

SPECIAL PROVISIONS

**SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

202-5.01 BASIS OF PAYMENT. Delete the fourth paragraph and replace with the following: Item 202.2014.____. Removal of Pavement. Payment includes all work necessary to remove existing asphalt, below the limits of Crushed Asphalt Base Course, in conflict with new construction. Hauling, processing, stockpiling, shaping, grading, and compaction of removed or reclaimed material is subsidiary to pay item 308.0001.____.

**SECTION 204
STRUCTURE EXCAVATION FOR CONDUITS AND MINOR STRUCTURES**

204-2.01 MATERIALS. Delete the first paragraph and substitute the following:

Embedment Material: Embedment Material consists of bedding, and backfill to 12 inches above the pipe. Use Subbase, Grading F (Subsection 703-2.09) for embedment material filled 3 feet each side of, 2 feet below, and 1 foot on top of the pipe as shown on the plans.

204-4.01 METHOD OF MEASUREMENT. Delete the first sentence and substitute the following: Embedment Material will be measured according to Section 109 as follows:

1. 204.2002.0000 By neat line volume.
2. 204.2003.0000 Will not be measured directly for payment.
3. 204.2004.0000 By weighing.

Structure Excavation will be measured according to Section 109 using neat line method as follows:

204-5.01 BASIS OF PAYMENT. Delete this subsection in its entirety and substitute the following:

1. Structure Excavation. The contract price includes:
 - a. The placing and compacting of backfill more than 12 inches above the pipe when the material used is obtained from excavation
 - b. Clearing and grubbing required and not paid for under other items
 - c. The formation of any embankments made with surplus material from structure excavation
 - d. The disposal of all surplus or unsuitable excavation.

Additional excavation to provide for shoring, sheet piles, excavation shields or flattening the excavation slopes, is subsidiary.

When items 204.0001.____ through 204.0003____, Structure Excavation, do not appear in the bid schedule, structure excavation required to complete other items of work is subsidiary except that excavation and disposal of unsuitable material required from below a plane 12 inches below the invert elevation of conduits and 12 inches below the bottom of structures will be paid for as extra work.

2. Embedment Material. The contract price includes all work and materials necessary to provide, place, and compact Embedment Material.

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Add the following pay items:

PAY ITEM		
Item Number	Item Description	Unit
204.2002.0000	Embedment Material	CY
204.2003.0000	Embedment Material	LS
204.2004.0000	Embedment Material	TON

SECTION 308 CRUSHED ASPHALT BASE COURSE

308-1.01 DESCRIPTION. Add the following: Asphalt thickness varies throughout the project. As such, contractor should expect to find varying combinations of hot mix asphalt surfacing, cold mix asphalt surfacing, high float surfacing, chip seal surfacing, asphalt treated base course, and aggregate base course.

Pulverize the top 6 inches of existing road surface, adjacent driveways, and adjacent pull-offs. Sections of asphalt, thicker than 6 inches, that need to be removed to construct new road embankment, will be removed under item 202.0014 Removal of Pavement. Haul, stockpile, and place excess Crushed Asphalt Base Course as necessary to construct the layers shown on the Plans.

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308-3.01 PULVERIZING AND MIXING. Delete the first paragraph and substitute the following: Crush or process the existing asphalt pavement so that 100% by weight passes the 2-inch sieve and 95-100% by weight passes the 1-inch sieve.

308-3.01 PULVERIZING AND MIXING. Delete this subsection in its entirety and substitute the following: Crush or process the existing asphalt material so that 100% by weight passes the 2-inch sieve and 95-100% by weight passes the 1-1/2-inch sieve.

Use self-propelled pulverizing and mixing equipment capable of processing asphalt material to the plan reclamation depth in a single pass. The equipment must be capable of pulverizing a variety of asphalt surfaces, patches, and base courses.

308-3.03 SHAPING AND GRADING. Add the following: Multiple handlings and hauling of Crushed Asphalt Base Course will be required to construct the profile grade throughout the project. If excess Crushed Asphalt Base Course is not utilized during the current phase of construction, stockpile for later use on subsequent phases.

Haul, stockpile, and place pulverized asphalt and base course as necessary to shape Selected Material and existing subbase to proposed elevations in accordance with Section 203. Re-handling may be required.

Aggregate Base Course may be utilized in conjunction with Crushed Asphalt Base Course for roadway, driveway, levelling, or minor adjustments in profile grade. Do not place Aggregate Base Course until after all Crushed Asphalt Base Course has been placed in acceptable locations as shown on the plan templates. If you place more Aggregate Base Course than is required, resulting in, or as a result of wasting Crushed Asphalt Base Course, the amount of such waste will be deducted from the Aggregate Base Course quantity.

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2. Launch pit excavation has been completed and supported.
3. Groundwater levels have been lowered 6 inches below the lowest point of the launch pit excavation, including clearance for welding joints

Install pipe between the limits indicated on the Plans to the specified lines and grades. Use methods that include due regard for safety of workers, adjacent structures and improvements, utilities, and the public. Locate launch pit as necessary to complete work and as approved by the Engineer.

Furnish all necessary equipment, power, water, and utilities for excavation, pipe ramming, lubrication mixing and pumping, removal and disposal of spoils, and other associated work consistent with the methods of construction.

Perform all work so as not to disturb adjacent structures, roadways, or existing utilities. Immediately repair any damage to the satisfaction of the agency or utility having jurisdiction. Contractor is responsible for locating all utilities that may be in conflict with the work.

Immediately notify the Engineer, in writing, if any problems are encountered with equipment or materials that would cause a schedule delay or a change to the submitted procedure.

603-3.05 REQUIRED CONTRACTOR EXPERIENCE. The Contractor or subcontractor performing the pipe ramming work described under this Section shall demonstrate technical skill and experience in previous work of this nature and provide reference for a minimum of three pipe ramming projects previously completed. The trenchless technology superintendent shall have at least three years of pipe ramming experience and shall have worked on at least two projects in similar ground conditions using equipment similar to the equipment required for this project. The trenchless technology operator shall have at least two years of pipe ramming experience and shall have worked on at least one pipe ramming project using the same equipment required for this project.

Provide evidence of experience in accordance with Subsection 603-3.09.

603-3.06 PIPE RAMMING EQUIPMENT. Use trenchless technology equipment specifically designed for ramming through the soil materials which could routinely be encountered or expected along the alignment of the proposed pipeline. Collets, adapters and any ramming component that could affect ramming energy transfer and effectiveness shall be manufactured by the same manufacturer as the hammer. Pipe ramming equipment shall be sized according to the manufacturer's recommendations and the Contractor's knowledge of ramming in soils similar to those at the project site. Use equipment that complies with the following:

1. Soil Removal System. The soil removal system shall be capable of being operated in a manner which will prevent loss of ground. Spoils may be removed any time at Contractor's discretion.
2. Reinforcing Band/Cutting Shoe. The lead pipe shall be fitted with a reinforcing band/cutting shoe on the inner and outer diameter to prevent damage to the leading edge. The amount of overcut shall be limited to less than 1 inch larger on radius than the outside of the rammed pipe.
3. Pipe Lubrication Injection System. A pipe lubrication injection system shall be used to inject lubricants around the outside of the pipe as required to decrease ramming forces. Provide a suitable pressure gage on the lubrication supply line.

603-3.07 PIPE RAMMING INSTALLATION. Submit to the Engineer copies of field notes used to establish all lines and grades. The Contractor remains fully responsible for the accuracy of the installation.

Survey pipe orientation for line and grade at "spudding in" of pipe, when leading edge has penetrated 5 feet, 10 feet, and 20 feet. Adjust pipe orientation as needed to ensure initial drive is on line and grade.

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If the pipe installation exceeds the specified tolerances, the Contractor is responsible for correcting the installation. All corrective work shall be performed as described in the accepted Contingency Plan at no additional cost to the Department.

Ram pipe into place without damaging the pipe. In the event a pipe segment is damaged during the ramming operation, the Contractor shall repair the pipe in a method approved by the Engineer and to the satisfaction of the Department.

Provide groundwater control as required for proper execution of the work.

Promptly clean up, remove, and dispose of any spoils or spillage in accordance with the spoils removal plan. Only use the disposal sites identified in approved submittals.

Notify the Engineer immediately upon encountering an obstruction. Take all necessary steps to remove any obstruction or otherwise make it possible to continue ramming operations. Upon written authorization by the Department, proceed with removal or bypass of the obstruction in accordance with the Contractor's submitted and approved Contingency Plan.

In the event the Contractor encounters a problem during the work and the situation is not covered by the Contractor's Contingency Plan, the Contractor shall propose alternative solutions for the Department's consideration and approval.

Remove all construction debris, spoils, slurry, oil, grease, and other materials from the installed pipe. The installed pipe will be subject to visual inspection by the Department.

603-3.08 PIPE RAMMING ALLOWABLE TOLERANCES. The surveyor responsible for line and grade control shall be a Licensed Surveyor registered in the State of Alaska who has prior experience with similar projects. The Department shall have full access to the launch pit prior to, during, and following all pipe ramming operations. This shall include, but is not limited to, visual inspection of installed pipe and verification of line and grade. The Contractor shall provide safe access in accordance with all safety regulations.

The maximum deviation at any point along the pipe installed using trenchless technologies shall not exceed 18 inches from the line and/or grade shown on the Plans.

603-3.09 SUBMITTALS.

1. Pre-Construction Submittals. No pipe ramming work, including the setup of traffic controls for the launch pit, shall be performed until the submittals required for this Subsection and all other Sections related to the installation of rammed pipe have been approved by the Engineer. Submit to the Engineer, for review and approval, the following:
 - a. Work Plan. The Contractor shall submit a Work Plan which includes the details of the pipe ramming installation as well as the sequence of operations that shall be used during all phases of construction. The Work Plan shall also include the following:
 - (a) A detailed description of the equipment and procedures to be employed during pipe ramming operations. Describe method and capabilities for controlling ground conditions at the tunnel heading and preventing loss of ground. Provide calculations of the anticipated ramming force required to complete the installation and details of the method used to determine anticipated forces.
 - (b) Certification by the trenchless technology manufacturer of the thrust, condition, and operational characteristics of all equipment to be used for installing the specified pipe.

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- (c) Shop drawings for all equipment, equipment setup areas, and staging areas in addition to the launch pit and pipe alignment.
 - (d) Details of the trenchless technology equipment, complete with ramming capacity, diameter, pipe adapters, and manufacturer's literature. Provide the make, model, and capacity of the compressor(s) to be used for ramming pipe. These details shall illustrate that the ramming force estimated to complete the work does not exceed the available ramming capacity of the equipment, with a minimum factor of safety of 1.5.
 - (e) Details of the pipe lubrication system and description of pipe lubricants to be used during pipe ramming, including manufacture's literature and Material Safety Data Sheets.
 - (f) A spoils removal plan, including all equipment necessary to remove the material from the rammed pipe. Provide capacity of compressor(s), pump(s), and equipment used for pipe cleanout, including make and model of the equipment and manufacturer's literature. The plan shall include the sequence of disposal and location(s) of spoils disposal.
 - (g) Dewatering procedures and groundwater control details during trenchless technology operations, including launch and receiving seals, if used.
 - (h) Material specifications and shop drawings of steel pipe showing the pipe wall thickness, steel grade, and the maximum allowable axial force. The drawings shall include configuration of the cutting head shoe and overcut. A pipe certification of compliance shall be submitted.
 - (i) Calculations demonstrating that the pipe selected has been designed to support the maximum anticipated earth loads and AASHTO HL-93 live loads, both static and dynamic, which may be imposed on the pipe.
 - (j) A safety plan.
- b. Schedule. A detailed and legible schedule of pipe ramming work which shall include, but not be limited to:
- (a) Mobilization
 - (b) Site preparation
 - (c) Pipe ramming
 - (d) Grouting
- c. Contractor Qualifications. Submit a description of pipe ramming qualifications including:
- (a) Resume of Superintendent
 - (b) Resume of Operator
 - (c) A list of successful projects, including:
 - a. Project name and location

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- b. Owner's name, representative, address, and current telephone number
 - c. Diameter and length of the pipe rams
 - d. Soil and groundwater conditions
 - e. Overall duration of the pipe ramming portion of the projects
 - f. Equipment used, including hammer size
 - g. Any unusual circumstances encountered on the project
 - h. Any claims filed on the pipe ramming portion of the project.
- d. Contingency Plan. The Contractor shall submit a proposed contingency plan for potential problems that may arise during pipe ramming operations. The contingency plan shall address the observations that would indicate a problem as well as the remediation methods to address it. The plan shall include the following scenarios:
- (a) Obstruction encountered at the leading edge of pipe.
 - (b) Utility strike.
 - (c) Deviation from planned pipe alignment.
 - (d) Ramming forces in excess of estimated maximums.
2. Daily Construction Submittals. Submit a log of the pipe ramming operations to the Engineer on a daily basis. Information shall be submitted within 2 hours of completion of the daily events. At a minimum the log shall consist of the following:
- a. The date, and the starting and finishing time of the work.
 - b. Inclination, operating pressure, and rate of advance.
 - c. Hammer strokes per minute.
 - d. Pipe lubricant used (in gallons) and pumping pressure.
 - e. Any problems encountered.

603-4.01 METHOD OF MEASUREMENT.

Deep Culvert 36 Inch. By the linear foot measured horizontally from the beginning to the end of the final installed steel pipe.

603-5.01 BASIS OF PAYMENT. Delete the second paragraph in its entirety and substitute the following: Excavation, bedding, and backfill are subsidiary.

Add the following:

Item 603(106). The contract price includes all labor, excavation, equipment, steel pipe, lubrication, pumps, power, water, and miscellaneous materials required to install the steel pipe as shown on the Plans and described in this Section, including removal and disposal of spoils. Additional work and materials resulting from an encountered obstruction that halts pipe ramming operations shall be paid at the contract price with

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written authorization from the Department. No payment shall be made for costs associated with repairing damaged utilities.

Pay Item	Pay Unit
603.2001.0048 Driven Pipe 48 Inch – Smooth Wall	Linear Foot

**SECTION 630
GEOTEXTILE FOR EMBANKMENT
SEPARATION AND STABILIZATION**

630-1.01 DESCRIPTION. *Delete this subsection and substitute the following:* Prepare surfaces and furnish and place geotextile for embankment separation, stabilization, reinforcement and/or wicking as shown on the Plans and as directed by the Engineer. Furnish all necessary labor, equipment and materials required for the installation of geotextile in accordance with the details shown on the Plans and manufacturer's recommendations.

630-2.01 MATERIALS. *Delete third sentence and substitute the following:* Do not expose separation, stabilization, or reinforcement geotextile for longer than 5 days after removal of protective covering. Do not expose wicking geotextile for longer than 1 day after removal of protective covering.

Add the following:

Geotextile, Reinforcement – Type 2 shall be PROPEX 4X4HF, Mirafi HP570, US Fabrics US 4800/30 or approved equal meeting the following requirements:

Property Test Method Minimum Average Roll Value (MD/XD)

Grab Tensile ASTM D4632 400/400 lb

Grab Elongation ASTM D4632 10% (MD)

Wide Width Tensile ASTM D4595 400/400 lb/in (ultimate)

Wide Width Tensile ASTM D4595 200/200 lb/in (@ 5% strain)

Puncture ASTM D6241 1500 lb

Trapezoidal Tear ASTM D4533 150 lb

AOS ASTM D4751 30 sieve (maximum average roll value)

Permittivity ASTM D4491 0.20 sec-1

Flow Rate ASTM D4491 10 gallon/min/ft²

Geotextile, Wicking shall be (Tencate Geosynthetics) Mirafi® H2Ri

630-3.01 CONSTRUCTION. *Delete Subsection 2.b. and substitute the following:* b. Stabilization.

Lay geotextile for Wayside Pull -Off stabilization parallel to the embankment centerline. Join by overlapping. On horizontal curves, place in segment lengths not exceeding those listed in Table 630-1, with butt ends cut to match and sewn or overlapped. On tangents, straighten the geotextile and sew or overlap butt ends.

Add the following to item 2: c. Reinforcement. Geotextile, Reinforcement - Type 2 –

Geotextile for culvert foundation stabilization shall be placed such that the machine direction (longitudinal axis or roll direction) of the geotextile is parallel to the culvert centerline.

Add the following to item 2: d. Wicking. Geotextile, Wicking shall be placed such that the machine direction (longitudinal axis or roll direction) of the geotextile is parallel to the road centerline; on horizontal curves, place in segment lengths not exceeding those listed in Table 630-1. Place Geotextile, Wicking so that overlapped layers are shingled in a similar manner to roof tiles, in order to allow water to shed onto the adjacent lower layer(s), including joints near the road centerline.

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Place Geotextile, Wicking so that Project Left and Project Right edges will be “day -lighted” 30 inches or as indicated on Plans; cover with 4- inch lift of Porous Backfill Material using gradation per Table 703- 10 or as directed by the Engineer. Ensure the edge of day -lighted Geotextile, Wicking is a minimum of 2- vertical feet above the toe of slope or standing water, unless otherwise approved by the Engineer. Do not modify the depth of Geotextile, Wicking in the road embankment, unless specifically directed by the Engineer.

A Pre -Wicking Geotextile meeting shall be held prior to the installation of the Wicking Geotextile. Attendees required at the Pre- Wicking Geotextile meeting shall include the Engineer, the Contractor's Superintendent, the Department's Construction Project Manager, the Contractor's Construction Project Manager, and the Department's Materials Engineer or designee.

At least 10 days prior to the start of placing Geotextile, Wicking, the Contractor shall submit a placement plan to the Engineer for approval. The plan shall show the methods the Contractor will utilize to place the geotextile, stretch the geotextile to remove any creases or wrinkles, secure and prevent movement of the geotextile during placement and spreading of the initial 10-inch (loose) lift of Borrow over the geotextile and Porous Backfill Material over geotextile daylight on road edges, the order of geotextile placement and geotextile roll-width across the road cross-section and along the road stationing, the amount of geotextile day-light on road edges, the amount of geotextile side- edge overlaps, and the side- edge overlap placement or “shingle” direction for road tangents, curves and transitions. Replace the first two sentences to item 3 Joining with the following: Join geotextile for embankment stabilization and wicking by overlapping.

Delete Subsection 3.b. and substitute the following: Overlapped sections of Geotextile, Stabilization must overlap a minimum of 3 feet. Overlapped end-sections of Geotextile, Wicking must overlap a minimum of 2 feet and a maximum of 3 feet. Overlapped side-sections of Geotextile, Wicking must overlap a minimum of

2 feet and a maximum of 3 feet or as directed by the Engineer. Contractor shall place a combination of 15- foot wide rolls of Geotextile, Wicking and 17-foot wide rolls of Geotextile, Wicking to achieve side-section overlaps between 2 and 3 feet and embankment edge day-light requirements without cutting the geotextile.

Do not cut Geotextile, Wicking except as specifically directed by the Engineer. Trim excess Geotextile, Wicking as directed by the Engineer with a cold- bladed instrument. Use of a heated instrument for cutting Geotextile, Wicking is not permitted.

Add the following to item 3: c. Culvert Foundation Stabilization: Geotextile, Reinforcement – Type 2. Joining of seams in the geotextile shall not be allowed. Each strip of geotextile shall be continuous with no joints or overlaps from edge of excavation to edge of excavation or as indicated on the Plans.

Add the following Section to item 3: 6. Geotextile, Wicking – Material Identification, Storage and Handling. Upon delivery, check the Mirafi® H2Ri roll labels to verify the correct product has been received.

Immediately inspect the geosynthetic to ensure it is free of any flaws or damage that might have occurred during shipping or handling. While unloading or transferring the geosynthetic from one location to another, prevent damage to the protective wrapping, core, label or the geosynthetic itself. If the geosynthetic is to be stored for an extended period of time, the geosynthetic shall be located away from sources of water and placed in a manner that ensures the integrity of the wrapping, core and label as well as the physical properties of the geosynthetic. The product is shipped in a heavy plastic bag or covering to help prevent moisture adsorption before installation.

Mirafi® H2Ri has an affinity for water, making roll weights increase drastically if left out in the rain, making installation more difficult. The geosynthetic should be stored indoors or elevated off the ground on dunnage, while ensuring that it is adequately covered and protected from precipitation or other moisture, ultraviolet radiation, chemicals that are strong acids or strong bases, fire or flames including welding sparks, temperatures in excess of 140° F (60° C), and human or animal destruction.

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Replace the first sentence to item 4 Material Placing and Spreading with the following: During placing and spreading, maintain a minimum depth of 10 inches of loose cover material; or as specified on the Plans; at all times between the fabric and the wheels or tracks of the construction equipment - do not traffic vehicles directly on or over geotextile. Place and spread Porous Backfill Material over Geotextile, Wicking day-light sections on side slopes as approved by the Engineer. Do not track-walk over Geotextile, Wicking day-light sections on side slopes.

Add the following to item 5 Geotextile Repair: c. Wicking. Underlay damaged area with Geotextile, Wicking with a minimum 5-foot overlap up- station and down- station from the damaged area. Geotextile used for underlay shall be the same roll -width as the damaged section of geotextile and shall be shingled in a manner identical to the damaged section of geotextile.

630-4.01 BASIS OF MEASUREMENT. Add the following: Work to screen and install 4 inches of Porous Backfill Material will not be measured; as it is subsidiary to pay item 203(6) Borrow. The Engineer's acceptance of work constitutes measurement of this item.

630-5.01 BASIS OF PAYMENT. Add the following: Work to screen borrow to obtain Porous backfill material and place per plans and specifications is subsidiary to pay item 203(6) Borrow. This price and payment shall be full compensation for all costs associated with this item.

Add the following pay items:

Pay Item Pay Unit
 630(100) Geotextile, Reinforcement, Type 2 Square Yard
 630(101) Geotextile, Wicking Square Yard

SECTION 703 AGGREGATES

703-2.07 SELECTED MATERIAL

Add the following to Section 3. Meet the following gradation:

<u>Sieve</u>	<u>Percent Passing by Weight</u>
No. 200	0-30%

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703-2.09 SUBBASE. Add the following:

Subbase, Grading F. Aggregate containing no muck, frozen material, roots, sod or other deleterious matter and with a plasticity index not greater than 6 as tested by ATM 204 and ATM 205. Table 703-8 and the first paragraph of Subsection 703-2.09 do not apply to Grading F. Meet the following gradation as tested by ATM 304:

<u>Sieve</u>	<u>Percent Passing by Weight</u>
2 in	100%
No. 4	15-65%
No. 200	0-6%

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