

## Memorandum

To George Meservey, Director of Planning & Community Development  
Michael Domenica, PE, Program Manager

CC Betsy Shreve, AICP, AECOM Project Director  
Jeff Reade, AECOM WW Treatment, Reuse and Biosolids Task Lead

Subject **Town of Orleans, MA**  
**Water Quality and Wastewater Planning**  
**Task Number1 – Facilities Engineering**  
**Technical Memorandum on the Compost Facility Demolition Cost**

Project Number 60476644

From Thomas Parece, P.E., AECOM Project Manager

Date 03/18/16

### 1. General

An added component of the Water Quality and Wastewater Planning Project currently on-going with the Town of Orleans includes the development of an estimated cost for the demolition of the existing Compost Facility located on Overland Way near the existing Tri-Town Septage Treatment Facility.

Two demolition cost options have been developed as follows:

- a. Demolition of the Compost Facility with the Foundation Cut-Off Below Grade; and
- b. Demolition of the Compost Facility with Foundation Completely Removed.



### 2. Assumptions

The following assumptions were made as part of the estimation of demolition costs:

- a. Basis of quantities is the Septage Treatment Facilities Record Drawings dated June 1990 and site visit conducted on February 18, 2016;

- b. No hazardous materials and/or contaminated groundwater exist;
- c. Equipment is removed and legally disposed of;
- d. Pre-engineered building is demolished and recycled;
- e. Concrete (ie. slab, foundations, beams, etc.) are legally disposed of;
- f. Foundation is cut-off approximately three feet below grade;
- g. Site is graded and restored with loan and seed;
- h. Construction Contingency at 25 percent;
- i. Engineering at 5 percent; and
- j. Average Wage Rates calculated on 2016 Means Average Labor Rates for Construction Industry (ENR=10182).



**3. Summary of Demolition Costs**

The estimated demolition costs for the two options are summarized in Table 1. Refer to Appendix 1 for the Construction Cost Demolition Estimates.

**Table 1: Project Cost Estimates - Partial Demolition and Complete Demolition**

Description	Demolition of the Compost Facility with the Foundation Cut-Off Below Grade	Demolition of the Compost Facility with Foundation Completely Removed
Demolition/Restoration	\$478,000	\$689,000
Contingency	\$122,000	\$171,000
Subtotal	\$600,000	\$860,000
Engineering	\$30,000	\$40,000
<b>Totals</b>	<b>\$630,000</b>	<b>\$900,000</b>

**4. Summary and Recommendation**

Since the site is being considered as a proposed Wastewater Effluent Disposal Facility (ie. subsurface or Wick Wells), it is recommended that the Compost Facility be demolished with Foundation Completely Removed at an estimated cost of \$900,000.

**Appendix 1: Construction Cost Demolition Estimates**

12:50 PM  
 JOB #: 60476644.02.3  
 DATE: 26-Feb-16  
 LOCATION: Orleans, MA  
 PREPARED BY: RSM  
 REVIEWED BY: TP

AECOM  
 Construction Cost Estimate  
 10% Design Estimate  
 Demolition Scenarios

CLIENT : Orleans, MA  
 PROJECT : Tri-City STP  
 ACCURACY: ± 30 %  
 ENR INDEX: 10182

GRAND SUMMARY

#	DESCRIPTION		MATERIAL	LABOR	EQUIPMENT	ROUNDED TOTAL
-1-	Demo Compost Facility (197' 6" x 190') w/Foundation Cut Below Grade					\$596,275
-2-	Deconstruct Compost Facility (197' 6" x 190') (THIS OPTION DELETED)					\$0
-3-	Demo Compost Facility (197' 6" x 190') w/Foundation Completely Removed					\$860,863

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AECOM  
Construction Cost Estimate  
10% Design Estimate

CLIENT : Orleans, MA  
PROJECT : Tri-City STP  
ACCURACY: ± 30 %  
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ACCOUNT NO.	DESCRIPTION	QUANTITY	UN	MAN HOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
	THIS CONSTRUCTION COST IS BASED ON:											
	1. INFORMATION PROVIDED IN THE 10% DESIGN											
	2. ASSUMED NO DEWATERING.											
	3. PRICING IS BASED ON FIRST QUARTER 2016											
	4. PRICING DOES NOT INCLUDE CONSIDERATIONS FOR HAZARDOUS MATERIALS OR CONTAMINATED GROUNDWATER											
	5. CONTINGENCY SHOWN IS CONTRACTOR CONTINGENCY BASED ON LEVEL OF DESIGN, OWNER CONTINGENCY NOT INCLUDED											
	6. IN PROVIDING OPINION OF PROBABLE CONSTRUCTION COST, THE CLIENT UNDERSTANDS THAT AECOM HAS NO CONTROL OVER THE COST OR AVAILABILITY OF LABOR, EQUIPMENT OR MATERIALS OR OVER MARKET CONDITIONS OR THE CONTRACTOR'S METHOD OF PRICING. AECOM MAKES NO WARRANTY, EXPRESS OR IMPLIED THAT THE BIDS WILL NOT VARY FROM THIS ESTIMATE.											
	7. Average wage rate calculated from 2016 Means Average Labor rates for Construction Industry (laborers, equip opers) (ENR 10,092). Used Brockton, MA (\$69.79) escalated at to time of estimate and added 27% for:											0.9%
	SS Tax	7.65%										
	Workers Comp Ins	11.60%										
	Builders Risk	0.44%										
	Other Negotiated fringe	1.60%										
	Federal UnEmployment Ins	0.14%										
	State UnEmployment Ins	2.93%										
	General Liability Insurance	1.57%										
	TOTAL	25.9%										
	UNION AVERAGE WAGE RATE --->	\$74.96										

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Construction Cost Estimate  
10% Design Estimate  
Demolition Scenarios  
Foundation Cut Below Grade

CLIENT : Orleans, MA  
PROJECT : Tri-City STP  
ACCURACY: ± 30 %  
ENR INDEX: 10182

#	DESCRIPTION	QUAN	UN	MAN HOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
-1-	Demo Compost Facility (197' 6" x 190') w/Foundation Cut Below Grade <i>CSI 2</i>											
	Demo Slab on Grade (8")	37,525	SF	0.005	188		0	\$74.96	14,065	0.75	28,144	\$42,208
	Demo Concrete Grade Beams (11 @ 24" w x 8" Depth)	2,167	LF	0.20	433	0.00	0	\$74.96	32,488	2.00	4,334	\$36,822
	Cut Foundation below grade	800	LF	0.05	40	0.50	400	\$74.96	2,998	1.50	1,200	\$4,598
	Remove Existing equipment	25	EA	12.00	300		0	\$74.96	22,488	100.00	2,500	\$24,988
	Fill in foundation	2,963	CY	0.13	385	10.00	29,630	\$74.96	28,874	1.50	4,444	\$62,948
	Demo Column Pads	22	EA	6.00	132		0	\$74.96	9,895	25.00	560	\$10,445
	Demo Wood Chip Conveyor Frame	180	LF	0.66	119		0	\$74.96	8,905	4.00	720	\$9,625
	Demo Concrete Bin Walls	16	EA	8.00	128		0	\$74.96	9,595	25.00	400	\$9,995
	Demo Concrete Bin Walls (North)	4	EA	16.00	64		0	\$74.96	4,798	50.00	200	\$4,998
	Haul Concrete to Landfill	882	CY	0.12	106		0	\$74.96	7,931	8.00	7,054	\$14,985
	<i>Substructure</i>											
	Demo Pre-Engineered Building	825,550	CF	0.0009	743		0	\$74.96	55,696	0.10	82,555	\$138,251
	Haul to Recycle	59	TRIPS	3.00	178		0	\$74.96	13,326	200.00	11,852	\$25,178
	<i>Landscaping</i>											
	Grade Site	62,500	SF	0.0010	63		0	\$74.96	4,685	0.02	1,250	\$5,935
	SUBTOTAL DIRECT COSTS				2,978		30,030		215,745		145,203	\$391,000
	GENERAL CONTRACTOR OVERHEAD&PROFIT	22.00%										\$86,020
	SUBTOTAL GENERAL CONTRACTOR											\$477,020
	CONTINGENCY	25.00%										\$119,255
	<b>TOTAL CONSTRUCTION COST</b>											<b>\$596,275</b>

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Construction Cost Estimate  
10% Design Estimate  
Demolition Scenarios  
0

CLIENT : Orleans, MA  
PROJECT : Tri-City STP  
ACCURACY: ± 30 %  
ENR INDEX: 10182

#	DESCRIPTION	QUAN	UN	MAN HOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
-2-	Deconstruct Compost Facility (197' 6" x 190') (THIS OPTION DELETED) <u>CSI 2</u>											
	Demo Pad				0		0	\$74.96	0		0	\$0
	Cut Foundation below grade				0		0	\$74.96	0		0	\$0
	Remove Existing equipment				0		0	\$74.96	0		0	\$0
	Fill-in foundation				0		0	\$74.96	0		0	\$0
	Demo Column Pads				0		0	\$74.96	0		0	\$0
	<u>Substructure</u>											
	Remove Roof Deck Panels	37,525	SF		0		0	\$74.96	0		0	\$0
	Remove Roof Bents (11 @ 190)	2,090	LF		0		0	\$74.96	0		0	\$0
	Remove Columns	11	EA		0		0	\$74.96	0		0	\$0
	Remove Column Steel Beam	1,733	LF		0		0	\$74.96	0		0	\$0
	Haul to Recycle				0		0	\$74.96	0		0	\$0
	<u>Landscaping</u>											
	Grade Site	-	SF	0.0010	0		0	\$74.96	0	0.02	0	\$0
	SUBTOTAL DIRECT COSTS				0		0		0		0	\$0
	GENERAL CONTRACTOR OVERHEAD&PROFIT	22.00%										\$0
	SUBTOTAL GENERAL CONTRACTOR											\$0
	CONTINGENCY	25.00%										\$0
	TOTAL CONSTRUCTION COST											\$0

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Construction Cost Estimate  
10% Design Estimate  
Demolition Scenarios  
Foundation Completely Removed

CLIENT : Orleans, MA  
PROJECT : Tri-City STP  
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#	DESCRIPTION	QUAN	UN	MAN HOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
-3-	Demo Compost Facility (197' 6" x 190') w/Foundation Completely Removed <u>CSI 2</u>											
	Demo Slab on Grade (8")	37,525	SF	0.005	188		0	\$74.96	14,065	0.75	28,144	\$42,208
	Demo Concrete Grade Beams (11 @ 24" w x 8" Depth)	2,167	LF	0.20	433	0.00	0	\$74.96	32,488	2.00	4,334	\$36,822
	Demo/Remove Wall Footing base (4'3" wide)	3,400	SF	0.05	170	0.50	1,700	\$74.96	12,743	1.50	5,100	\$19,543
	Demo/Remove Wall Footing Wall (1'6" wide x 2' h)	1,600	SF	0.08	128	0.50	800	\$74.96	9,595	2.00	3,200	\$13,595
	Remove Existing equipment	25	EA	12.00	300		0	\$74.96	22,488	100.00	2,500	\$24,988
	Fill-in foundation	6,667	CY	0.13	867	10.00	66,667	\$74.96	64,966	1.50	10,000	\$141,633
	Demo Column Pads	22	EA	6.00	132		0	\$74.96	9,895	25.00	550	\$10,445
	Demo Wood Chip Conveyor Frame	180	LF	0.66	119		0	\$74.96	8,905	4.00	720	\$9,625
	Demo Concrete Bin Walls (South)	16	EA	8.00	128		0	\$74.96	9,595	25.00	400	\$9,995
	Demo Concrete Bin Walls (North)	4	EA	16.00	64		0	\$74.96	4,798	50.00	200	\$4,998
	Haul Concrete to Landfill	1,989	CY	0.12	239		0	\$74.96	17,890	8.00	15,911	\$33,801
	<u>Substructure</u>											
	Demo Pre-Engineered Building	825,550	CF	0.0010	826		0	\$74.96	61,884	0.15	123,833	\$185,717
	Haul to Recycle	59	TRIPS	3.00	178		0	\$74.96	13,326	200.00	11,852	\$25,178
	<u>Landscaping</u>											
	Grade Site	62,500	SF	0.0010	63		0	\$74.96	4,685	0.02	1,250	\$5,935
	SUBTOTAL DIRECT COSTS				3,833		69,167		287,325		207,993	\$564,500
	GENERAL CONTRACTOR OVERHEAD&PROFIT	22.00%										\$124,190
	SUBTOTAL GENERAL CONTRACTOR											\$688,690
	CONTINGENCY	25.00%										\$172,173
	<b>TOTAL CONSTRUCTION COST</b>											<b>\$860,863</b>