Environmental Design Group
The community impact people.

Subject: CLI-28/124-4.52/5.47/0.54 PID 102731 Project No.: 18-00114-010
CLI-28-0547 Structure Quant_Tracings Sheet 1 of 4
Calc. by: SAC Date: 5/5/20 Check by: RMS Date: 5/18/20
Update by: SAC Date: 9/7/20

CLI-28-0547 Quantities - Tracings

Item 203, Ext. 10000, Excavation (Culvert Bottom)

See rehabilitation structure details for dimensions.

Width = 14'

Length = 180'

Depth = 1' approximate average

Volume = (14' x 180' x 1')/27 = **93 CU YD**

Item 204 Ext. 30041, Granular Material, Type E, As Per Plan

See rehabilitation structure details for dimensions.

Width = 14'

Length = 180'

Depth = 1' approximate average

Volume = (14' x 180' x 1')/27 = **93 CU YD**

Item 503, Ext. 11100, Cofferdams and Excavation Bracing **LUMP**

Item 512, Ext. 10100, Sealing of Concrete Surfaces (Epoxy-Urethane)

Note: Dimensions taken from original construction plans.

To be placed above water level, approximately 5' below "ceiling" (ie. 2' above structure bottom) at time of field inspection. Therefore, deduct 2' from the height dimensions.

Assume 6 inches of wall reveal at the back of the wingwalls and headwalls.

Inlet:	Left Wingwall:	Back of Wall = 23.0'L x 0.5'H =	11.5	SQ FT
		Top of Wall = 23'L x 1.0'W =	23.0	SQ FT
		Front of Flared Wall = 10'L x 2.0'H =	20.0	SQ FT
		Front of Stepped Wall: 13.0' L x 4.5'H =	58.5	SQ FT
		=> Height (triangular area) = (7.0' + 2.0')/2 = 4.5' H ave.		
	Right Wingwall:	Back of Wall = 23.0'L x 0.5'H =	11.5	SQ FT
		Top of Wall = 23'L x 1.0'W =	23.0	SQ FT
		Front of Flared Wall = 10'L x 2.0'H =	20.0	SQ FT
		Front of Stepped Wall: 13.0' L x 4.5'H =	58.5	SQ FT
		=> Height (triangular area) = (7.0' + 2.0')/2 = 4.5' H ave.		

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CLI-28-0547 Structure Quant_Tracings Sheet 2 of 4

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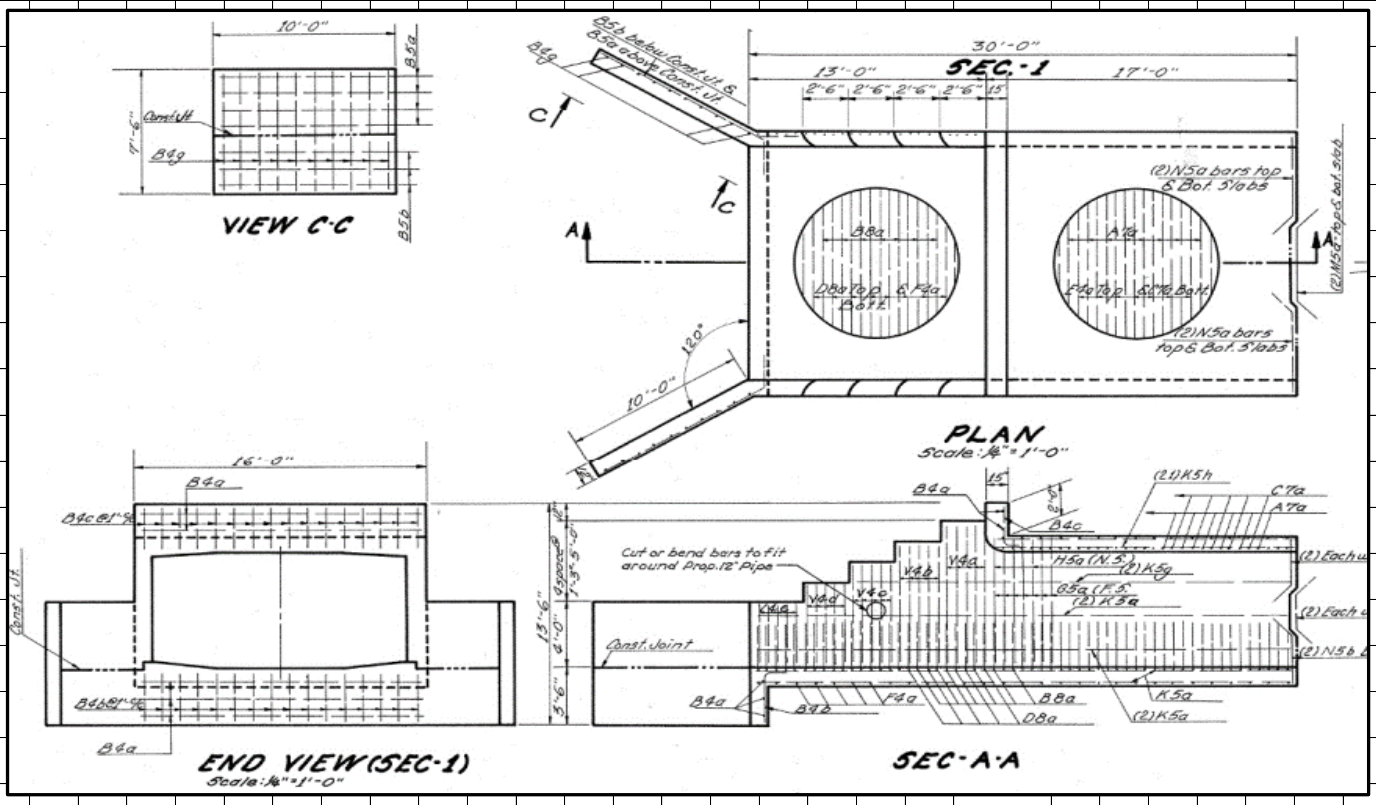
Headwall:	Back of Wall = 16.0'L x 0.5'H =	8.0	SQ FT	
	Top of Wall = 16.0'L x 1.25'W =	20.0	SQ FT	
	Front of Wall = 16.0'L x 2.0'H =	32.0	SQ FT	



Outlet:	Left Wingwall:	Back of Wall = 6.0'L x 0.5'H =	3.0	SQ FT
		Top of Wall = 6.0'L x 1.0'W =	6.0	SQ FT
		Front of Wall = (6.0'L x 5.0' H)/2 =	15.0	SQ FT
		=> Height (triangular area) due to adjacent sloped channel lining		
		not indicated in existing plans.		
	Right Wingwall:	Back of Wall = 6.0'L x 0.5'H =	3.0	SQ FT
		Top of Wall = 6.0'L x 1.0'W =	6.0	SQ FT
		Front of Wall = (6.0'L x 5.0' H)/2 =	15.0	SQ FT
		=> Height (triangular area) due to adjacent sloped channel lining		
		not indicated in existing plans.		

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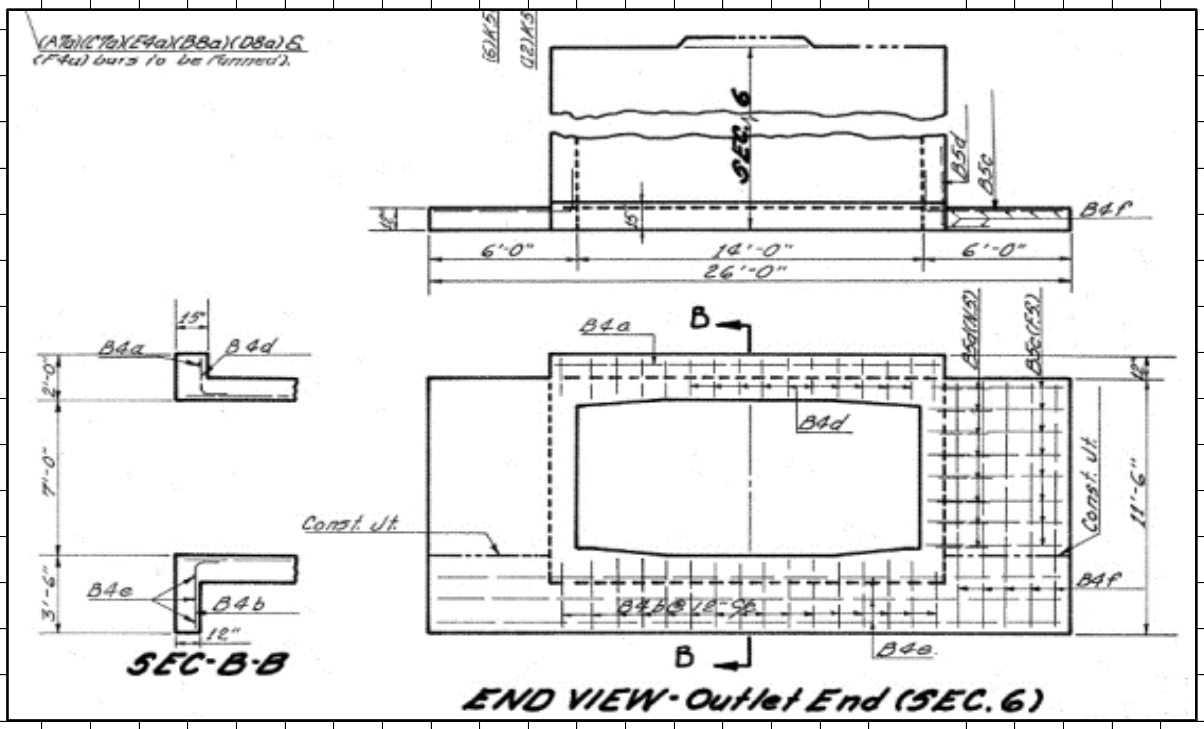
Update by: SAC Date: 9/7/20

Headwall:	Back of Wall = 16.0'L x 0.5'H =	8.0	SQ FT
	Top of Wall = 16.0'L x 1.25'W =	20.0	SQ FT
	Front of Wall = 16.0'L x 2.0'H =	32.0	SQ FT
Culvert Ends:	Last 2' of the culvert interior, see details in structure plans		
	Area = (14' + 5' + 14' + 5', length) x (2', width) x 2 ends =	152.0	SQ FT
	Total	546.0	SQ FT
		61	**SQ YD**



Item 512, Ext. 10600, Concrete Repair by Epoxy Injection

Used for filling cracks less than 1/8 inch wide.

To be placed above water level, approximately 5' below "ceiling" at time of field inspection.

Isolated cracks of 1/8 inch width or less were not separately identified at the time of field inspection.

Cracks found at the time of field inspection were part of the sections needing patching or repair.

Provide a quantity length of 100 ft in the plans to be used as directed by the engineer. **100 FT**

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Item 519, Ext. 11101, Patching Concrete Structure, As Per Plan			
See rehabilitation structure details.	**520**	**SQ FT**	
Item 843, Ext. 50000, Patching Concrete Structures with Trowelable Mortar			
See rehabilitation structure details.	**17**	**SQ FT**	
Item Special, 69099400, Field Injection of Existing Pipe Joints with High Density Polyurethane Foam			
Used for filling cracks 1/8 inch or greater.			
To be placed above water level, approximately 5' below "ceiling" at time of field inspection.			
Contractor to first drill holes for the injection equipment.			
Plan note indicates estimated quantity of 2 lb per cu ft.			
Length: Construction joints between sections, above water level:			
(5' side + 14' top + 5' side) x 5 section joints per old plans =	120.00	FT	
Perimeter of repair sections, see table on detail sheet for repair dimensions:			
((103', length) + (83', width)) x 2 =	372.00	FT	
Miscellaneous cracks to be repaired, assume along sides and top, assume 10 cracks:			
(5' side + 14' top + 5' side) x 10 cracks =	240.00	FT	
	732.00	FT	
Width, assume average width is 1/4 inch = (1/4 inch) / 12 =	0.021	FT	
Depth, assume average wall and top thickness of 12 inches = (12 inch) / 12 =	1.00	FT	
Volume = (732.00' x 0.021' x 1.00') =	15.37	CU FT	
Weight = (15.37 cu ft) x (2 lb/cu ft) =	30.7	LB	
Add 25% for excess =	7.7	LB	
Total =	38	LB	**Use 40 lb**