# Index 6010 C-I-P Cantilever Retaining Wall

## **Design Criteria**

AASHTO LRFD Bridge Design Specifications, 5th 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

Accellant to FDOT	D	Durability Requirements											
Applicable FDOT Wall Types	Concrete Cover (in.) <sup>*</sup>	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										

<sup>\*</sup> See SDG for concrete cover requirements for external surfaces cast against earth.

<sup>\*\*</sup> See SDG 1.4.3.G

### Topic No. 625-010-003-i Fiscal Year 2012/2013

## **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													ible Date (	21-01-11										
Wall	Ве	gin	E	nd	Po	He. gin	ight _	nd	W	all ngth	D	w	L <sub>f</sub>	oot	L	oe	Slope	D	oil	L key	Dkey	V step			FtgCov (bot.)
No.	Station	Offset	Station	Offset	ft.	in.	ft.	in.	ft.	in.	in.	in.	ft.	in.	ft.	in.	Bkwall	ft.	in.	in.	in.	in.	in.	in.	in.

	BILL OF REINFORCING STEEL Table D														ble Date (	91-01-11														
	Bars J Bars K Bars M																													
Wall No.	Size	No.	Spacing	Po	gin ,	A I =	nd		В	Ave.	rage Length	Size	No.	Spacing	P.o.	gin ,	4 <i>Ei</i>	nd	L	В	Ave.	rage Length	Sizo	No.	,	4	E	8	Total	Length
110.	3126	NO.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	Jize	NO.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	JIZE	NO.	ft.	in.	ft.	in.	ft.	in.
																											<b>└</b>			ldot
																											1 '	,	1	i l

													Table Date 01-01-11															
			Bars H					Bars G1					Bar	s R				Bars Z						Bar	s A			
Wall			Cnasina	Los	ngth			Spacing	No. of	Total	Length			Lor	gth			Spacing	Lor	ngth				Ler	ngth		Ave	rage
No.	Size	No.	Spacing	Lei	igtii	Size	No.	Spacing	Lap	TULAI	Length	Size	No.	Lei	gtii	Size	No.	Bracing	Lei	igtii	Size	No.	Be	gin	E	nd	Len	ngth
			in.	ft.	in.			in.	Splices	ft.	in.			ft.	in.			in.	ft.	in.			ft.	in.	ft.	in.	ft.	in.

	BILL OF REINFORCING STEEL														Table Date 01-01-11			
	Bars F											Bars G2						
Wall No.	Size	No.	Spacing	Ве	Ler gin	gth E	nd		rage igth	Size	No.	Ler	Length		No.	Ler	ngth	
			in.	ft.	in.	ft.	in.	ft.	in.	1		ft.	in.	1		ft.	in.	
															l	1		

#### NOTES:

	ESTIMAT	ED QUANTIT	IES	Table	Date 01-01-11
		Concrete			
Wall No.	Footing	Wall	AL	Reinf. Steel	
	C. Y.	C. Y.	C. '	۲.	LBS.

1 Includes concrete for optional shear key.

QUANTITIES NOTES:

- 4. Environmental Classification is \_\_\_\_.
  5. Minimum Soil Nominal Bearing Resistance =
- 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).