





Attachment A





Figures



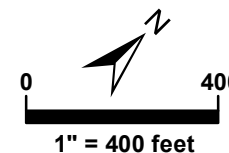
Document Path: H:\Projects\2016\16073 Livable Streets_Arboretum Gateway Path, Roslindale\GIS\Maps\Roslindale_Village_ReportFig1.mxd

Legend

-  Limited Study Area
-  MBTA Property (Approx.)
-  MBTA Commuter Rail Line - Regular Service
-  MBTA Commuter Rail Station

-  Proposed Path
-  Proposed Path (Alternative Route)
-  Proposed Mulch Path (by Arboretum)
-  Proposed Gateway

 Parcels



Horsley Witten Group
Sustainable Environmental Solutions

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Figure A.1
Roslindale Gateway Path

Date: 4/14/2017



Figure A.2: Example of Bike Ramp – Typical Stair Profile (Pinterest photo, Russell Baxley, Swamp Rabbit Trail)



Figure A.3: Example of Bike Ramp – Low Stair Profile (Pinterest photo)

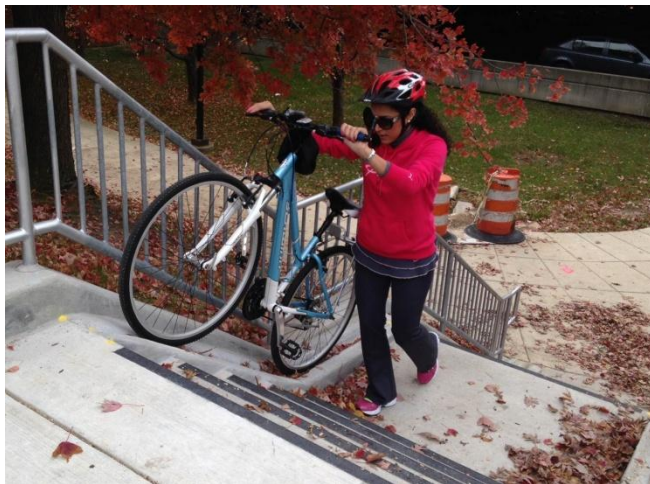


Figure A.4: Example of Bike Ramp – Bike Track (Pinterest photo)



Figure A.5: Example of Bituminous Concrete (Asphalt) (HW photo)



Figure A.6: Example of Dense Graded Crushed Stone Dust (HW photo)

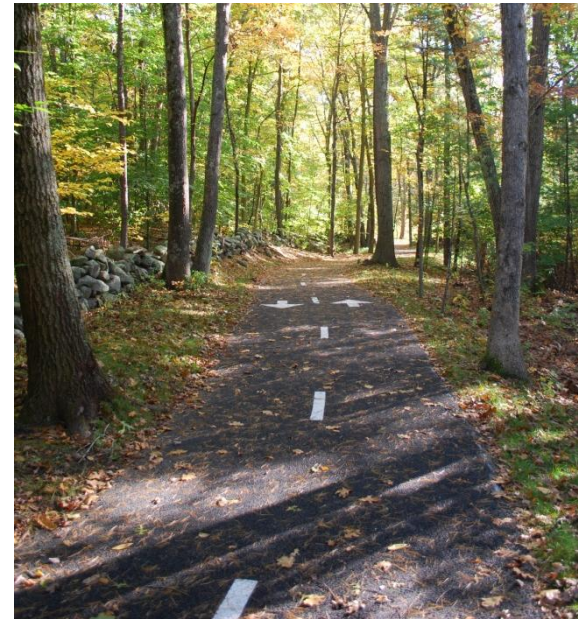


Figure A.7: Example of Porous Asphalt (HW photo)



Figure A.8: Example of Photo Luminescent Stones
(Ambient Glow Technology™ photo)



Figure A.9: Example of Solar LED Bollards
(Meteor Lighting photo)

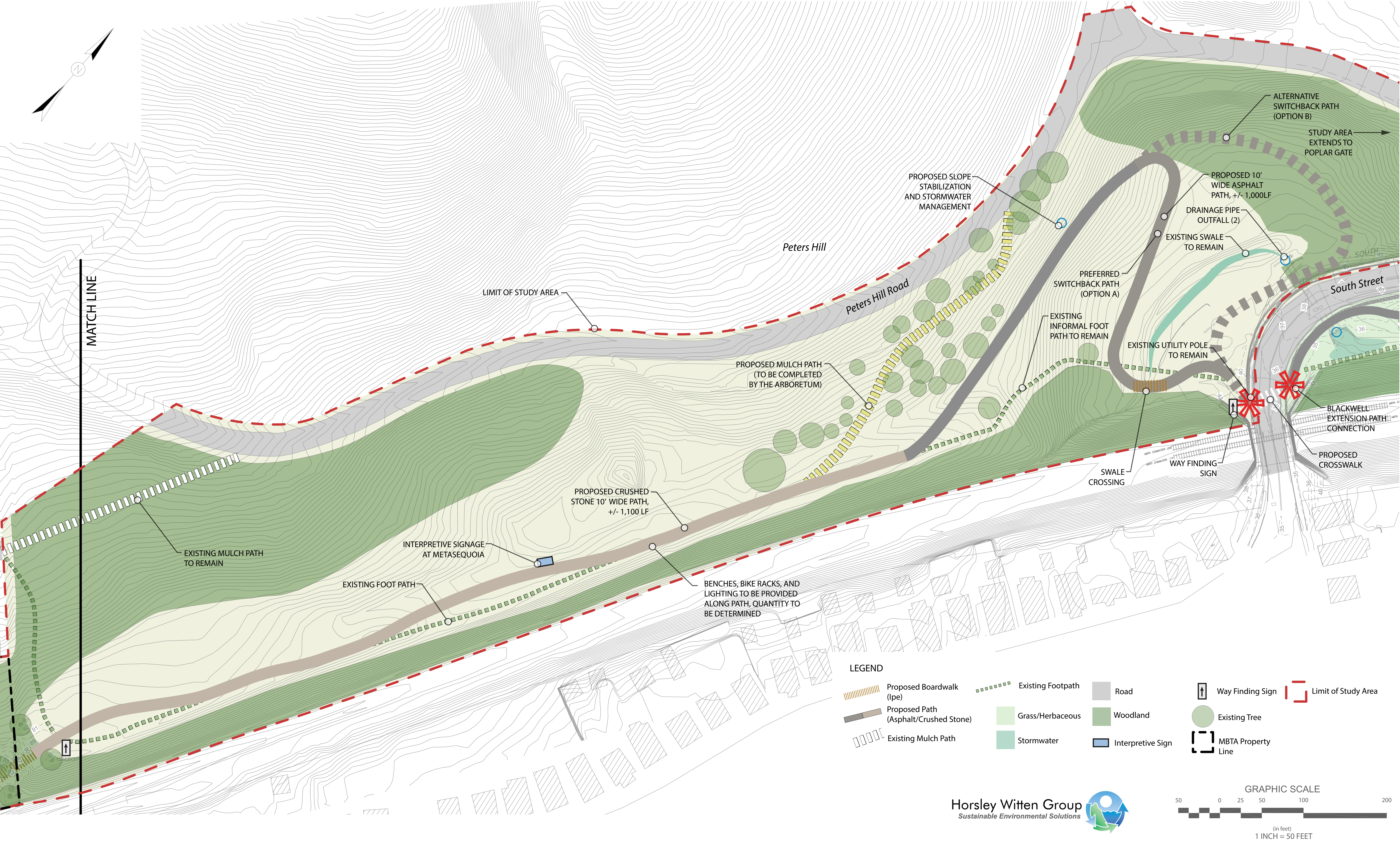
Attachment B

10% Conceptual Design Plans
(Sections 1 and 2)

Roslindale Gateway Path Conceptual Plan
Section 1 (MBTA Property) • Roslindale, MA
April 14, 2017 • Sheet 1 of 2



Roslindale Gateway Path Conceptual Plan
Section 2 (Arnold Arboretum Property) • Roslindale, MA
April 14, 2017 • Sheet 2 of 2



Attachment C

Digital Rendering of
Roslindale Gateway Path



Attachment D

Opinion of Probable Costs for 10% Conceptual Design Plans
(Sections 1 and 2)

Horsley Witten Group

Sustainable Environmental Solutions

294 Washington Street • Suite 801 • Boston, MA 02108
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Project: Roslindale Gateway Path Conceptual Plan
Location: Boston, MA
Section: 1 (MBTA Property)
Submission: 10% Opinion of Probable Cost
Date: 4/14/2017

Estimator: PK **Checked By:** JER

| Division 2-GENERAL SITEWORK | | Unit | Quantity | Unit Cost | Total Cost |
|--|-------|--------|----------|----------------------|------------------|
| SITE PREPARATION | | | | | |
| Site Mobilization / Demobilization | LS | 1 | \$ | 10,000.00 | \$ 10,000.00 |
| Tree Protection | EA | 15 | \$ | 150.00 | \$ 2,250.00 |
| Subtotal Site Preparation | | | | \$ 12,250.00 | |
| EROSION CONTROL | | | | | |
| Construction Entrance | EA | 1 | \$ | 1,000.00 | \$ 1,000.00 |
| Erosion Control | LS | 1 | \$ | 10,000.00 | \$ 10,000.00 |
| Subtotal Erosion Control | | | | \$ 11,000.00 | |
| SITE CLEARING | | | | | |
| Clear & Grub Site | AC | 1.00 | \$ | 5,700.00 | \$ 5,700.00 |
| Subtotal Site Clearing | | | | \$ 5,700.00 | |
| EARTHWORKS | | | | | |
| Earth Excavation, Removal and Relocation | LS | 1 | \$ | 35,000.00 | \$ 35,000.00 |
| Subtotal Earthworks | | | | \$ 35,000.00 | |
| STORMWATER MANAGEMENT | | | | | |
| Stormwater Management Area (e.g., bioretention area) | ALLOW | 1 | \$ | 50,000 | \$ 50,000.00 |
| Subtotal Stormwater Management | | | | \$ 50,000.00 | |
| PATH SURFACES | | | | | |
| Paving (materials and installation) | SF | 13,000 | \$ | 5.00 | \$ 65,000.00 |
| Boardwalk (materials (inc. decking, helical piles, concrete abutments) and installation) | LF | 250 | \$ | 400.00 | \$ 100,000.00 |
| Subtotal Path Surfaces | | | | \$ 165,000.00 | |
| SITE AMENITIES | | | | | |
| Directional Signage | EA | 1 | \$ | 500.00 | \$ 500.00 |
| Small Gateways (small granite columns flanking entrance, simple signage) | ALLOW | 1 | \$ | 12,000.00 | \$ 12,000.00 |
| Lighting (includes bollards, photo luminescent stone) | LS | 1 | \$ | 40,000 | \$ 40,000.00 |
| Misc. Site Items (Benches, Bike Racks, etc.) | ALLOW | 1 | \$ | 10,000 | \$ 10,000.00 |
| Subtotal Site Amenities | | | | \$ 62,500.00 | |
| LANDSCAPE | | | | | |
| Loam and Seed | ALLOW | 1 | \$ | 2,000.00 | \$ 2,000.00 |
| Subtotal Landscape | | | | \$ 2,000.00 | |
| TOTAL GENERAL SITE - DIV 2 | | | | \$ 343,450.00 | |
| TOTAL ESTIMATED CONSTRUCTION COST | | | | | \$344,000 |
| Construction Cost Contingency | | 30% | | | \$103,200 |
| Site Survey, Engineering and Design | | 10% | | | \$34,400 |
| Construction Administration | | 3% | | | \$10,300 |
| Total Estimated Cost | | | | | \$491,900 |



Project: Roslindale Gateway Path Conceptual Plan
Location: Boston, MA
Section: 1 (MBTA Property)
Submission: 10% Opinion of Probable Cost
Date: 4/14/2017

Estimator: _____ **PK** **Checked By:** _____ **JER**

Notes & General Assumptions:

1. The construction contingency is provided for variability in the bidding climate, project changes before bidding, and changes in the quantities of items assumed or measured.
2. Provisions for unsuitable soils removal and replacement are not included.
3. Removal of material does not include disposing of any hazardous material found.
4. It is assumed that the site is free from prior contamination and no historical and/or archaeological elements are present.
5. It is assumed that the site will be readily accommodated by adjacent existing utilities and no utility extensions, capacity increases or relocations will be required.

Qualifications:

The following items are not included in the scope of work:

1. General conditions costs including project management, overhead, stockpile areas, insurance, bonds, submittals, contractor O&M manual work, and contractor project start up and close out
2. Replacement/restoration of fencing, existing utilities, or other structures on MBTA property
3. Addressing encroachment of private property and other materials (including trash and debris) on MBTA property
4. Drainage improvements to MWRA drainage swale, outfall or pipes
5. Crosswalk lighting or signage on South Street (connection to the Blackwell Extension Pathway)
6. Structural analysis of soils/slope for boardwalk (including associated clearing and grubbing) to be completed by others
7. Additional costs for helical piles associated with structural integrity of soils
8. Any clearing or improvements for the existing or proposed mulch paths
9. Permitting or Associated Fees
10. Coordination with agencies (including, but not limited to: MBTA, BWSC, MWRA)
11. Temporary Water
12. Sheet piling / Earth Support
13. Police Detail

Quantities provided are based on the Roslindale Gateway Path Conceptual Plan (10% Conceptual Plan)

Unit prices provided are based upon typical 2017 construction costs and data. Unit prices are subject to change due to adjustments to material and labor costs, site conditions and inflation.

Horsley Witten Group

Sustainable Environmental Solutions

294 Washington Street • Suite 801 • Boston, MA 02108
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Project: Arboretum Gateway Path Conceptual Plan
Location: Boston, MA
Section: 2 (Arnold Arboretum Property) - with Option A
Submission: 10% Opinion of Probable Cost
Date: 4/14/2017

Estimator: PK **Checked By:** JER

| Division 2-GENERAL SITEWORK | Unit | Quantity | Unit Cost | Total Cost |
|--|-------|----------|---------------|--------------|
| SITE PREPARATION | | | | |
| Pedestrian Safety Measures (e.g., construction fence, signage) | LS | 1 | \$ 3,000.00 | \$ 3,000.00 |
| Tree Protection | EA | 8 | \$ 150.00 | \$ 1,200.00 |
| Subtotal Site Preparation | | | \$ 4,200.00 | |
| EROSION CONTROL | | | | |
| Construction Entrance | EA | 1 | \$ 1,000.00 | \$ 1,000.00 |
| Erosion Control | LS | 1 | \$ 10,000.00 | \$ 10,000.00 |
| Subtotal Erosion Control | | | \$ 11,000.00 | |
| SITE DEMOLITION | | | | |
| Remove and Dispose or Relocate Existing Stairs/Boulders at South Street | LS | 1 | \$ 5,000.00 | \$ 5,000.00 |
| Subtotal Site Demolition | | | \$ 5,000.00 | |
| SITE CLEARING | | | | |
| Clear & Grub Site | AC | 1.00 | \$ 5,700.00 | \$ 5,700.00 |
| Subtotal Site Clearing | | | \$ 5,700.00 | |
| EARTHWORKS | | | | |
| Earth Excavation, Removal and Relocation | LS | 1 | \$ 32,000.00 | \$ 32,000.00 |
| Subtotal Earthworks | | | \$ 32,000.00 | |
| STORMWATER MANAGEMENT | | | | |
| Stormwater Management Area and Slope Stabilization | ALLOW | 1 | \$ 25,000.00 | \$ 25,000.00 |
| Subtotal Stormwater Management | | | \$ 25,000.00 | |
| PATH SURFACES | | | | |
| Paving (materials and installation) | SF | 9,400 | \$ 5.00 | \$ 47,000.00 |
| Dense Grade Crushed Stone Pathways | SF | 11,000 | \$ 1.50 | \$ 16,500.00 |
| Swale Crossing | LS | 1 | \$ 5,000.00 | \$ 5,000.00 |
| Subtotal Path Surfaces | | | \$ 68,500.00 | |
| SITE AMENITIES | | | | |
| Way Finding Signage | EA | 2 | \$ 500.00 | \$ 1,000.00 |
| Interpretive Signage | EA | 1 | \$ 1,000.00 | \$ 1,000.00 |
| Small Gateways (small granite columns flanking entrance, simple signage) | ALLOW | 1 | \$ 12,000.00 | \$ 12,000.00 |
| Lighting (includes bollards, photo luminescent stone) | LS | 1 | \$ 50,000.00 | \$ 50,000.00 |
| Misc. Site Items (Benches, Bike Racks, etc.) | ALLOW | 1 | \$ 10,000.00 | \$ 10,000.00 |
| Subtotal Site Amenities | | | \$ 74,000.00 | |
| LANDSCAPE | | | | |
| Loam and Seed | ALLOW | 1 | \$ 4,000.00 | \$ 4,000.00 |
| Subtotal Landscape | | | \$ 4,000.00 | |
| TOTAL GENERAL SITE - DIV 2 | | | \$ 229,400.00 | |

| | | |
|--|-----|------------------|
| TOTAL ESTIMATED CONSTRUCTION COST | | \$230,000 |
| Construction Cost Contingency | 30% | \$69,000 |
| Site Survey, Engineering and Design | 10% | \$23,000 |
| Construction Administration | 3% | \$6,900 |
| Total Estimated Cost | | \$328,900 |



Project: Arboretum Gateway Path Conceptual Plan
Location: Boston, MA
Section: 2 (Arnold Arboretum Property) - with Option A
Submission: 10% Opinion of Probable Cost
Date: 4/14/2017

Estimator: PK

Checked By: JER

Notes & General Assumptions:

1. The construction contingency is provided for variability in the bidding climate, project changes before bidding, and changes in the quantities of items assumed or measured.
2. Provisions for unsuitable soils removal and replacement are not included.
3. Removal of material does not include disposing of any hazardous material found.
4. It is assumed that the site is free from prior contamination and no historical and/or archaeological elements are present.
5. It is assumed that the site will be readily accommodated by adjacent existing utilities and no utility extensions, capacity increases or relocations will be required.

Qualifications:

The following items are not included in the scope of work:

1. General conditions costs including project management, overhead, stockpile areas, insurance, bonds, submittals, contractor O&M manual work, and contractor project start up and close out
2. Replacement/restoration of fencing, existing utilities, or other structures on MBTA property
3. Addressing encroachment of private property and other materials (including trash and debris) on MBTA property
4. Drainage improvements to MWRA drainage swale, outfall or pipes
5. Crosswalk lighting or signage on South Street (connection to the Blackwell Extension Pathway)
6. Structural analysis of soils/slope for boardwalk (including associated clearing and grubbing) to be completed by others
7. Additional costs for helical piles associated with structural integrity of soils
8. Any clearing or improvements for the existing or proposed mulch paths
9. Permitting or Associated Fees
10. Coordination with agencies (including, but not limited to: MBTA, BWSC, MWRA)
11. Temporary Water
12. Sheeting / Earth Support
13. Police Detail

Quantities provided are based on the Roslindale Gateway Path Conceptual Plan (10% Conceptual Plan)

Unit prices provided are based upon typical 2017 construction costs and data. Unit prices are subject to change due to adjustments to material and labor costs, site conditions and inflation.



Project: Arboretum Gateway Path Conceptual Plan
Location: Boston, MA
Section: 2 (Arnold Arboretum Property) - with Option B
Submission: 10% Opinion of Probable Cost
Date: 4/14/2017

Estimator: PK

Checked By: JER

| Division 2-GENERAL SITEWORK | | Unit | Quantity | Unit Cost | Total Cost |
|------------------------------|--|-------|----------|---------------|--------------|
| SITE PREPARATION | | | | | |
| | Pedestrian Safety Measures (e.g., construction fence, signage) | LS | 1 | \$ 3,000.00 | \$ 3,000.00 |
| | Tree Protection | EA | 8 | \$ 150.00 | \$ 1,200.00 |
| | Subtotal Site Preparation | | | \$ 4,200.00 | |
| EROSION CONTROL | | | | | |
| | Construction Entrance | EA | 1 | \$ 1,000.00 | \$ 1,000.00 |
| | Erosion Control | LS | 1 | \$ 10,000.00 | \$ 10,000.00 |
| | Subtotal Erosion Control | | | \$ 11,000.00 | |
| SITE DEMOLITION | | | | | |
| | Remove and Dispose or Relocate Existing Stairs/Boulders at South Street | LS | 1 | \$ 5,000.00 | \$ 5,000.00 |
| | Subtotal Site Demolition | | | \$ 5,000.00 | |
| SITE CLEARING | | | | | |
| | Clear & Grub Site | AC | 1.00 | \$ 5,700.00 | \$ 5,700.00 |
| | Subtotal Site Clearing | | | \$ 5,700.00 | |
| EARTHWORKS | | | | | |
| | Earth Excavation, Removal and Relocation | LS | 1 | \$ 32,000.00 | \$ 32,000.00 |
| | Subtotal Earthworks | | | \$ 32,000.00 | |
| STORMWATER MANAGEMENT | | | | | |
| | Stormwater Management Area and Slope Stabilization | ALLOW | 1 | \$ 25,000.00 | \$ 25,000.00 |
| | Subtotal Stormwater Management | | | \$ 25,000.00 | |
| PATH SURFACES | | | | | |
| | Paving (materials and installation) | SF | 10,500 | \$ 5.00 | \$ 52,500.00 |
| | Dense Grade Crushed Stone Pathways | SF | 11,000 | \$ 1.50 | \$ 16,500.00 |
| | Subtotal Path Surfaces | | | \$ 69,000.00 | |
| SITE AMENITIES | | | | | |
| | Way Finding Signage | EA | 2 | \$ 500.00 | \$ 1,000.00 |
| | Interpretive Signage | EA | 1 | \$ 1,000.00 | \$ 1,000.00 |
| | Small Gateways (small granite columns flanking entrance, simple signage) | ALLOW | 1 | \$ 12,000.00 | \$ 12,000.00 |
| | Lighting (includes bollards, photo luminescent stone) | LS | 1 | \$ 50,000 | \$ 50,000.00 |
| | Misc. Site Items (Benches, Bike Racks, etc.) | ALLOW | 1 | \$ 10,000 | \$ 10,000.00 |
| | Subtotal Site Amenities | | | \$ 74,000.00 | |
| LANDSCAPE | | | | | |
| | Loam and Seed | ALLOW | 1 | \$ 4,000.00 | \$ 4,000.00 |
| | Subtotal Landscape | | | \$ 4,000.00 | |
| | TOTAL GENERAL SITE - DIV 2 | | | \$ 229,900.00 | |

| | | | |
|--|-----|--|------------------|
| TOTAL ESTIMATED CONSTRUCTION COST | | | \$230,000 |
| Construction Cost Contingency | 30% | | \$69,000 |
| Site Survey, Engineering and Design | 10% | | \$23,000 |
| Construction Administration | 3% | | \$6,900 |
| Total Estimated Cost | | | \$328,900 |



Project: Arboretum Gateway Path Conceptual Plan
Location: Boston, MA
Section: 2 (Arnold Arboretum Property) - with Option B
Submission: 10% Opinion of Probable Cost
Date: 4/14/2017

Estimator: PK

Checked By: JER

Notes & General Assumptions:

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