

# Development Services

## From Concept to Construction

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More Contact Info (<http://www.portlandoregon.gov/bds/article/519984>)



### APPEAL SUMMARY

**Status:** Decision Rendered

<b>Appeal ID:</b> 23281	<b>Project Address:</b> 7336 N Central St
<b>Hearing Date:</b> 1/8/20	<b>Appellant Name:</b> Adam Clough
<b>Case No.:</b> B-002	<b>Appellant Phone:</b> 503-720-6001
<b>Appeal Type:</b> Building	<b>Plans Examiner/Inspector:</b> Jason Butler-Brown, Amit Kumar
<b>Project Type:</b> residential	<b>Stories:</b> 2 <b>Occupancy:</b> N/A <b>Construction Type:</b> N/A
<b>Building/Business Name:</b> N/A	<b>Fire Sprinklers:</b> No
<b>Appeal Involves:</b> other: Demolition (Pool)	<b>LUR or Permit Application No.:</b>
<b>Plan Submitted Option:</b> pdf [File 1] [File 2] [File 3]	<b>Proposed use:</b> N/A

### APPEAL INFORMATION SHEET

#### Appeal item 1

**Code Section** 24.55.100

**Requires** Per BDS, to decommission my in-ground cement pool and convert to landscaped plants and yard space, I would need to fracture the entire bottom and side walls into 6 inch pieces, remove, and fill with soil.

#### Code Modification or Alternate Requested

**Proposed Design** Proposed Design:

- Leave cement vertical side walls in place, fracturing to 12 inches below grade.
- Break out 18 6-inch diameter areas in the bottom of the pool for drainage.
- Substrate fracturing to 6" fill.
- Follow City of Portland regulations 24.070.080 fills for completion of the remainder of the project
- Replace with yard, to include landscaped plants, compacted gravel, and flagstone patio

#### Reason for alternative

Reason for alternative:

Reduce impact to adjacent structures

A) The pool is within four feet of the house in many locations, and removal of the walls with heavy equipment would not be possible without presenting an unreasonable risk of damage to the house or unsafe use of equipment.

B) The pool is within 10 feet of the neighbor's garage, presenting the same unreasonable risk should the entire structure be removed.

The house is located in high density zoning, and does not allow access for large equipment that would be needed to fracture the entire area of cement bottom and sides.

A)There is only one 3 foot side gate on one side of the house, and access from the other three sides are prevented by permanent fencing and other property owners' yards without feasible access.

Supporting information

Plans to be completed, in line with the attached geotechnical engineering memorandum.

Request is consistent with resolution as decided in appeal ID: 8482 on 6/13/12, which is based upon substantially equivalent facts.

## APPEAL DECISION

**Demolition of pool with partial structure to remain in place: Granted provided the recommendations of the geotechnical report are implemented.**

**Appellant may contact Jason Butler-Brown (503-823-4936) with questions.**

The Administrative Appeal Board finds with the conditions noted, that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to [www.portlandoregon.gov/bds/appealsinfo](http://www.portlandoregon.gov/bds/appealsinfo), call (503) 823-7300 or come in to the Development Services Center.

# Carlson Geotechnical

A division of Carlson Testing, Inc.  
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December 2, 2019

Adam Clough  
7336 North Central Street  
Portland, Oregon 97203

**Geotechnical Consultation Report  
Clough Residence Swimming Pool Demolition  
7336 North Central Street  
Portland, Oregon**

CGT Project Number G1905192

## **1.0 INTRODUCTION**

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our geotechnical consultation services for the proposed demolition and backfilling of a swimming pool structure at 7336 North Central Street in Portland, Oregon. We performed our work in accordance with CGT Authorization to Proceed & Work Order GP8721, dated November 19, 2019. Written authorization for our services was received on November 21, 2019.

## **2.0 PROJECT UNDERSTANDING**

Based on our correspondence, we understand that you intend to partially demolish and backfill an in-ground, concrete-lined, swimming pool and appurtenant nearby features (hardscaping) located within the back (south) yard area of the residential property. Current plans include removing the upper portions of the pool walls to a depth of at least 1-foot below subgrade elevation. The remaining (lower) portions of the pool walls, as well as its base, are to remain in place. Holes will be created within the base of the pool to assist with drainage and avoid a "bathtub" condition. Recycled concrete up to about 6 inches in diameter will be utilized to infill the pool interior and achieve desired grade. Following backfilling, the general area will be surfaced with crushed rock in preparation for installation of a stone patio and landscaping features. Design of the patio will rest with others.

Prior to CGT's involvement on this project, the client informed us that they are aware the above plans, specifically leaving the pool base slab and concrete walls, are not in conformance with City of Portland Title 24 Guidelines as they pertain to demolishing and backfilling below-grade structures. For discussion purposes, those are hereafter referred to as the "City guidelines" in this report. We further understand the client will be submitting an appeal to the City's code section, and a letter from a professional geotechnical engineer will be required as part of the City's review.

## **3.0 SCOPE OF SERVICES**

The purpose of this letter was to provide geotechnical review of the proposed construction (as understood by CGT) and provide geotechnical recommendations for preparation and backfilling of the existing swimming pool structure. Recommendations presented later in this report are provided on a consultation-level basis. This assignment did not include a geotechnical investigation of the project site, nor development of geotechnical engineering recommendations for new structures at the site. CGT is not aware of a geotechnical report by others for this subject site.

## **4.0 SITE DESCRIPTION**

CGT visited the site on November 8, 2019, to become familiar with existing site conditions. The project site is bordered by North Central Street to the north, and established residential properties to the east, south, and west. At the time of our visit, the site was occupied by the existing residential structure (with basement), an attached garage, a concrete-paved driveway, hardscaping features (e.g. sidewalks, patios) and landscaping features. In terms of topography, the site was relatively level. Concrete masonry block walls were present along the site boundaries within the back (south) portion of the property.

The aforementioned swimming pool was located in the back (south) portion of the residential property. The pool measured approximately 25 feet long (east-west), 14 feet (north-south), and ranged from about 3½ to 5¼ feet deep relative to nearby concrete hardscaping. The depth of the pool increased towards the west. The north edge of the swimming pool was located about 4 feet away (measured horizontally) from the south side of the residential structure. The west edge of the swimming pool was located about 5 feet away (measured horizontally) from the concrete masonry block wall along the west property line.

Aerial imagery (2013) depicting existing site conditions is shown on the attached Site Plan, Figure 1. Photographs taken during our reconnaissance of the property are shown on the attached Figure 2.

## **5.0 GEOTECHNICAL REVIEW & DISCUSSION**

As indicated above, we understand that the client is pursuing an appeal to the City of Portland's Title 24 Guidelines as they pertain to demolishing and backfilling of the existing swimming pool at this site. We understand that one factor leading to this pursuit includes relatively limited access for conventional earthwork equipment that is typically used to demolish and remove concrete debris. Such limited access results in significant challenges to adhere by the City's guidelines. In addition, we anticipate that, given its relatively close proximity to the west property line, complete removal of the west wall of the swimming pool may require special consideration (e.g. shoring) to help protect personnel and adjacent improvements. Partial removal of the pool walls, if approved, would help avoid the likely requirement for shoring.

Based on our review of the site, recognizing the above and that current project plans<sup>1</sup> do not include construction of new foundations in the area of the pool, CGT is in acceptance of the proposed partial demolishing and backfilling plans as described in Section 2.0 above. Geotechnical recommendations for use in planning and construction are presented later in this report.

Notwithstanding the preceding paragraph, the client is advised that leaving concrete walls and the pool base in place could result in challenges for redeveloping that portion of the site in the future, if considered. Those challenges would include, but not limited to:

- Achieving satisfactory subgrade support for new foundations, given the presence of non-rigid (e.g. recycled concrete backfill, nearby soils) and "rigid" features (e.g. pool walls) relatively near-surface. If new structure(s) are proposed, we recommend a geotechnical engineer be consulted to provide specific recommendations for use in design and construction of foundations.
- Installation of underground features (e.g. utilities) extending to a depth in excess of 1-foot below grade in this area of the site, given the presence of the rigid pool walls.

## **6.0 RECOMMENDATIONS**

### **6.1 Temporary Excavations**

All excavations should be in accordance with applicable OSHA and state regulations. It is the contractor's responsibility to select the excavation methods, to monitor site excavations for safety, and to provide any shoring required to protect personnel and adjacent improvements. A "competent person", as defined by OR-OSHA, should be on-site during construction in accordance with regulations presented by OR-OSHA. CGT's current role on the project does not include review or oversight of excavation safety. For planning of temporary excavations, we recommend an OSHA soil type "C" be used for the on-site soils.

Although not anticipated for this project, excavations near existing footings should not extend within a 1H:1V (horizontal:vertical) plane projected out and down from the outside, bottom edge of the footings. In the event that excavation needs to extend below the referenced plane, temporary shoring of the excavation and/or underpinning of the

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<sup>1</sup> If project plans change and new structure(s) (e.g. building addition, new building, etc.) are proposed, the geotechnical engineer should be consulted.

subject footing may be required. The geotechnical engineer should be consulted to review proposed excavation plans for this design case to provide specific recommendations.

## **6.2 Erosion Control**

Erosion and sedimentation control measures should be employed in accordance with applicable City, County and State regulations regarding erosion control.

## **6.3 Demolition & Puncturing of Pool Base**

Demolition of the existing swimming pool should be in substantial conformance with the approved plans. If the current plans as currently understood are approved, the upper portion of the swimming pool walls should be removed (sawcut or otherwise broken up) to a depth of at least 1-foot below design subgrade elevation for the new concrete patio. Abandoned buried utilities encountered during demolition should similarly be removed or grouted full. Concrete debris resulting from demolition should be hauled off site for disposal, or may be stockpiled for later use as structural fill.

Puncturing of the concrete base should be performed to help facilitate drainage and avoid a "bathtub" condition. The means and methods for puncturing the pool base will rest with the contractor. For general planning, we recommend that the puncturing be performed throughout the pool base and result in removal of at least 1 percent of the footprint of the pool base. For example, in the event that drilling/coring of the pool base will be performed using a 6-inch diameter core barrel, a minimum of 18 holes is recommended. Alternative methods and sizes of drill/cores may be considered by the contractor.

## **6.4 Subgrade Preparation**

We recommend all sloughed and loose soils resulting from demolition activities, if present, be removed from within the pool base. Prior to placement of structural fill, the geotechnical engineer or his representative should observe the cleaned pool base and confirm the recommended extent of puncturing (Section 6.3 above) has been achieved.

## **6.5 Imported Fill**

### **6.5.1 Overview**

The geotechnical engineer should be provided the opportunity to review all materials considered for use as structural fill (prior to placement). The geotechnical engineer or his representative should be contacted to evaluate compaction of structural fill as the material is being placed. Evaluation of compaction may take the form of in-place density tests and/or full-time observation of placement and compaction. Structural fill should be evaluated at intervals not exceeding every 2 vertical feet as the fill is being placed.

### **6.5.2 Concrete Debris**

Concrete debris resulting from the demolition of existing pool walls and nearby patios can be re-used as structural fill if processed/crushed into material that is fairly well-graded between coarse and fine. The processed/crushed concrete should contain no organic matter, debris, or particles larger than 6 inches in diameter. Moisture conditioning (wetting) should be expected in order to achieve adequate compaction. When used as structural fill, this material should be placed and compacted in general accordance with Section 6.5.3 below.

### **6.5.3 Imported Granular Fill**

Imported granular structural fill should consist of angular pit or quarry run rock, crushed rock, or crushed gravel that is fairly well graded between coarse and fine particle sizes. The granular fill should contain no organic matter, debris, or particles larger than 6 inches, and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. The percentage of fines can be increased to 12 percent of the material passing the U.S. Standard No. 200 Sieve if placed during dry weather, and provided the fill material is moisture-conditioned, as necessary, for proper compaction. Granular fill material should be placed in lifts with a maximum thickness of about 12 inches, and compacted to not less than

90 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor). Proper moisture conditioning and the use of vibratory equipment will facilitate compaction of these materials.

Granular fill materials with high percentages of particle sizes in excess of 1½ inches are considered non-moisture-density testable materials. As an alternative to conventional density testing, compaction of these materials should be evaluated by performance test method(s) as accepted by the geotechnical engineer.

#### **6.5.4    Controlled Low-Strength Material (CLSM)**

CLSM is a self-compacting, cementitious material that is typically considered when backfilling localized areas. CLSM is sometimes referred to as "controlled density fill" or CDF. Due to its flowable characteristics, CLSM typically can be placed in restricted-access excavations where placing and compacting fill is difficult. If chosen for use at this site, we recommend the CLSM be in conformance with Section 00442 of the most recent, State of Oregon, Standard Specifications for Highway Construction. The geotechnical engineer's representative should observe placement of the CLSM and obtain samples for compression testing in accordance with ASTM D4832. As a guideline, for each day's placement, two compressive strength specimens from the same CLSM sample should be tested. The results of the two individual compressive strength tests should be averaged to obtain the reported 28-day compressive strength.

### **7.0       RECOMMENDED ADDITIONAL SERVICES**

Satisfactory earthwork performance depends to a large degree on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. The project geotechnical engineer or his representative should provide observations and/or testing of at least the following earthwork elements during construction:

- Finished Pool Base Conditions
- Compaction of Structural Fill

It is imperative that the owner and/or contractor request earthwork observations and testing at a frequency sufficient to allow the geotechnical engineer to provide a final letter of compliance for the earthwork activities.

### **8.0       LIMITATIONS**

We have prepared this report for use by the owner/developer and other members of the design and construction team for the proposed development. The opinions and recommendations contained within this report are not intended to be, nor should they be construed as, a warranty of subsurface conditions, but are forwarded to assist in the planning and design process.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, but to help facilitate planning and construction.

Geotechnical engineering and the geologic sciences are characterized by a degree of uncertainty. Professional judgments presented in this report are based on our understanding of the proposed construction, familiarity with similar projects in the area, and on general experience. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared; no warranty, expressed or implied, is made.



Clough Residence Swimming Pool Demolition  
Portland, Oregon  
CGT Project Number G1905192  
December 2, 2019

We appreciate the opportunity to serve as your geotechnical consultant on this project. Please contact us if you have any questions.

Sincerely,

**CARLSON GEOTECHNICAL**



EXPIRES: 6/30/2020

Brad M. Wilcox, P.E., G.E.  
Principal Geotechnical Engineer  
[bwilcox@carlsontesting.com](mailto:bwilcox@carlsontesting.com)

Attachments: Site Plan, Figure 1  
Site Photographs, Figure 2


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**CLOUGH RESIDENCE SWIMMING POOL - PORTLAND, OREGON**  
**Project Number G1905192**

**FIGURE 1**  
**Site Plan**



LEGEND

 Orientation of site photographs shown on Figure 2

1 Inch = 10 Feet



NOTES: 2013 aerial photograph and property lines from MetroMap Regional Land Information System (RLIS) data, accessed November 2019, from Metro website: <http://gis.oregonmetro.gov/metromap/>. All locations are approximate.



Drafted by: ALS



Photograph 1



Photograph 2

## **Swimming pool demolition project - DECEMBER 2019**

Code section:  
24.55.100 Demolition

### **Proposed Use:**

Swimming pool area to be converted to yard space

### **Requires:**

Per BDS, to decommission my in-ground cement pool and convert to landscaped plants and yard space, I would need to fracture the entire bottom and side walls into 6 inch pieces, remove, and fill with soil.

### **Proposed Design:**

- 1) Leave cement vertical side walls in place, fracturing to 12 inches below grade.
- 2) Break out 18 6-inch diameter areas in the bottom of the pool for drainage.
- 3) Substrate fracturing to 6" fill.
- 4) Follow City of Portland regulations 24.070.080 fills for completion of the remainder of the project
- 5) Replace with yard, to include landscaped plants, compacted gravel, and flagstone patio

### **Reason for alternative:**

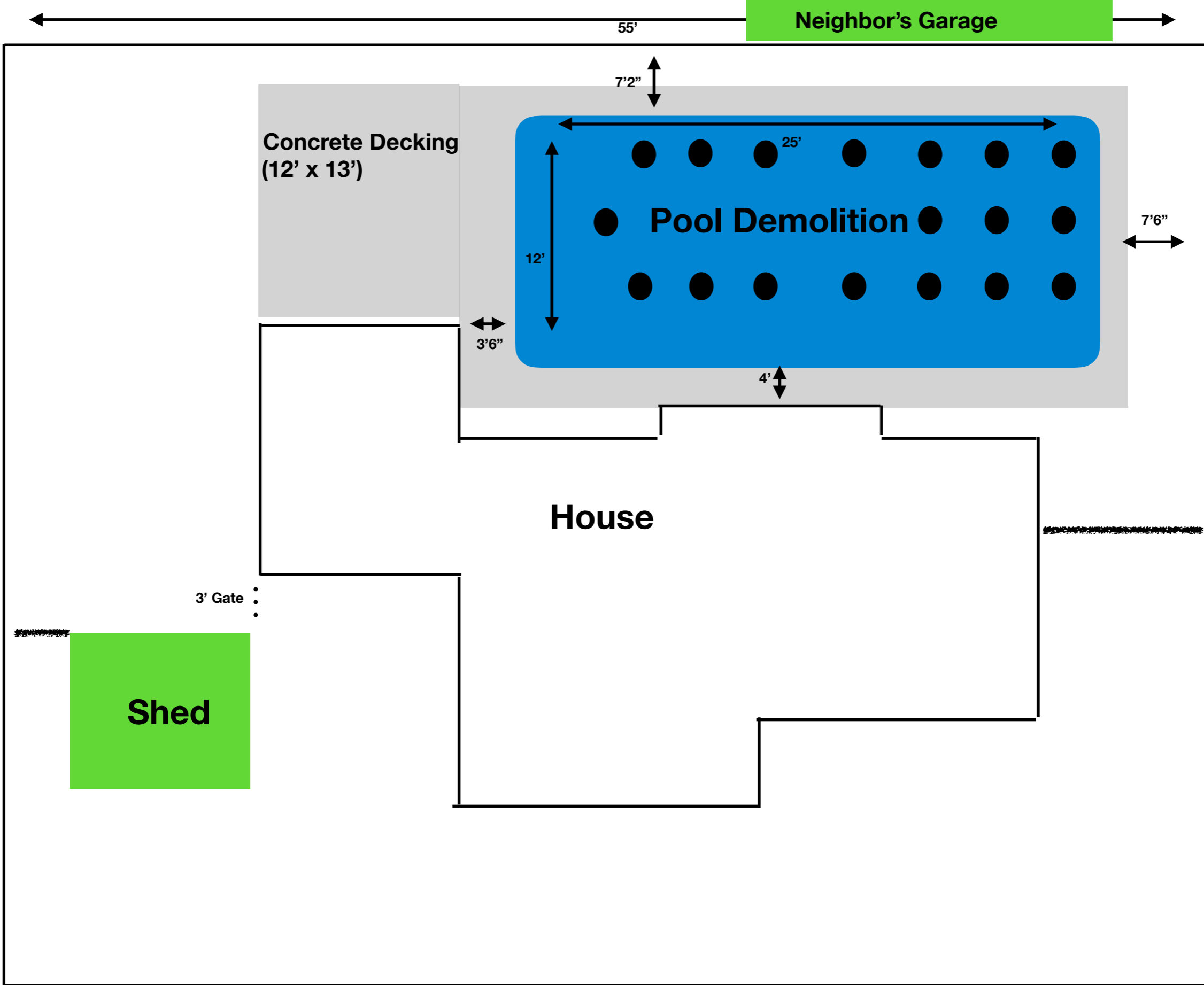
- 1) Reduce impact to adjacent structures
  - A) The pool is within four feet of the house in many locations, and removal of the walls with heavy equipment would not be possible without presenting an unreasonable risk of damage to the house or unsafe use of equipment.
  - B) The pool is within 10 feet of the neighbor's garage, presenting the same unreasonable risk should the entire structure be removed.
- 2) The house is located in high density zoning, and does not allow access for large equipment that would be needed to fracture the entire area of cement bottom and sides.
  - A) There is only one 3 foot side gate on one side of the house, and access from the other three sides are prevented by permanent fencing and other property owners' yards without feasible access.

### **Supporting information**

- 1) Plans to be completed, in line with the attached geotechnical engineering memorandum.
- 2) Request is consistent with resolution as decided in appeal ID: 8482 on 6/13/12, which is based upon substantially equivalent facts.

Thank you!

Adam Clough  
Homeowner - 503-720-6001  
7336 N. Central Street,  
Portland, OR 97203



**Vertical  
walls to  
remain  
12" sub-  
grade**

**Drainage  
through  
18 6"  
diameter  
holes**

**24.70.80  
Fills**

**Replace  
with  
plants,  
patio,  
crushed  
rock**