and materials necessary to complete the work, including backfilling any excavation. Payment for work not covered in the cost control guidance document, or any disputed payments, will be negotiated and resolved prior to performance of work. The Department will reimburse the contractor monthly for the actual incurred cost for such services. The contractor shall furnish documentation with the request for reimbursement.

Payment for removing steel members of a structure identified on the plans as being protected by paint containing lead or other hazardous materials, or creosoted timbers or lumber, and transporting them to the recycling center or landfill, will be included in the bid price for removal or relocation of the structure. When a structure is determined to have steel members protected by paint containing lead or other hazardous materials, or creosoted timber or lumber, and it has not been identified on the plans as such, payment for removal and transport of the members to a licensed recycling center or landfill will be made in accordance with 109.04. Unless otherwise directed or shown on the plans, the contractor will be allowed to retain any steel member once the lead paint has been removed and disposed of prior to steel leaving the jobsite and a Chain of Custody form or other applicable documentation is submitted to the engineer within 21 calendar days.

When the plans show that a structure to be removed or relocated contains a universal waste, payment for the removal of the universal waste will be included in the contract unit price for the removal or relocation of the structure, which will also include all equipment, labor, and materials required for the removal, storage, and transport of the universal waste in accordance with LAC Title 33, Part V, Chapter 38. When a structure to be removed or relocated is found to contain a universal waste and it is not identified as such on the plans, payment for the removal, storage, and transport of such universal waste in accordance with LAC Title 33, Part V, Chapter 38 will be made in accordance with 109.04.

Payment for removal of other regulated materials (ORM) will be as designated on the plans.

Payment will be made under:

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
202-01	Removal of Structures and Obstructions	Lump Sum
202-02	Removal of _____	As Required
202-03	Relocation of _____	As Required
202-04	Excavation, Disposal and Backfilling of Non-Contaminated Overburden	Cubic Yard
202-05	Excavation, Disposal and Backfilling of Contaminated Soil	Cubic Yard
202-06	Removal and Disposal of Contaminated Fluid	Gallon
202-07	Plugging Existing Water Wells	Each

## **Section 203**

### **Excavation and Embankment**

**203.01 DESCRIPTION.** This work consists of excavation, disposal, placement, and compaction of materials for which provisions have not been made under other sections of these specifications. This work shall include excavation and embankment construction for roadways and other structures, excavation for ditches and channels, and other grading operations necessary for the work in accordance with these specifications and in conformity with the lines, grades, thicknesses, and typical sections shown on the plans or established. When specified, supply, install, and monitor settlement plates. When contaminated soils or underground tanks are encountered, handling shall be in accordance with Section 202. Disposal of material shall be in accordance with 202.02.

The plans may include data regarding the boring and classification of existing materials. The Department does not guarantee that individual samples are representative of the entire project, and bidders are required to study, make interpretations and additional investigations, as necessary, at no direct pay. The bidder shall determine the suitability of the on-site soils to meet specifications of Section 203.

The contractor shall comply with 107.09 for work in, over or adjacent to navigable waters and wetlands, and shall comply with 107.27 when cultural artifacts, historical sites, or archaeological sites are encountered.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication titled *Application of Quality Assurance Specifications for Embankment and Base Course*.

Excavated material may be used in accordance with 203.06.

Temporary erosion control shall be in accordance with Section 204.

**203.02 GENERAL EXCAVATION.** General excavation consists of the excavation of materials, as required by the plans, except drainage excavation and structural excavation. General excavation also includes unsuitable material in accordance with 203.04.

#### **203.03 HYDRAULIC EXCAVATION.**

**203.03.1 Drainage Excavation:** Drainage excavation includes the excavation for drainage beyond the limits of the roadway section. Drainage excavation also includes inlet and outlet ditches to structures or roadways; changes in or deepening of channels of streams, berm ditches, ditches

parallel or adjacent to the roadway beyond the limits of the roadway section; and material excavated from areas under bridges.

**203.03.2 Cleaning Existing Ditches:** This item consists of excavating and disposing of sediment and vegetative materials from existing ditches in order to reestablish flow lines on the existing alignment in accordance with plan details and the following. Establishment of ditch grades, if necessary for this item, will be the responsibility of the project engineer.

Unless otherwise directed, dispose of material excavated from existing ditches in accordance with 202.02.

**203.04 UNSUITABLE MATERIAL.** Unsuitable materials are soils containing significant amounts of debris or organic matter including stumps, roots, logs, and humus, or other materials which will decay or produce subsidence, including highly saturated soils, which the engineer determines are not satisfactory for use in the embankment or other construction purposes. Remove unsuitable materials and dispose of as general excavation. Remove unsuitable materials determined to be environmentally sensitive and dispose of in accordance with 202.05.

**203.05 BORROW.** Borrow is defined as soils required for construction of embankments or other portions of the work in excess of soils obtained from excavation. Obtain borrow from an approved source and use in accordance with 203.06. Make arrangements for obtaining borrow at no direct pay.

Securing of an exclusive option by a bidder or contractor on borrow areas or materials for the work will be considered a violation of Louisiana law and will be a basis for rejection of bids or such other action the Department deems advisable.

Notify the engineer in writing a minimum of 30 calendar days in advance of contractors borrow operations so that samples may be taken and soil tests completed prior to beginning borrow operations. Include in notification: boring requests, quality control test results, property owner agreements, and other information as required by the Materials Sampling Manual and the *Application of Quality Assurance Specifications for Embankment and Base Course* to the District Lab.

Unless otherwise authorized in writing, locate borrow pits, gravel pits, and quarry sites at least 300 feet from the right-of-way.

When sources of borrow are located adjacent to a stream or river listed on the National System of Wild and Scenic Rivers or the Louisiana Natural

and Scenic Rivers System, locate borrow pits and any stockpiled materials at least 300 feet from the natural stream or river bank.

Clear the borrow pit and access to allow access for DOTD boring equipment. Survey the borrow area with a base line staked. Furnish both the engineer and laboratory with a location plat and borrow pit plat. Do not begin borrow operations until materials are approved for use.

Sampling of soils from open excavations in lieu of borings will be allowed provided the open excavations display and allow sampling of each soil strata and the excavation is at no cost to the Department.

**203.06 SOIL USAGE.** The laboratory will test and classify soil in accordance with DOTD TR 423 from samples taken in the original location or from designated stockpiles. Soil shall be classified and approved prior to its being placed in embankments or other final positions on the project. Blending in the pit by approved methods to adjust percent silt or sand will be permitted. Do not blend soils that do not meet Liquid Limit or PI requirements in order to modify the Liquid Limit or PI. Soils may be treated with lime to reduce PI in accordance with 203.06.5.

Soil properties will be determined by the test methods shown in Table 203-1, "Soil Properties."

**Table 203-1  
Soil Properties**

Property	Test Method
Plasticity Index (PI)	DOTD TR 428
Liquid Limit (LL)	DOTD TR 428
% Organic	DOTD TR 413
% Silt	DOTD TR 407
pH	DOTD TR 430

**203.06.1 Usable Soils:** Usable soils shall have a maximum PI of 25 and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed.

**203.06.2 Nonplastic Embankment:** Nonplastic embankment shall be as specified in 203.09.

**203.06.3 Headers:** Headers are that portion of the embankment within 500 feet of a bridge end. Construct headers for their full height with usable soils meeting the requirements of 203.06.1, and having a minimum PI of 11, a maximum PI of 25, and a maximum silt content of 65 percent.

No lime treatment to the soil to meet the PI requirements will be permitted. Compact headers to 98 percent of maximum dry density in accordance with 203.07.

**203.06.4 Embankments other than Headers:** Construct embankments with usable soils meeting the requirements of 203.06.1. Soil with a PI greater than 25 and less than 35 will be permitted when treated with a minimum of 6 percent lime, by volume, provided the organic content and silt requirements given in 203.06.1 are met. If lime treatment is used, it will be at no direct pay. Lime treatment shall be Type E Treatment conforming to Section 304.

The contractor may request in writing that usable soils for temporary detour roads have a PI not to exceed 45 and a maximum silt content of 75 percent provided:

1. This material will be removed and not become part of the permanent embankment, and
2. The contractor agrees to take responsibility for any additional maintenance required.

#### **203.06.5 Plastic Soil for Slopes**

**203.06.5.1 Use Topsoil in Accordance with Section 715 Embankment Material:** The outside layer of embankment (fill sections) will consist of a plastic soil blanket in accordance with 203.10.

**203.06.5.2 Cut Slopes, PI Less than 10:** When soils having a PI less than 10 exist on cut slopes, undercut 12 inches and place a plastic soil blanket conforming to 203.10.

**203.06.5.3 Cut Slopes, PI 10 or Greater:** When soils having a PI of 10 or greater but with a pH less than 5.5 or greater than 8.5 exist on cut slopes, undercut and place a plastic soil blanket complying with 203.10. In lieu of furnishing a plastic soil blanket, the soil may be modified in place so that the pH of the soil complies with the requirements of 203.10, at the option of the engineer and concurrence of the contractor. In such case, payment will be in accordance with existing items or 109.04, as applicable, not to exceed the cost of undercut and replacement.

**203.06.6 Usable Soils for Slope Adjustments and Shoulder Widening:** When the thickness of embankment material used for slope adjustment or unpaved shoulder is less than 12 inches, a plastic soil complying with 203.10 will be required. If the thickness is greater than 12 inches, the contractor will be allowed to substitute plastic soil for usable soil, provided the widening is not directly below a paved shoulder.

## **203.07 GENERAL REQUIREMENTS**

**203.07.1 General:** Excavation and embankment work consists of constructing roadway embankments, including preparation of surfaces on which they are to be placed; constructing drainage excavation; constructing backslopes; constructing dikes, when required; placing and compacting approved material in areas where unusable material has been undercut and removed; placing and compacting embankment material in holes, pits, and other depressions.

Do not place or spread embankment materials on portland cement concrete or asphalt concrete pavements. Do not damage pavement surfaces, edges and joints during embankment operations.

**203.07.2 Surface Layer Preparation:** Complete all necessary clearing and grubbing in an area, prior to beginning excavation, grading, or embankment operations in that area. Prior to any embankment operations in an area, cut ditches as required to facilitate drainage in that area unless otherwise noted on the plans.

When preparing surface layers on which the embankment or base is to be placed, attempt all normal earthwork construction methods before undercutting or modifying the soil with additives. Such construction methods may include, but are not limited to, the following and will be at no direct pay:

1. Draining and drying of the surface until the material is within the limits of optimum moisture before compaction is attempted.

2. Using lighter weight construction equipment for manipulating, disking, drying, and compacting the material.

3. Placing successive loads of approved material in a uniformly distributed layer of a thickness necessary to support equipment while placing subsequent layers.

4. Rerouting heavy construction equipment around the area until the embankment can support the equipment without damage to foundation soils.

Remove unstable materials by undercutting, unless otherwise directed, and backfill to required section with usable soils as directed.

When undercutting is required, conduct the operations in such manner that the engineer can make necessary measurements before backfill is placed.

When a new roadway is to be constructed on an existing roadbed, remove existing surface courses. When the surface of the existing roadbed is within 2 foot of finished sub-grade, scarify the existing roadbed full width to a depth of not less than 9 inches and re-compact to at least 95.0 percent of maximum dry density.

**203.07.3 Excavation:** Excavated material shall become the property of the contractor. Soils from excavation areas may be used in embankments or other finished sections when approved. Dispose of surplus or unusable excavated material in accordance with 202.02 or as provided in this subsection.

When obliteration of old roadways is required, include grading operations necessary to satisfactorily incorporate the old roadway into the new roadway and surroundings to the satisfaction of the engineer and to allow drainage.

**203.07.4 Settlement Plate Installation and Monitoring:** Furnish and install settlement plate as shown on the plans.

Install settlement plate prior to placement of any fill. Place settlement plate on top of the geotextile fabric if shown on the plans, otherwise, place the settlement plate on natural ground. Maintain a vertical and undamaged riser pipe during embankment placement and compaction. Replace any settlement plate damaged during construction at no cost to the Department.

Establish the elevation of the settlement plate. Take initial settlement plate elevation readings immediately after installation. Unless specified on the plans, monitor settlement plate as follows: immediately after the final lift placement, twice weekly for the first month, and weekly for five months thereafter. Repeat this sequence if any additional fill placement or surcharge is required. Record the embankment elevation and surcharge height for each settlement plate reading. Submit settlement plate readings to the Project Engineer. The Project Engineer will verify the initial and final elevations for acceptance.

Remove riser pipe and casing three feet below base course upon acceptance.

**203.07.5 Embankment:** Embankment material shall be in accordance with 203.06. Place in uniform layers not exceeding 12 inches of un-compacted thickness. Place each layer for the full width of embankment, blend as necessary to obtain a uniform material, bring to a uniform moisture content, and compact to a minimum of 95.0 percent of maximum dry density before the next layer is placed. Determine maximum dry density in accordance with DOTD TR 415 or TR 418 and percent in-place density in accordance with DOTD TR 401. The density of the embankment shall be such that the density of the type of base course being constructed shall be met. The moisture content at the time of compaction, tested in accordance with DOTD TR 403, shall be within a range of  $\pm 2.0$  percent of optimum moisture established in accordance with DOTD TR 415 or TR 418. If not, reprocess and re-compact the lifts until these requirements are met.

Topsoil shall be placed and compacted in accordance with 715.03.

Ensure that final embankment slope lines are uniform in appearance. Measure as necessary to assure that the elevations at the top, bottom, and intermediate breaks in the slope are such that minimum acceptable slopes are achieved. Visually inspect the slopes and ensure the slopes are straight without valleys or humps. If an apparent discrepancy is discovered upon visual inspection, take measurements a minimum of every 10 feet measured along the slope between theoretical break points in the embankment. Allowable tolerances for slope grade will not be less than by 0.03 foot/foot nor greater than 0.15 foot/foot. The slopes shall be reworked until these criteria are met. The top of embankment shall not vary from the established grade by more than  $\pm 0.1$  foot.

Conduct operations to prevent lamination between lifts. Correct all laminations between lifts prior to placing additional lifts. Assure that surfaces of excavated areas and embankments are smooth and uniform. Do not disturb material outside the construction limits.

When excavation and embankment construction results in surface soils having a PI less than 10, or pH less than 5.5 or greater than 8.5, place a plastic soil blanket complying with 203.10.

The contractor shall be responsible for the stability of embankments until final acceptance. Construction activities which may lead to subsequent embankment damage, will not be permitted.

When embankments are constructed on a surface sloping more than 6:1 from the horizontal, cut the slope of the ground on which the embankment is to be placed into steps, as directed, before fill is placed.

When an embankment is to be constructed to a height of less than 5 feet, remove heavy sod and objectionable vegetation from the area on which the embankment is to be placed. Scarify the area to a depth of approximately 9 inches. Re-compact this area to at least 95.0 percent of maximum dry density in accordance with DOTD TR 415 or TR 418 and percent in-place density in accordance with DOTD TR 401. When height of fill is 5 feet or more, removal of sod will not be required, but disk the area on which embankment is to be placed to the satisfaction of the engineer and re-compact before construction of embankment.

When embankment material is to be deposited only on one side of abutments, wing walls, piers, or culvert head walls, do not compact the area immediately adjacent to the structure to the extent that it will cause excessive pressure against the structure. When the embankment is to be deposited on both sides of a concrete wall or similar structure, conduct operations so that the embankment is always at approximately the same elevation on both sides of the structure. Backfill structures in accordance with Section 802.

When embankments are constructed in lakes, streams, swamps, or other unstable areas and unstable material cannot be removed or the area drained, the requirement for placing material in layers as outlined above may be waived. When this requirement is waived, place the embankment by end dump or other approved methods to an elevation where normal construction methods can begin. Construct embankments placed above this elevation in layers as specified above. When a wave of unsuitable material is forced up in front of the end dumping operation, it shall become the property of the contractor and be removed as necessary. In addition, do not allow this material to be trapped and incorporated in the embankment except as part of plastic soil for slopes.

**203.08 CUT AREA PREPARATION.** Scarify and compact the top 12 inches of the cut area to such density that the compaction requirements of the type base course being constructed shall be met. Construction, compaction, and testing requirements shall comply with 203.07.

When unstable soils are encountered, the engineer will determine the limits to be undercut. Excavate to a stable foundation or to the depth required by the engineer and backfill to existing grade. Undercut shall be constructed and tested in accordance with 203.07. When a stable foundation cannot be reached, “bridge-in” the embankment materials and construct the remaining embankment to existing grade in accordance with 203.07.

### **203.09 NONPLASTIC EMBANKMENT**

**203.09.1 Materials:** Non-plastic embankment material shall comply with 1003.09 or the following, unless otherwise specified on the plans.

**203.09.2 General Requirements:** Do not entrap unsuitable material defined in 203.04 in the embankment. Remove any such material at no direct pay.

Leave surcharge materials on the embankment for at least the specified number of days after approval of the increment. Damage to embankment increments due to the contractor’s operations shall be satisfactorily repaired by the contractor at no direct pay. Remove excess surcharge materials after the surcharge period. Verification cross-sections of the final embankment will be taken after removal of the surcharge. Material required due to additional subsidence after cross-sections are taken will be paid under the appropriate item.

After all embankment increments have been surcharged, satisfactorily dispose of excess surcharge material in accordance with 202.02 at no direct pay.

Except for stone embankments, furnish and place a plastic soil blanket complying with 203.10.

**203.09.3 Nonplastic Embankment Construction:** Construct nonplastic embankments by mechanical methods.

Unless otherwise shown on the plans, place material in lifts not exceeding 15 inches of uncompacted thickness after establishing a working table as directed. Compact each lift and test in accordance with 203.07.

**203.09.4 Blended Calcium Sulfate Embankment Construction:** Add water or use other suitable means to prevent dust resulting from the transport and placement of dry material. Place blended embankment material in lifts not exceeding 12 inches in thickness (loose) after establishing a working table as directed. Compact each lift to at least 95 percent of maximum dry density prior to placement of subsequent lifts. Determine the maximum density in accordance with DOTD TR 418 modified to include a drying temperature not to exceed 140°F. Perform field density testing in accordance with 203.07. Determine moisture content for density corrections by oven drying the material at 140°F for a minimum of 24 hours. Provide a forced draft type oven capable of maintaining this temperature. Also, furnish and place a plastic soil blanket complying with 203.10.

Do not place blended calcium sulfate within 10 feet of metal drainage structures. The contractor will be allowed to substitute natural stone, flowable fill under Section 710, or other material in 1003.08 as approved by the Department.

**203.10 PLASTIC SOIL BLANKET.** Plastic soil blanket shall consist of soils having a minimum PI of 11, maximum PI of 35, a maximum silt content of 65 percent, and a pH not less than 5.5 or greater than 8.5, and a minimum organic content of 3 percent. The contractor will be allowed to blend organic materials to achieve the minimum 3 percent organic content. The plastic soil blanket shall support a satisfactory stand of grass in accordance with Sections 714 or 717. Construct the soil blanket to a minimum thickness of 12 inches. Areas requiring a plastic soil blanket shall be approved prior to placement of the plastic soil blanket. After materials are placed and spread, remove lumps, stones, roots and other foreign matter from the area. Spread and roll soil blanket material in a manner that leaves a uniform surface. Ensure that any remaining ridges or grooves, including cleat tracks from the dozer, will be parallel to the roadway during the period of time between placement and seeding.

Place plastic soil blanket in a timely manner to prevent erosion.

## **203.11 GEOTEXTILE FABRICS**

**203.11.1 General:** Furnish and place geotextile fabric in accordance with these specifications and in conformance with the details shown on the plans.

**203.11.2 Materials:** The geotextile fabric shall comply with Section 1019.

**203.11.3 Construction Requirements:** Keep rolls of geotextile fabric covered and protected from ultraviolet degradation at all times until use. Cover geotextile fabric that has been installed with embankment material within seven calendar days. When ultraviolet damage occurs, remove and replace the geotextile fabric. Place the geotextile fabric at the locations shown on the plans or as directed. Overlap or sew adjacent rolls of geotextile fabric. When rolls are overlapped, overlap a minimum of 18 inches or as specified in the plans, including the ends of the rolls. Place the top layer of the geotextile fabric parallel with adjacent rolls and in the direction of embankment placement. When rolls are sewn, join adjacent rolls by sewing with polyester or kevlar thread. When field sewing, employ the J-seam or “Butterfly” seam with the two pieces of geotextile fabric mated together, turned inwards so as to sew through four layers of fabric. Sew with two rows of Type 401, two-thread chain stitch. Factory seams other than specified shall be submitted to the Materials and Testing Section for approval. Where the ground is covered with water or soil is saturated, sewing of the geotextile fabric will be required.

Place the geotextile fabric as smooth as possible with no wrinkles or folds, except in curved road sections. For curved road sections, fold the geotextile fabric to accommodate the curve. The fold shall be in the direction of construction and pinned or stapled. Fill and compact ruts that occur during construction prior to placement of geotextile fabric.

Remove damaged geotextile fabric and replace with new geotextile fabric or cover with a second layer of geotextile fabric extending 2 feet in each direction from the damaged area.

**203.12 QUALITY CONTROL.** Locate, select, and place material conforming to specification requirements. Control processes, including performing tests and making adjustments as necessary, to result in a uniform quality product meeting all the requirements of the plans and specifications. Perform tests for in-place moisture content in accordance with DOTD TR 403, at a frequency that will ensure that the material is within the tolerances of optimum moisture. Perform tests for in-place density in

accordance with DOTD TR 401 at a frequency that will ensure that the compactive effort is producing a uniform product that conforms to specification requirements. Control placement and finishing to ensure conformance with the lines, grades, thickness, and typical cross-sections shown on the plans or established.

Sections will be inspected prior to acceptance testing. Correct obviously deficient areas prior to acceptance testing.

**203.13 ACCEPTANCE.** The Department will perform inspection, sampling, and testing for acceptance. Correct any area that is deficient whether identified by inspection or testing.

The embankment (with surcharge, if required) will be approved in increments of 1000 feet, except terminal increments which may be less than 1000 feet.

Maximum density for earthwork will be determined in accordance with DOTD TR 415 or DOTD TR 418; in-place density will be determined in accordance with DOTD TR 401.

### **203.14 MEASUREMENT**

**203.14.1 General:** Unless otherwise specified, borrow material in accordance with 203.05, topsoil, and plastic soil for slopes in accordance with 203.06.6 will be considered incidental to the embankment and will not be measured separately, but will be measured as embankment. Removal and stockpiling of existing topsoil will be measured by the in-situ square yard.

Measurement of undercut will be from subgrade or original ground, whichever is lower.

No measurement will be made for excavation for culverts or culvert headwalls.

When the grade line of a pipe or box culvert is raised or lowered more than 2 feet from the grade line shown on the plans or is relocated to a site requiring an equivalent change in excavation, payment will be increased or decreased accordingly at the rate of three times the contract unit price for General Excavation (or Embankment if General Excavation is not a contract pay item). The volume to be used in the increase or decrease will be a rectangular solid the length of the pipe or box culvert, the outside width of the pipe or box culvert plus 3 feet, and the average change in invert elevation minus 2 feet.

**203.14.2 General Excavation, Embankment and Nonplastic Embankment:** The measurement of quantities will be computed by the average end area method and will be that area bound by (1) the original

ground line established by location (plan) cross-sections or new original cross-sections obtained by the contractor, and (2) the final theoretical pay line as shown on the plans, or established by the engineer, adjusted for field changes. New original cross-sections will be taken after clearing, and prior to grubbing.

The final theoretical pay line shall be derived from the profile grade, typical section and ditch grades shown in the plans, along with approved plan changes and other field changes made by the engineer. No increase in quantities will be authorized for overbuilding unless directed by the engineer.

Pay lines for surcharged embankments will be the theoretical surcharge lines shown on the plans. No measurement will be made for removing and disposing of excess surcharge materials.

When payment is made for embankment in its final position, no additional quantity will be measured due to settlement, compaction, erosion or other cause.

Excavation and embankment for crossovers, turnouts, driveway approaches or other minor installations will not be included in the measurement.

A depth and width tolerance of  $\pm 1.5$  feet will be allowed for excavation of unsuitable material. Overdepth and overwidth will be waived at no direct pay; however, no measurement for payment will be made for additional embankment material required to backfill areas beyond theoretical unsuitable material lines.

Measurement will be made by one or more of the following methods:

**203.14.2.1 Plan Quantity:** The quantities of excavation and embankment will be those shown in the plans, provided the project is constructed essentially to the theoretical pay line.

When the plans have been revised or when disagreement exists between the contractor and the engineer as to the accuracy of the plan quantities for the entire project, or any substantial portion thereof, either party may require that quantities be revised. The party requesting the revision will be responsible for isolating and detailing the error in an easily understood format which may include cross-sections, sketches, and computations. The revision will be verified and agreed to by the other party. Quantity revisions will not be considered without advanced notice to both parties and unless the original cross-sections have been taken.

No payment will be made to the contractor to re-compute new plan quantities.

**203.14.2.2 Field Cross-Sections:** When payment lines are not shown on the plans and cannot be established, in lieu of final theoretical pay lines, field cross-sections will be used to determine pay quantities for excavation and embankment.

After clearing operations, the contractor shall take original cross-sections for the entire length of the project. Take all original cross-sections in the presence of the Department. Take cross-sections at sufficient intervals to accurately determine earthwork quantities, not to exceed 100 linear feet. Take the cross-sections in accordance with DOTD procedures, and furnish results to the Department immediately in a format satisfactory to the engineer. The Department reserves the right to take additional cross-sections as needed to verify the contractor's cross-sections. In the event the cross-sections do not verify, the contractor shall investigate and reconcile any differences.

The original cross-sections will be used to determine the accuracy of the location cross-sections by using random sections not farther apart than 1000 linear feet and centerline elevations at intervals of 100 linear feet. The location cross-sections will be considered to be usable if the average of the differentials does not exceed  $\pm 0.3$  foot. For significant portions of the project with obvious errors between location and original cross-sections, the contractor's original field cross-sections will be used, and will not be part of the verification process. In all cases where location sections are unavailable, new originals are to be taken and used.

**203.14.3 Hydraulic Excavation:** After completion of drainage excavation operations at each individual location, measurement will be made in accordance with 203.14.2.1 or 203.14.2.2. Elevations for underwater excavation will be determined in accordance with DOTD TR 426.

Cleaning existing ditches will be measured by the linear foot along the center line of each ditch.

**203.14.4 Settlement Plate Installation and Monitoring:** Settlement plate installation and monitoring will be measured per each, which includes furnishing, installing, monitoring and removing; and includes all labor, materials, equipment, tools, and incidentals necessary to complete the work.

#### **203.14.5 Excavation and Embankment**

**203.14.5.1 Linear Measurement:** When excavation or embankment is to be measured on a linear basis, measure the length along the centerline or the baseline used in the plans and include performing the excavation, embankment and grading work necessary for construction of the

project. It is the contractor's responsibility to determine quantities of earthwork necessary to complete this item.

**203.14.5.2 Lump Sum Measurement:** When excavation and embankment is to be measured by the lump sum, this item includes performing the excavation, embankment, and grading work necessary for construction of the project. It is the contractor's responsibility to determine the correct quantities of earthwork required to complete this item. No adjustment in contract price will be made.

**203.14.6 Borrow (Vehicular Measurement):** The material will be measured by the cubic yard in approved hauling vehicles at the point of delivery in accordance with 109.01.

**203.14.7 Geotextile Fabric:** Geotextile fabric will be measured by the square yard of covered area in place.

**203.15 PAYMENT.** Payment for the accepted quantities will be made at the contract unit prices, which includes furnishing the equipment, labor and materials necessary to complete the items.

Payment for roadway obliteration will be made under appropriate roadway removal and excavation items. Removal of existing asphalt pavement asphalt will be paid for under Section 202. Blading and shaping to drain will be considered incidental and will not be measured for pay. Excavation, other than blading and shaping, generally over 1 foot in depth over a substantial area, will be paid as general excavation for the full depth of cut.

Payment for undercut will be as general excavation, and payment for required backfill will be made as embankment.

Plastic soil blanket and topsoil will be included in the pay volume for the embankment. Payment for the removal and stockpiling of existing topsoil will be by the in-situ square yard.

No direct payment will be made for acquisition of borrow materials outside the right-of-way; acquisition of right-of-way and constructing haul roads; stockpiling and re-handling of materials; precautionary measures to protect private property and utilities; or furnishing necessary water and watering equipment.

Excavation for plastic soil blanket in cut sections, when required, will be made as general excavation and payment for the required plastic soil blanket will be made as embankment.

Payment for cleaning existing ditches will be made at the contract unit price per linear foot, which includes removal of obstructions, furnishing and placing required backfill material, and disposing of removed material.

Payment for settlement plate installation and monitoring will be made at the contract unit price per each. If additional surcharge material is required it will be paid for as embankment. Compensation for extension of the monitoring period may be allowed in accordance with 109.04.

Payment will be made under:

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
203-01	General Excavation	Cubic Yard
203-02	Drainage Excavation	Cubic Yard
203-03	Embankment	Cubic Yard
203-04	Nonplastic Embankment	Cubic Yard
203-05	Excavation and Embankment	Lump Sum
203-06	Excavation and Embankment	Linear Foot
203-07	Borrow (Vehicular Measurement)	Cubic Yard
203-08	Geotextile Fabric	Square Yard
203-09	Removal and Stockpiling of Existing Topsoil	Square Yard
203-10	Cleaning Existing Ditches	Linear Foot
203-11	Settlement Plate Installation and Monitoring	Each

## **Section 204**

### **Temporary Erosion Control**

**204.01 DESCRIPTION.** This work consists of constructing and maintaining temporary erosion control features shown on the plans or as directed. Coordinate installation of temporary erosion control features with construction of permanent erosion control features to the extent necessary to ensure economical, effective and continuous control of erosion and water pollution throughout the life of the contract.

Develop and comply with a Storm Water Pollution Prevention Plan (SWPPP) approved by the Department in accordance with the Department's Notice of Intent (NOI), and retain it at the site of the project for review during inspections. The SWPPP shall include the erosion control features as shown on the plans, or as directed, in addition to other required components of the SWPPP specified by the U. S. Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality (LDEQ). The plan shall indicate the use of contract items and the coordination of this work with the scheduling of clearing and earthwork.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication titled *Application of Quality Assurance Specifications for Embankment and Base Course*.

#### **204.02 CONTROL OF ERODIBLE SOIL.**

**204.02.1 General:** Prevent the transmission of soil particles into streams, canals, lakes, reservoirs, or other waterways.

Except as necessary for construction, do not deposit excavated material into streams or impoundments or in a position close enough to be washed into waterways by high water or runoff.

Do not disturb lands or waters outside the limits of construction, except as authorized.

**204.02.2 Adjacent to Waterways:** Keep stream banks in their natural state. Do not unnecessarily strip protective vegetation in the vicinity of stream banks. Conduct operations without damage to banks. Do not excavate banks except as shown on the plans or as otherwise approved in writing. Work roads requiring bank cuts shall be approved by the project engineer prior to making such cuts. Restore the banks to the satisfaction of the project engineer.

**204.02.3 Adjacent to Property:** The location of, and method of operation in, borrow pits, material pits, and disposal areas obtained by the

contractor for waste material from the project (other than commercially operated sources) shall be the contractor's responsibility.

**204.03 MATERIALS.** Materials not covered by project specifications shall meet commercial grade standards and shall be approved before being incorporated into the project. Acceptance of temporary erosion control materials will be in accordance with the materials sampling manual.

**204.03.1 Mulches:** Mulch shall comply with 1004.04.

**204.03.2 Seed:** Seed shall comply with 1004.03. Grass shall be an approved quick-growing species suitable to the area, providing a temporary cover which will not compete with permanent grasses.

**204.03.3 Slope Drains:** Slope drains may be constructed of pipe, fiber mats, rubble, portland cement concrete, asphalt concrete, plastic sheets, or other acceptable material.

**204.03.4 Fertilizer:** Fertilizer shall comply with 1004.01.

**204.03.5 Silt Retention Systems:**

**204.03.5.1 Silt Fences:** Silt fencing shall be wire-supported or self-supported systems. Other silt fencing systems may be used when approved. Silt fencing shall comply with 1018.15. Geotextile fabric shall comply with Section 1019.

**204.03.5.2 Other Retention Systems:** Other silt retention systems may be used if approved by the Materials Engineer Administrator.

**204.03.6 Lime:** Agricultural lime shall comply with 1004.02.

**204.03.7 Temporary Construction Entrance:** Temporary construction entrances shall consist of stone or recycled portland cement concrete complying with gradation as required in 711.02, 2 pound class placed on geotextile fabric complying with Section 1019, Class D.

**204.03.8 Hay Bales:** Hay or straw bales shall be rectangular bales, acceptable to the project engineer. The average length of bales shall be 34 inches minimum.

**204.04 EXPOSURE OF ERODIBLE EARTH.** The engineer may direct the contractor to provide immediate permanent or temporary erosion or pollution control measures to prevent contamination of streams, lakes, tidal waters, reservoirs, canals or other impoundments or prevent detrimental effects on property outside the right-of-way and damage to the project. Limitations of areas in which excavation and embankment operations are underway shall be commensurate with the contractor's capability and progress in keeping finish grading, temporary erosion control, and

permanent erosion control measures in accordance with the accepted schedule.

#### **204.05 INCORPORATION OF EROSION CONTROL FEATURES.**

Incorporate permanent erosion control features into the project at the earliest practical time. Use of temporary erosion control features will be authorized to correct unforeseen conditions that develop during construction; to control erosion prior to the time it is practical to construct permanent control features; or to provide immediate temporary control of erosion that develops during normal construction operations but is not associated with permanent erosion control features.

Use temporary erosion control features as directed in areas where stage construction or other conditions not under control of the contractor preclude completion of a section of roadway in a continuous manner, or where subsequent construction operations will cause damage to permanent erosion control features.

#### **204.06 CONSTRUCTION REQUIREMENTS.**

Temporary erosion control features consist of, but are not limited to, temporary seeding, temporary mulching, sandbagging, slope drains, sediment basins, sediment check dams, erosion checks, artificial coverings, berms, and temporary construction entrances. The engineer may direct use of temporary erosion control features or methods other than those included in the original contract. Remove eroded sediment deposits outside the right-of-way immediately and repair the surface at no direct pay. When temporary erosion and pollution control measures are required due to the contractor's negligence or failure to install permanent controls, such work shall be performed at no expense to the department. The engineer may direct the contractor to discontinue operations until eroded sediment deposits have been cleared and the area restored.

When erosion control devices have been properly maintained and exceeded their useful life, they may be replaced with approval and paid for under appropriate pay items as directed.

**204.06.1 Temporary Seeding:** Seed in accordance with Section 717 or 739, except that ground preparation will be limited to blading the area. Apply lime or fertilizer in accordance with Section 718; however, lime or fertilizer may be omitted or the application rate reduced as directed.

**204.06.2 Temporary Mulching:** Furnish and apply mulch in accordance with Section 716. Mulch may be omitted or the application rate

reduced as directed. When permanent seeding operations begin, disc temporary mulch materials during ground preparation.

**204.06.3 Sandbagging:** Place sandbags as shown on the plans or as directed.

**204.06.4 Baled Straw of Hay:** Place baled straw or hay as directed to form checks or dams to control erosion and siltation. Properly stake or secure bales as shown on the plans, or as directed. Bury the bales as necessary to prevent scour under the bales. Drive a minimum of 2 stakes through each bale into the ground to hold in place.

**204.06.5 Slope Drains:** Construct slope drains in accordance with plan details or as directed, to prevent scour. Stabilize or protect the discharge area with temporary riprap. Cost of discharge area protection will be included under the slope drain item.

**204.06.6 Sediment Basins:** Construct sediment basins in accordance with plan details or as directed.

**204.06.7 Sediment Check Drains:** Construct check dams at locations shown on the plans or as directed. Construct check dams before clearing and grubbing or grading in the area is begun unless otherwise directed.

**204.06.8 Silt Retention Systems:** Furnish and construct silt retention systems at designated locations or other locations, as directed by the engineer. Posts for silt fencing shall be installed to a depth necessary to maintain the integrity of the system.

**204.06.9 Berms:** Construct earth berms as directed to divert the flow of water from erodible surfaces.

**204.06.10 Temporary Construction Entrance:** Construct temporary construction entrance(s) in the plans or as directed. Place a geotextile fabric underliner at the locations designated for temporary construction entrances before aggregate material is placed. Place and compact aggregate material to the required thickness as directed. This work also includes additional measures required to remove mud from truck tires, such as wash racks, etc.

**204.06.11 Unforeseen Conditions:** When unforeseen conditions are encountered, the engineer may direct the contractor to construct such temporary devices as required to control erosion during construction. Details may be developed jointly by the engineer and the contractor.

**204.06.12 Maintenance of Erosion Control Features:** Inspect temporary erosion control features at least once every 14 calendar days and within 24 hours after a rainfall event of 0.5 inch or greater. Documentation of these inspections must be maintained in the field office and provided to

the Department for review. Repair and maintain temporary erosion control features within seven calendar days after being instructed to do so by the engineer. Maintain the features as described below or replace as directed at no direct pay.

Repair damaged hay bales, “end runs” and undercutting beneath bales.

Remove sediment deposits when the deposits reach one-half the height of check dams. Ensure that the center of the check dam is lower than the edges. Correct erosion around the edges immediately.

Remove sediment deposits before they reach one-half the height of the silt retention systems, or as directed. If the fabric on the silt fence decomposes or becomes ineffective, promptly replace the fabric.

Maintain the construction entrance to allow for removal of mud from tires. Remove the sediment from the wash rack runoff once the wash rack is no longer performing as intended.

**204.06.13 Removal of Temporary Erosion Control Features:**

Remove temporary erosion control features existing at the time of construction of permanent erosion control features or incorporate into the soil in such manner that no detrimental effect will result. The engineer may direct that temporary features be left in place. Remove sediment in sediment basins, silt fences, check dams, and other catchment areas. Reconstruct areas as necessary with acceptable soils in accordance with Section 203 at no direct pay.

**204.07 PROTECTION DURING SUSPENSION OF OPERATIONS.**

Prior to the suspension of operations, shape the top of the earthwork in such manner as to permit runoff of rainwater and construct earth berms along the top edges of embankments to intercept runoff water. Provide temporary slope drains in the earth berm to carry runoff. When such preventive measures fail, immediately take other action as necessary to prevent erosion and siltation. The engineer may direct the contractor to perform other erosion control work during suspensions of contract time.

**204.08 MEASUREMENT.**

When separate items for temporary erosion control devices are included in the contract, and the work is directed by the engineer, the quantities to be measured for temporary mulching and temporary seeding will be in accordance with Sections 716 and 717, respectively. Measure sandbagging by volume in cubic yards (cu m) with the measurement of sand being made in a batch box or other satisfactory means. Measure the number of hay bales placed; the length in feet of temporary slope drains measured along the ground surface; and silt fencing

measured along ground surface; the number of sediment basins and sediment check dams; and the number of construction entrances.

When temporary erosion control work is directed and is not covered by contract items, perform the work as extra work in accordance with 109.04.

The construction of temporary earth berms along edges of the roadway to prevent erosion during grading and subsequent operations will not be measured for payment.

In case of failure of the contractor to control erosion, or siltation, the engineer may employ outside assistance or use his own forces to provide the necessary corrective measures, and the cost thereof will be deducted from payments due the contractor for the work. Partial payments will be withheld until satisfactory temporary erosion control is established.

**204.09 PAYMENT.** Payment for temporary erosion control items that are included as contract items will be made at the contract unit prices. Payment for temporary mulching, and seeding will be made under Sections 716 or 717. Temporary erosion control work not covered by contract items that is ordered will be paid for in accordance with 109.04.

Temporary Sandbagging and Baled Hay will be paid for directly when used other than in construction of Temporary Slope Drains, Temporary Sediment Basins and Temporary Sediment Check Dams. When sandbags or baled hay are used in construction of slope drains, sediment basins and sediment check dams, payment will be made under these items.

Payment for devices used to correct unforeseen conditions will be made at the contract unit price for similar devices shown on the plans, or as extra work if plan details are not applicable.

Payment will be made under:

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
204-01	Temporary Sandbagging	Cubic Yard
204-02	Temporary Hay Bales	Each
204-03	Temporary Slope Drains	Linear Foot
204-04	Temporary Sediment Basins	Each
204-05	Temporary Sediment Check Dams	Each
204-06	Temporary Silt Retention Systems	Linear Foot
204-07	Temporary Stone Construction Entrance	Each