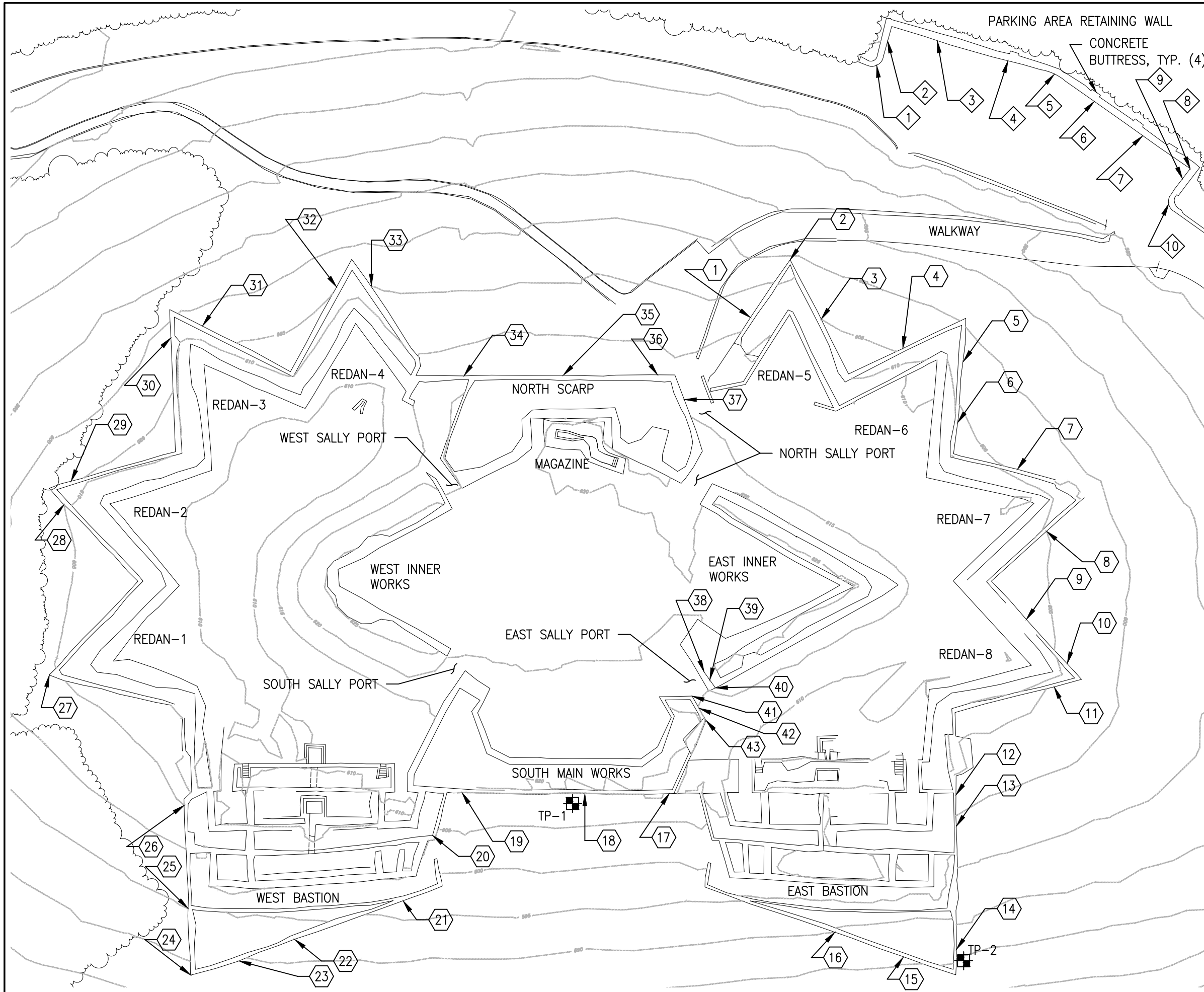


APPENDIX B

**STRUCTURAL SKETCHES**





**LEGEND**

- SURVEY POINT (OUTERWORKS RETAINING WALL)
- SURVEY POINT (FORTIFICATION WALLS)
- TEST PIT NUMBER TP-X

**NOTES:**

1. SEE SSK-1 FOR SITE PLAN WITH WALL CONDITIONS OBSERVED
2. SEE SSK-2 FOR FORTIFICATION WALL MEASUREMENTS AND EVALUATION.
3. SEE SSK-3 FOR PARKING AREA RETAINING WALL MEASUREMENTS AND EVALUATION.
4. SEE SSK-4 & SSK-5 FOR WALL BEHAVIOR DIAGRAMS
5. SEE SSK-6 FOR REPRESENTATIVE WALL CONDITIONS.



**SITE PLAN: WALL PROFILE SURVEY LOCATIONS**

Date: 8/26/2013  
Scale: 1" = 50'

Project Number: 13-063

**SSK-0**

Project Title:  
**FORT NEGLEY  
1100 FORT NEGLEY BLVD.  
NASHVILLE, TN 37203**

**MCC=1200**  
ARCHITECTURAL ENGINEERS, PLLC

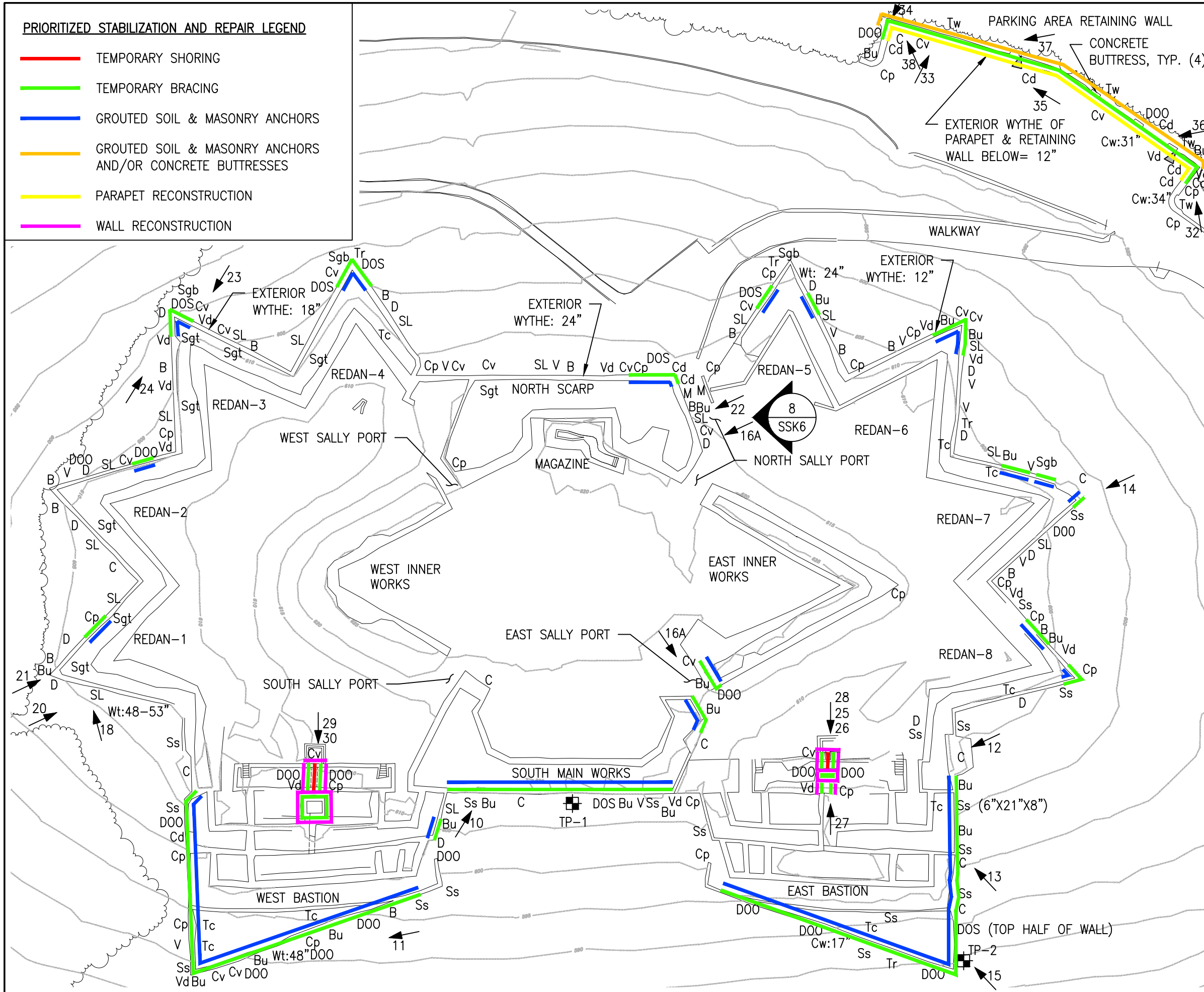
210 N. Lee St., Suite 210  
Alexandria, VA 22314  
T: 703.350.4151

**PRIORITIZED STABILIZATION AND REPAIR LEGEND**

- TEMPORARY SHORING
- TEMPORARY BRACING
- GROUTED SOIL & MASONRY ANCHORS
- GROUTED SOIL & MASONRY ANCHORS AND/OR CONCRETE BUTTRESSES
- PARAPET RECONSTRUCTION
- WALL RECONSTRUCTION

**EXISTING CONDITIONS LEGEND**

- B BIOLOGICAL GROWTH
- Bu BULGE IN MASONRY
- C COLLAPSE (FULL HT.)
- Cp COLLAPSE (PARTIAL HT.)
- Cd CRACK (DIAGONAL)
- Cv CRACK (VERTICAL)
- Cw CAPSTONE WIDTH
- D DELAMINATION AND OR DISAGGREGATION OF STONE
- DOS DISPLACEMENT-SLIDING (OUT-OF-PLANE)
- DOO DISPLACEMENT-OVERTURNING (OUT-OF-PLANE)
- DS DISPLACEMENT-SETTLEMENT
- ▲ WALL HINGE POINT
- M MORTAR PRESENT
- SL WALL CONSTRUCTION W/ LARGE STONE UNITS
- Ss WALL CONSTRUCTION W/ SMALL STONE UNITS
- Sgt SLOPED GRADE @ TOP
- Sgb SLOPED GRADE @ BASE
- Tc TOP COURSE SLIDING
- ⊠ TEST PIT INDICATOR/NO.
- Tr TREE ROOT (EXISTING)
- Tw TREE GROWTH AGAINST WALL
- V VEGETATIVE GROWTH
- Vd VOIDS IN WALL
- Wt WALL THICKNESS
- # REPORT IMAGE REFERENCE



**SITE PLAN: EXISTING CONDITIONS & PRIORITIZED REPAIRS**

Date: 10/03/2013 (REV. 11/05/13)  
 Scale: 1" = 50'  
 Project Number: 13-063

210 N. Lee St., Suite 210  
 Alexandria, VA 22314  
 T: 703.350.4151

**MCC=1200**  
 ARCHITECTURAL ENGINEERS, PLLC

Project Title:  
**FORT NEGLEY**  
 1100 FORT NEGLEY BLVD.  
 NASHVILLE, TN 37203

**SSK-1**

# FORT NEGLEY (NASHVILLE, TN) FORTIFICATION WALL PROFILE SURVEY

DESIGNATION	LOCATIONS	SEGMENT	MEASUREMENTS AND PLUMBNESS				GLOBAL PROFILE	INTERPRETATION	COMMENTS
			A	B	C	D	E		
			HEIGHT (FT)	TOP (IN)	MIDDLE (IN)	BOTTOM (IN)	(H:V)		
1	REDAN 5	WEST FACE	5.5	12	6	6	0.09	BULGE	
2	REDAN 5	CORNER	6	9	7.5	6.5	0.03	BATTER	TREE ROOT
3	REDAN 5	NORTH FACE	7.0833	14.5	9.5	10.5	0.05	BULGE	
4	REDAN 6	WEST FACE	5.5	12	11	10	0.03	BULGE	
5	REDAN 6	EAST FACE	7.583	21	13	10	0.12	BULGE	
6	REDAN 6	EAST FACE	4.375	14	13	12	0.04	BATTER	TREE ROOT
7	REDAN 7	NORTH FACE	5	11.5	12.25	11.5	0.00	BULGE	
8	REDAN 7	EAST FACE	4.833	9.75	12	11	-0.02	OUT-OF-PLANE	
9	REDAN 8	NORTH FACE	4.583	12.25	10.25	9.25	0.05	BATTER	
10	REDAN 8	NORTH FACE	6.2083	16	7.5	8	0.11	BULGE	
11	REDAN 8	SOUTH EAST CORNER	6.1667	13.5	9.5	5	0.11	BATTER	
12	EAST BASTION	EAST FACE	10	15	10.5	12.5	0.02	BULGE	SOUTH OF NORTH PARTIAL COLLAPSE
13	EAST BASTION	EAST FACE	9	13.5	11.5	11.5	0.02	BULGE	NORTH OF SOUTH PARTIAL COLLAPSE
14	EAST BASTION	EAST FACE	6	3.25	3.5	2.75	0.01	OUT-OF-PLANE	TEST PIT 1; 24" WIDE CAPSTONE; PLUMBNESS @ 2' AND 4' BELOW GRADE = 2" AND 3", RESPECTIVELY
15	EAST BASTION	SOUTH FACE	6.25	5.5	7	8.5	-0.04	OUT-OF-PLANE	TREE ROOT
16	EAST BASTION	SOUTH FACE	5.167	3.25	4.5	6.5	-0.05	OUT-OF-PLANE	17" WIDE CAPSTONE
17	SOUTH SCARP	EAST	10	10	8	8.5	0.01	BULGE	
18	SOUTH SCARP	CENTER	10	6.75	3.125	8.5	-0.01	BULGE	TEST PIT 2
19	SOUTH SCARP	WEST	10	13	8.5	9	0.03	BULGE	PLUMBNESS @ 2' ABOVE BOTTOM = 5.5"
20	WEST BASTION	EAST FACE	6.5	6.5	5.5	9	-0.03	OUT-OF-PLANE	
21	WEST BASTION	SOUTH FACE	6	7	8	9	-0.03	OUT-OF-PLANE	
22	WEST BASTION	SOUTH FACE	6.5	5.5	6	9.5	-0.05	OUT-OF-PLANE	
23	WEST BASTION	SOUTH FACE	7	6	10	14.5	-0.10	OUT-OF-PLANE	BULGE
24	WEST BASTION	CORNER	7.5	9	10	9.5	-0.01	BULGE	
25	WEST BASTION	WEST FACE	8.833	12	11.5	12	0.00	IN-PLANE	48" FROM INTERIOR AND EXTERIOR FACE (SEPARATION BETWEEN)
26	WEST BASTION	WEST FACE	9.5	5.5	6.5	14.5	-0.08	OUT-OF-PLANE	
27	REDAN 1	CORNER	6.5	12.5	9.5	9.5	0.04	BULGE	WALL THICKNESS: 48-53"
28	REDAN 2	WEST FACE	6.33	9	8	6.5	0.03	BATTER	
29	REDAN 2	NORTH CORNER	5.5	9	9.5	10	-0.02	OUT-OF-PLANE	
30	REDAN 3	WEST FACE	8.33	15	14	10.5	0.05	BATTER	
31	REDAN 3	NORTH FACE	8.33	16	11	10	0.06	BATTER	
32	REDAN 4	WEST FACE	5.5	12	7	7	0.08	OUT-OF-PLANE	
33	REDAN 4	NORTH FACE	4.75	7.5	5	3.5	0.07	OUT-OF-PLANE	
34	NORTH SCARP	WEST	7	13	12.5	9.5	0.04	BATTER	
35	NORTH SCARP	CENTER	6.33	9.5	9.5	9.5	0.00	IN-PLANE	
36	NORTH SCARP	EAST	5.5	12	6	6	0.09	OUT-OF-PLANE	
37	GATE WALL	WEST FACE	8.833	11	8	9.5	0.01	BULGE	8' FROM NORTH CORNER; 44" THICKNESS @ TOP
38	SALLY PORT EAST	EAST FACE	6.67	14	13.5	14.5	-0.01	IN-PLANE	
39	SALLY PORT EAST	EAST FACE	6.5	15.5	12.5	15	0.01	BULGE	
40	SALLY PORT EAST	EAST FACE	7.5	12	11.5	10.5	0.02	OUT-OF-PLANE	
41	SALLY PORT EAST	WEST FACE	4.167	7	7	7	0.00	IN-PLANE	
42	SALLY PORT EAST	WEST FACE	6.1667	5	5.5	5	0.00	IN-PLANE	
43	SALLY PORT EAST	WEST FACE	6.1667	12	10.5	12.5	-0.01	BULGE	

NOTES:	
1	MEASUREMENTS TAKEN FROM TOE-SIDE (EXTERIOR FACE) OF FORTIFICATION WALLS IN A COUNTER-CLOCKWISE DIRECTION WITH PLUM-BOB AND MEASURING TAPE.
2	SEGMENT LOCATION BASED ON VIEW LOOKING INTO FORTIFICATION.
3	WALLS CONSTRUCTED OF UNREINFORCED STONE MASONRY LAID WITHOUT MORTAR OR GROUT (DRY-STACKED)
4	WALLS ORIGINALLY CONSTRUCTED IN 1862 (U.S. ARMY); LOCALLY RECONSTRUCTED IN 1935 BY WPA AND LOCALLY REPAIRED IN 1999 BY CITY OF NASHVILLE.
5	MEASUREMENTS TAKEN ON JUNE 19, 2013 BY 1200 ARCHITECTURAL ENGINEERS, PLLC
6	SEE DETAILS FOR GRAPHIC REPRESENTATION OF WALL MEASUREMENTS, NOMENCLATURE AND BEHAVIOR

## FORTIFICATION WALL MEASUREMENTS & NOTES

Date: 08/26/2013 (REV. 11/05/13)  
 Scale: N.T.S.  
 Project Number: 13-063

Project Title:  
**FORT NEGLEY**  
 1100 FORT NEGLEY BLVD.  
 NASHVILLE, TN 37203

# SSK-2

**MCC=1200**  
 ARCHITECTURAL ENGINEERS, PLLC

210 N. Lee St., Suite 210  
 Alexandria, VA 22314  
 T: 703.350.4151

# FORT NEGLEY (NASHVILLE, TN) PARKING AREA RETAINING WALL PROFILE SURVEY

DESIGNATION	LOCATION	SEGMENT	MEASUREMENTS (HEIGHT AND GEOMETRY)						MEASUREMENTS (PLUMBNESS)						PARAPET DISPLACEMENT	LOWER WALL	INTERPRETATION	COMMENTS
			A	B	C	Cw	D	E	F	G	H	I	J	K	L			
			T.O. PARAPET - INT. GRADE (FT)	T.O. PARAPET - EXT. GRADE (FT)	T.O. PARAPET - T.O. LOW WALL (FT)	CAPSTONE WIDTH (IN)	PARAPET THICKNESS (IN)	LEDGE WIDTH (IN)	TOP (IN)	INT. GRADE	INT. FACE OF LEDGE (IN)	MIDDL E (IN)	BOTTOM (IN)	OUT-OF-PLAN E (IN)	PROFILE (H:V)			
①	WEST WALL	SOUTH	3.25	4.5	4.083	31	27	7	24		13.5	3.5	5.5	10.50	0.20	BULGE	VERTICAL CRACK	
②	WEST WALL	NORTH	2.833	7.67	3.75	31	27	5	18		8	2.5	4.5	10.00	-0.03	OUT-OF-PLANE	5' COLLAPSED SECTION AT CORNER	
③	NW WALL	WEST	2.75	9	2.75	31	27	7	7	10	NR	NR	NR	3.00			12' COLLAPSED SECTION AT CORNER, VERTICAL CRACK; TREE IN CONTACT WITH LOWER WALL	
④	NW WALL	CENTER	2.9167	8.25	3.833	31	27	NR	4	10	NR	NR	NR	6.00			BUTTRESS @ LOWER WALL, HINGE POINT, DIAGONAL CRACK	
⑤	NW WALL	EAST	3.5	OBSTRUCTION	3.583	31	27	NR	9.5	9.5	NR	NR	NR	0.00			DEBRIS MOUND AT EXT. GRADE, 12" WEEP	
⑥	NE WALL	WEST	2.833	6.67*	3.75	31	27	NR	7.5	9.5	NR	NR	NR	2.00			2-3 FEET DEBRIS AT EXT. GRADE; VERTICAL CRACK; TREE IN CONTACT WITH LOWER WALL; BUTTRESS	
⑦	NE WALL	CENTER	2.833	OBSTRUCTION	3.75	31	27	7	26		16.75	10.75	13.75	9.25		OUT-OF-PLANE	DEBRIS MOUND AT EXT. GRADE, BUTTRESS	
⑧	NE WALL	EAST	2.5	9.75	3.75	31	27	5.5	23		16.5	9	12	6.50	-0.01	BULGE	TREE IN CONTACT WITH LOWER WALL; BUTTRESS; HINGE POINT; VERTICAL CRACK; PARTIAL COLLAPSE	
⑨	EAST WALL	NORTH	2.5	7	3.583	34	30	6									PARTIAL COLLAPSE; DIAGONAL CRACK	
⑩	EAST WALL	SOUTH	2.75	3.833	3.833	34	30	6									PARTIAL COLLAPSE; DIAGONAL CRACK	
				* HEIGHT TO TOP OF DEBRIS														

NOTES:

- 1 MEASUREMENTS TAKEN OF TOE-SIDE (EXTERIOR SIDE) OF RETAINING WALL (WHERE ACCESSIBLE) WITH PLUMMET AND MEASURING TAPE.
- 2 UPPER WALL (PARAPET) CONSTRUCTED OF UNREINFORCED STONE MASONRY LAID IN MORTAR/GROUT. LOWER WALL CONSTRUCTED OF UNREINFORCED STONE MASONRY WITHOUT MORTAR (DRY-STACKED)
- 3 ~20' LINEAR FEET OF UPPER WALL COLLAPSE AT NORTHWEST CORNER; PARTIAL COLLAPSE AT EAST SIDE WALL
- 4 NR = NOT RECORDED (INACCESSIBLE AREA); OBSTRUCTION = DEBRIS PILE AT EXTERIOR FACE OF RETAINING WALL
- 5 CONCRETE BUTTRESSES CONSTRUCTED AT (4) LOCATIONS ALONG LOWER WALL. BUTTRESSES TYPICALLY 5' (LONG) X1'-6" (WIDE) PLAN DIMENSION AT TOP AND 5'X4'-6" AT BASE.

**PARKING AREA RETAINING WALL MEASUREMENTS & NOTES**

210 N. Lee St., Suite 210  
Alexandria, VA 22314  
T: 703.350.4151

MCC=1200

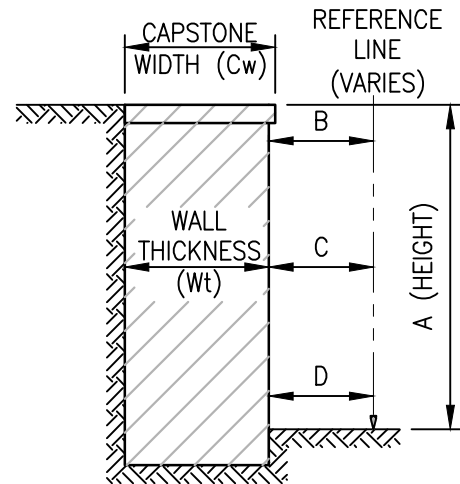
ARCHITECTURAL ENGINEERS, PLLC

**Project Title:**  
FORT NEGLEY  
1100 FORT NEGLEY BLVD.  
NASHVILLE, TN 37203

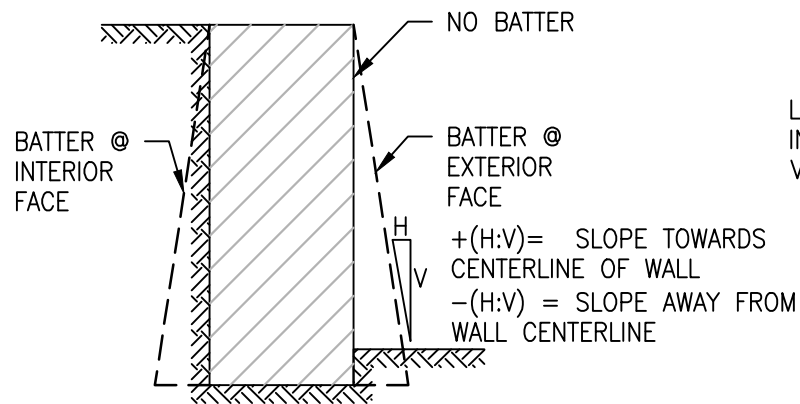
Date: 08/26/2013  
Scale: N.T.S.

Project Number: 13-063

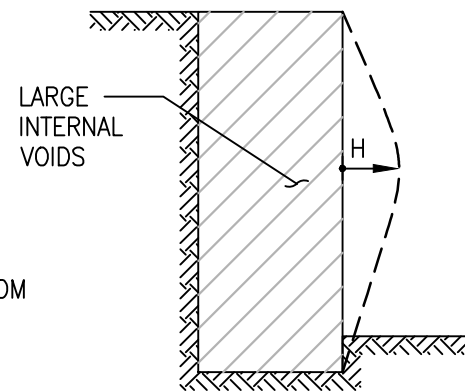
# SSK-3



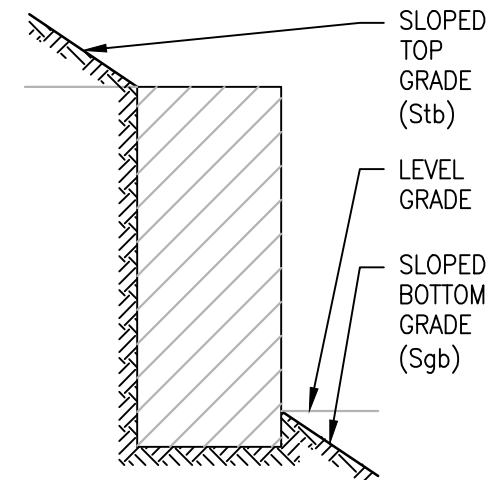
1 SURVEY NOMENCLATURE  
SSK-4 SCALE: 3/16" = 1'-0"



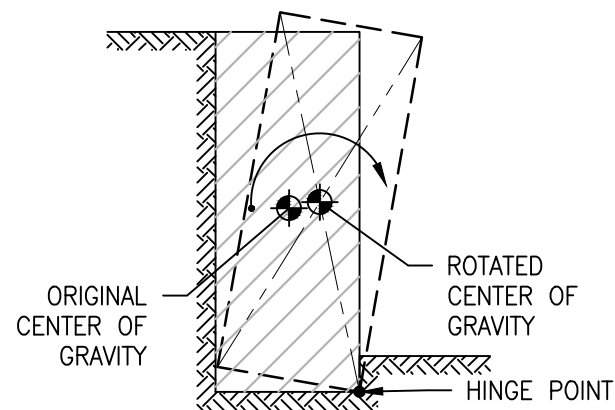
2 WALL PROFILE: BATTER  
SSK-4 SCALE: 3/16" = 1'-0"



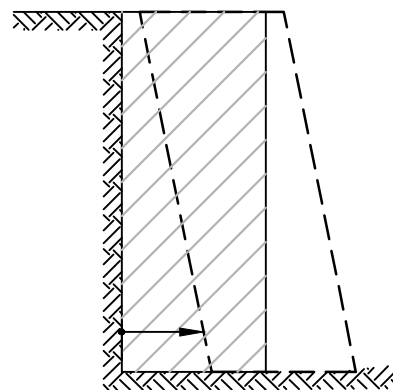
3 WALL PROFILE: BULGE  
SSK-4 SCALE: 3/16" = 1'-0"



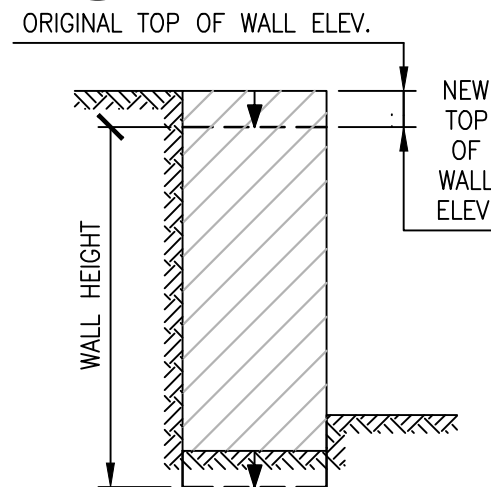
4 SLOPED GRADES  
SSK-4 SCALE: 3/16" = 1'-0"



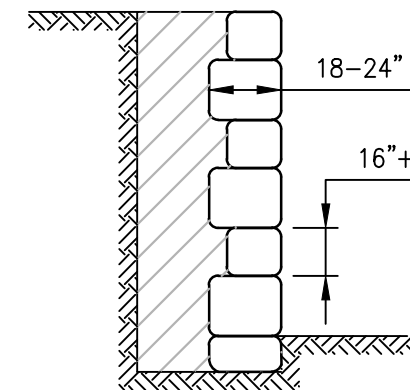
5 OUT-OF-PLANE DISPLACEMENT ROTATION (OVERTURNING)  
SSK-4 SCALE: 3/16" = 1'-0"



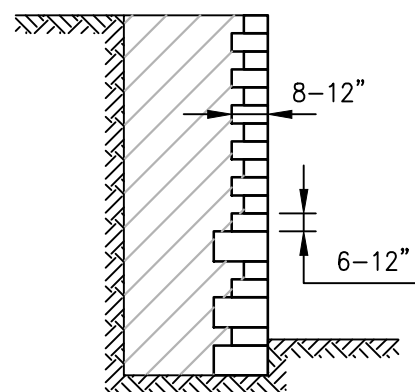
6 OUT-OF-PLANE DISPLACEMENT MOVEMENT (SLIDING)  
SSK-4 SCALE: 3/16" = 1'-0"



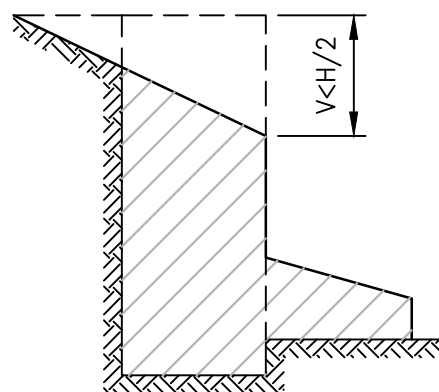
7 IN-PLANE DISPLACEMENT (VERTICAL SETTLEMENT)  
SSK-4 SCALE: 3/16" = 1'-0"



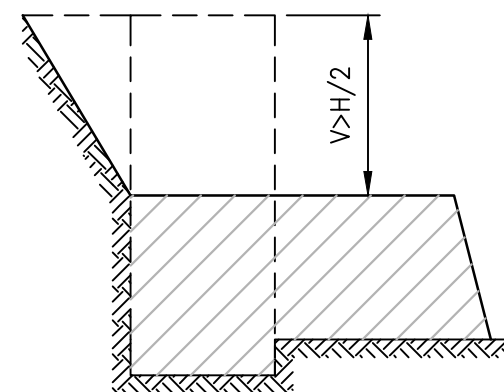
8 WALL CONSTRUCTION W/ LARGE STONES  
SSK-4 SCALE: 3/16" = 1'-0"



9 WALL CONSTRUCTION W/ SMALL STONES  
SSK-4 SCALE: 3/16" = 1'-0"



10 COLLAPSE (PARTIAL HT.)  
SSK-4 SCALE: 3/16" = 1'-0"



11 COLLAPSE (FULL HT.)  
SSK-4 SCALE: 3/16" = 1'-0"

WALL CONDITIONS AND BEHAVIOR DIAGRAMS

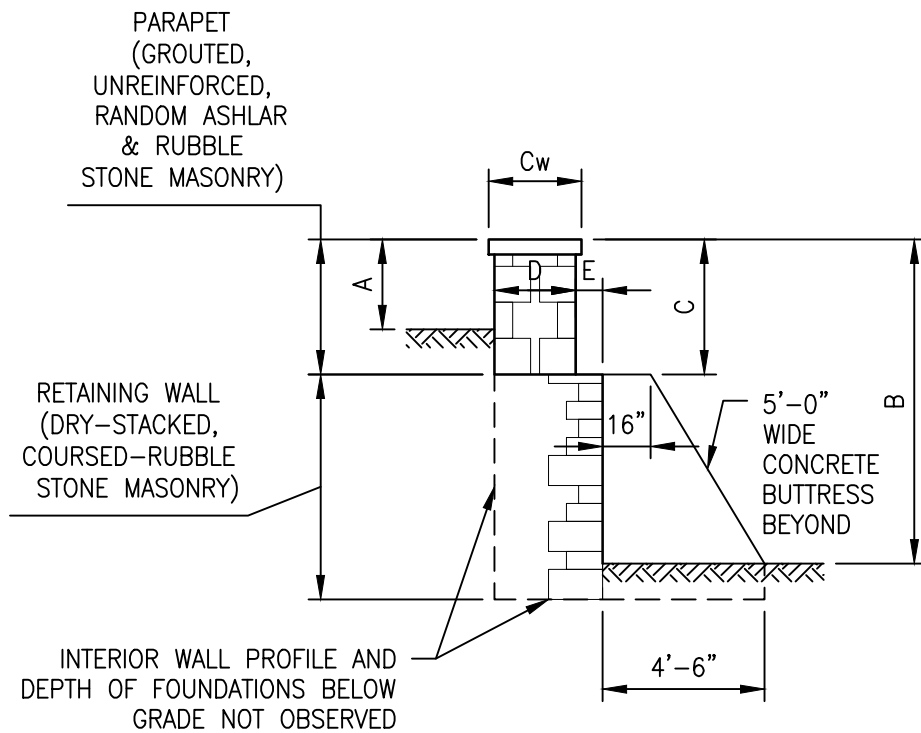
Date: 08/26/2013 (REV. 11/05/13)  
Scale: 3/16" = 1'-0"  
Project Number: 13-063

Project Title:  
FORT NEGLE Y  
1100 FORT NEGLE Y BLVD.  
NASHVILLE, TN 37203

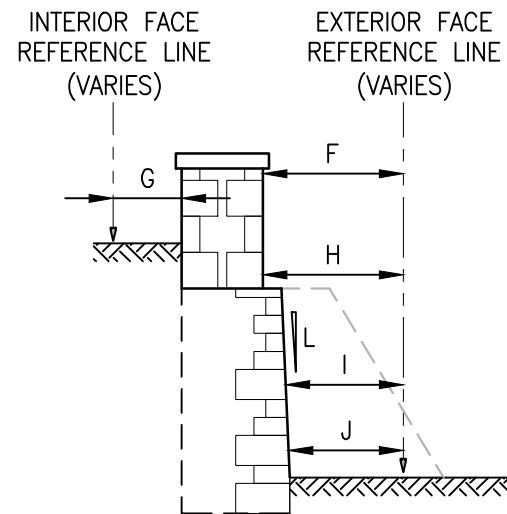
210 N. Lee St., Suite 210  
Alexandria, VA 22314  
T: 703.350.4151

MCC=1200  
ARCHITECTURAL ENGINEERS, PLLC

SSK-4

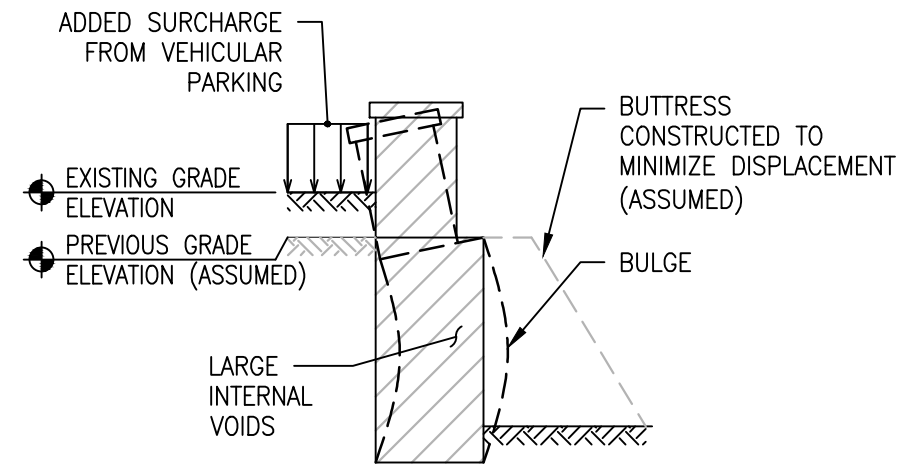


DETAIL A: GEOMETRY

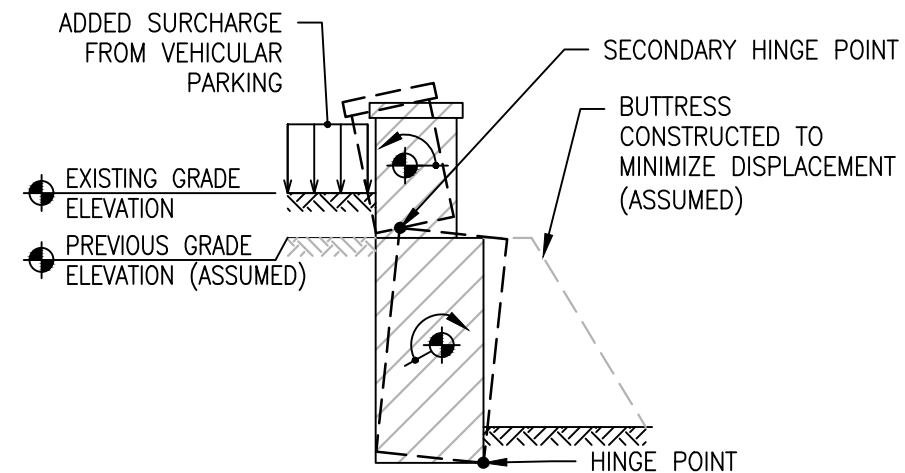


BATTER PROFILE (L) NOTES:  
 +(H:V)= SLOPE TOWARDS CENTERLINE OF WALL  
 (AS SHOWN IN DIAGRAM)  
 -(H:V) = SLOPE AWAY FROM WALL CENTERLINE

DETAIL B: PLUMBNESS & PROFILE



DETAIL A: OUT-OF-PLANE DISPLACEMENT  
(WALL BULGE WITH INTERNAL VOIDS)



DETAIL B: OUT-OF-PLANE ROTATION (OVERTURNING)

1 WALL SECTIONS W/ MEASUREMENT NOMENCLATURE  
 SSK-5 SCALE: 3/16" = 1'-0"

2 WALL BEHAVIOR & OBSERVED DISPLACEMENT  
 SSK-5 SCALE: 3/16" = 1'-0"

Title: PARKING AREA RETAINING WALL MEASUREMENTS & NOTES

Date: 08/26/2013

Scale: VARIES

Project Number: 13-063

Project Title:  
 FORT NEGLE Y  
 1100 FORT NEGLE Y BLVD.  
 NASHVILLE, TN 37203

SSK-5

MCC=1200  
 ARCHITECTURAL ENGINEERS, PLLC

210 N. Lee St., Suite 210  
 Alexandria, VA 22314  
 T: 703.350.4151





1 HAIRLINE @ STACKED COURSE  
SSK-6 SCALE: N.T.S.



2 VERTICAL CRACK BELOW JOINT  
SSK-6 SCALE: N.T.S.



3 SPALLING & DELAMINATION  
SSK-6 SCALE: N.T.S.



DELAMINATION OF SEDIMENTARY STONES WITH CLAY-RICH LAYERS DUE TO WEATHERING. EXFOLIATION OCCURS DUE TO EXPANSION AND CONTRACTION OF TRAPPED MOISTURE.

4 HEAVY DELAMINATION  
SSK-6 SCALE: N.T.S.



5 STONE LOSS/DELAMINATION  
SSK-6 SCALE: N.T.S.



VEGETATION GROWTH WITHIN STONE JOINTS AND CRACKS DUE TO LIMITED MAINTENANCE.

BIOLOGICAL GROWTH FORMS ON SURFACE, AT AREAS OF DELAMINATION, AND WITHIN HAIRLINE FISSURES

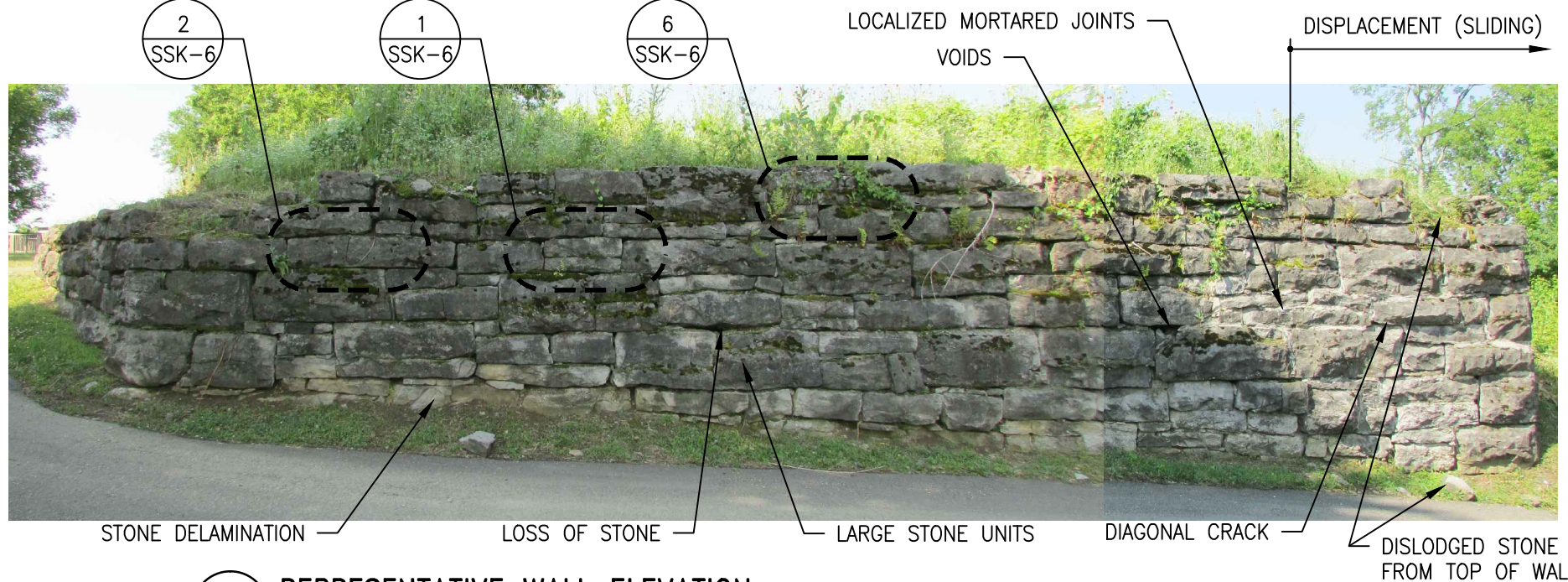
6 VEGETATIVE & BIO GROWTH  
SSK-6 SCALE: N.T.S.

STONE W/ VERTICAL CRACK DUE TO SHEAR FAILURE. STONE FORCED TO SPAN W/ LOSS OF SUPPORT BELOW

STONE DELAMINATION & LOSS, SEE 5/SSK-6.



7 BIOLOGICAL GROWTH  
SSK-6 SCALE: N.T.S.



STONE DELAMINATION

LOSS OF STONE

LARGE STONE UNITS

DIAGONAL CRACK

DISLODGED STONE FROM TOP OF WALL

LOCALIZED MORTARED JOINTS

VOIDS

DISPLACEMENT (SLIDING)

8 REPRESENTATIVE WALL ELEVATION  
SSK-6 SCALE: N.T.S.

Date: 08/26/2013

Scale: N.T.S.

Project Number: 13-063

SSK-6

REPRESENTATIVE WALL ELEVATION AND CONDITIONS

Project Title:  
FORT NEGLE  
1100 FORT NEGLE BLVD.  
NASHVILLE, TN 37203

MCC=1200  
ARCHITECTURAL ENGINEERS, PLLC

210 N. Lee St., Suite 210  
Alexandria, VA 22314  
T: 703.350.4151