Index 6010 C-I-P Cantilever Retaining Wall

Design Criteria

AASHTO LRFD Bridge Design Specifications, 6th Edition; ***Structures Design Guidelines (SDG)***

Design Assumptions and Limitations

Use this standard with Indexes 6100 and 6200 Series as appropriate.

The Retaining Wall Standard Drawings consist of ***Design Standards*** Index 6010 and companion Data Tables, located in the FDOT Structures Bar Menu as MicroStation CADD cells. These Standard Drawings are intended to work in conjunction with each other and the ***LRFD*** Retaining Wall Program, developed by the Structures Design Office.

Design assumptions used in the development of the Standard Drawings may be found in 'Retaining Wall Notes' within the Program. The Standard Drawings and Program are intended for C-I-P cantilever retaining walls only, not abutments. At a minimum, the EOR should consider the applicability of the following: overall stability, settlement and seismic loading.

The Engineer of Record (EOR) shall be responsible for the Retaining Wall Design in its entirety. The EOR should complete and/or alter the Standard Drawings to suit the particular design. The EOR should consider the appropriateness of the use of the Standard Drawings and Program if the particulars of the design conflict significantly with the assumptions used in the development of the Standard Drawings.

The Standard Drawings are intended to work in conjunction with Retaining Wall Control Drawings located within the Plans. The Control Drawings should define geometrics, locations and other specifics of the Retaining Wall such that when used in conjunction with the Standard Drawings, the Contractor has sufficient information for construction.

Table 6010-1 Durability Requirements for Applicable FDOT Wall Type

Applicable FDOT Wall Types	Durability Requirements		
	Concrete Cover (in.)*	Concrete Class	Pozzolan Additions (Y/N)**
Type 1A	2	II	No
Type 1B	2	IV	No
Type 1C	3	IV	No
Type 1D	3	IV	Yes

* See SDG for concrete cover requirements for external surfaces cast against earth.

** See SDG 1.4.3.G

Plan Content Requirements

See ***PPM*** Vol. 1, Chapter 30 for more information.

Prepare Control Drawings containing the following information and include them in the plans.

Plan View

- Wall Location
- Begin/End Wall Stationing and Offset
- Wall Joint/Expansion Joint Stationing and Offset
- Offset definition, usually from baseline to front face of wall
- Step Locations

Elevation

- Top/Bottom of Footing Elevation
- Ground line Elevation
- Top of Wall Elevation
- Top of Barrier Elevation

The Program outputs five text files:

- retwall_line1.txt
- retwall_line2.txt
- retwall_line3.txt
- retwall_line4.txt
- retwall_line5.txt

These five text files correspond sequentially to the five Retaining Wall Data tables contained in the companion Data Tables for Index 6010. Complete these data tables using the five text files and include the Data Tables in the plans. Complete the Notes and add/modify/delete as necessary. See Introduction I.3 for more information regarding use of Data Tables.

The text files can be inserted into the tables by using the 'Include' Key-In Utility in MicroStation at the active points in each table. True Type Font, 'FDOT Mono' must be used to align inserted text with table columns.

C-I-P CANTILEVER RETAINING WALLS DATA TABLES

WALL DIMENSIONS — Table Date 01-01-11

Wall No.	Begin		End		Height				Wall Length		D	W	L_{foot}		L_{toe}		Slope Bkwall	D_{soil}		L_{key}	D_{key}	V_{step}	Wall Cover	FtgCov (typ.)	FtgCov (bot.)
	Station	Offset	Station	Offset	Begin		End																		
					ft.	in.	ft.	in.	ft.	in.	in.	in.	ft.	in.	ft.	in.		ft.	in.	in.	in.	in.	in.	in.	in.

BILL OF REINFORCING STEEL — Table Date 01-01-11

Wall No.	Bars J									Bars K									Bars M							
	Size	No.	Spacing	A Begin		A End		B		Average Total Length		Size	No.	Spacing	A Begin		A End		B		Average Total Length		Size	No.	A		B		Total Length	
			in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.			in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.			ft.	in.	ft.	in.	ft.	in.

BILL OF REINFORCING STEEL — Table Date 01-01-11

Wall No.	Bars H					Bars G1						Bars R				Bars Z					Bars A						
	Size	No.	Spacing	Length		Size	No.	Spacing	No. of Lap Splices	Total Length		Size	No.	Length		Size	No.	Spacing	Length		Size	No.	Length Begin		Length End		Average Length	
			in.	ft.	in.			in.		ft.	in.			ft.	in.			in.	ft.	in.			ft.	in.	ft.	in.	ft.	in.

BILL OF REINFORCING STEEL — Table Date 01-01-11

Wall No.	Bars F								Bars G2				Bars D			
	Size	No.	Spacing	Length Begin		Length End		Average Length	Size	No.	Length		Size	No.	Length	
			in.	ft.	in.	ft.	in.	ft.	in.			ft.	in.			ft.	in.

ESTIMATED QUANTITIES — Table Date 01-01-11

Wall No.	Concrete			Reinf. Steel
	Footing ◇1	Wall	TOTAL	
	C. Y.	C. Y.	C. Y.	LBS.

QUANTITIES NOTES:

◇1 Includes concrete for optional shear key.

NOTES:

1. Work these Data Tables with Index No. 6010.
2. Concrete Class _____ (f'c = _____ psi) with/without silica fume, metakaolin or ultrafine fly ash.
3. Wall exposed face surface texture shall be _____
4. Environmental Classification is _____.
5. Minimum Soil Nominal Bearing Resistance = _____ psf.
6. A value of '0' for Slope Backwall indicates front and back of wall are parallel.
7. Dsoil is typical depth of soil and is used for design purposes only. See Control Drawings for actual ground line.
8. Non-zero values for Lkey and Dkey indicate the existence of a shear key.
9. A non-zero value for Vstep indicates the existence of a footing step, see Control Drawings for location.
10. Bars J, K, A and F vary uniformly between begin and end wall heights as indicated by begin and end dimensions.
11. The number of G1 Bars includes 2 additional bars when a shear key is specified.
12. For walls with variable begin/end height, Bars G2 shall be fanned such that they are evenly spaced throughout length of wall.

Payment

Item number	Item description	Unit Measure
400-2-11	Concrete Class II, Retaining Walls	CY
400-4-11	Concrete Class IV, Retaining Walls	CY
415-1-3	Reinforcing Steel - Retaining Wall	LB

Commentary: See Instructions for Design Standards Index 6100 Series for Traffic Railing/Junction Slab Pay Items as required.

Retaining Wall quantities shall not include concrete nor reinforcing steel for Traffic Railings. Traffic Railing (including Bars 5V) shall be paid for under Concrete Traffic Railing (Bridge).