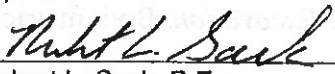


SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 14-006
Title: SECTION 206 – TRENCH, CULVERT AND STRUCTURE EXCAVATION			
Target Audience: ☐ Manufacturers (18) ☒ Local Govt. (31) ☒ Agencies (32) ☐ Surveyors (33) ☒ Consultants (34) ☒ Contractors (39) ☐ _____ ()		Approved:  Robert L. Sack, P.E. Deputy Chief Engineer (Research) 11 June 14 Date	

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of September 4, 2014.
- This EI supersedes EI 13-019.
- The revisions issued with this EI will be incorporated into the next update of the Standard Specifications.

PURPOSE: The purpose of this EI is to issue revised Standard Specification Section 206 *Trench, Culvert and Structure Excavation*; specifically to address errata in §206-3.01 and §206-5. .

TECHNICAL INFORMATION:

- Section 206 in the Standard Specifications is deleted and replaced with the revised Section 206 *Trench, Culvert and Structure Excavation* transmitted by this issuance.
- The errata revisions to the Standard Specification Section 206 *Trench, Culvert and Structure Excavation* include the following:
 1. 206-3 CONSTRUCTION DETAILS: Corrected erroneous section references in the first paragraph of §206-3.01 by replacing “§203-3.01 through and including §203-3.12, and §203-3.15” with ““§203-3.01 through §203-3.14”. The reference now calls out the proper excavation and embankment construction details sections in the current standard specifications.
 2. 206-5 BASIS OF PAYMENT: The second, third and fourth paragraph from §206-5.03 *Trench and Culvert Excavation* are general statements that apply to all the excavation types. Therefore, these paragraphs were moved to §206-5.01 *General*.
 3. 206-5 BASIS OF PAYMENT: The first sentence of §206-5.03 *Trench and Culvert Excavation* omitted presplitting rock excavation from work included in the cost of the item. This sentence was revised to include presplitting rock excavation as follows: “The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, and presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow where necessary.”.
 4. 206-5 BASIS OF PAYMENT: The first sentence of §206-5.02 *Structure Excavation* was incomplete and has been revised to be consistent with §206-5.03. Therefore, this sentence was revised to state “The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work, including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow when necessary”.

IMPLEMENTATION:

- The Main Office Design Quality Assurance Bureau will insert these standard specification revisions into contract proposals beginning with projects submitted for the letting of September 4, 2014.

TRANSMITTED MATERIALS: This EI transmits Revised Standard Specification Section 206 *Trench, Culvert and Structure Excavation*. Both metric and US Customary revisions are attached.

BACKGROUND: EI 13-019 issued a significantly revised Section 206 Trench Culvert and Structure Excavation. All of the revisions introduced to the specification by EI 13-019 remain in place, with the exception of the corrections associated with the noted errata identified in this issuance.

CONTACT: Questions or comments regarding this issuance should be directed to Randall J. Romer, P.E., of the Geotechnical Engineering Bureau at (518) 457-4714, or via e-mail at randy.romer@dot.ny.gov. Questions or comments regarding the technical aspects of the revision to the Standard Specification should be directed to Don Dwyer, P.E., of the Geotechnical Engineering Bureau at (518) 457-4724, don.dwyer@dot.ny.gov.

SECTION 206 – TRENCH, CULVERT AND STRUCTURE EXCAVATION

Make the following changes to the Standard Specifications dated May 1, 2008:

Page 186 through 189, under SECTION 206 – TRENCH, CULVERT AND STRUCTURE EXCAVATION, **Remove** the entire section and **Replace** it with the following:

“SECTION 206 - TRENCH, CULVERT AND STRUCTURE EXCAVATION

206-1 DESCRIPTION

206-1.01 General. This work shall consist of the excavation of materials and backfill or disposal of excavated material required for trenches, culverts, structures, conduit and direct burial cable not otherwise provided for in other sections of these specifications. All such excavation shall be unclassified excavation as defined in §203-1.01. The work shall be conducted in accordance with 29 CFR 1926 Subpart P.

206-1.02 Structure Excavation. The work specified under this item shall include the excavation for all bridge foundations, walls and other major structures and backfill of suitable excavated material if another item is not specified.

206-1.03 Trench and Culvert Excavation. The work specified under this item shall include the excavation of all materials and backfill or disposal of excavated material required for trenches, culverts, pipes, manholes, drainage structures and other minor structures, conduit and direct burial cable.

206-1.04 Conduit Excavation and Backfill including Surface Restoration. The work specified under this item shall include the excavation, necessary backfill and surface restoration required for conduits and direct burial cables.

206-1.05 Test Pits. The work specified under this item shall include the excavation and backfill of test pits at locations shown in the contract documents, or as directed by the Engineer. Excavation and backfill methods, limits and equipment used shall be approved by the Engineer. This work will not relieve the contractor of the responsibility to locate underground facilities as required under 16 NYCRR 753.

206-2 MATERIALS. (Not Specified).

206-3 CONSTRUCTION DETAILS

206-3.01 General. The appropriate construction details specified for “Excavation and Embankment” in §203-3.01 through §203-3.14 shall apply to the work specified in this section.

The excavation shall be dewatered and kept free from water, snow and ice when necessary.

Special care shall be taken not to disturb the bottom of the excavation, and not to remove the material at final grade until just before the structure is placed.

The provisions of §203-3.01D *Suitable Materials* and/or §203-3.01E *Unsuitable Materials* shall apply to all material excavated under this section which is not used as backfill.

The Contractor shall carry out all excavation operations in a safe and prudent manner so that the workers, the public, and adjacent public and private property will be protected from unreasonable hazard in accordance with §107-05K. *Open Excavations and Trenches.*

Slopes may not be steeper than allowed by 29 CFR 1926 Subpart P.

When excavation is required for the installation of conduit or direct burial cable, the Contractor shall notify the Engineer upon completion of the excavation. No conduit or cable shall be placed in the excavation until the Engineer has approved the depth and cross-section.

When the Contractor, in placing conduits, direct burial cable or utilities, excavates into the pavement, subgrade, subbase, or shoulder courses, such courses must be replaced in kind, character and condition, to

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maintain a uniform road section, except when the Contract Documents specify that other materials shall be used.

206-3.02 Structure Excavation. The Contractor's competent person shall verify field conditions, including excavation depth, groundwater, and soil conditions with the Engineer in accordance with 29 CFR 1926 Subpart P prior to performing structure excavation for all bridge foundations, walls and other major structures.

The Contractor shall backfill with suitable excavated material if a separate backfill item is not specified in the contract documents.

206-3.03 Trench and Culvert Excavation. The Contractor's competent person shall verify field conditions, including excavation depth, groundwater, and soil conditions with the Engineer in accordance with 29 CFR 1926 Subpart P prior to performing trench and culvert excavation.

For utility lines, exclusive of conduit and cable lines, of less than 12 inches in diameter, the excavation width shall be the actual bottom width necessary to properly perform the installation work required, or 3 feet, whichever is less.

206-3.04 Conduit Excavation and Backfill including Surface Restoration. When the Contractor is required to excavate through portland cement concrete, asphalt concrete, composite pavement, or sidewalk, a saw cut shall be made along neat lines and to the depth as shown in the contract documents or as directed by the Engineer.

Any damage to existing pavement, sidewalk, curb or other facilities caused by the Contractor's operations under this item shall be repaired by the Contractor at no additional cost to the State.

206-3.05 Test Pits. The Contractor shall excavate and backfill test pits in order to determine existing underground utility type, size and/or condition where new utility connections to existing facilities are proposed. The Contractor shall excavate and backfill test pits in a manner approved by the Engineer that prevents damage to wrappings, coatings or other protective coverings, such as by hand digging, vacuum excavation or similar non-destructive locating equipment. The limits of the excavation shall be those sufficient to determine existing utility type, size and/or condition.

206-4 METHOD OF MEASUREMENT

206-4.01 General. The quantity of excavation will be in cubic yards, to the nearest whole cubic yard, computed from payment lines shown on the plans or the appropriate standard sheets. Work performed beyond any designated payment line will not be included in the computation of quantities for the item involved.

206-4.02 Structure Excavation. Vacant.

206-4.03 Trench and Culvert Excavation. Unless otherwise shown or indicated on the contract plans, payment lines for excavation of pipe and culvert lines, and minor structures will be determined as follows:

A. Bottom Payment Line. The elevation of the bottom payment line will be the invert elevation of the pipe, conduit, or culvert. For pipes, conduits, or culverts of nominal horizontal dimensions of 12 to 144 inches, the width of the excavations at the bottom payment line will be the nominal inside horizontal dimension of the pipe, conduit, or culvert plus 4 feet, or three (3) times the nominal inside horizontal dimension, whichever is less; for pipes with a nominal horizontal dimension greater than 144 inches the width will be as shown on the appropriate standard sheets or in the contract documents. For concrete and smooth interior corrugated polyethylene pipe, twice the minimum wall

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thickness will be added to the preceding. For concrete pipe, the bottom payment line is the Bedding Control Line shown on the applicable standard sheet.

B. Top Payment Line. The top payment line will be the surface at the centerline of the pipe, culvert or conduit immediately prior to commencing trench excavation.

C. Side Payment Lines. The side payment lines of the excavation will be vertical to the bottom payment line.

For utility lines, exclusive of conduit and cable lines, of less than 12 inch diameter, the excavation width will be the actual bottom width necessary, as determined by the Engineer, to properly perform the installation work required, or 3 feet, whichever is less.

D. Payment Lines for Minor Structures. Payment lines for minor structures will be vertical from the bottom of the footing and will extend vertically from a line 2 feet from the perimeter of the structure footing. The top payment line shall be the same as for (B) above. The bottom payment line will be the bottom of footing elevation, or the bottom of undercut elevation as directed by the Engineer.

206-4.04 Conduit Excavation and Backfill including Surface Restoration. The quantity of conduit and/or cable excavation and backfill including surface restoration for payment will be the number of linear feet measured along the center of the conduit and/or cable placed, in accordance with the methods stated below.

Wherever a pair or group of conduits and/or cables are physically connected together, they will be considered as a single conduit and/or cable.

A. Wherever conduit and/or cable in the same trench are physically separated laterally by 6 inches or more between centerlines, as shown on the plans or as directed by the Engineer, the linear feet measurement will be made along the center of each conduit and/or cable.

B. Wherever a pair or group of conduits and/or cable in the same trench are physically separated laterally by less than 6 inches between centerlines of adjacent conduit and/or cable, as shown on the plans or as directed by the Engineer, the linear feet measurement for those conduits and/or cable will be made along the center of that pair or group of conduit and/or cables.

206-4.05 Test Pits. The quantity to be measured for payment will be the number of test holes excavated and backfilled in accordance with the contract documents.

206-5 BASIS OF PAYMENT

206-5.01 General. The cost for necessary guarding to protect the public from open trenches, and that required for the protection to ensure the safety of the workers, and for any necessary excavation support shall be included in other items. Progress payments will be made after the excavation has been completed and prior to the completion of other work included under this item, including but not limited to pumping and backfilling. Payment will be made, at the unit price bid, for 75% of the quantity excavated within the prescribed payment lines. The balance of the quantity excavated will be paid for upon proper completion of backfill placement.

No extra payment will be made for the cost of any materials excavated or placed outside the payment lines shown on the plans or as described in this specification. No extra payment will be made for excavation protection or support systems not shown in the contract plans, unless use of such systems is directed by the Engineer.

With exception of the Conduit Excavation and Backfill including Surface Restoration item, the work of replacing pavement, subcourses and shoulder courses will be paid for and performed under the provisions of their respective items and subsections.

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206-5.02 Structure Excavation. The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow where necessary. Payment for Sheet piling, Cofferdams or Temporary Water Diversion Structures required by the contract documents will be made in accordance with the appropriate item.

Where cofferdams are specified for structure excavation, the work required to keep the site free from earth, water, ice and snow shall be included in the item for cofferdams when necessary.

206-5.03 Trench and Culvert Excavation. The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work, including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow when necessary.

206-5.04 Conduit Excavation and Backfill including Surface Restoration. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily excavate and backfill the trench, including sawcutting, and to restore and replace any pavement, shoulder, and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces as required to complete the work.

206-5.05 Test Pits. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily excavate and backfill the test pit and replace any pavement, shoulder and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces required to complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
206.01	Structure Excavation	Cubic Yard
206.0201	Trench and Culvert Excavation	Cubic Yard
206.03	Conduit Excavation and Backfill including Surface Restoration	Foot
206.05	Test Pit Excavation	Each"

SECTION 206 – TRENCH, CULVERT AND STRUCTURE EXCAVATION

Make the following changes to the Standard Specifications dated May 4, 2006:

Page 178 through 181, under SECTION 206 – TRENCH, CULVERT AND STRUCTURE EXCAVATION, **Remove** the entire section and **Replace** it with the following:

“SECTION 206 - TRENCH, CULVERT AND STRUCTURE EXCAVATION

206-1 DESCRIPTION

206-1.01 General. This work shall consist of the excavation of materials and backfill or disposal of excavated material required for trenches, culverts, structures, conduit and direct burial cable not otherwise provided for in other sections of these specifications. All such excavation shall be unclassified excavation as defined in §203-1.01. The work shall be conducted in accordance with 29 CFR 1926 Subpart P.

206-1.02 Structure Excavation. The work specified under this item shall include the excavation for all bridge foundations, walls and other major structures and backfill of suitable excavated material if another item is not specified.

206-1.03 Trench and Culvert Excavation. The work specified under this item shall include the excavation of all materials and backfill or disposal of excavated material required for trenches, culverts, pipes, manholes, drainage structures and other minor structures, conduit and direct burial cable.

206-1.04 Conduit Excavation and Backfill including Surface Restoration. The work specified under this item shall include the excavation, necessary backfill and surface restoration required for conduits and direct burial cables.

206-1.05 Test Pits. The work specified under this item shall include the excavation and backfill of test pits at locations shown in the contract documents, or as directed by the Engineer. Excavation and backfill methods, limits and equipment used shall be approved by the Engineer. This work will not relieve the contractor of the responsibility to locate underground facilities as required under 16 NYCRR 753.

206-2 MATERIALS. (Not Specified).

206-3 CONSTRUCTION DETAILS

206-3.01 General. The appropriate construction details specified for “Excavation and Embankment” in §203-3.01 through §203-3.14 shall apply to the work specified in this section.

The excavation shall be dewatered and kept free from water, snow and ice when necessary.

Special care shall be taken not to disturb the bottom of the excavation, and not to remove the material at final grade until just before the structure is placed.

The provisions of §203-3.01D *Suitable Materials* and/or §203-3.01E *Unsuitable Materials* shall apply to all material excavated under this section which is not used as backfill.

The Contractor shall carry out all excavation operations in a safe and prudent manner so that the workers, the public, and adjacent public and private property will be protected from unreasonable hazard in accordance with §107-05K. *Open Excavations and Trenches.*

Slopes may not be steeper than allowed by 29 CFR 1926 Subpart P.

When excavation is required for the installation of conduit or direct burial cable, the Contractor shall notify the Engineer upon completion of the excavation. No conduit or cable shall be placed in the excavation until the Engineer has approved the depth and cross-section.

When the Contractor, in placing conduits, direct burial cable or utilities, excavates into the pavement, subgrade, subbase, or shoulder courses, such courses must be replaced in kind, character and condition, to

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maintain a uniform road section, except when the Contract Documents specify that other materials shall be used.

206-3.02 Structure Excavation. The Contractor's competent person shall verify field conditions, including excavation depth, groundwater, and soil conditions with the Engineer in accordance with 29 CFR 1926 Subpart P prior to performing structure excavation for all bridge foundations, walls and other major structures.

The Contractor shall backfill with suitable excavated material if a separate backfill item is not specified in the contract documents.

206-3.03 Trench and Culvert Excavation. The Contractor's competent person shall verify field conditions, including excavation depth, groundwater, and soil conditions with the Engineer in accordance with 29 CFR 1926 Subpart P prior to performing trench and culvert excavation.

For utility lines, exclusive of conduit and cable lines, of less than 300 mm in diameter, the excavation width shall be the actual bottom width necessary to properly perform the installation work required, or 1 m, whichever is less.

206-3.04 Conduit Excavation and Backfill including Surface Restoration. When the Contractor is required to excavate through portland cement concrete, asphalt concrete, composite pavement, or sidewalk, a saw cut shall be made along neat lines and to the depth as shown in the contract documents or as directed by the Engineer.

Any damage to existing pavement, sidewalk, curb or other facilities caused by the Contractor's operations under this item shall be repaired by the Contractor at no additional cost to the State.

206-3.05 Test Pits. The Contractor shall excavate and backfill test pits in order to determine existing underground utility type, size and/or condition where new utility connections to existing facilities are proposed. The Contractor shall excavate and backfill test pits in a manner approved by the Engineer that prevents damage to wrappings, coatings or other protective coverings, such as by hand digging, vacuum excavation or similar non-destructive locating equipment. The limits of the excavation shall be those sufficient to determine existing utility type, size and/or condition.

206-4 METHOD OF MEASUREMENT

206-4.01 General. The quantity of excavation will be in cubic meters, to the nearest whole cubic meter, computed from payment lines shown on the plans or the appropriate standard sheets. Work performed beyond any designated payment line will not be included in the computation of quantities for the item involved.

206-4.02 Structure Excavation. Vacant.

206-4.03 Trench and Culvert Excavation. Unless otherwise shown or indicated on the contract plans, payment lines for excavation of pipe and culvert lines, and minor structures will be determined as follows:

A. Bottom Payment Line. The elevation of the bottom payment line will be the invert elevation of the pipe, conduit, or culvert. For pipes, conduits, or culverts of nominal horizontal dimensions of 300 mm to 3700 mm, the width of the excavations at the bottom payment line will be the nominal inside horizontal dimension of the pipe, conduit, or culvert plus 1.2 m, or three (3) times the nominal inside horizontal dimension, whichever is less; for pipes with a nominal horizontal dimension greater than 3700 mm the width will be as shown on the appropriate standard sheets or in the contract documents. For concrete and smooth interior corrugated polyethylene pipe, twice the minimum wall thickness

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will be added to the preceding. For concrete pipe, the bottom payment line is the Bedding Control Line shown on the applicable standard sheet.

B. Top Payment Line. The top payment line will be the surface at the centerline of the pipe, culvert or conduit immediately prior to commencing trench excavation.

C. Side Payment Lines. The side payment lines of the excavation will be vertical to the bottom payment line.

For utility lines, exclusive of conduit and cable lines, of less than 300 mm diameter, the excavation width will be the actual bottom width necessary, as determined by the Engineer, to properly perform the installation work required, or 1 m, whichever is less.

D. Payment Lines for Minor Structures. Payment lines for minor structures will be vertical from the bottom of the footing and will extend vertically from a line 0.6 m from the perimeter of the structure footing. The top payment line shall be the same as for (B) above. The bottom payment line will be the bottom of footing elevation, or the bottom of undercut elevation as directed by the Engineer.

206-4.04 Conduit Excavation and Backfill including Surface Restoration. The quantity of conduit and/or cable excavation and backfill including surface restoration for payment will be the number of linear meters measured along the center of the conduit and/or cable placed, in accordance with the methods stated below.

Wherever a pair or group of conduits and/or cables are physically connected together, they will be considered as a single conduit and/or cable.

A. Wherever conduit and/or cable in the same trench are physically separated laterally by 150 mm or more between centerlines, as shown on the plans or as directed by the Engineer, the linear meters measurement will be made along the center of each conduit and/or cable.

B. Wherever a pair or group of conduits and/or cable in the same trench are physically separated laterally by less than 150 mm between centerlines of adjacent conduit and/or cable, as shown on the plans or as directed by the Engineer, the linear meters measurement for those conduits and/or cable will be made along the center of that pair or group of conduit and/or cables.

206-4.05 Test Pits. The quantity to be measured for payment will be the number of test holes excavated and backfilled in accordance with the contract documents.

206-5 BASIS OF PAYMENT

206-5.01 General. The cost for necessary guarding to protect the public from open trenches, and that required for the protection to ensure the safety of the workers, and for any necessary excavation support shall be included in other items. Progress payments will be made after the excavation has been completed and prior to the completion of other work included under this item, including but not limited to pumping and backfilling. Payment will be made, at the unit price bid, for 75% of the quantity excavated within the prescribed payment lines. The balance of the quantity excavated will be paid for upon proper completion of backfill placement.

No extra payment will be made for the cost of any materials excavated or placed outside the payment lines shown on the plans or as described in this specification. No extra payment will be made for excavation protection or support systems not shown in the contract plans, unless use of such systems is directed by the Engineer.

With exception of the Conduit Excavation and Backfill including Surface Restoration item, the work of replacing pavement, subcourses and shoulder courses will be paid for and performed under the provisions of their respective items and subsections.

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206-5.02 Structure Excavation. The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow where necessary. Payment for Sheet piling, Cofferdams or Temporary Water Diversion Structures required by the contract documents will be made in accordance with the appropriate item.

Where cofferdams are specified for structure excavation, the work required to keep the site free from earth, water, ice and snow shall be included in the item for cofferdams when necessary.

206-5.03 Trench and Culvert Excavation. The unit price bid for this work shall include the cost of labor, materials and equipment required to satisfactorily complete the work, including the costs of excavation, backfill (except select backfill paid for separately), disposal of excavated material, presplitting rock excavations where required, and keeping the site dewatered and free from earth, water, ice and snow when necessary.

206-5.04 Conduit Excavation and Backfill including Surface Restoration. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily excavate and backfill the trench, including sawcutting, and to restore and replace any pavement, shoulder, and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces as required to complete the work.

206-5.05 Test Pits. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily excavate and backfill the test pit and replace any pavement, shoulder and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces required to complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
206.01	Structure Excavation	Cubic Meter
206.0201	Trench and Culvert Excavation	Cubic Meter
206.03	Conduit Excavation and Backfill including Surface Restoration	Meter
206.05	Test Pit Excavation	Each"