

ADEPARTMENT OF LICENSES AND INSPECTIONS <b>CODE BULLETIN OF INFORMATION</b> <b>B-0503-R3</b>	CODE OF GENERAL ORDINANCES OF THE CITY OF PHILADELPHIA <hr/> TITLE 4 — BUILDING CONSTRUCTION AND OCCUPANCY CODE
SUBJECT OF BULLETIN:  <b>EXCAVATIONS AND THE PROTECTION OF ADJACENT PROPERTY          – PUBLIC AND PRIVATE</b>	REFERENCE CODE SECTION(S): Phila Building Code Phila Administrative Code OSHA Standards Part 1926 Subpart P
ISSUED BY	ISSUE DATE
NAME: Elizabeth Baldwin, P.E. Chief Code Official	November 8, 2022

**BACKGROUND:**

Building and sidewalk collapses can be attributed to builders digging basements and footings close to adjoining public and private property. Many older buildings in Philadelphia are supported on rubble stone foundation walls with minimal or no spread footings below.

When such walls are exposed or undermined, they become unstable and are prone to sudden catastrophic failure. Likewise, when excavations are made immediately abutting paved areas, like private yards and public footways that have no soil support, the exposed soil is prone to catastrophic failure, damaging property and infrastructure and disrupting traffic.

Collapses have also been caused by property owners that attempt to increase the height of their basements by digging out the basement floor. Though the danger is most acute with rubble stone foundation walls and areas with no soil support, damage and failure can occur whenever excavations are made adjacent to existing structures and adjacent yards and footways, regardless of their age or condition.

Protections mandated by the Philadelphia Building Construction and Occupancy Code have evolved over the years as an increasing number of older buildings undergo structural renovation or total reconstruction

This Code Bulletin will set forth construction document and inspection requirements to aid in enforcing the code sections that address concerns with excavations and their impact on adjoining public and private property.

The provisions of this revision shall apply to all permit applications filed on or after **January 1, 2023**. All applications filed prior to this date shall be subject to the provisions of the Philadelphia Code in the time of application and Code Bulletin B-0503-R2 (Appendix A).

**DIRECTION:**

**PART A: Protection Requirements**

All excavations and affected property must be supported in accordance with OSHA’s Occupational Safety and Health Standards Part 1926 Subpart P and the Philadelphia Building Construction and Occupancy Code.

Pursuant to OSHA's Occupational Safety and Health Standards Part 1926 Subpart P, the support of any excavation exceeding 20 feet in depth or 15 feet in width must be designed by a registered professional engineer. The registered professional engineer designing the system shall be licensed by the Commonwealth of Pennsylvania, with the exception of tabulated data for manufactured systems.

Adjoining public and private property shall be protected from damage during construction and demolition in accordance with Chapter 4-B-33 of the Philadelphia Code.

**Required protections shall include:**

Protections of Adjoining Property

Adjoining private property shall be protected in accordance with Section 4-B-3307 of the Philadelphia Code.

Whenever soil or foundation work occurs, regardless of the depth of such, the person who causes such to be made shall, during the course of such work and at his or her own expense, preserve and protect from damage any adjoining structures, including but not limited to footings and foundation. Excavations for any purpose shall not remove lateral support from any foundation without first underpinning or protecting the foundation against settlement or lateral translation.

Provisions shall be made to control water runoff and erosion during construction or demolition activities.

Protection of Public Right-Of-Way

Where an excavation is more than 5 feet in depth and within 10 feet of the public right-of-way, the support of the public right-of-way must incorporate the minimum design standards necessary to protect public safety as set forth by the Department of Streets, including:

- The PennDOT Design Manual- Part 4 shall be utilized on [State highways](#). IAASHTO LFRD method or PennDOT Design Manual shall be utilized on all other highways to determine live load surcharge from pedestrian and vehicular traffic, unless otherwise approved.
- A minimum factor of safety of 1.5 shall be applied to support systems, unless otherwise approved.
- A support system shall be designed to minimize deflection and in no case shall exceed 1".
- Where the excavation is within 12 feet of a travel lane on a [State highway](#) and within 10 feet of a travel lane on all other highways, a crash barrier must be provided unless it can be demonstrated that traffic volumes warrant an exemption based upon PennDOT Design Manual 2. The crash barrier shall be concrete or water-filled Jersey barriers 18-inches or deeper with a minimum height of 32-inches, unless otherwise approved.

Pedestrian Protection

Pedestrians shall be protected in accordance with Section 4-B-3306 of the Philadelphia Code. Such protections shall be provided to protect points of access in the public right-of-way, shared alley or driveway, an adjacent property, or within the property.

The issuance of a building permit does not affirm that an installation is federally compliant with the requirements set forth in OSHA Standards. The contractor remains responsible for ensuring property complies with all local, state, and federal requirements.

## **PART B: Excavation Permit**

The support of any excavation more than 5 feet in depth must be detailed on construction drawings in accordance with Section 4-A-3 of the Administrative Code. This shall include basement dig-outs but shall exclude:

- Excavations made for utility trenches, including plumbing work regulated by the Philadelphia Plumbing Code.
- Geotechnical Exploration

An excavation permit must comply with the requirements set forth in Chapters 4-A-3 and 4-B- 33 of the Philadelphia Code, additional requirements established through this bulletin, and the Department's [Excavation Plan Standards](#), including:

### Plan

An excavation plan must be prepared by a registered professional engineer with the following exception:

- A registered professional engineer is not required to prepare the plans where the excavation does not exceed 12 feet in depth or 15 feet in width, is greater than 10 feet from an adjacent building or structure, is greater than 10 feet from a public right-of-way or track structure, and support systems are designed in accordance with the prescriptive provisions of OSHA Standards Part 1926 Subpart P.

An excavation plan shall be a separate plan provided with the permit application and include the following information:

- Existing property information and building conditions as outlined in Section 4-A-305.2.7.1 of the Philadelphia Code.
- Dimensions of public right-of way, including identification of curb line or edge of roadway and the edge of nearest travel lane.
- Protection of footings and foundations of buildings and structures from settlement or lateral translation, including any structure within 10 feet of the excavation. Where no special precautions are warranted, the plan must include a note indicating that no special precautions or measures are required to protect existing footings and foundation on the subject property or on the immediately adjoining property.
- Details of excavation support and sequencing. The plan must include section and profile views must show all elevations of any feature 10 feet above grade and 10 feet below the deepest portion of any tie-back, pile, micro-piles, support, etc.
- Soil type, bearing capacity, and density
- Surcharge loads, including those due to pedestrian and vehicular traffic and anticipated construction staging, earth pressure, friction angle and maximum deflection of support system.
- Identification of the water table elevation and description of any required dewatering operations.
- Damp-proofing of exposed foundation walls in accordance with Chapter 4-B-18 of the Building Code.
- Identification of utilities located within work area and within 10 feet of the excavation and identification of any required utility protections.

- Pedestrian protections in accordance with Section 4-B-3306 of the Philadelphia Code. Protections shall be detailed on the plan where excavation may be accessed from the public right-of-way, shared alley or driveway, an adjacent property, or within the property.
- Crash protections, if required.

An engineered design must be accompanied by structural calculations bearing the engineer's seal and signature.

#### Soils Investigation Report

A soils investigation report shall be provided in accordance with [Code Bulletin B-9906 Soil Investigations for New Construction, Excavations, and Additions](#).

The depth of any footings within 10 feet of the excavation MUST be identified in the geotechnical report, without exception.

#### Pre-construction Survey

A pre-construction survey documenting the condition of adjacent buildings and identifying any potential hazard is required for all excavations greater than 5 feet in depth and less than 10 feet of an existing building OR within 90 feet of a building on the Philadelphia Registry of Historic Places located on the same or adjacent lot.

The pre-construction survey must be prepared by a registered professional engineer in accordance with Section 4-A-3307 of the Philadelphia Code, as outlined in the [Pre-Construction Survey Information Sheet](#).

The pre-construction survey shall highlight any specific conditions that will be adversely impacted by construction and must be addressed in the construction documents and conditions that may be adversely impacted by construction and must be monitored during construction.

If excavation and new construction are submitted in separate permit applications, the pre-construction survey must be submitted with both applications.

#### Monitoring

A monitoring plan is required for all excavations within 90 feet of a building on the Philadelphia Registry of Historic Places. A monitoring plan shall also be required for excavations exceeding 5 feet in depth and within 10 feet of an existing building if the engineer of record determines that further observation of the building is required after the excavation has been completed.

The monitoring plan shall be prepared by a registered professional engineer and identify the scope, frequency, instrumentation and allowable tolerances as established by Section 4-B-3307 of the Philadelphia Code, based upon the conditions detailed in the pre-construction survey, and as outlined in the [Monitoring Plan Information Sheet](#).

If required monitoring is limited to the minimum continuous special inspection during excavation, then it must be explicitly noted by the engineer responsible for developing the plan.

The required monitoring shall be carried out by a Philadelphia licensed Special Inspector in accordance Section C.

Pre-Approvals:

The following approvals shall be required before an excavation permit may be issued:

- A. Philadelphia Water Department - where the area of earth disturbance is greater than 5,000 SF
- B. Streets Department - where any of the following conditions exist:
  - o Excavation extending more than 3 feet into the public right-of-way, excluding dimensions of emergency egress wells; OR
  - o Excavation exceeding 12 feet in depth, and located within a distance, from the public right-of-way, equal to or less than the depth of excavation; OR
  - o Any permanent encroachment in the public right-of-way

Submission requirements and procedures shall be as established by the approving agency.

Notification

The owner or owner's agent shall be responsible to provide notification to the property owner and resident (if different from owner) of an adjacent building within 10 feet of the excavation, where the excavation exceeds 5 feet in depth.

Written notification must be provided to the owner at the address registered with the City of Philadelphia Office of Property Assessment, unless a more current mailing address has been identified by the permit applicant.

The acknowledgement of the affected owner must be provided with the permit application as outlined in the [Notification to Adjacent Owner Information Sheet](#). If a reasonable attempt has been made to contact the owner but a signature cannot be acquired, it must be documented on the acknowledgement form and accompanied by proof of mailing.

**PART C: Inspections**

Special inspections are required for all excavations greater than 5 feet in depth and less than 10 feet of existing building OR within 90 feet of a building on the [Philadelphia Register of Historic Places](#) and shall be performed by a licensed special inspector approved for Structural Stability of Existing Buildings.

It shall be the responsibility of the special inspector to ensure that protections conform to the approved plan and to continuously monitor the condition of existing buildings and structures during excavation and as otherwise required throughout construction.

If a separate inspector is identified for underpinning operations, it shall be the responsibility of that inspector to ensure underpinning is performed in accordance with the approved plan; however, the special inspector identified for structural observation retains the responsibility to monitor impacts on existing structures and public right-of-way.

The primary or supplemental special inspector must be on-site during all excavation operations where excavation is more than 5 feet below adjacent grade and within 10 feet of an adjacent building or structure. Upon completion of the excavation work, inspections of the adjacent building or structure shall continue to be performed in accordance with the Monitoring Plan.

By signing the Special Inspections Duties and Responsibilities Agreement, the Special Inspection Agency must confirm that they have reviewed the conditions of the pre-construction survey and agree to the requirements set forth in the monitoring plan.

In addition, a site safety manager employed by the contractor who has obtained certification in both OSHA 30 Construction Safety and Health and OSHA 3015 Excavation, Trenching and Soil Mechanics within the past 5 years shall be continuously present on-site during the excavation operations.

Inspections shall be made after every rainstorm by the competent person and inspection records shall be furnished to the Department upon request. Where evidence of potential failure is discovered, immediate steps shall be taken to ensure the protection of adjacent property as directed by the engineer of record.

Additional special inspections may be required in accordance Chapter 4-B-17 of the Philadelphia Code.

A Stop Work Order shall be issued whenever:

1. An excavation is performed that is not in accordance with the approved plans and special precautions;
2. Excavations within 10 feet of adjacent structure in the absence of the special inspector;
3. Underpinning or structural support is installed in the absence of the special inspector;
4. The Code Official determines that a dangerous condition is being created by any excavation.

**APPENDIX A: Code Bulletin B-0503-R2**

DEPARTMENT OF LICENSES AND INSPECTIONS <b>CODE BULLETIN OF INFORMATION</b> <b>B-0503-R2</b>		CODE OF GENERAL ORDINANCES OF THE CITY OF PHILADELPHIA TITLE 4 – Building Construction and Occupancy Code
SUBJECT OF BULLETIN:  <b>EXCAVATIONS AND THE PROTECTION OF ADJACENT PROPERTY – PUBLIC AND PRIVATE</b>		REFERENCE CODE SECTION(S):  B-3307 and B-1804.1
		ISSUE DATE December 2, 2005
ISSUED BY		REVISION DATE June 4, 2019
NAME: Elizabeth Baldwin	EFFECTIVE DATE August 1, 2019	
TITLE: Chief Code Official	PAGE 1 OF 3	

**BACKGROUND**

Building and sidewalk collapses can be attributed to builders digging basements and footings close to adjoining public and private property. Many older buildings in Philadelphia are supported on rubble stone foundation walls with minimal or no spread footings below. When such walls are exposed or undermined they become unstable and are prone to sudden catastrophic failure. Likewise, when excavations are made immediately abutting paved areas, like private yards and public footways that have no soil support, the exposed soil is prone to catastrophic failure, damaging property and infrastructure and disrupting traffic.

Collapses have also been caused by property owners that attempt to increase the height of their basements by digging out the basement floor. Though the danger is most acute with rubble stone foundation walls and areas with no soil support, damage and failure can occur whenever excavations are made adjacent to existing structures and adjacent yards and footways, regardless of their age or condition.

This Code Bulletin will set forth construction document and inspection requirements to aid in enforcing the code sections that address concerns with excavations and their impact on adjoining public and private property.

**CODE REFERENCES**

The 2009 and 2018 International Building Code and Philadelphia amendments include the following provisions related to this matter:

***B-3307.1 Protection required.*** *Adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Protection must be provided for footings, foundations, party walls, chimneys, skylights and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities. The person making or causing an excavation to be made shall provide written notice to the owners of adjoining buildings advising them that the excavation is to be made and that the adjoining buildings should be protected. Said notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.*

***B-3307.3 Physical examination.*** *A physical examination of such adjoining property shall be conducted by the person causing the construction or demolition operations prior to the commencement of the operations and at reasonable periods during the progress of the work. Observed conditions shall be recorded by the person causing the construction or demolition operations, and such records shall be made available to the Department upon request.*

***B-3307.4 Soil or foundation work affecting adjoining property.*** Whenever soil or foundation work occurs, regardless of the depth of such, the person who causes such to be made shall, at all times during the course of such work and at his or her own expense, preserve and protect from damage any adjoining structures, including but not limited to footings and foundations.

***B-1804.1 Excavation near foundations.*** Excavations for any purpose shall not remove lateral support from any foundation without first underpinning or protecting the foundation against settlement or lateral translation.

## **DIRECTION**

### **PART A**

A building permit application for new construction, additions, underground tank installations and any alteration that includes an **excavation**, shall include the following:

1. The construction documents shall include a detailed plan for protecting the footings and foundations of buildings and structures from settlement or lateral translation. Such plans for protection of buildings and other adjoining property must be designed by a registered professional engineer.

Exceptions:

- a. Where no special precautions are warranted, the registered design professional shall provide a sealed statement that no special precautions or measures are required to protect existing footings and foundation on the subject property or on the immediately adjoining property.
  - b. Construction projects such as certain single-family ground floor additions that do not require the seal of a registered design professional as detailed in Administrative Code Section A-304.
2. Where excavations of twelve (12) feet or less below the adjacent grade are proposed, the soils investigation report prepared by a licensed professional engineer as required by the Building Code shall provide information to the contractor where sheeting and shoring for immediately adjacent rights-of-way, alleys and yards of adjacent properties is necessary given the depth of the excavations and the soil conditions present. All excavations in excess of five (5) feet in depth require support in accordance with OSHA regulations. The soils investigation report may also provide for alternative methods for an installation of a slope angle in instances where lay back excavation is appropriate.
  3. Engineer designed sheeting and shoring plans shall be submitted when the proposed excavation is deeper than twelve (12) feet below the adjacent grade and is horizontally closer to the edge of the adjoining property, including the footway or other public right-of-way, than a distance of 1.25 X the depth of the excavation.
  4. Where the protection of footways and other public rights-of-way includes protections other than sheeting and shoring (such as tie-backs, soil nailing, etc.) or includes encroachments into the right-of-way, the method and plans shall be approved by the Streets Department.

### **PART B**

Special Inspections shall be performed under the following conditions:

1. When underpinning or structural support is specified or required, Special Inspections by a licensed professional engineer shall be performed.

2. Where excavations in excess of twelve (12) feet in depth require engineer-designed sheeting and shoring, Special Inspections by a professional engineer shall be performed.
3. Where an excavation is three (3) feet or less from an existing building, Special Inspections shall be performed by a licensed professional engineer to ensure that conditions and protections conform to the approved permit drawings.
  - a. Exception: Special inspections are not required for excavations that are three (3) feet or less below adjacent grade.

A Building Permit shall not be issued unless the required Special Inspection Form(s) are submitted in accordance with Departmental procedures.

### PART C

A Stop Work Order shall be issued whenever:

1. An excavation is performed that is not in accordance with the approved plans and special precautions;
2. Underpinning or structural support is installed in the absence of the special inspector;
3. The Code Official determines that a dangerous condition is being created by any excavation.