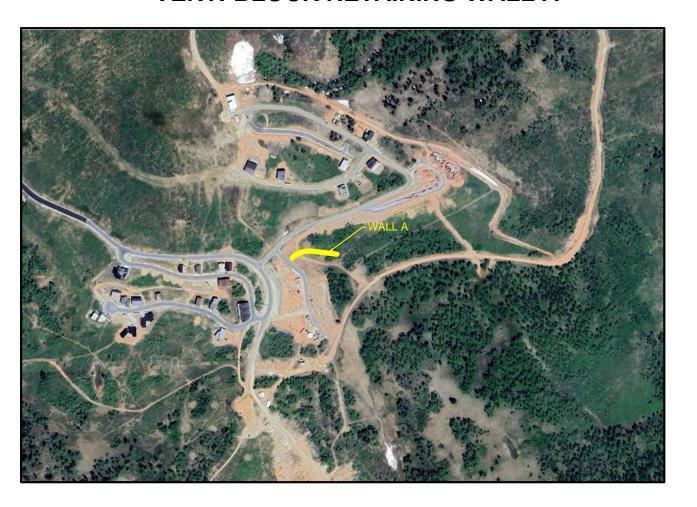
## **VILLAGE NESTS**

# POWDER MOUNTAIN, WEBER COUNTY, UTAH VERTI-BLOCK RETAINING WALL A



### **DESIGNED FOR:**

POWDER MOUNTAIN SKI RESORT 2923 North Wolf Creek Drive Eden. UT. 84310

ATTENTION: Eric Anderson

#### **DESIGNED BY:**



600 West Sandy Parkway Sandy, Utah 84070 (801) 566-6399 Fax: (801) 566-6493

PROJECT ENGINEER: TAYLOR NORDQUIST, P.E. DESIGN ENGINEER: ADAM C JONES, E.I.T.



#### **DRAWING INDEX:**

<u> </u>	O III DEXI
SHEET NO.	NAME OF SHEET
RW - 1	WALL SPECIFICATIONS
RW - 2	SITE PLAN AND LOCATION OF RETAINING WALLS
RW - 3	RETAINING WALL A (Station 0+00 - 0+70)
RW - 4	RETAINING WALL A (Station 0+70 - 1+40)
RW - 5	RETAINING WALL A (Station 1+40 - 2+10)
RW - 6	RETAINING WALL A (Station 2+10 - 2+80)
RW - 7	TYPICAL RETAINING WALL CROSS-SECTION
RW - 8	TYPICAL RETAINING WALL DETAILS
RW - 9	RETAINING WALL ESTIMATED QUANTITIES

September 4, 2025

AGEC PROJECT NO. 1240419

#### **SECTION 1 - GENERAL NOTES**

#### 1.01 Description

The work shall consist of providing necessary materials and constructing a Verti-Block retaining wall as shown in these plans and in accordance with these specifications. The work shall be performed according to the more stringent of information provided in the Verti-Block construction manual or these drawings.

#### 1.02 Work Included

- A. Provide materials for wall construction including Verti-Blocks, geogrid, free-draining gravel, and drainage pipe.
- B. Construction of Verti-Block wall.

#### 1.03 Basis of Design

- A. Geologic Hazards Assessment, Village Nests Condominiums, Summit Powder Mountain Resort, Weber County, Utah, prepared by IGES, dated December 1, 2016, Project No. 01628-015 and Geologic Hazard Assessment, Village Nests Subdivision, Powder Mountain, Utah, Project No. 1240419, prepared by Applied Geotech, dated July 10, 2025, Project No. 1240419.
- Grading Plan, Village Nests, Powder Mountain, Weber County, Utah. Plan Sheet C500, by Talisman, dated June 6, 2025, Job No. 25-220-13.

#### 1.04 Seismic Design

A. Based on the data from the referenced geotechnical report and construction plan sheets, our analyses indicated up to approximately 7 inches of movement during a design seismic event.

#### 1.05 Buildings and Other Settlement-Sensitive Improvements

A. Buildings and other settlement-sensitive improvements should not be constructed above the wall within a distance from the top of the wall equal to the exposed height of the wall.

- A. The design included in these plans is based on information provided in Section 1.03.
- B. AGEC assumes no liability for interpretation of subsurface conditions, suitability of soil design parameters and subsurface groundwater conditions made by others.
- C. The contractor shall be responsible for complying with all federal, state and local requirements for execution of the work, including local building inspection and current OSHA excavation regulations.
- D. The contractor is to coordinate the location of existing and proposed utilities with the location of the Verti-Block wall.
- E. Prior to undertaking grading or excavation of the site, the contractor shall confirm the location of the proposed retaining wall and all underground features including utility locations within the construction areas of the proposed retaining wall.
- F. All work undertaken in the construction of the retaining wall is subject to the quality control and special inspection provisions outlined in Section 3.06.
- G. AGEC has completed engineering design of the proposed retaining wall including internal stability and local external stability, based on the information provided above.

#### **SECTION 2 - MATERIALS**

2.01 Verti-Block - large concrete blocks of different sizes and configurations used to construct the retaining wall. Verti-Blocks shall be provided by a license manufacturer. Contractor shall protect blocks from damage prior to and during construction.

- 2.02 Geogrid Geogrid used to construct the retaining wall shall consist of Tensar TPG 100D or approved equivalent.
- 2.03 Reinforced Backfill fill placed around geogrid reinforcement shall consist of a non-expansive, granular material that conforms to the following:
  - A. Maximum particle size of 3 inches and less than 20 percent passing the No. 200 Sieve.
  - B. USCS soil types, CL, CH, ML, MH or OL shall not be used.
  - C. The fill shall have a total unit weight of less than 130 pounds per cubic foot and a friction angle of at least 36 degrees.
  - D. A sample of the material proposed for use shall be submitted to AGEC for approval prior to use.
- 2.04 Retained Backfill fill placed behind the geogrid-reinforced portion of the retaining wall shall consist of reinforced backfill or undisturbed natural soil/bedrock or fill compacted per Section 3.04.
- 2.05 Free-draining Gravel washed, clean gravel for use as drainage fill inside and behind the Verti-Blocks and as a leveling pad below the retaining wall. The gravel shall meet the following criteria:
  - A. A maximum particle size of 1 inch or less and no more than 5 percent passing the No. 200 Sieve
  - B. Gravel shall consist of clean, crushed, angular aggregate.
- 2.06 Filter Fabric shall consist of a 6-ounce, non-woven fabric with a tensile strength at least 120 pounds per foot width

#### **SECTION 3 - WALL CONSTRUCTION**

#### 3.01 Subgrade Preparation

- A. Excavate to the elevation of the bottom of the retaining wall, including the leveling pad. The contractor shall verify the bottom of wall elevations.
- B. The subgrade soil or rock shall be observed by AGEC.
- C. Unsuitable fill, topsoil, organic material, loose soil, or other deleterious material shall be removed and replaced with properly compacted fill meeting the requirements in Section 2.03.

#### 3.02 Leveling Pad Construction

- A. Place and compact a thickness of at least 1 foot of free-draining gravel meeting the requirements of Section 2.05.
- B. The width of the leveling pad shall be at least the block width plus 6 inches on each side (front and back).

#### 3.03 Verti-Block Placement

- A. Follow guidance from the manufacturer regarding installation.
- B. Place the first row of Verti-Block and check level of block both side to side and front to back
- C. Place drainage pipe to extend through first course of block and slope to drain.
- D. Fill the inside of blocks with free-draining gravel.
- E. Remove and sweep off all excess aggregate and other materials from the top of the blocks before continuing to the next course.
- F. Place geogrid on top of block extending into the reinforced zone to lengths shown on the wall profiles.
- G. Install each subsequent course to bond on top of the base row. Position the blocks to be offset from seams of blocks on lower course. Blocks shall be placed at a 2 3/16-inch setback and recessed over the alignment hoop.
- H. Periodically check each block course for proper alignment and level.
- Continue to place and fill Verti-Blocks and place and compact backfill as described in Sections 3.03, 3.04 and 3.05.

#### 3.04 Reinforced and Retained Backfill Placement

- A. Place Sitedrain<sup>TM</sup> Sheet 114, or approved equivalent, along the cut of the face for the reinforced zone, with fabric side placed against the cut
- B. Place a 4-inch diameter perforated drainage pipe at the base of the cut, adjacent to the Sitedrain<sup>TM</sup>. The pipe should be covered by at least 4 inches of free-draining gravel. The gravel and pipe should be entirely surrounded by filter fabric. The pipe shall tie into the site storm drain at the ends of the wall and at the wall's lowest point.
- C. Place backfill in 12-inch thick or less lifts behind each course of block. Each lift shall be compacted to at least 95 percent of the maximum density as determined by ASTM D 1557 (modified
- D. The backfill within at least 1 foot behind the Verti-Block should be consist of free-draining gravel as described in section 2.05.
- E. Fill shall be placed and compacted at or slightly above the optimum moisture content
- Only lightweight, hand operated compaction equipment shall be allowed within 3 feet of the Verti-Block
- G. Construction equipment shall not be operated directly on geogrid. A minimum fill thickness of 6 inches above the geogrid is required prior to using construction equipment in these areas. Turning of equipment on geogrid shall be minimized to prevent equipment from displacing the fill and damaging the geogrid.

#### 3.05 Geogrid Placement

- A. Install geogrid at the elevations indicated on the wall profiles and typical details
- B. Install the geogrid reinforcement to the minimum length specified on the wall profile drawings. Specified geogrid lengths are measured from the face of the wall. Geogrid installed at the mid-height of the block may be shortened by three feet.
- C. Roll the geogrid out perpendicular to the face of the wall (machine direction) to install in the primary strength direction.
- Pull the geogrid taut to remove slack in the geogrid prior to fill placement on the geogrid.
- Overlap the geogrid as necessary along curved sections of the wall to provide full coverage. No overlap is required for adjacent parallel panels. Where geogrid is overlapped, install a minimum of 3-inches of reinforced backfill between geogrid layers.
- F. Where storm drain vertical drain pipes are installed behind the face of the wall in the reinforced zone, geogrid shall only be cut in between the primary strength tendons to accomodate the pipe passing through the geogrid.

#### 3.06 Quality Control

- A. Testing and observation of wall construction shall be performed only by trained and experienced technicians who have experience with construction of this type of retaining wall.
- B. Fill compaction testing shall be performed on each lift of fill at a maximum spacing of 40 feet. More frequent testing shall be performed if variable conditions are observed, including type of reinforced backfill used, or different construction methods
- C. Observations should be made and reported of the materials used in the wall construction, including block type, and location and length of geogrid.

#### 3.07 Contractor experience

A. The contractor shall demonstrate prior experience constructing Verti-Block retaining walls of similar height and length.

REV		DATE	BY	СНК	
	REVISIONS				

AGEC

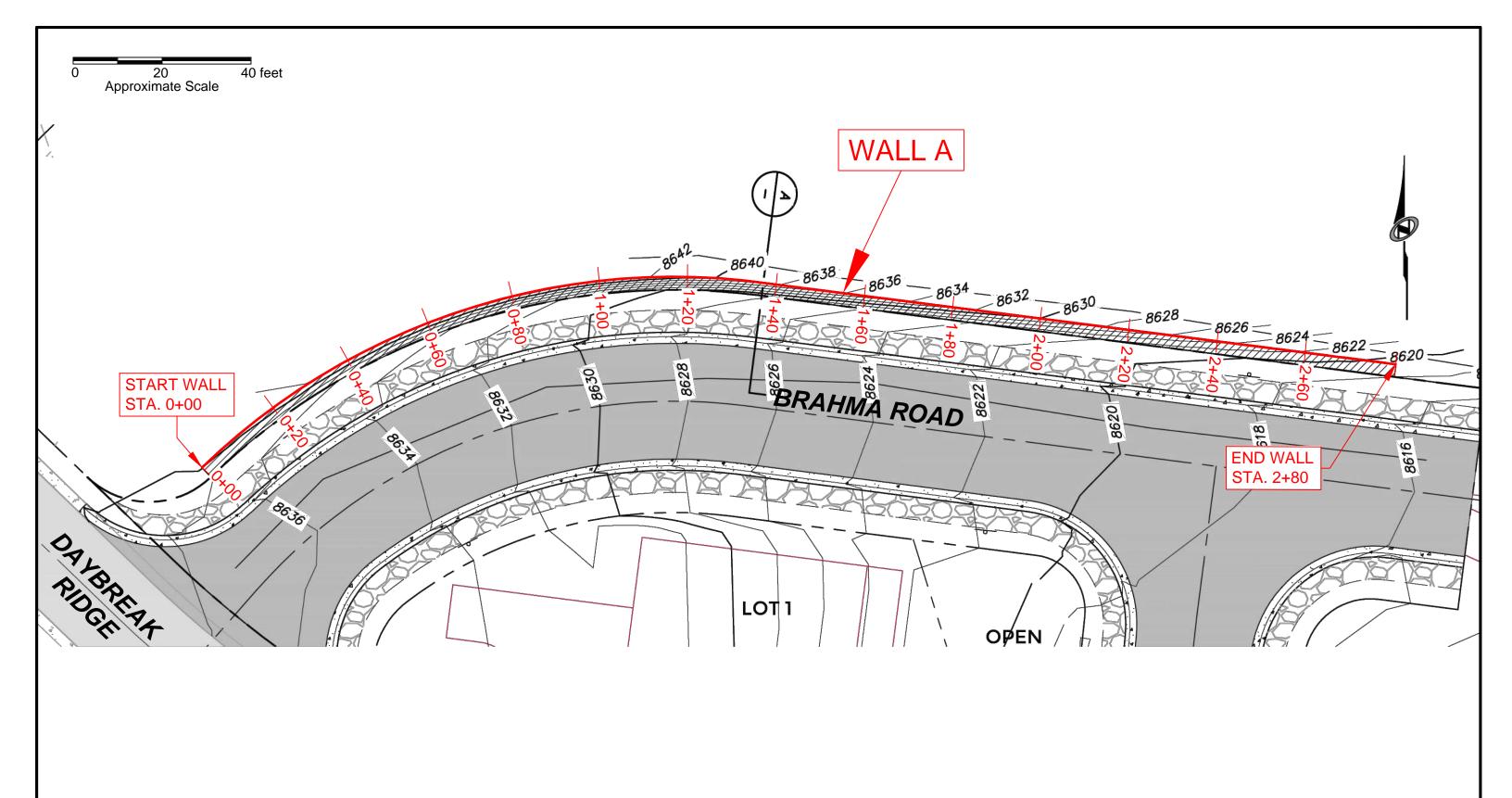
**Applied Geotechnical** Engineering Consultants, Inc. 600 West Sandy Parkway

Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493

**VILLAGE NESTS VERTI-BLOCK RETAINING WALL A** 

WALL SPECIFICATIONS

**ACJ** Sheet No. EVIEWED BY: TJN SD RAWN BY: NONE **RW-1** SCALE: 9/4/2025 PROJECT 0 1240419



REV		DATE	BY	СНК
	REVISIONS			

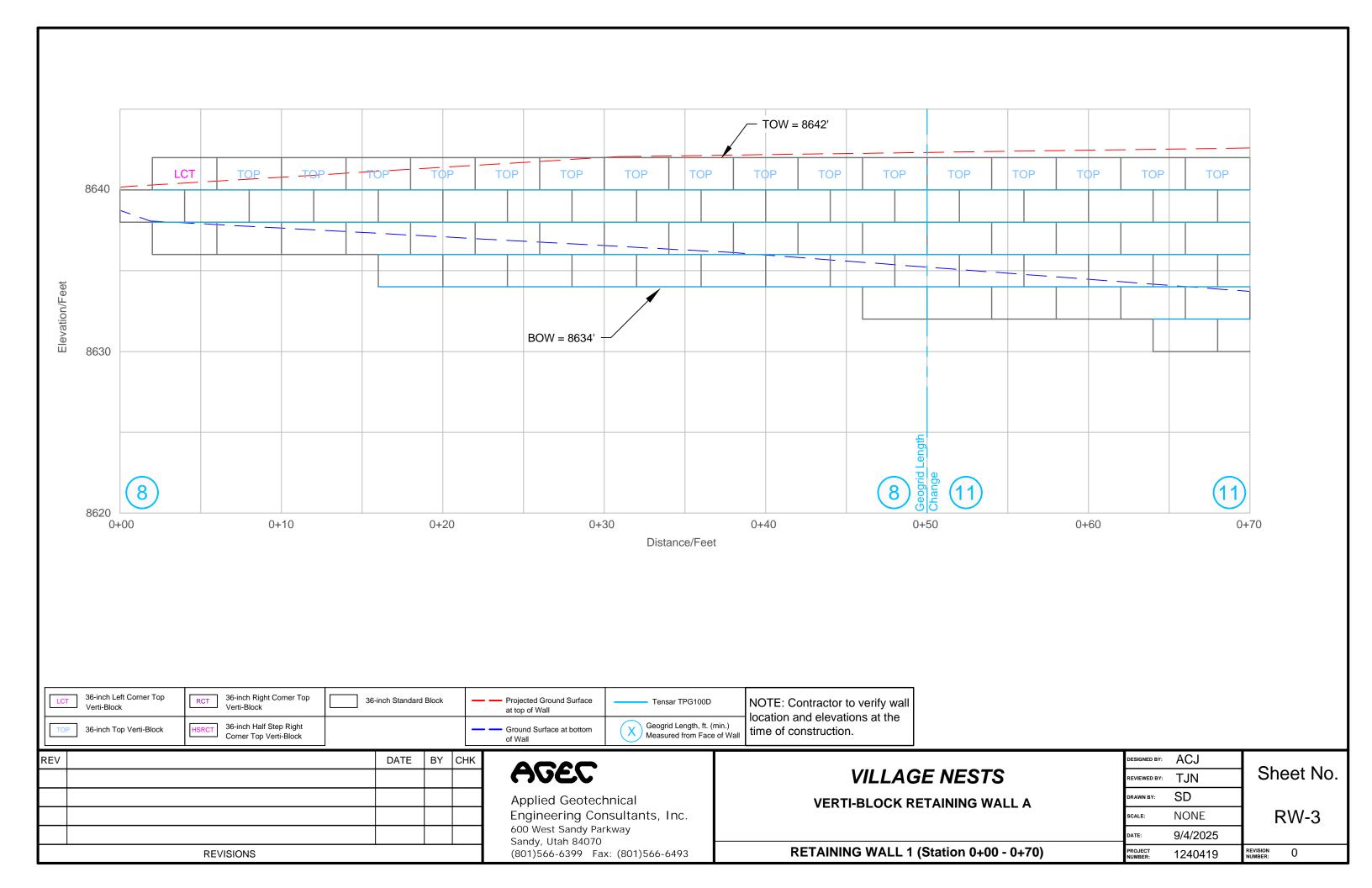
Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493

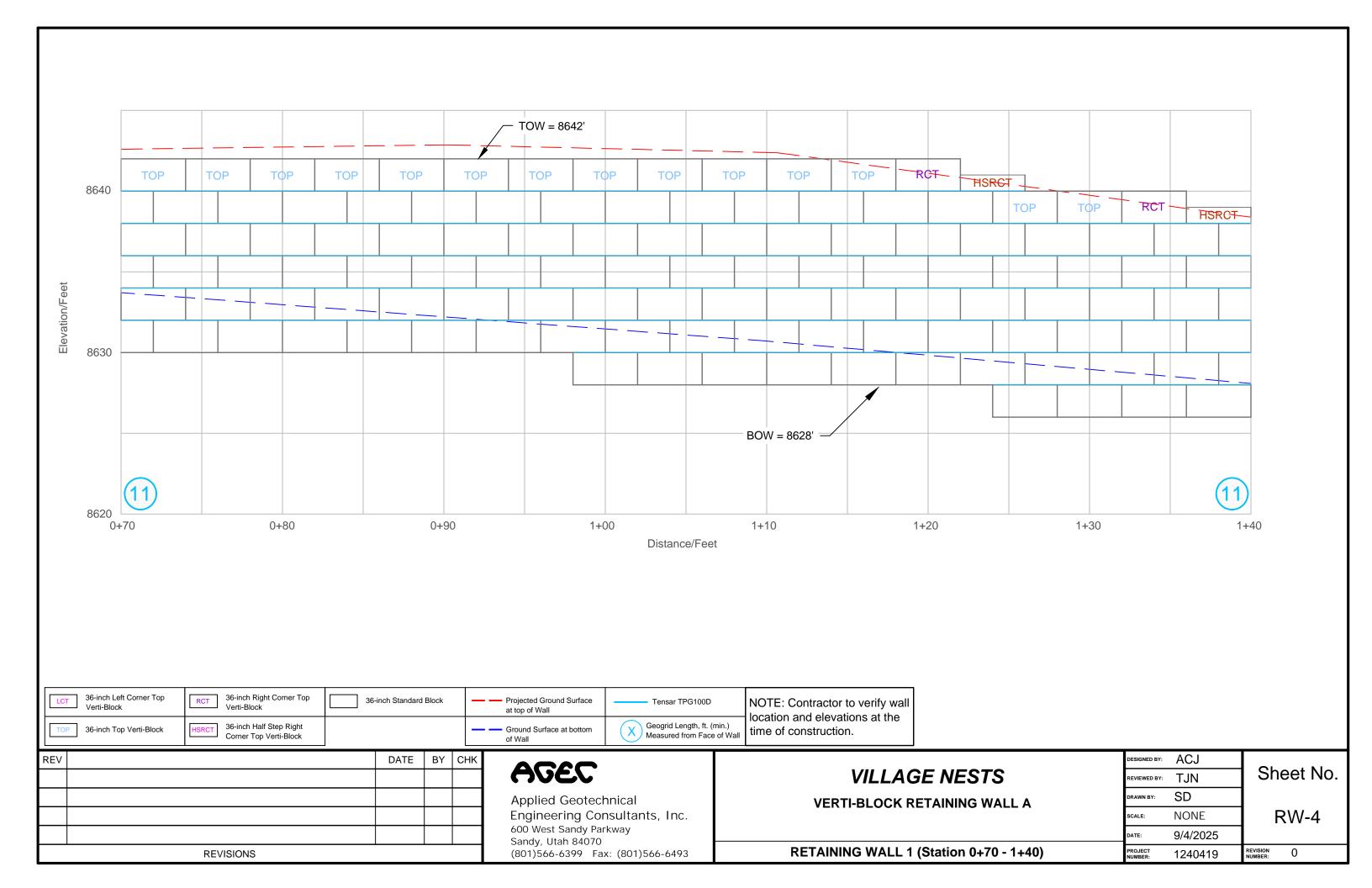
### **VILLAGE NESTS**

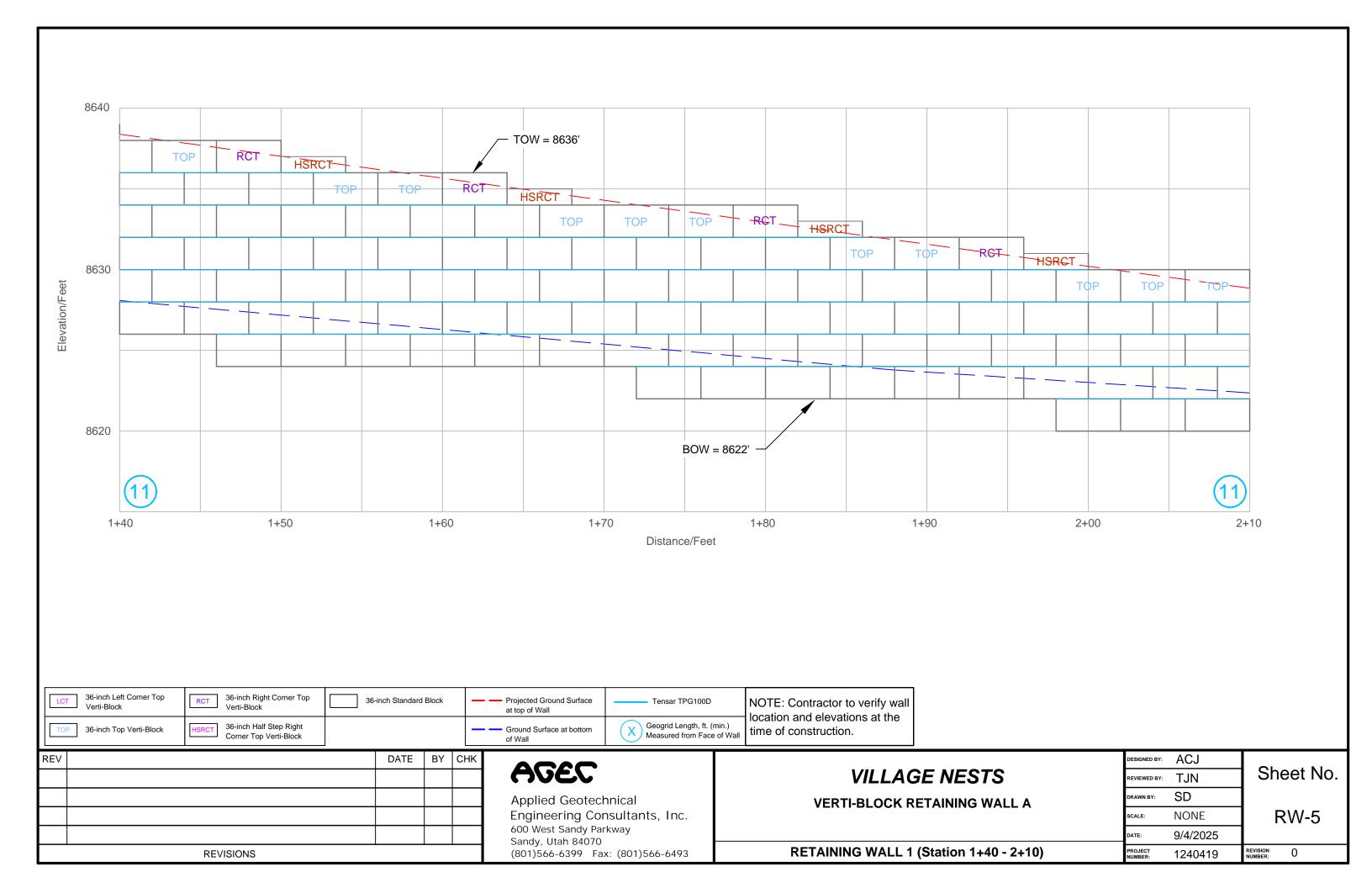
**VERTI-BLOCK RETAINING WALL A** 

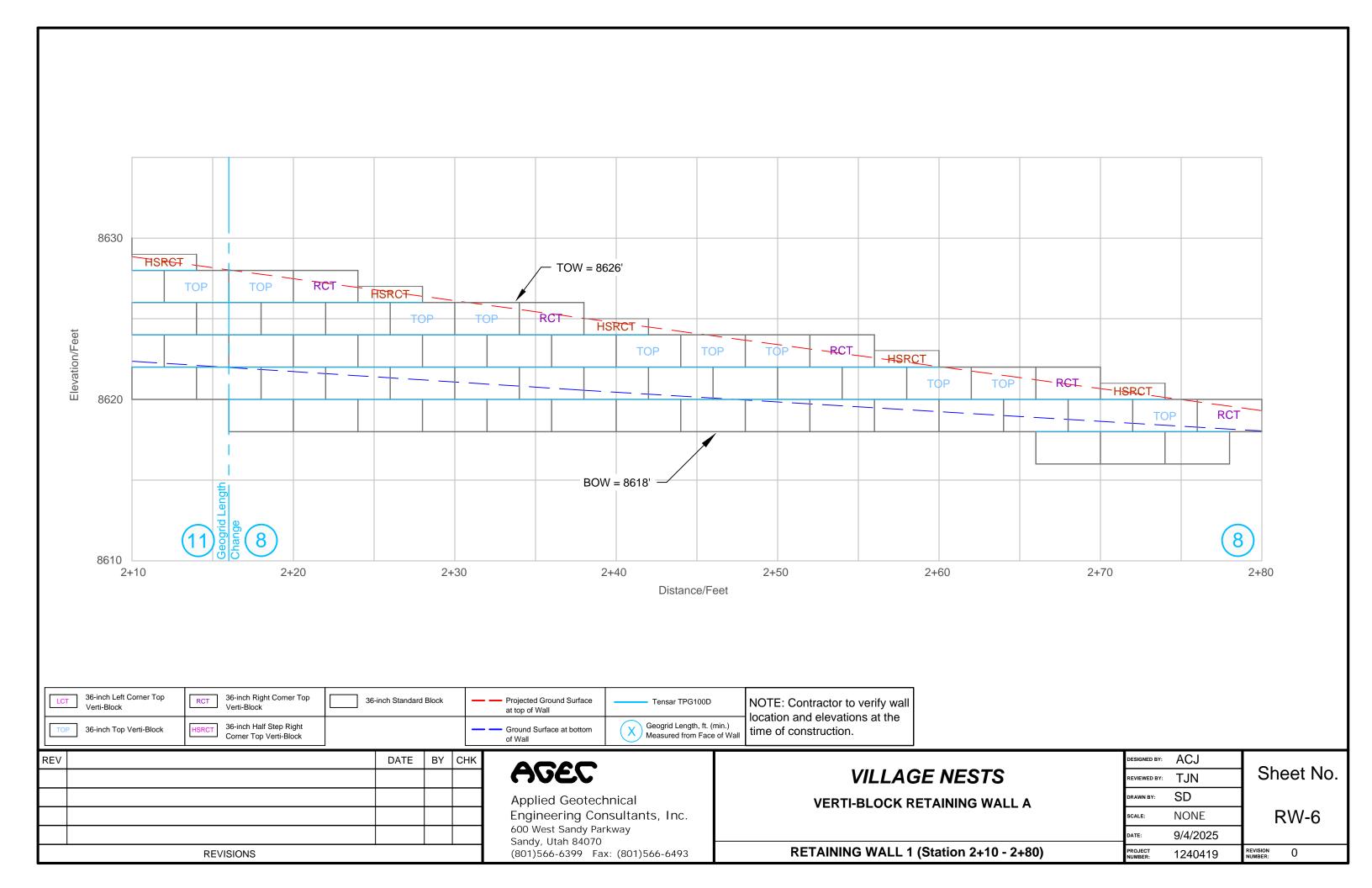
DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-2
DATE:	9/4/2025	
PROJECT NUMBER:	1240419	REVISION O

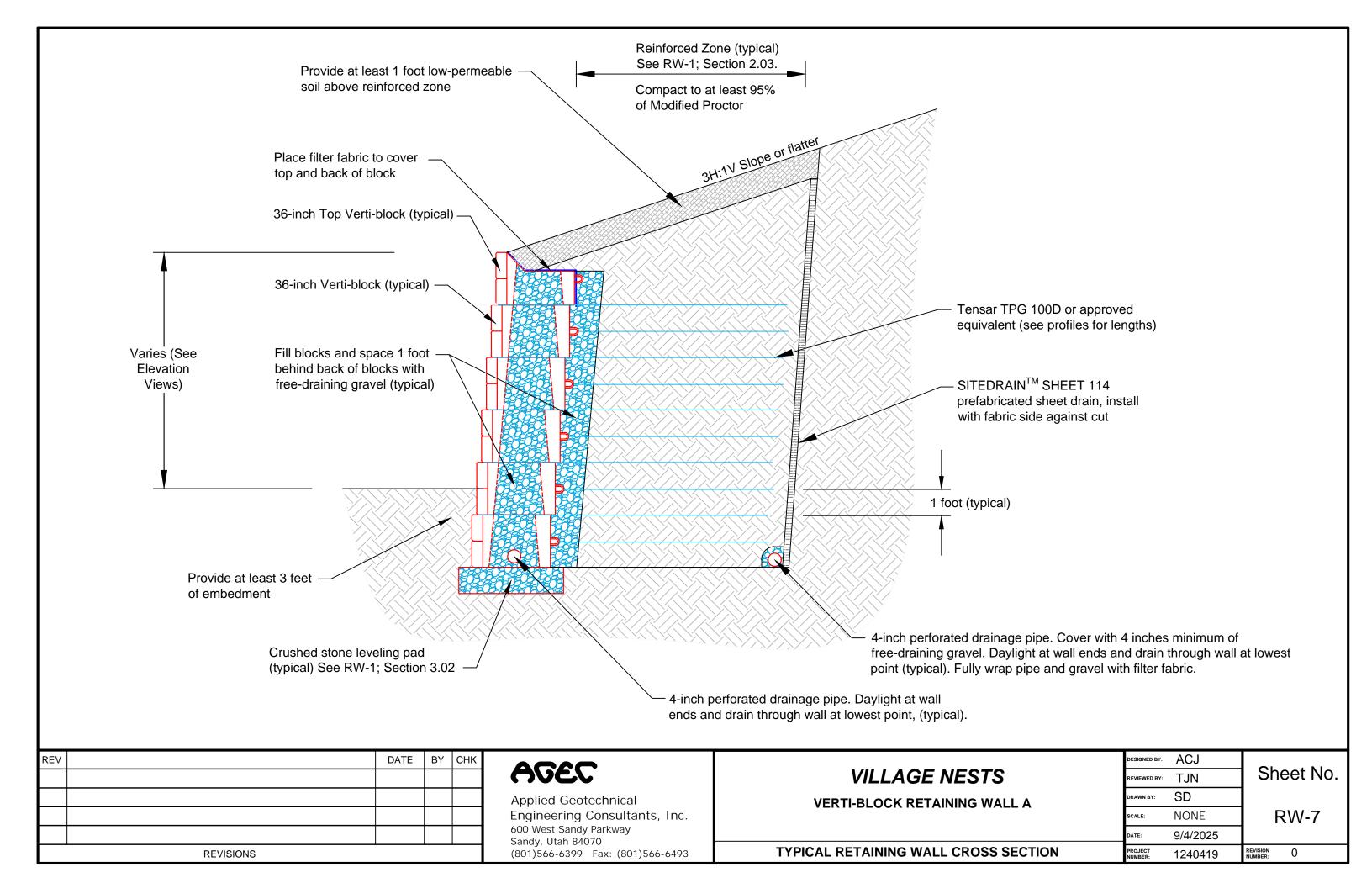
SITE PLAN AND LOCATION OF RETAINING WALL	

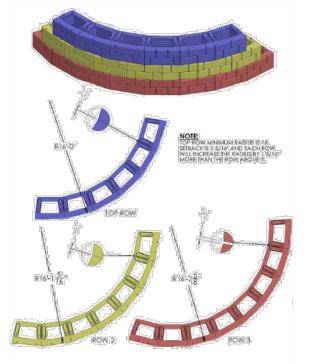




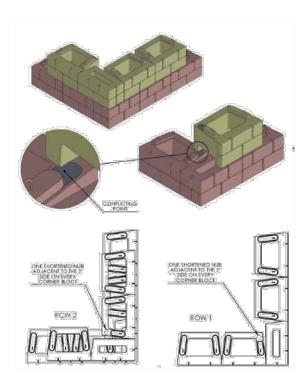




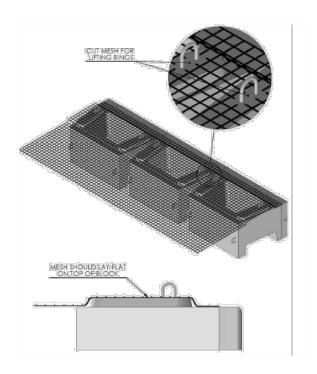


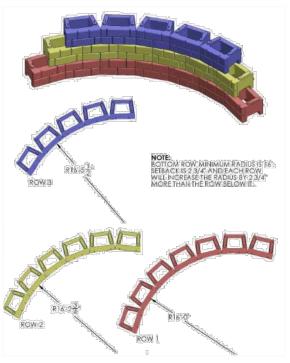


**OUTSIDE CURVE DETAIL** 

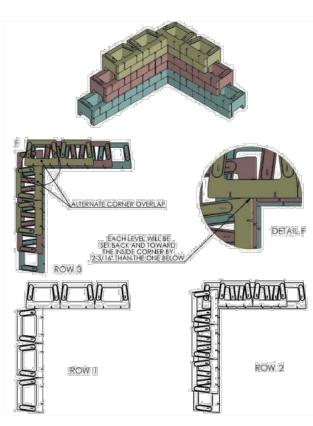


**OUTSIDE CORNER DETAIL** 





INSIDE CURVE DETAIL



INTERLACED INSIDE CORNER DETAIL

REV		DATE	BY	CHK	Г
	REVISIONS				

Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493 **VILLAGE NESTS** 

VERTI-BLOCK RETAINING WALL A

**TYPICAL RETAINING WALL DETAILS** 

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-8
DATE:	9/4/2025	
PROJECT NUMBER:	1240419	REVISION O
SCALE:  DATE:  PROJECT	NONE 9/4/2025	REVISION ()

VERTIBLOCK RETAINING WALL ESTIMATED QUANTITIES		
DESCRIPTION	SYMBOL	TOTAL
Total Wall Face Area (ft <sup>2</sup> )		2050
36-inch Block	36	275
Top Block - Left Corner	LCT	1
Top Block	TOP	51
Top Block - Right Corner	RCT	10
Top Block - Half Step Right Corner	HSRCT	11
Tensar TPG100D Geogrid (yd²)		1500
4-inch Perforated Pipe (feet)		600
6 oz. Non-woven Filter Fabric (yd²)		300
SITEDRAIN <sup>TM</sup> SHEET 114 prefabricated sheet drain (yd <sup>2</sup> )		450

REV		DATE	BY	CHK	
	REVISIONS				

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Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493

## VILLAGE NESTS

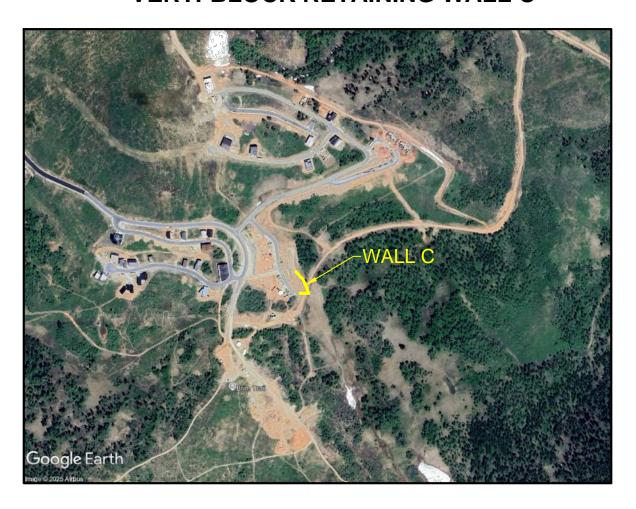
VERTI-BLOCK RETAINING WALL A

RETAINING WALL ESTIMATED QUANTITIES

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-9
DATE:	9/4/2025	
PROJECT NUMBER:	1240419	REVISION NUMBER:

## **VILLAGE NESTS**

# POWDER MOUNTAIN, WEBER COUNTY, UTAH VERTI-BLOCK RETAINING WALL C



### **DESIGNED FOR:**

POWDER MOUNTAIN SKI RESORT 2923 North Wolf Creek Drive Eden. UT. 84310

ATTENTION: Eric Anderson

#### **DESIGNED BY:**



600 West Sandy Parkway Sandy, Utah 84070 (801) 566-6399 Fax: (801) 566-6493

PROJECT ENGINEER: TAYLOR NORDQUIST, P.E. DESIGN ENGINEER: ADAM C JONES, E.I.T.



#### **DRAWING INDEX:**

SHEET NO.	NAME OF SHEET
RW - 1	WALL SPECIFICATIONS
RW - 2	SITE PLAN AND LOCATION OF RETAINING WALLS
RW - 3	RETAINING WALL 1 (Station 0+00 - 0+70)
RW - 4	RETAINING WALL 1 (Station 0+70 - 1+40)
RW - 5	RETAINING WALL 1 (Station 1+40 - 2+10)
RW - 6	RETAINING WALL 1 (Station 2+10 - 2+40)
RW - 7	TYPICAL RETAINING WALL CROSS-SECTION
RW - 8	TYPICAL RETAINING WALL DETAILS
RW - 9	RETAINING WALL ESTIMATED QUANTITIES

September 4, 2025

AGEC PROJECT NO. 1240419

#### **SECTION 1 - GENERAL NOTES**

#### 1.01 Description

The work shall consist of providing necessary materials and constructing a Verti-Block retaining wall as shown in these plans and in accordance with these specifications. The work shall be performed according to the more stringent of information provided in the Verti-Block construction manual or these drawings.

#### 1.02 Work Included

- Provide materials for wall construction including Verti-Blocks, geogrid, free-draining gravel, and drainage pipe.
- B. Construction of Verti-Block wall.

#### 1.03 Basis of Design

- A. Geologic Hazards Assessment, Village Nests Condominiums, Summit Powder Mountain Resort, Weber County, Utah, prepared by IGES, dated December 1, 2016, Project No. 01628-015 and Geologic Hazard Assessment, Village Nests Subdivision, Powder Mountain, Utah, Project No. 1240419, prepared by Applied Geotech, dated July 10, 2025, Project No. 1240419.
- B. Grading Plan, Village Nests, Powder Mountain, Weber County, Utah. Plan Sheet C500, by Talisman, dated June 6, 2025, Job No. 25-220-13.

#### 1.04 Seismic Design

A. Based on the data from the referenced geotechnical report and construction plan sheets, our analyses indicated up to approximately 4 inches of movement during a design seismic event.

#### 1.05 Buildings and Other Settlement-Sensitive Improvements

A. Buildings and other settlement-sensitive improvements should not be constructed above the wall within the reinforced zone within a distance from the top of the wall equal to the exposed height of the wall.

#### 1.06 Limitations

- A. The design included in these plans is based on information provided in Section 1.03.
- AGEC assumes no liability for interpretation of subsurface conditions, suitability of soil design parameters and subsurface groundwater conditions made by others.
- C. The contractor shall be responsible for complying with all federal, state and local requirements for execution of the work, including local building inspection and current OSHA excavation regulations.
- D. The contractor is to coordinate the location of existing and proposed utilities with the location of the Verti-Block wall.
- E. Prior to undertaking grading or excavation of the site, the contractor shall confirm the location of the proposed retaining wall and all underground features including utility locations within the construction areas of the proposed retaining wall.
- F. All work undertaken in the construction of the retaining wall is subject to the quality control and special inspection provisions outlined in Section 3.06.
- G. AGEC has completed engineering design of the proposed retaining wall including internal stability and local external stability, based on the information provided above.

#### **SECTION 2 - MATERIALS**

- 2.01 Verti-Block large concrete blocks of different sizes and configurations used to construct the retaining wall. Verti-Blocks shall be provided by a license manufacturer. Contractor shall protect blocks from damage prior to and during construction.
- 2.02 Geogrid Geogrid used to construct the retaining wall shall consist of Tensar TPG 100D or approved equivalent.

- 2.03 Reinforced Backfill fill placed around geogrid reinforcement shall consist of a non-expansive, granular material that conforms to the following:
  - A. Maximum particle size of 3 inches and less than 20 percent passing the No. 200 Sieve
  - B. USCS soil types, CL, CH, ML, MH or OL shall not be used.
  - C. The fill shall have a total unit weight of less than 130 pounds per cubic foot and a friction angle of at least 36 degrees.
  - A sample of the material proposed for use shall be submitted to AGEC for approval prior to use.
- 2.04 Retained Backfill fill placed behind the geogrid-reinforced portion of the retaining wall shall consist of reinforced backfill or undisturbed natural soil/bedrock or fill compacted per Section 3.04.
- 2.05 Free-draining Gravel washed, clean gravel for use as drainage fill inside and behind the Verti-Blocks and as a leveling pad below the retaining wall. The gravel shall meet the following criteria:
  - A. A maximum particle size of 1 inch or less and no more than 5 percent passing the No. 200 Sieve.
  - B. Gravel shall consist of clean, crushed, angular aggregate.
- 2.06 Filter Fabric shall consist of a 6-ounce, non-woven fabric with a tensile strength at least 120 pounds per foot width.

#### **SECTION 3 - WALL CONSTRUCTION**

#### 3.01 Subgrade Preparation

- A. Excavate to the elevation of the bottom of the retaining wall, including the leveling pad. The contractor shall verify the bottom of wall elevations.
- B. The subgrade soil or rock shall be observed by AGEC.
- Unsuitable fill, topsoil, organic material, loose soil, or other deleterious material shall be removed and replaced with properly compacted fill meeting the requirements in Section 2.03.

#### 3.02 Leveling Pad Construction

- A. Place and compact a thickness of at least 1 foot of free-draining gravel meeting the requirements of Section 2.05.
- B. The width of the leveling pad shall be at least the block width plus 6 inches on each side (front and back).

#### 3.03 Verti-Block Placement

- A. Follow guidance from the manufacturer regarding installation.
- Place the first row of Verti-Block and check level of block both side to side and front to back
- C. Place drainage pipe to extend through first course of block and slope to drain.
- D. Fill the inside of blocks with free-draining gravel.
- E. Remove and sweep off all excess aggregate and other materials from the top of the blocks before continuing to the next course.
- F. Place geogrid on top of block extending into the reinforced zone to lengths shown on the wall profiles.
- G. Install each subsequent course to bond on top of the base row. Position the blocks to be offset from seams of blocks on lower course. Blocks shall be placed at a 2 3/16-inch setback and recessed over the alignment hoop.
- H. Periodically check each block course for proper alignment and level.
- Continue to place and fill Verti-Blocks and place and compact backfill as described

in Sections 3.03, 3.04 and 3.05,

#### 3.04 Reinforced and Retained Backfill Placement

- A. Place Sitedrain<sup>TM</sup> Sheet 114, or approved equivalent, along the cut of the face for the reinforced zone, with fabric side placed against the cut.
- B. Place a 4-inch diameter perforated drainage pipe at the base of the cut, adjacent to the Sitedrain<sup>TM</sup>. The pipe should be covered by at least 4 inches of free-draining gravel. The gravel and pipe should be entirely surrounded by filter fabric. The pipe shall tie into the site storm drain at the ends of the wall and at the wall's lowest point.
- C. Place backfill in 12-inch thick or less lifts behind each course of block. Each lift shall be compacted to at least 95 percent of the maximum density as determined by ASTM D 1557 (modified Proctor).
- D. The backfill within at least 1 foot behind the Verti-Block should be consist of free-draining gravel as described in section 2.05.
- E. Fill shall be placed and compacted at or slightly above the optimum moisture content.
- F. Only lightweight, hand operated compaction equipment shall be allowed within 3 feet of the Verti-Block.
- G. Construction equipment shall not be operated directly on geogrid. A minimum fill thickness of 6 inches above the geogrid is required prior to using construction equipment in these areas. Turning of equipment on geogrid shall be minimized to prevent equipment from displacing the fill and damaging the geogrid.

#### 3.05 Geogrid Placement

- A. Install geogrid at the elevations indicated on the wall profiles and typical details.
- B. Install the geogrid reinforcement to the minimum length specified on the wall profile drawings. Specified geogrid lengths are measured from the face of the wall. Geogrid installed at the mid-height of the block may be shortened by three feet.
- C. Roll the geogrid out perpendicular to the face of the wall (machine direction) to install in the primary strength direction.
- Pull the geogrid taut to remove slack in the geogrid prior to fill placement on the geogrid.
- E. Overlap the geogrid as necessary along curved sections of the wall to provide full coverage. No overlap is required for adjacent parallel panels. Where geogrid is overlapped, install a minimum of 3-inches of reinforced backfill between geogrid layers.
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#### 3.06 Quality Control

- A. Testing and observation of wall construction shall be performed only by trained and experienced technicians who have experience with construction of this type of retaining wall.
- B. Fill compaction testing shall be performed on each lift of fill at a maximum spacing of 40 feet. More frequent testing shall be performed if variable conditions are observed, including type of reinforced backfill used, or different construction methods.
- C. Observations should be made and reported of the materials used in the wall construction, including block type, and location and length of geogrid.

#### 3.07 Contractor experience

A. The contractor shall demonstrate prior experience constructing Verti-Block retaining walls of similar height and length.

REV		DATE	BY	СНК	
	REVISIONS				

AGEC

Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway

Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493 VILLAGE NESTS

VERTI-BLOCK RETAINING WALL C

WALL SPECIFICATIONS

DESIGNED BY: ACJ
REVIEWED BY: TJN

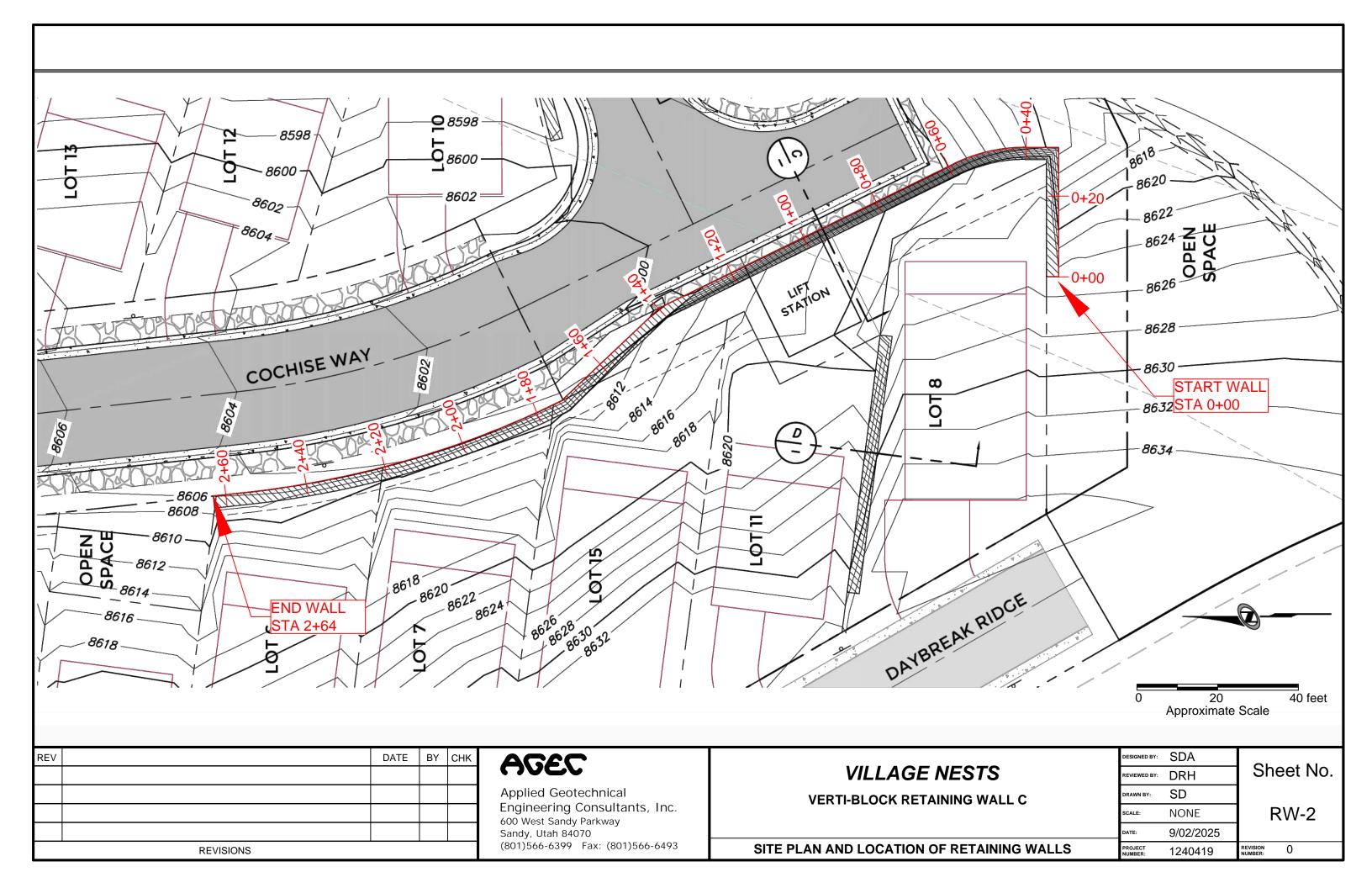
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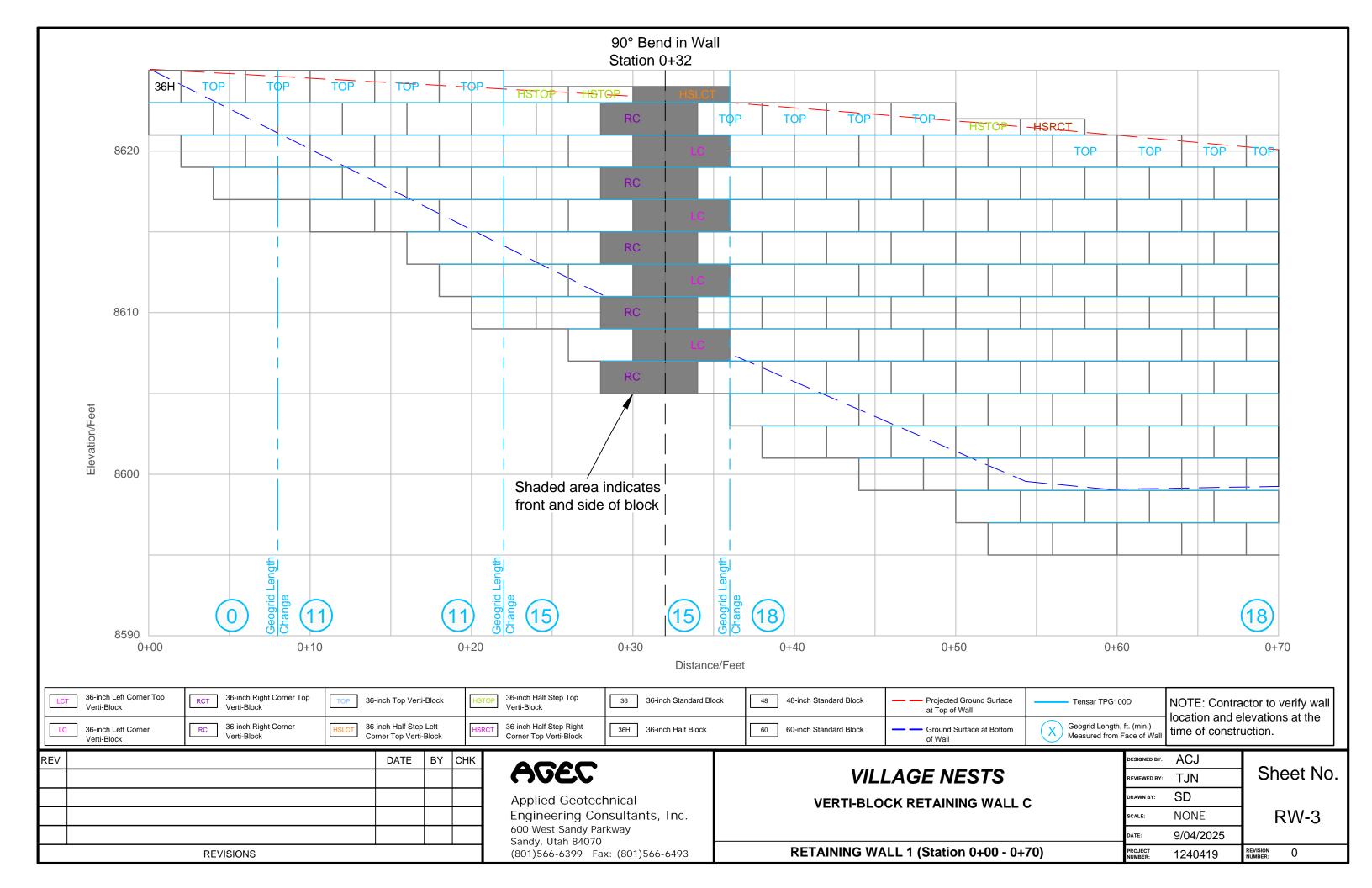
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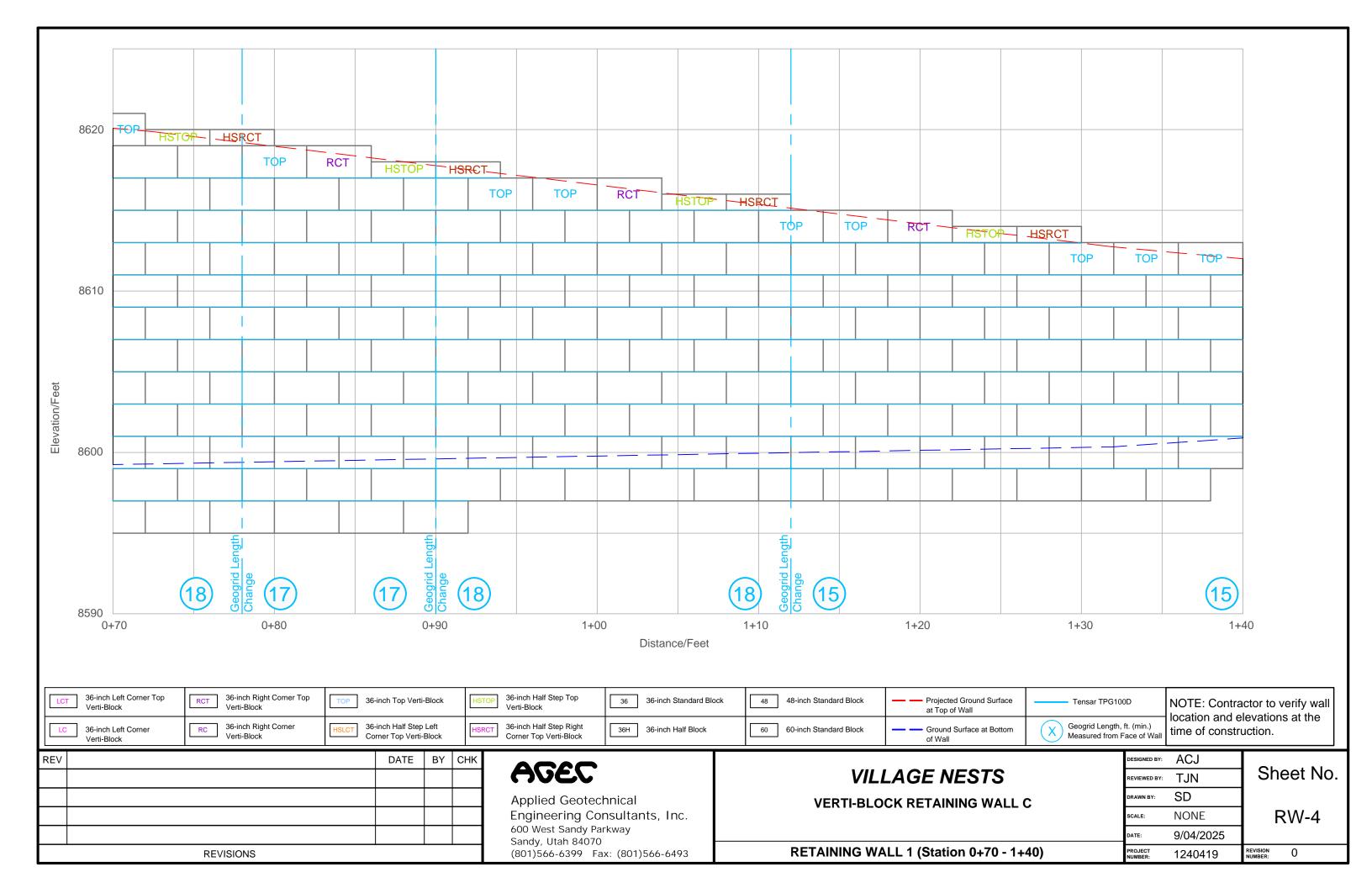
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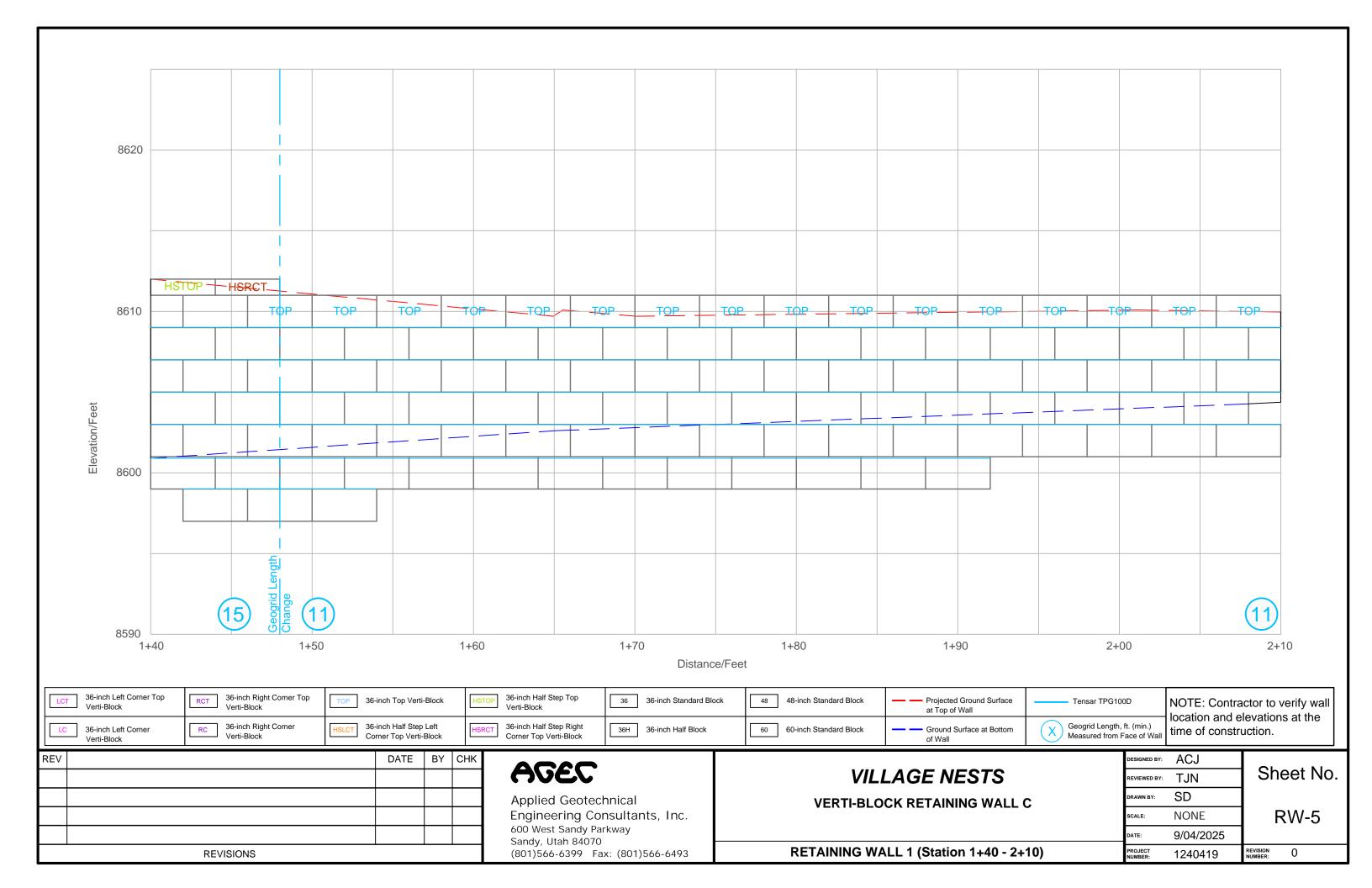
PROJECT 1240419

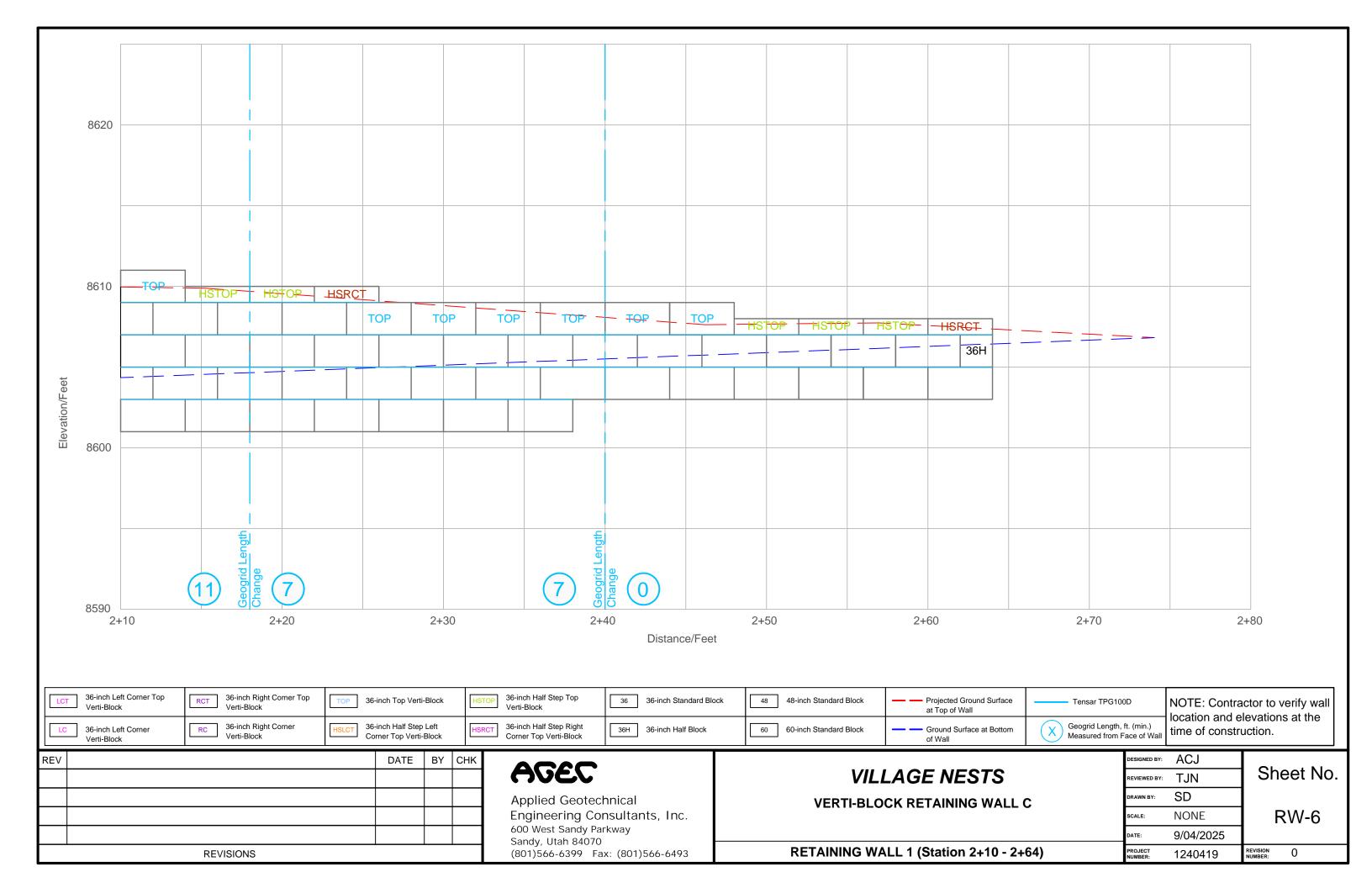
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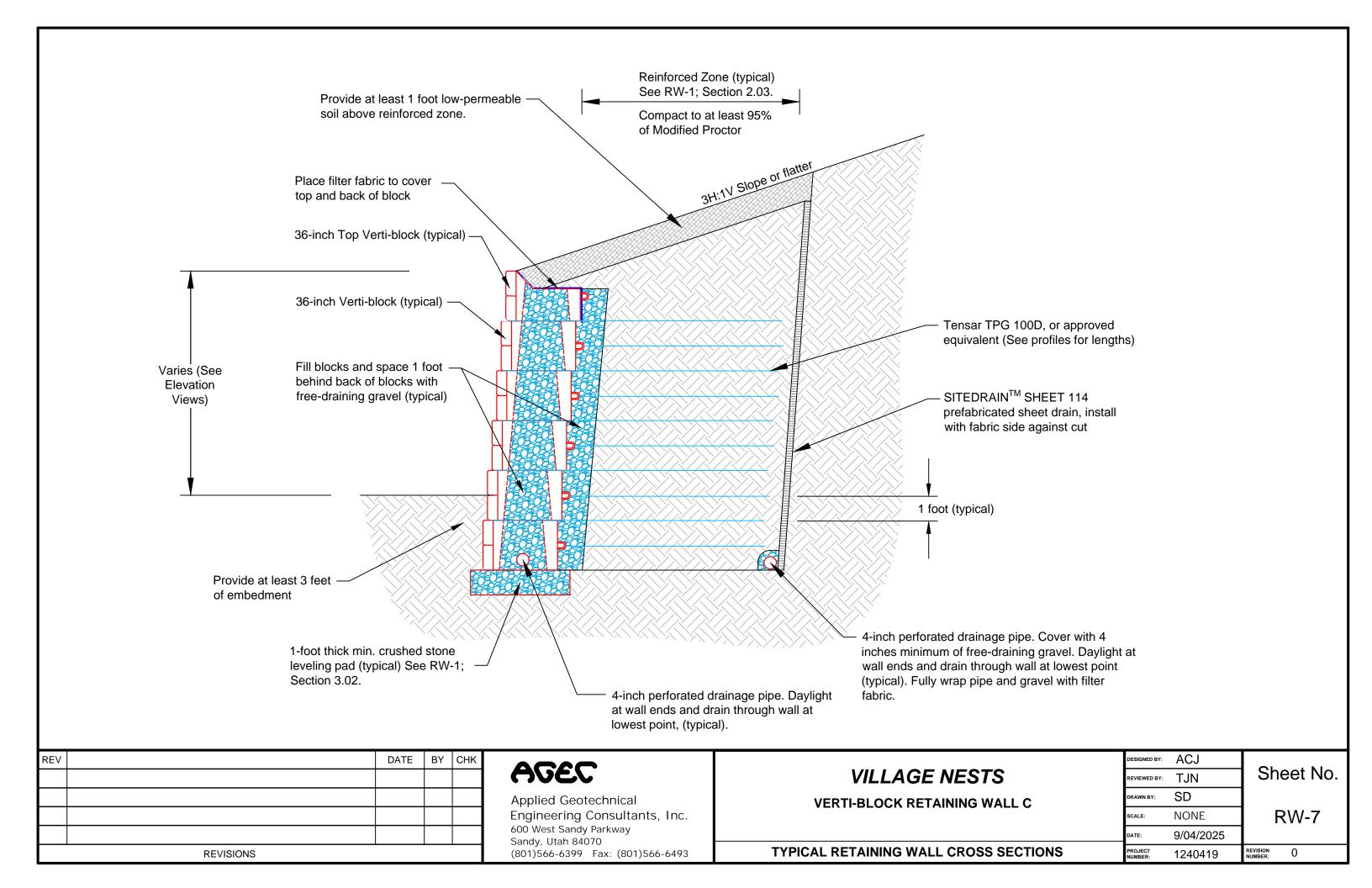


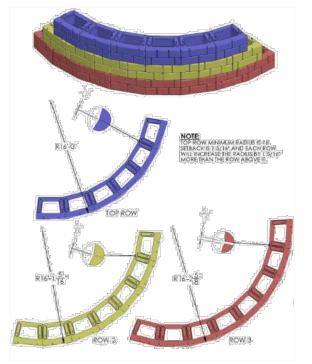




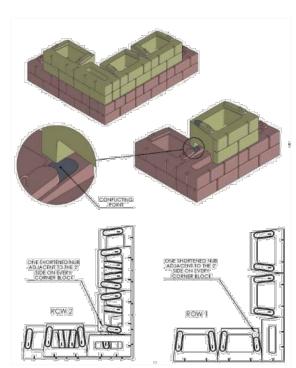




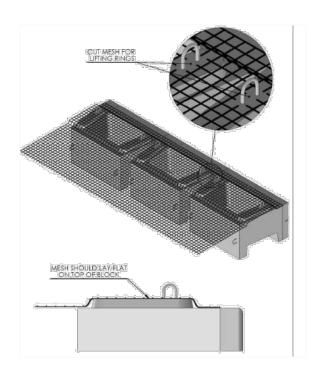


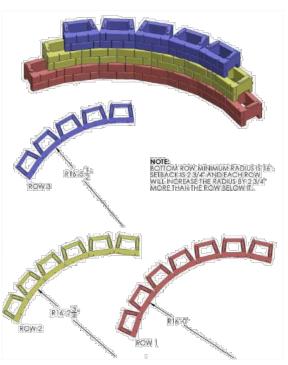


**OUTSIDE CURVE DETAIL** 

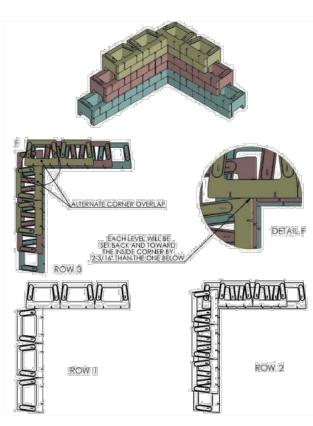


OUTSIDE CORNER DETAIL





INSIDE CURVE DETAIL



INTERLACED INSIDE CORNER DETAIL

REV		DATE	BY	CHK	
	REVISIONS				

Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493 **VILLAGE NESTS** 

VERTI-BLOCK RETAINING WALL C

**TYPICAL RETAINING WALL DETAILS** 

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-8
DATE:	9/04/2025	
PROJECT NUMBER:	1240419	REVISION O

VERTIBLOCK RETAINING WALL ESTIMATED QUANTITIES				
DESCRIPTION	SYMBOL	TOTAL		
Total Wall Face Area (ft <sup>2</sup> )		2740		
36-inch Block	36	410		
36-inch Half Block	36H	2		
Top Block - Left Corner	LCT	0		
Top Block	TOP	44		
Top Block - Right Corner	RCT	3		
Top Block - Half Step Left Corner	HSLCT	1		
Top Block - Half Step	HSTOP	13		
Top Block - Half Step Right Corner	HSRCT	8		
Right Corner Block	RC	5		
Left Corner Block	LC	4		
Tensar TPG100/130D Geogrid (yd²)		4700		
4-inch Perforated Pipe (feet)		550		
6 oz. Non-woven Filter Fabric (yd²)		160		
SITEDRAIN <sup>TM</sup> SHEET 114 prefabricated sheet drain (yd <sup>2</sup> )		1520		

REV		DATE	BY	CHK	Г
	REVISIONS				

Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493

### **VILLAGE NESTS**

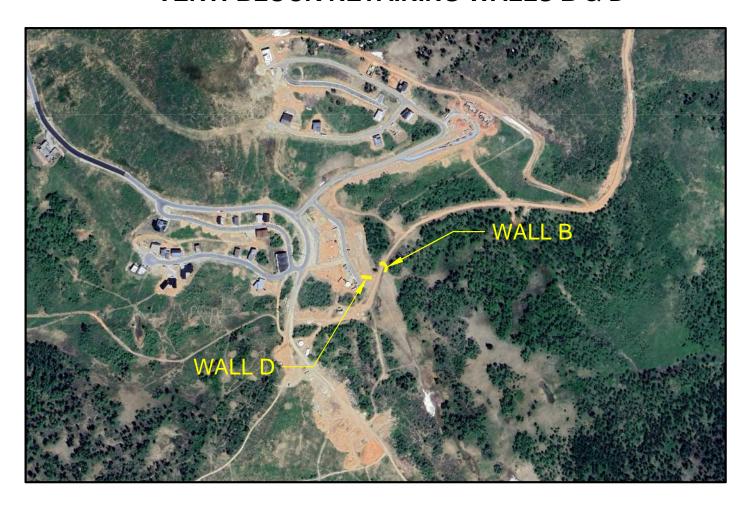
VERTI-BLOCK RETAINING WALL C

**RETAINING WALL ESTIMATED QUANTITIES** 

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-9
DATE:	9/04/2025	
PROJECT NUMBER:	1240419	REVISION O

## **VILLAGE NESTS**

# POWDER MOUNTAIN, WEBER COUNTY, UTAH VERTI-BLOCK RETAINING WALLS B & D



#### **DESIGNED FOR:**

POWDER MOUNTAIN SKI RESORT 2923 North Wolf Creek Drive Eden. UT. 84310

ATTENTION: Eric Anderson

#### **DESIGNED BY:**



600 West Sandy Parkway Sandy, Utah 84070 (801) 566-6399 Fax: (801) 566-6493

PROJECT ENGINEER: TAYLOR NORDQUIST, P.E. DESIGN ENGINEER: ADAM C JONES, E.I.T.



#### **DRAWING INDEX:**

SHEET NO.	NAME OF SHEET
RW - 1	WALL SPECIFICATIONS
RW - 2	SITE PLAN AND LOCATION OF RETAINING WALL B
RW - 3	RETAINING WALL B (Station 0+00 - 0+70)
RW - 4	RETAINING WALL B (Station 0+70 - 1+14)
RW - 5	WALL B TYPICAL RETAINING WALL CROSS-SECTION
RW - 6	SITE PLAN AND LOCATION OF RETAINING WALL D
RW - 7	RETAINING WALL D (Station 0+00 - 0+70)
RW - 8	RETAINING WALL D (Station 0+70 - 0+74)
RW - 9	WALL D TYPICAL RETAINING WALL CROSS-SECTIONS
RW - 10	TYPICAL RETAINING WALL DETAILS
RW - 11	RETAINING WALL ESTIMATED QUANTITIES

September 4, 2025

AGEC PROJECT NO. 1240419

#### **SECTION 1 - GENERAL NOTES**

#### 1.01 Description

The work shall consist of providing necessary materials and constructing a Verti-Block retaining wall as shown in these plans and in accordance with these specifications. The work shall be performed according to the more stringent of information provided in the Verti-Block construction manual or these drawings.

#### 1.02 Work Included

- Provide materials for wall construction including Verti-Blocks, geogrid, free-draining gravel, and drainage pipe.
- B. Construction of Verti-Block wall.

#### 1.03 Basis of Design

- A. Geologic Hazards Assessment, Village Nests Condominiums, Summit Powder Mountain Resort, Weber County, Utah, prepared by IGES, dated December 1, 2016, Project No. 01628-015 and Geologic Hazard Assessment, Village Nests Subdivision, Powder Mountain, Utah, Project No. 1240419, prepared by Applied Geotech, dated July 10, 2025, Project No. 1240419.
- B. Grading Plan, Village Nests, Powder Mountain, Weber County, Utah. Plan Sheet C500, by Talisman, dated June 6, 2025, Job No. 25-220-13.

#### 1.04 Seismic Design

A. Based on the data from the referenced geotechnical report and construction plan sheets, our analyses indicated up to approximately 8 inches of movement during a design seismic event in Wall B and approximately 5 inches of movement in Wall D.

#### 1.05 Buildings and Other Settlement-Sensitive Improvements

A. Buildings and other settlement-sensitive improvements should not be constructed above the wall within a distance from the top of the wall equal to the exposed height of the wall.

#### 1.06 Limitations

- The design included in these plans is based on information provided in Section 1 03
- B. AGEC assumes no liability for interpretation of subsurface conditions, suitability of soil design parameters and subsurface groundwater conditions made by others.
- C. The contractor shall be responsible for complying with all federal, state and local requirements for execution of the work, including local building inspection and current OSHA excavation regulations.
- The contractor is to coordinate the location of existing and proposed utilities with the location of the Verti-Block wall.
- E. Prior to undertaking grading or excavation of the site, the contractor shall confirm the location of the proposed retaining wall and all underground features including utility locations within the construction areas of the proposed retaining wall.
- F. All work undertaken in the construction of the retaining wall is subject to the quality control and special inspection provisions outlined in Section 3.06.
- G. AGEC has completed engineering design of the proposed retaining wall including internal stability and local external stability, based on the information provided above.

#### **SECTION 2 - MATERIALS**

2.01 Verti-Block - large concrete blocks of different sizes and configurations used to construct the retaining wall. Verti-Blocks shall be provided by a license manufacturer. Contractor shall protect blocks from damage prior to and during construction.

- 2.02 Geogrid Geogrid used to construct the retaining wall shall consist of Tensar TPG 100D or approved equivalent.
- 2.03 Reinforced Backfill fill placed around geogrid reinforcement shall consist of a non-expansive, granular material that conforms to the following:
  - A. Maximum particle size of 3 inches and less than 20 percent passing the No. 200 Sieve
  - B. USCS soil types, CL, CH, ML, MH or OL shall not be used.
  - C. The fill shall have a total unit weight of less than 130 pounds per cubic foot and a friction angle of at least 36 degrees.
  - A sample of the material proposed for use shall be submitted to AGEC for approval prior to use.
- 2.04 Retained Backfill fill placed behind the geogrid-reinforced portion of the retaining wall shall consist of reinforced backfill or undisturbed natural soil/bedrock or fill compacted per Section 3.04.
- 2.05 Free-draining Gravel washed, clean gravel for use as drainage fill inside and behind the Verti-Blocks and as a leveling pad below the retaining wall. The gravel shall meet the following criteria:
  - A. A maximum particle size of 1 inch or less and no more than 5 percent passing the No. 200 Sieve.
  - B. Gravel shall consist of clean, crushed, angular aggregate.
- 2.06 Filter Fabric shall consist of a 6-ounce, non-woven fabric with a tensile strength at least 120 pounds per foot width.

#### **SECTION 3 - WALL CONSTRUCTION**

- 3.01 Subgrade Preparation
  - A. Excavate to the elevation of the bottom of the retaining wall, including the leveling pad. The contractor shall verify the bottom of wall elevations.
  - B. The subgrade soil or rock shall be observed by AGEC.
  - C. Unsuitable fill, topsoil, organic material, loose soil, or other deleterious material shall be removed and replaced with properly compacted fill meeting the requirements in Section 2.03.

#### 3.02 Leveling Pad Construction

- A. Place and compact a thickness of at least 1 foot of free-draining gravel meeting the requirements of Section 2.05.
- B. The width of the leveling pad shall be at least the block width plus 6 inches on each side (front and back).

#### 3.03 Verti-Block Placement

- A. Follow guidance from the manufacturer regarding installation.
- B. Place the first row of Verti-Block and check level of block both side to side and front to back.
- C. Place drainage pipe to extend through first course of block and slope to drain.
- D. Fill the inside of blocks with free-draining gravel.
- E. Remove and sweep off all excess aggregate and other materials from the top of the blocks before continuing to the next course.
- F. Place geogrid on top of block extending into the reinforced zone to lengths shown on the wall profiles.
- G. Install each subsequent course to bond on top of the base row. Position the blocks to be offset from seams of blocks on lower course. Blocks shall be placed at a 2 3/16-inch setback and recessed over the alignment hoop.
- H. Periodically check each block course for proper alignment and level.
- Continue to place and fill Verti-Blocks and place and compact backfill as described in Sections 3.03, 3.04 and 3.05.

#### 3.04 Reinforced and Retained Backfill Placement

- A. Place Sitedrain<sup>TM</sup> Sheet 114, or approved equivalent, along the cut of the face for the reinforced zone, with fabric side placed against the cut
- B. Place a 4-inch diameter perforated drainage pipe at the base of the cut, adjacent to the Sitedrain<sup>TM</sup>. The pipe should be covered by at least 4 inches of free-draining gravel. The gravel and pipe should be entirely surrounded by filter fabric. The pipe shall tie into the site storm drain at the ends of the wall and at the wall's lowest point.
- C. Place backfill in 12-inch thick or less lifts behind each course of block. Each lift shall be compacted to at least 95 percent of the maximum density as determined by ASTM D 1557 (modified Proctor)
- D. The backfill within at least 1 foot behind the Verti-Block should be consist of free-draining gravel as described in section 2.05.
- Fill shall be placed and compacted at or slightly above the optimum moisture content.
- F. Only lightweight, hand operated compaction equipment shall be allowed within 3 feet of the Verti-Block.
- G. Construction equipment shall not be operated directly on geogrid. A minimum fill thickness of 6 inches above the geogrid is required prior to using construction equipment in these areas. Turning of equipment on geogrid shall be minimized to prevent equipment from displacing the fill and damaging the geogrid.

#### 3.05 Geogrid Placement

- Install geogrid at the elevations indicated on the wall profiles and typical details.
- B. Install the geogrid reinforcement to the minimum length specified on the wall profile drawings. Specified geogrid lengths are measured from the face of the wall. Geogrid installed at the mid-height of the block may be shortened by three feet.
- C. Roll the geogrid out perpendicular to the face of the wall (machine direction) to install in the primary strength direction.
- D. Pull the geogrid taut to remove slack in the geogrid prior to fill placement on the geogrid.
- E. Overlap the geogrid as necessary along curved sections of the wall to provide full coverage. No overlap is required for adjacent parallel panels. Where geogrid is overlapped, install a minimum of 3-inches of reinforced backfill between geogrid layers.
- F. Where storm drain vertical drain pipes are installed behind the face of the wall in the reinforced zone, geogrid shall only be cut in between the primary strength tendons to accomodate the pipe passing through the geogrid.

#### 3.06 Quality Control

- A. Testing and observation of wall construction shall be performed only by trained and experienced technicians who have experience with construction of this type of retaining wall.
- B. Fill compaction testing shall be performed on each lift of fill at a maximum spacing of 40 feet. More frequent testing shall be performed if variable conditions are observed, including type of reinforced backfill used, or different construction methods.
- C. Observations should be made and reported of the materials used in the wall construction, including block type, and location and length of geogrid.

#### 3.07 Contractor experience

 The contractor shall demonstrate prior experience constructing Verti-Block retaining walls of similar height and length.

REV		DATE	BY	СНК	
	REVISIONS				

AGEC

Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070

(801)566-6399 Fax: (801)566-6493

VILLAGE NESTS

VERTI-BLOCK RETAINING WALLS B & D

WALL SPECIFICATIONS

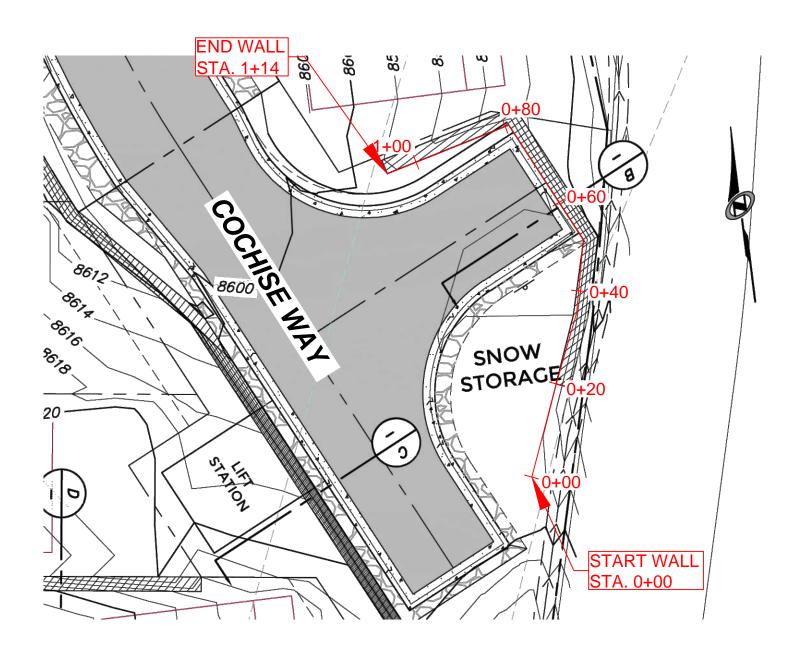
DESIGNED BY: ACJ
REVIEWED BY: TJN

DRAWN BY: SD
SCALE: NONE

DATE: 9/04/2025

PROJECT 1240419

REVISION NUMBER: 0



0	20	40 feet
	Approximate Scale	

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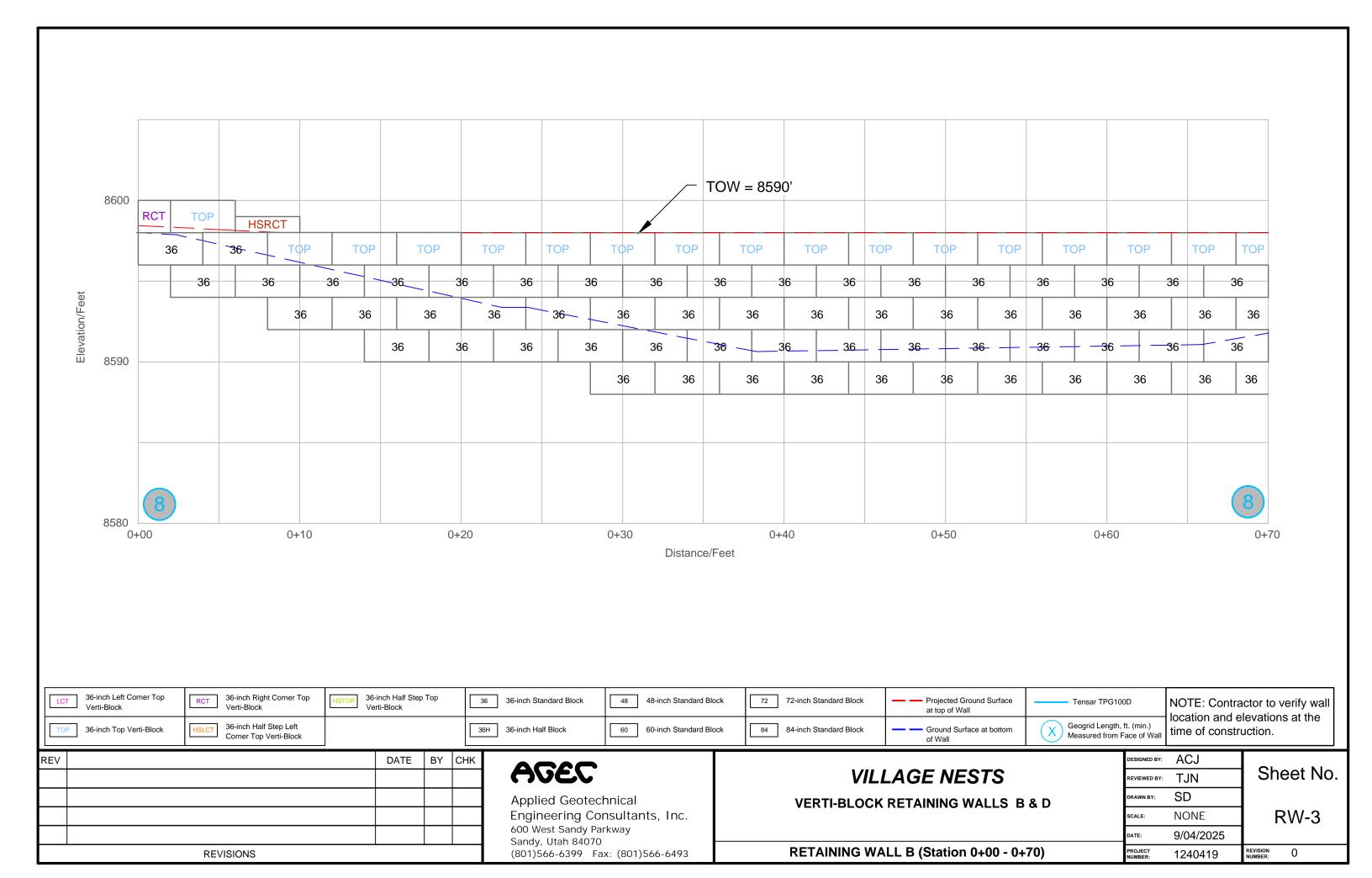
Applied Geotechnical Engineering Consultants, Inc. 600 West Sandy Parkway Sandy, Utah 84070 (801)566-6399 Fax: (801)566-6493

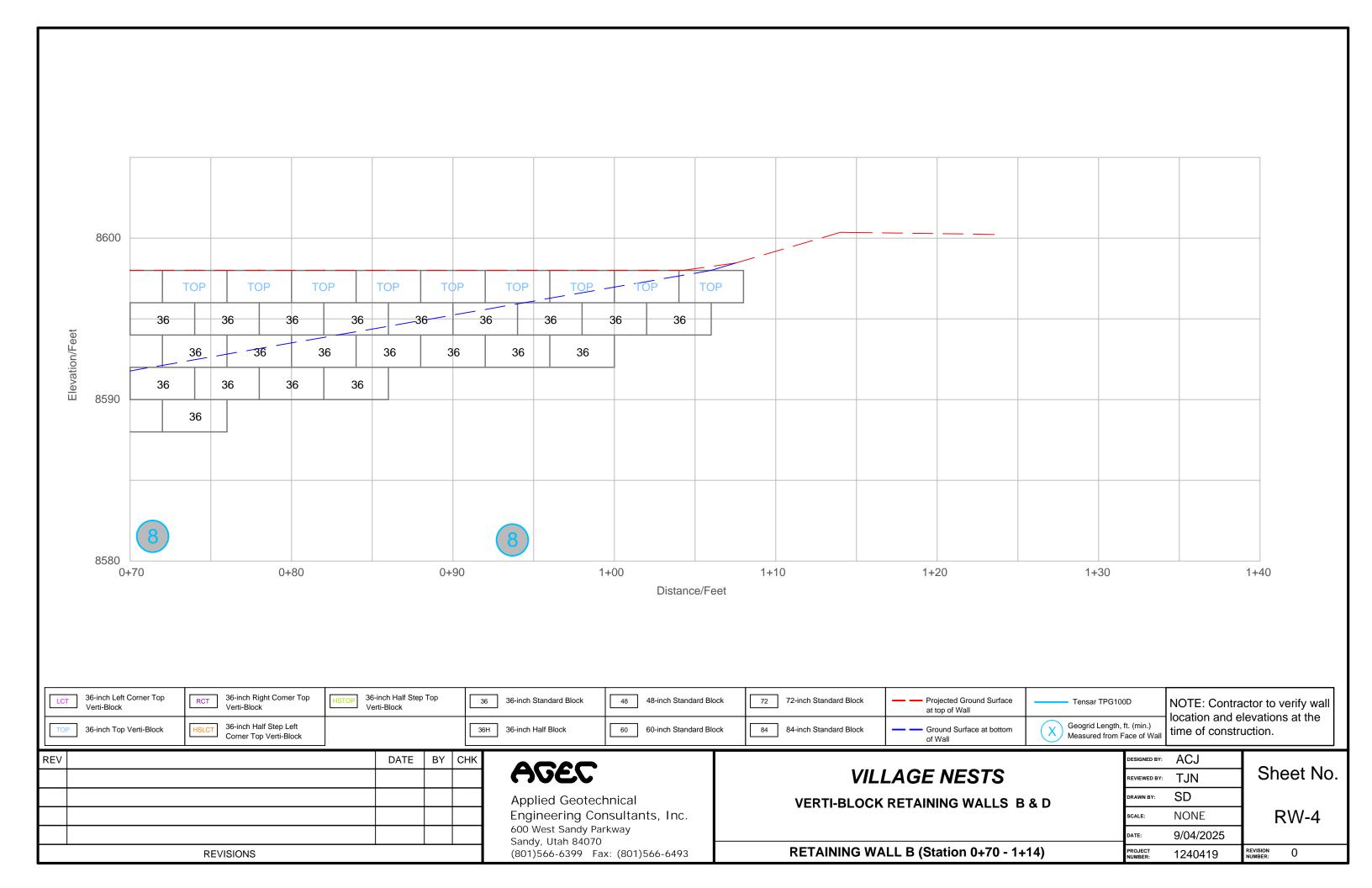
## VILLAGE NESTS

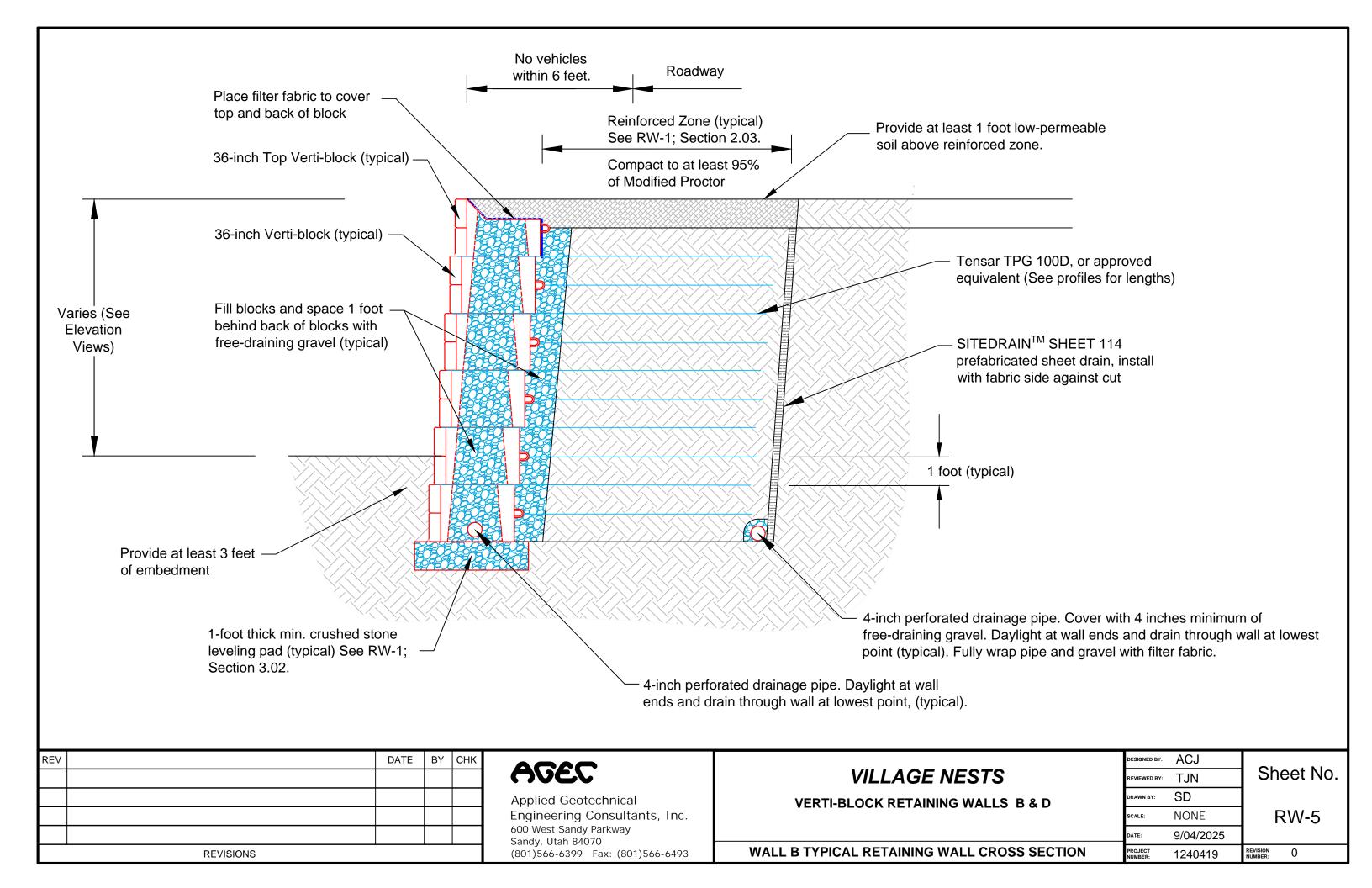
VERTI-BLOCK RETAINING WALLS B & D

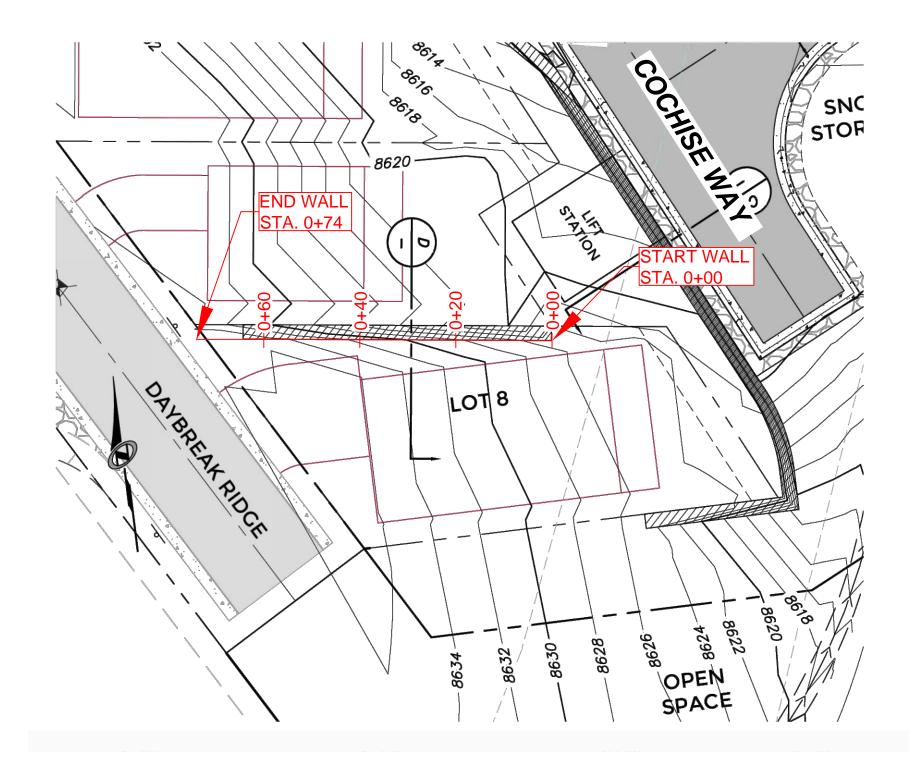
SITE PLAN AND LOCATION OF RETAINING WALL B

DESIGNED BY:	ACJ	O1 ( ) 1
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-2
DATE:	9/02/2025	
PROJECT NUMBER:	1240419	REVISION O









0	20	40 feet
-	Approximate Scale	

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	REVISIONS			

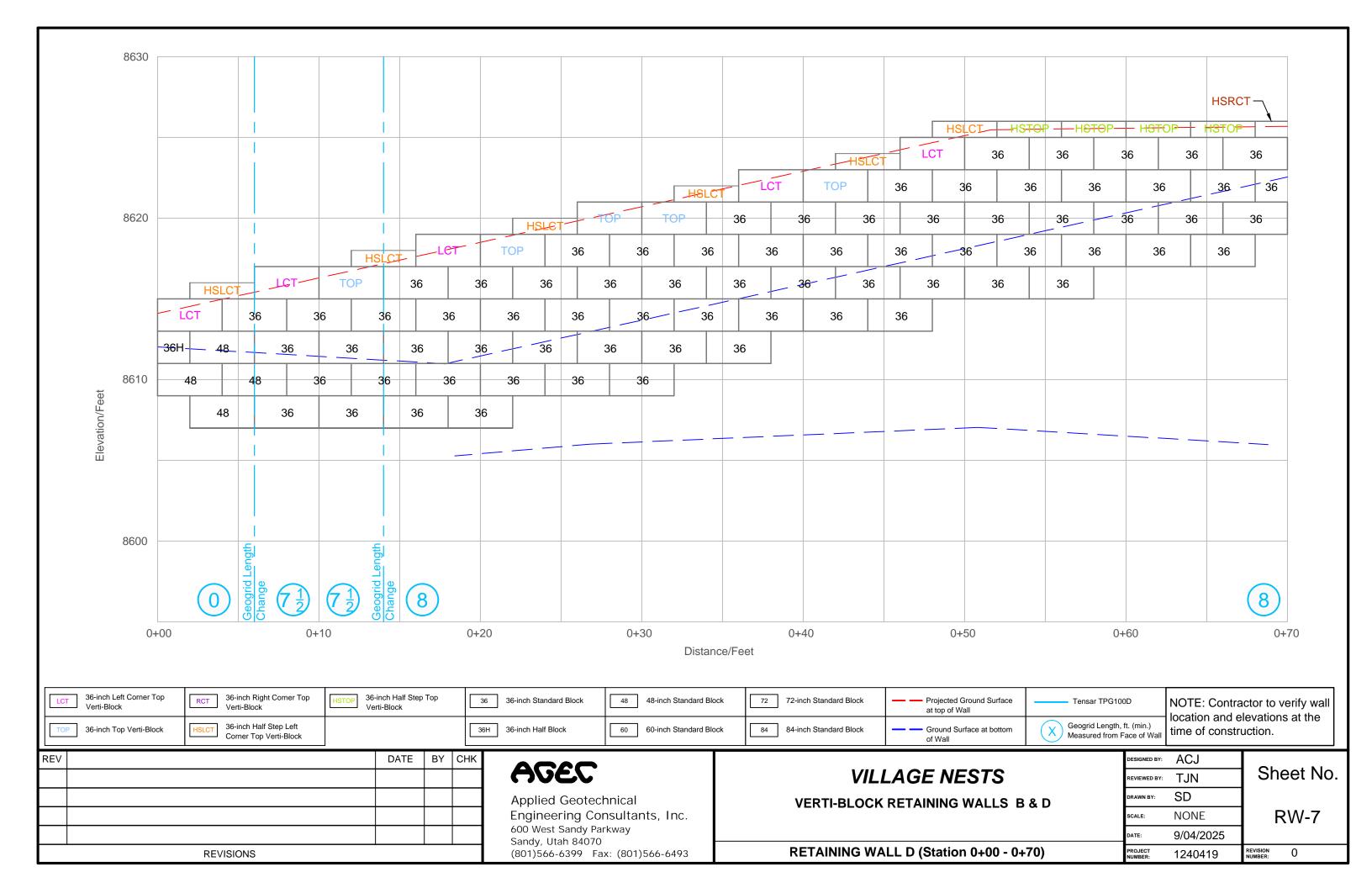
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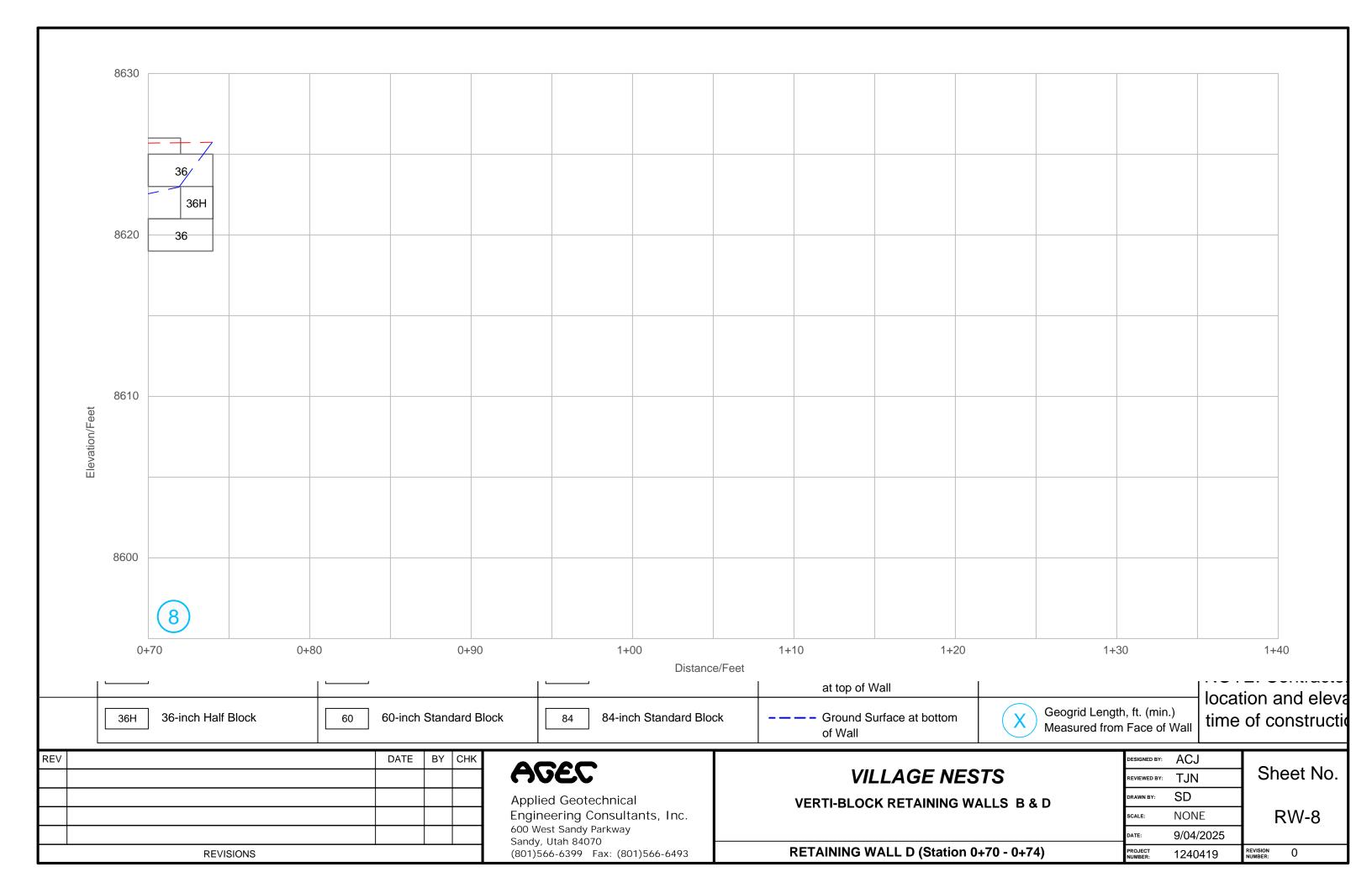
### **VILLAGE NESTS**

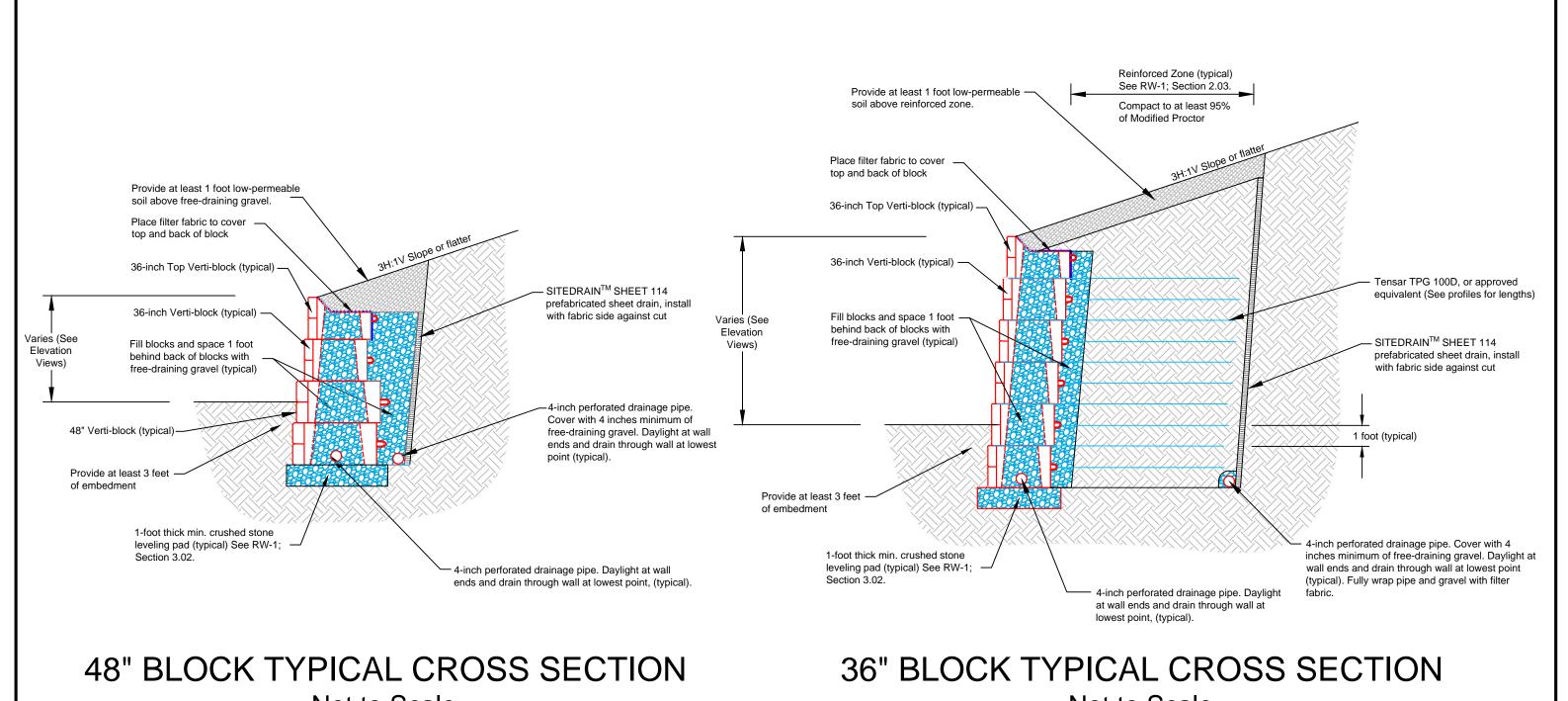
**VERTI-BLOCK RETAINING WALLS B & D** 

SITE PLAN AND LOCATION OF RETAINING WALL D

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No
DRAWN BY:	SD	
SCALE:	NONE	RW-6
DATE:	9/02/2025	
PROJECT NUMBER:	1240419	REVISION NUMBER:



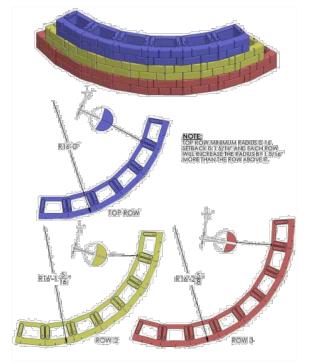




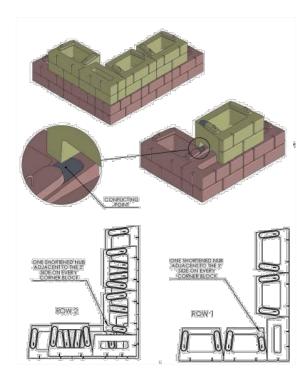
# Not to Scale

## Not to Scale

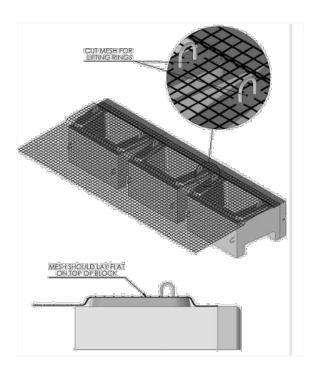
REV		DATE	BY	CHK	0000		DESIGNED BY:	ACJ	
					AGEC	VILLAGE NESTS	REVIEWED BY:	TJN	Sheet No.
					Applied Geotechnical	VERTI-BLOCK RETAINING WALLS B & D	DRAWN BY:	SD	
					Engineering Consultants, Inc.		SCALE:	NONE	RW-9
					600 West Sandy Parkway Sandy, Utah 84070		DATE:	9/04/2025	
	REVISIONS				(801)566-6399 Fax: (801)566-6493	WALL D TYPICAL RETAINING WALL CROSS SECTIONS	PROJECT NUMBER:	1240419	REVISION O

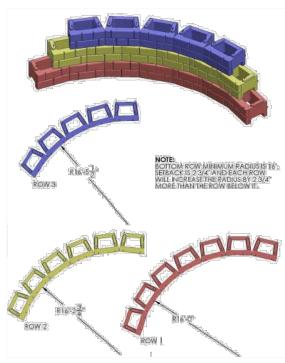


**OUTSIDE CURVE DETAIL** 

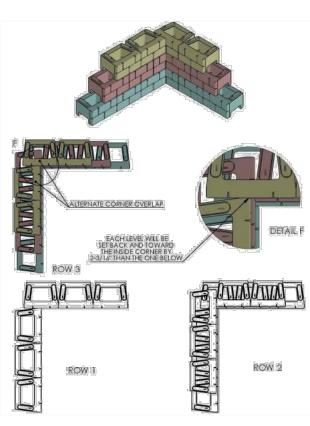


OUTSIDE CORNER DETAIL





INSIDE CURVE DETAIL



INTERLACED INSIDE CORNER DETAIL

REV		DATE	BY	CHK	
REVISIONS					

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**VERTI-BLOCK RETAINING WALLS B & D** 

**TYPICAL RETAINING WALL DETAILS** 

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	Sheet No.
DRAWN BY:	SD	
SCALE:	NONE	RW-10
DATE:	9/04/2025	
PROJECT NUMBER:	1240419	REVISION O

VERTIBLOCK RETAINING WALL ESTIMATED QUANTITIES					
DESCRIPTION	SYMBOL	WALL B	WALL D	TOTAL	
Total Wall Face Area (ft <sup>2</sup> )		500	400	900	
36-inch Block	36	85	80	165	
36-inch Half Block	36H	0	2	2	
48-inch Block	48	0	5	5	
Top Block - Left Corner	LCT	1	5	6	
Top Block	TOP	28	5	33	
Top Block - Right Corner	RCT	1	0	1	
Top Block - Half Step Left Corner	HSLCT	1	6	7	
Top Block - Half Step	HSTOP	0	6	6	
Top Block - Half Step Right Corner	HSRCT	0	1	1	
Tensar TPG100D Geogrid (yd²)		600	500	1100	
4-inch Perforated Pipe (feet)		250	200	450	
6 oz. Non-woven Filter Fabric (yd²)		115	100	225	
SITEDRAIN <sup>TM</sup> SHEET 114 prefabricated sheet drain (yd <sup>2</sup> )		100	100	200	

REV		DATE	BY	CHK		
	REVISIONS					

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### **VILLAGE NESTS**

**VERTI-BLOCK RETAINING WALLS B & D** 

RETAINING WALL ESTIMATED QUANTITIES

DESIGNED BY:	ACJ	
REVIEWED BY:	TJN	
DRAWN BY:	SD	
SCALE:	NONE	
DATE:	9/04/2025	
PROJECT	1240419	RI

Sheet No.

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