

Advanced Math & Science Academy Charter School

Marlborough, MA 01752

Concrete Wall Repair

OFFICE COST ESTIMATION CALCULATION BOOK

PROJECT FILE NO.: 14746

100% SUBMISSION (STRUCTURAL)



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5/16/2024

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Spec No.	Description	Units	Quantity	Average Bid Price	Estimated Cost
03.01.00	MAINTENANCE OF CONCRETE				
	CONCRETE REPAIR - SHALLOW (< 3 IN. DEPTH)	SF	70	\$155.00	\$ 10,850.00
	CONCRETE REPAIR - DEEP (> 3 IN. DEPTH)	SF	180	\$250.00	\$ 45,000.00
03.30.00	CAST-IN-PLACE CONCRETE FOR REPLACEMENT WALL CAP				
	4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE	CY	7	\$7,500.00	\$ 52,500.00
	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	LB	80	\$6.50	\$ 520.00
	DRILLING AND GROUTING DOWELS	EA	100	\$80.00	\$ 8,000.00
	EPOXY BONDING COMPOUND	SF	117	\$10.00	\$ 1,170.00
31.20.00	EARTH MOVING				
	EARTH EXCAVATION	CY	1	\$3,000.00	\$ 3,000.00
31.50.00	REINFORCED CONCRETE EXCAVATION FOR REPAIRS				
	SAWCUTTING PORTLAND CEMENT CONCRETE	LF	620	\$10.00	\$ 6,200.00
32.12.16	ASPHALT PAVING				
	REMOVAL OF EXISTING ASPHALT	CY	8	\$56.00	\$ 448.00
	REPLACEMENT OF ASPHALT PAVING	TON	4	\$300.00	\$ 1,200.00
32.31.13	CHAIN LINK FENCES AND GATES	LF	300	\$100.00	\$ 30,000.00
05.50.00	METAL FABRICATIONS				
	STEEL CHANNEL REPLACEMENT FOR VEHICLE BARRIER	LF	55	\$60.00	\$ 3,300.00
SUBTOTAL					\$ 162,188.00
CONTINGENCY (25%)					\$ 40,547.00
TOTAL					\$202,735.00



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Project	Advanced Math & Science Academy Charter School		
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CALCULATION SHEET

REPAIR INDEX

STA	Repair Depth (in)	Exposed Rebar	Joint	Width (ft)	Length (ft)	Top or Face	Repair Category	Estimated Area (ft ²)
0+00	36	NO	NO	1.167	5	TOP	CAP	5.8
0+12	3	NO	NO	1.167	1	TOP	SHALLOW	1.2
0+20	3	NO	YES	1	4	FACE	SHALLOW	4.0
0+20	12	NO	NO	1.167	3	TOP	CAP	3.5
0+20	2	NO	NO	1.167	2	TOP	SHALLOW	2.3
0+48	2	NO	NO	1	2	FACE	SHALLOW	2.0
0+60	3	NO	YES	0.5	2	FACE	SHALLOW	1.0
0+65	4	NO	NO	1.167	2	TOP	DEEP	2.3
0+72	12	NO	NO	1.167	2	TOP	CAP	2.3
0+78	6	NO	NO	1.167	5	TOP	DEEP	5.8
0+85	6	NO	YES	0.5	5	FACE	DEEP	2.5
0+85	8	NO	NO	1.167	23	TOP	CAP	26.8
0+95	6	YES	NO	3	3	FACE	DEEP	9.0
1+10	4	YES	YES	1.333	6	FACE	DEEP	8.0
1+10	8	YES	NO	1.167	4	TOP	CAP	4.7
1+10	3	NO	NO	1.5	10	FACE	SHALLOW	15.0
1+20	16	YES	NO	1.167	3	TOP	CAP	3.5
1+23	5	NO	NO	1.167	9	TOP	DEEP	10.5
1+32	6	NO	YES	0.5	2.5	FACE	DEEP	1.3
1+32	8	YES	NO	2.5	33	FACE	DEEP	82.5
1+38	6	NO	NO	1.167	4	TOP	DEEP	4.7
1+48	5	NO	NO	1.167	6	TOP	DEEP	7.0
1+52	5	NO	NO	1.167	6	TOP	DEEP	7.0
1+55	7	YES	NO	1.167	15	TOP	CAP	17.5
1+65	6	NO	YES	1	3	FACE	DEEP	3.0
1+75	1	NO	NO	1	1	FACE	SHALLOW	1.0
1+75	2	NO	NO	1.167	9	TOP	SHALLOW	10.5
2+00	3	NO	NO	1.167	25	TOP	SHALLOW	29.2
2+18	12	NO	NO	1.167	5	TOP	CAP	5.8
2+22	6	NO	NO	1.167	3	TOP	DEEP	3.5
2+28	36	YES	NO	1.167	22	TOP	CAP	25.7
2+28	6	NO	NO	1.167	4	TOP	DEEP	4.7
2+48	6	YES	NO	1.167	4	TOP	DEEP	4.7
2+82	3	NO	NO	1.167	2	TOP	SHALLOW	2.3
2+88	12	YES	NO	1.167	9	TOP	CAP	10.5
2+95	12	YES	NO	1.167	9	TOP	CAP	10.5
3+04	12	YES	NO	3	6	FACE	DEEP	18.0



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CALCULATION SHEET

03.01.00

MAINTENANCE OF CONCRETE

Under this item 03.01.00 , there are two components:

CONCRETE REPAIR - SHALLOW
 CONCRETE REPAIR - DEEP

SF
SF

CONCRETE REPAIR - SHALLOW

Area of Shallow Spalls

Total Area	=	68.5 ft ²
	SAY	70.0 ft ²
TOTAL =		70.0 SF

Item 03.01.00 CONCRETE REPAIR - SHALLOW Say 70 SF

CONCRETE REPAIR - DEEP

Area of Deep Spalls

Total Area	=	174 ft ²
	SAY	180.0 ft ²
TOTAL =		180.0 SF

Item 03.01.00 CONCRETE REPAIR - DEEP Say 180 SF



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CALCULATION SHEET

03.30.00

CAST-IN-PLACE CONCRETE

Under this item 03.30.00, there are four components:

4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE

STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED

DRILLING AND GROUTING DOWELS

EPOXY BONDING COMPOUND

CY
LB
EA
SF

4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE

Concrete for Full Cap Replacement

Note: Depth of full cap replacement average depth assumed to be 1.5'

Total Area	=	117 ft ²	
AVG depth	=	1.5 ft	(3" added to account for excavation to sound concrete)
Volume	=	180 ft ³	
SAY		<u>181</u>	

Total Volume = 181 ft³
TOTAL = 6.7 CY

Item 03.30.00 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE Say 7 CY

STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED

Area of Shallow Depth Repair

Volume Concrete	=	7 ft ³	
Volume Steel	=	0.1 ft ³	Use ratio 0.02
Wt. Steel	=	69 lbs.	Use unit weight 490 pcf
(Add 15%)	=	79 lbs.	

TOTAL = 79 LB

Item 03.30.00 STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED Say 80 LB



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03.30.00

CAST-IN-PLACE CONCRETE

DRILLING AND GROUTING DOWELS

Number of Dowels

Length	=	100 ft	
Spacing	=	24 in	
#Hoops	=	50 EA	
#Dowels	=	100 EA	Two drill holes per hoop
SAY		100 EA	

TOTAL = 100 EA

Item 03.30.00 DRILLING AND GROUTING DOWELS Say 100 EA

EPOXY BONDING COMPOUND

Full Cap Replacement

Area of Cap	=	117 ft ²
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TOTAL = 117 SF

Item 03.30.00 EPOXY BONDING COMPOUND Say 117 SF



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31.20.00

EARTH MOVING

EARTH EXCAVATION

CY

Earth Excavation Around Length of Full Cap Replacement

Length	=	100 ft	
Width	=	2.00 ft	
Depth	=	2.00 ft	(Assuming 1V:1H Slope)
Area of Cut	=	<u>2 ft²</u>	
Volume	=	200 ft ³	
	=	0.07 CY	

TOTAL = 0.074 CY

Item 31.20.00 Say 1 CY



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31.50.00

REINFORCED CONCRETE EXCAVATION FOR REPAIRS

LF

This item is for sawcutting of portland cement concrete

Cut Along Repair in Concrete

Note: Assume cuts along full perimeter of cap replacement and spalls

Perimeter around Shallow Spalls

Total Length	=	58 ft
Total Width	=	10.83 ft
Perimeter	=	137.67 ft
SAY		138 ft

Perimeter around Deep Spalls

Total Length	=	101.5 ft
Total Width	=	22.33 ft
Perimeter	=	247.67 ft
SAY		248 ft

Perimeter of Full Cap Replacement

Total Length	=	100 ft
Total Width	=	12.83 ft
Perimeter	=	226 ft
SAY		226 ft

Total = 612
Total = 620

Item 31.50.00 Say 620 LF



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32.12.16 ASPHALT PAVING TON

Under this item 32.12.16 , there are two components:

REMOVAL OF EXISTING ASPHALT CY
REPLACEMENT OF ASPHALT PAVING TON

REMOVAL OF EXISTING ASPHALT

Note: Remove and Replace Asphalt Full Length of Cap Replacement

Area of Asphalt

Length = 100.0 ft
 Width = 2.00 ft
 Area = 200 ft²
 SAY _____ 200 ft³

TOTAL = 200 ft³
 TOTAL = 7.41 CY

Item 32.12.16 REMOVAL OF EXISTING ASPHALT Say 8 CY

REPLACEMENT OF ASPHALT PAVING

Weight of Asphalt

Unit Weight = 150 pcf
 Area = 200
 Thickness = 3 in
 Total Weight = _____ 7500 lbs

TOTAL = 7500 lbs
 TOTAL = 3.80 TON

Item 32.12.16 REPLACEMENT OF ASPHALT PAVING Say 4.0 TON



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32.31.13

CHAIN LINK FENCES AND GATES

LF

Length of Chain Link Fence

Note: Replace chain link fence entire length of both walls

Length of Wall 1	=	184.0 ft
Length of Wall 2	=	116.0 ft
Total Length	=	300 ft
SAY		<u>300 ft</u>

Item 32.31.13 Say 300 LF



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CALCULATION SHEET

05.50.00

METAL FABRICATIONS

LF

STEEL CHANNEL REPLACEMENT FOR VEHICLE BARRIER

Length of Guardrail Replacement

Length = 53.0 ft

TOTAL = 53.0 LF

Item 05.50.00 Say 55 LF