Index 5250 Perimeter Wall

Design Criteria

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

Design Assumptions and Limitations

Design Assumptions:

Wall heights are a nominal 8 feet above finished grade and are designed and detailed to resist wind pressures based on requirements of ***SDG*** 2.4.

Foundations have been designed for loose sand with an uncorrected SPT blow count of N=5 or greater. Clayey soils were investigated and did not control the design.

Precast Option Design Assumptions:

- Wall Panels, as designed, will withstand 50 psf wind pressure when installed between posts spaced at 20'-0".
- Post reinforcing and foundation depths are based on 20'-0" post spacing with maximum cantilevered wall height of 10'-0" (8'-8" above and 1'-4" below grade).
- Auger cast pile foundations were designed in accordance with the ***Soils and Foundations Handbook***, Appendix B.

Masonry Option Design Assumptions:

- Walls are designed as a continuous cantilevered wall in accordance with ***ACI 530*** using Strength Design for a maximum cantilevered height of 10'-0" (8'-8" above and 1'-4" below grade).
- Foundations are designed in accordance with ***AASHTO LRFD***, Section 15.

Design Limitations:

See the ***PPM*** for limitations on the applicability of this Index.

Perimeter Walls are not designed for vehicle impact loads. If the walls cannot be placed at the required set back distances or behind traffic railings or guardrail they will not be allowed.

Ensure system is constructible with consideration of overhead clearances (i.e. overhead services, tree canopies, existing overhead structures, etc.) and existing underground services along the entire length of the wall.

- If foundations will be installed on a slope, adjust the standard foundation depths based on the ***Soils and Foundations Handbook***.

Plan Content Requirements

Include the "Report of Core Borings" (Soil Information Data) on a separate sheet in the plans.

Fully detail non-standard components in the plans.

Drainage Holes: Locate wall drainage holes based on site requirements. Evaluate the capacity of drainage openings and locate horizontally and vertically to ensure that offsite stormwater inflows are accommodated without increasing offsite stormwater stages for the appropriate regulatory design events. Refer to the ***Drainage Manual*** for additional guidance. Show location, number, spacing and type of drainage holes in the Wall Control Drawings.

Anti-Graffiti Coating: Consider coating all publicly accessible portions of the walls with an anti-graffiti coating; see ***SDM*** 4.4 for limits of anti-graffiti coatings. When included, tabulate limits of anti-graffiti coatings in the "PERIMETER WALL DATA TABLE". Specify a "sacrificial" or "non-sacrificial" coating system based on District Maintenance recommendations (See Pay Items). Anti-Graffiti Coating shall match the Class 5 Finish color (when required) or be clear when color is not required.

Wall Textures: See ***SDG*** 1.4.5.

Caps: Include the post cap type in the "PERIMETER WALL DATA TABLE". Use notes to specify color when required.

Prepare Wall Control Drawings containing the following information and include them in the plans. Wall layouts must be usable for both Precast and Masonry Options.

Plan View

- Perimeter Wall Alignment / Location
- Begin/End Wall Stationing and Offsets
- Offset definition; usually from Baseline to Front Face of Wall
- Drainage Hole Locations
- Adjacent overhead or in-ground services
- Limits of sod or seeding/topsoil application
- Where removal of or improvements to organic soils are necessary, show the limits of organic soils and the limits of required improvements in the plans along with removal/ improvement methods and method of payment.

Elevation

- Ground Line Elevations
- Top of Wall Elevations
- Bottom of Wall Elevations and Finished Grade Line.
- Step Locations

If the base elevations or wall height requirements change along the length of the project, step bottom and/or top of walls and post/pilaster elevations to maintain the aesthetic qualities while meeting the design criteria requirements.

- Drainage Holes (Including type)
- Adjacent overhead or in-ground services
- Limits of anti-graffiti coating (if required)
- Guardrail or delineators on back face of wall

Complete the "PERIMETER WALLS DATA TABLE" with notes; include them in the plans. See Introduction I.3 for more information regarding use of Data Tables.

PERIMETER WALLS DATA TABLE — Table Date 01-31-14

WALL NO. (1)	STATION TO STATION	FRONT FACE TEXTURE (2)	PRECAST POST CAP (TYPE)	LIMITS OF ANTI-GRAFFITI COATING (2)	
				FRONT FACE/ BACK FACE/ BOTH	AREA (SQUARE FT) (SEE NOTE 4)

(1) See wall control drawings.
(2) Specify texture and limits of anti-graffiti coatings in the Table.

GENERAL NOTES [Notes Date 01-01-14]:

1. Wind Speed is ___ MPH.

2. Colors shall be per Federal color Chart, Federal Standard No 595C.
Wall Color #_____, Post/Pilaster Color #_____, Caps Color #_____.

3. Coat wall for stations shown in table with _____(sacrificial/non-sacrificial) anti-graffiti coating.

4. Height for Class 5 finish and/or anti-graffiti coating is from finished grade to top of wall (8 feet).

5. Work these Data Tables with Index No. 5250.

6. Front Face indicates roadway side of wall. Back Face indicates non-roadway side of wall.

Payment

Item number	Item description	Unit Measure
534-73	Perimeter Wall	SF
563-A	Anti-Graffiti Coating	SF

Example

PERIMETER WALLS DATA TABLE — Table Date 01-31-14

WALL NO. (1)	STATION TO STATION	FRONT FACE TEXTURE (2)	PRECAST POST CAP (TYPE)	LIMITS OF ANTI-GRAFFITI COATING (2)	
				FRONT FACE/ BACK FACE/ BOTH	AREA (SQUARE FT) (SEE NOTE 4)
1	125+25.40 to 126+30.40	Split Face	Type 2	Front Face	840
1	126+30.40 to 126+50.40	Split Face	Type 2	Both	320
2	126+75.22 to 127+90.00	Split Face 8 Fluted	Type 2	None	0
2	127+90.00 to 128+50.00	Split Face 8 Fluted	Type 2	Both	960

(1) See wall control drawings.
(2) Specify texture and limits of anti-graffiti coatings in the Table.

GENERAL NOTES [Notes Date 01-01-14]:

1. Wind Speed is 130 MPH.

2. Colors shall be per Federal color Chart, Federal Standard No 595C.
   Wall Color #31136, Post/Pilaster Color #23722, Caps Color #23722

3. Coat wall for stations shown in table with sacrificial anti-graffiti coating.

4. Height for Class 5 finish and/or anti-graffiti coating is from finished grade to top of wall (8 feet).

5. Work these Data Tables with Index No. 5250.

6. Front Face indicates roadway side of wall. Back Face indicates non-roadway side of wall.