

**Project:**

Coachman Ridge  
Apartments

**Product:**

LondonBoulder LB28  
Blocks

**Wall Design Engineer:**

Vickery Engineering &  
Consulting, Minnetonka,  
MN

**Wall Contractor:**

Great Northern Land-  
scaping, Elk River MN

**Manufacturer:**

JME Companies  
Monticello, MN

**Construction Manager:**

Ridgeview Medical

**Wall Dimensions:**

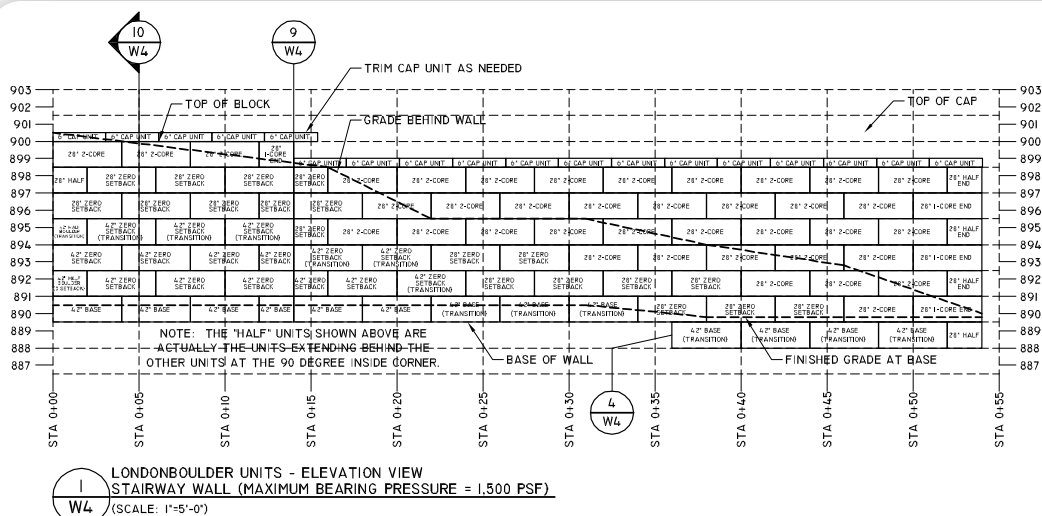
9 ft tall x 70 ft long

**The Challenge:**

Owner wanted a curved free standing wall to wrap around with the stairs.

**The Solution:**

The LondonBoulder cored LB28 Block. It's the only big block on the market that could be cut on the ends to provide a radius big block 2 sided wall.



**LEGEND**

- DETAIL NUMBER  
SHEET NUMBER
- INDICATES LOCATION OF SECTION CUT
- INDICATES APPROXIMATE LOCATION OF  
90-DEGREE INSIDE CORNER

**NOTES**

- 1) CAP UNITS WILL NEED TO BE TRIMMED TO FIT THE WALL. SEE DETAIL 6 ON SHEET W4 FOR ADDITIONAL INFORMATION ON CAPPING.
- 2) THE FREE-STANDING PORTION OF THE WALL NEEDS TO BE CORE-FILLED WITH DRAINAGE AGGREGATE FOR THE ENTIRE FREE-STANDING PORTION AND THE BLOCK BELOW. A #5 REBAR SHOULD BE PLACED CONTINUOUSLY IN EACH CORE. EACH UNIT IN THE FREE-STANDING PORTION OF THE WALL SHOULD BE ADHERED TO THE BLOCK BELOW WITH THE CAP ADHESIVE (4 CONTINUOUS BEADS, MINIMUM).

## RETAINING WALL: INCREASE USABLE SPACE

**Project:**

Fernbrook Fields  
Maple Grove, MN

**Product:**

LondonBoulder

**Wall Design Engineer:**

Civil Design  
Professionals

**Wall Contractor:**

Blackstone Contractors

**Civil Engineer:**

Stantec

**Manufacturer:**

JME Companies  
Monticello, MN

**Construction Manager:**

RJM Construction

**Wall Dimensions:**

7,156 sq ft  
14 ft Tall

**Project Details**

- City of Maple Grove project
- Gravity wall / unreinforced
- Next to roadway
- Some areas up to 14 ft tall
- Walls helped increase the space to build additional fields





**ABELOFF**

**Project:**

Ableoff Nissan  
Stroudsburg, PA

**Manufacturer:**

Bethlehem Precast  
Bethlehem, PA

**Product:**

LondonBoulder

**Construction Manager:**

Nu Cor Management,  
Inc.  
Pen Argyl, PA

**Wall Design Engineer:**

Civil Solutions Group  
Minneapolis MN

**Wall Dimensions:**

High from 2' to 32'  
4,200 sq ft

**Site/Wall Contractor:**

E. F. Possinger & Sons  
Stoudsburg, PA



**The Challenge:**

The Abeloff Nissan Dealership entrance was located atop a mix of solid rock and native soils. The change in grade from this roadway to the finished grades surrounding the dealership building varied from a low elevation of 1.5' to 31.5' at its maximum height.

The solid rock layer located behind the lower portion of the wall made excavation for normal geogrid reinforcement prohibitively expensive.

**The Solution:**

The first wall system proposed for this site was a competing "Big Block" system using geogrid reinforcement. This concept was not feasible due to the retained rock embankment and the excavation costs required to install the geogrid reinforcement. Consequently, a smaller block (SRW) system was proposed using a concrete and anchoring system. It was at this point that Civil Solutions Group (CSG) was contacted by Bethlehem Precast to review the project and look for a more economically feasible solution.

After a comprehensive assessment of the site conditions and parameters, Civil Solutions devised a hybrid resolution to meet this challenge. The LondonBoulder Retaining Wall System was at the core of this resolution. It consisted of a concrete reinforced wall base installed in conjunction with a gravity wall application on the upper half of the retained face. To facilitate this unique hybrid solution, a concrete leveling pad was poured at a 6 degree angle to achieve the required batter for the gravity wall design. The lower half of the wall was then backfilled with lean concrete to solidify the base. This was accomplished by placing the concrete in 4.5' maximum lifts and reinforcing each lift with rebar.

These concrete lifts were then anchored at both ends - on the back using rebar to anchor into the shale rock face embankment, and in the front using rebar hooks which connected perpendicularly to rebar laying along the bottom of the keyway in each LondonBoulder unit. An epoxy grout was added to the rebar extending into the shale rock face to provide the wall with the long term stability required to resist natural destabilizing forces. Finally, the various sizes of the LondonBoulder units provided the mass needed in order to make the gravity wall design work as efficiently as possible.



**Project:**

Beacon Bluffs  
St. Paul, MN

**Product:**

LondonBoulder

**Wall Design Engineer:**

Gray Engineering, LLC

**Wall Contractor:**

Precision  
Hardscapes, Inc

**Civil Engineer:**

Solution Blue

**Manufacturer:**

JME Companies  
Monticello, MN

**Construction Manager:**

Opus Design

**Wall Dimensions:**

2,130 sq ft  
Height: 13 1/2 ft



**Project Details**

- Tight space
- Cut hill block to fit building space
- 10 ft between building and front of wall
- No space for reinforcement
- 15 ft From back of wall to property line
- Gravity / unreinforced design allowed this plan to be a good solution



**Project:**

Eagan Maintenance  
Facility Eagan, MN

Larson Engineering

**Manufacturer:**

JME Companies  
Monticello, MN

**Product:**

LondonBoulder

**Construction Manager:**

Ebert Construction

**Wall Design Engineer:**

Civil Design  
Professionals

**Wall Dimensions:**

Height: 10 1/2 ft

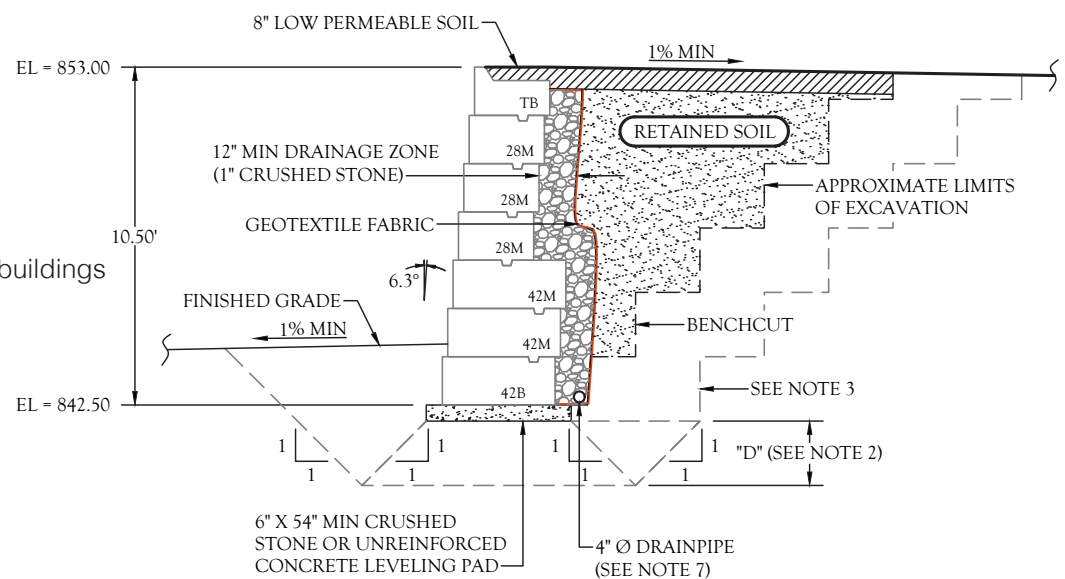
**Wall Contractor:**

Precision  
Hardscapes, Inc.

**Civil Engineer:**

**Project Details**

- Retaining wall built between two buildings
- City of Eagan project
- Gravity wall
- Helped increase parking area
- 10 1/2 ft wall heights





**Product:**

LondonBoulder

**Manufacturer:**

JME Companies  
Monticello, MN

**Wall Design Engineer:**

Vickery Engineer &  
Consulting

**Construction Manager:**

Breitbach  
Construction Co.

**Wall Contractor:**

Breitbach  
Construction Co

**Wall Dimensions:**

11,340 sq ft  
Height: 22 ft

**Civil Engineer:**

Anderson-Johnson  
Associates Inc.



Saint John's  
UNIVERSITY

**Project Details**

- Maximized the use of gravity / unreinforced areas to save trees
- Design used a combination of gravity and reinforced walls
- Wall design incorporated inside 90° corners
- Maximum wall heights of 22 ft.



**Project:**

LondonBoulder  
Walmart Sartel, MN

**Product:**

LondonBoulder

**Wall Design Engineer:**

Vickery Engineering & Consulting

**Wall Contractor:**

Helmin Landscaping

**Civil Engineer:**

McCombs Frank Roos Associates/Sambatek

**Site Engineer:**

Gale-Tec Engineering, Inc

**Manufacturer:**

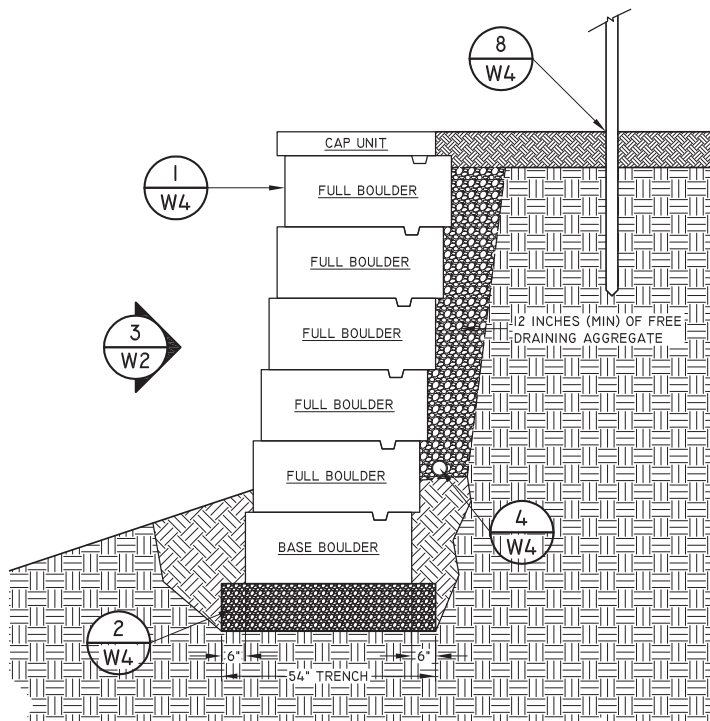
JME Companies  
Monticello, MN

**Construction Manager:**

Breitbach Construction

**Wall Dimensions:**

6,456 sq ft  
Height: 9 ft



**Project:**

Arbor Lakes Business  
Park, Maple Grove, MN

**Product:**

LondonBoulder

**Wall Design Engineer:**

Vickery Engineer &  
Construction

**Wall Contractor:**

Cedar Ridge  
Landscaping

**Civil Engineer:**

Stantec

**Manufacturer:**

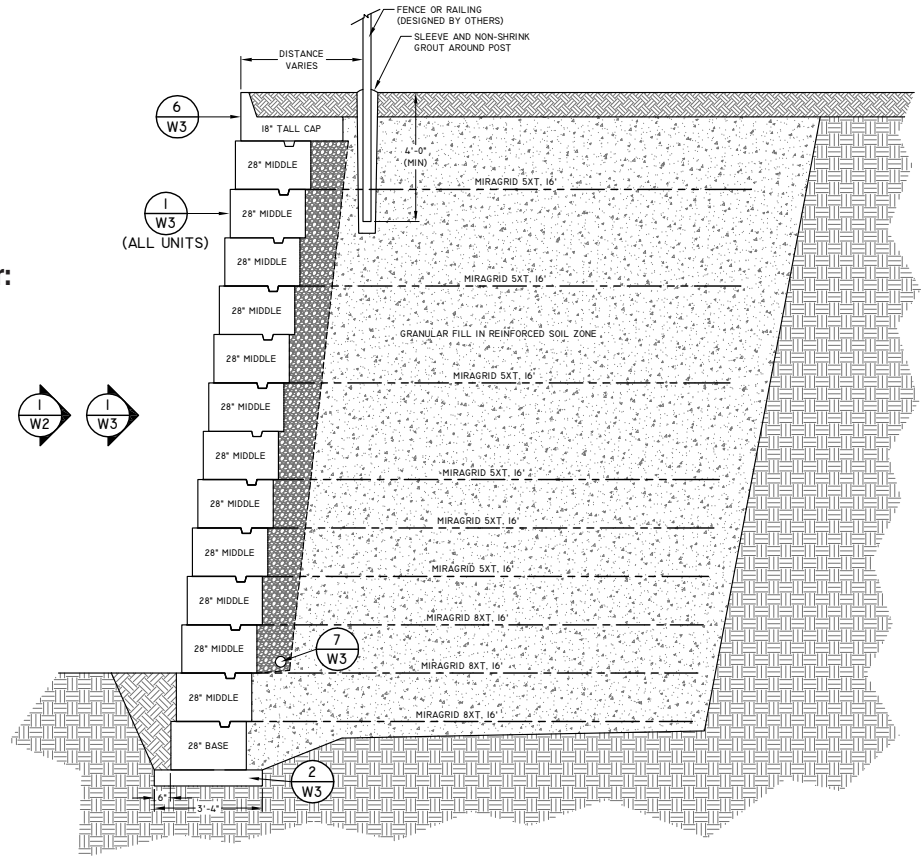
JME Companies  
Monticello, MN

**Construction Manager:**

C. S. Mc Crossan  
Maple Grove, MN

**Wall Dimensions:**

3,651 sq ft  
Height: 22 1/2 ft



**Project Details**

- City of Maple Grove project
- Reinforced wall
- Next to roadway
- Wall created space for a tunnel system to be built
- Wall height exceeds 22 ft



**Project:**  
Dale Road & Pioneer  
Drive, Woodbury, MN

**Manufacturer:**  
JME Companies  
Monticello, MN

**Product:**  
LondonBoulder

**Construction Manager:**  
Hardrives

**Wall Design Engineer:**  
Civil Design Profession-  
als

**Wall Dimensions:**  
4,148 sq ft

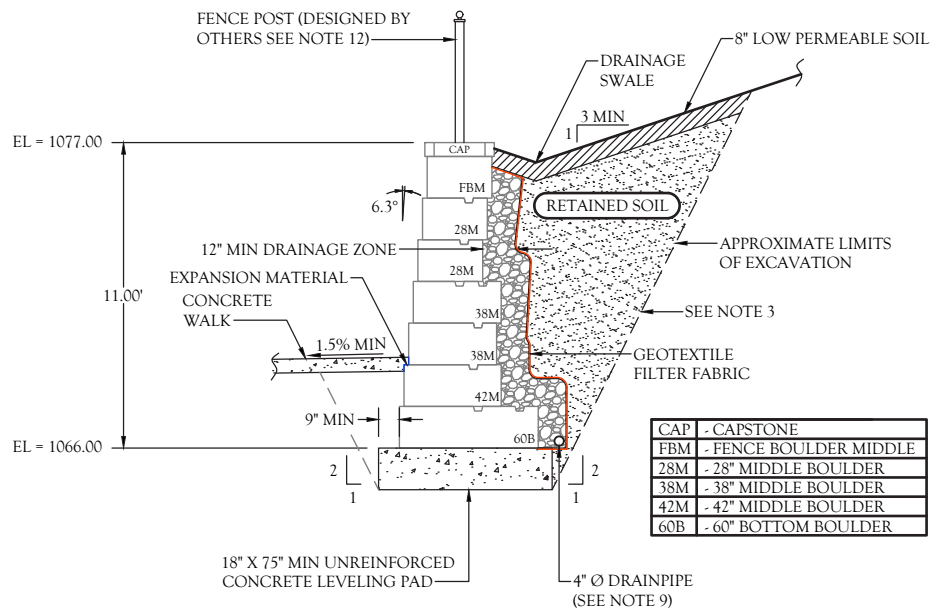
**Wall Contractor:**  
Rosti Construction

**Civil Engineer:**  
WSB & Associates



## Project Details

- Roundabout and street project
- MNDOT project
- Gravity wall / unreinforced
- Fieldstone face texture
- 11 ft wall heights



**Project:**

Hamm's Brewery  
Fire Lane Extension  
St. Paul, MN

**Product:**

LondonBoulder

**Wall Design Engineer:**

Civil Design  
Professionals

**Wall Contractor:**

Precision  
Hardscapes, Inc

**Civil Engineer:**

Larson Engineering, Inc

**Manufacturer:**

JME Companies  
Monticello, MN

**Construction Manager:**

Meyer Contracting

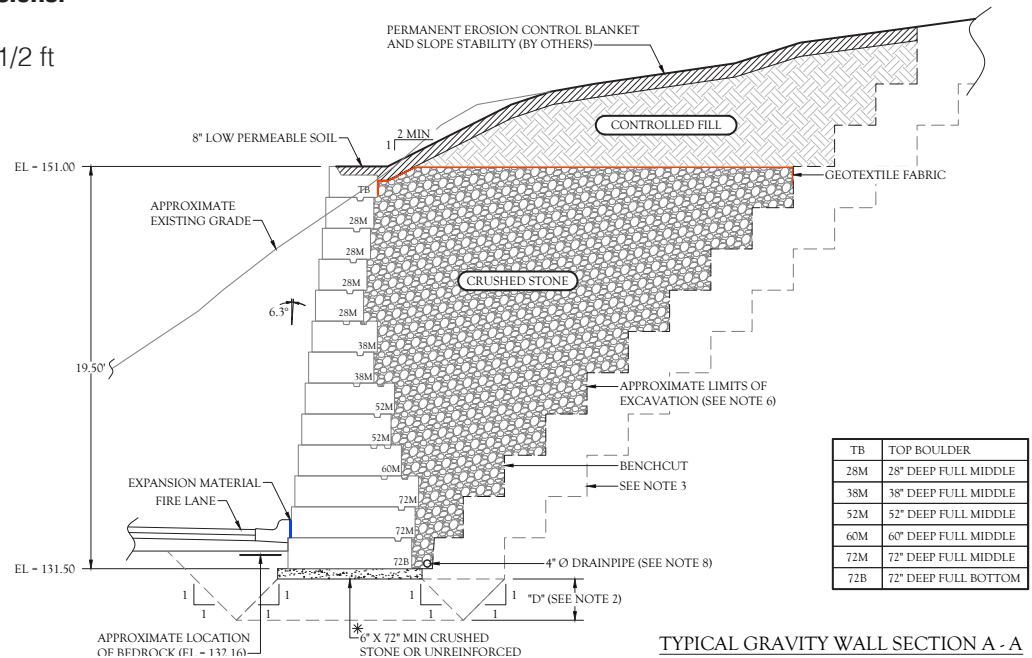
**Wall Dimensions:**

1,659 sq ft  
Height: 19 1/2 ft



**Project Details**

- Roadway
- Gravity wall / unreinforced
- 19 1/2 ft tall with no geogrid
- 5 different sized LondonBoulder blocks utilized in the design



### Project:

County Highway 38  
Burnsville, MN

**Product:**

LondonBoulder

### Wall Design Engineer:

Civil Design Professionals

**Wall Contractor:**

## Rosti Construction

### Civil Engineer:

Bolton &amp; Menk

**Manufacturer:**

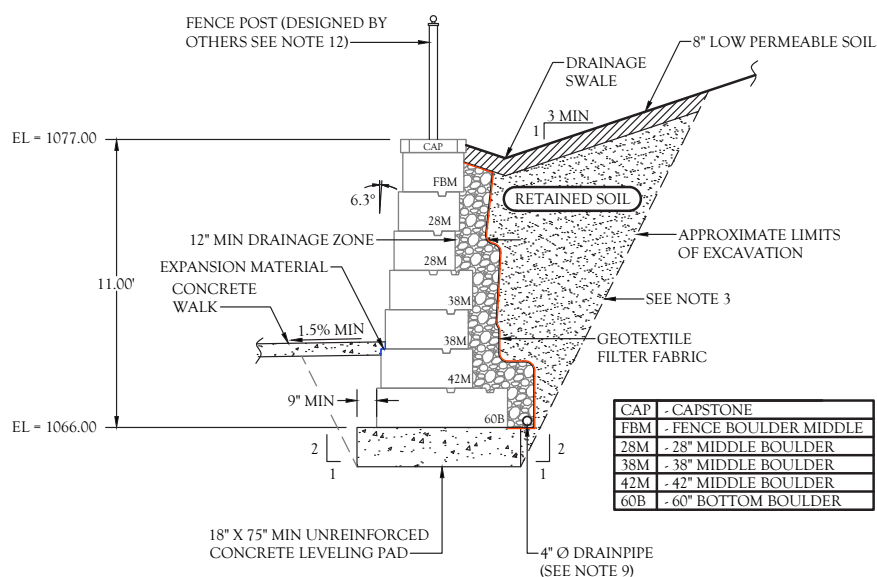
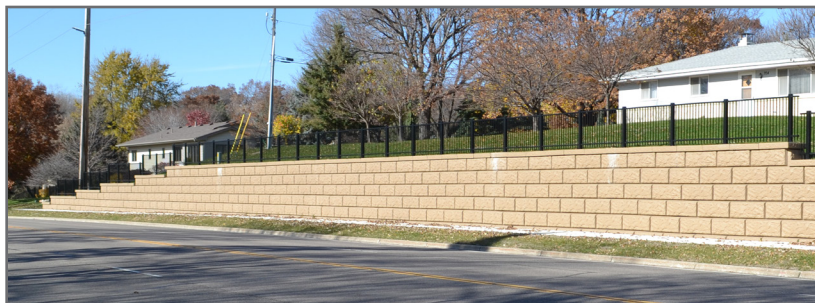
JME Companies  
Monticello, MN

**Construction Manager:**

## Rosti Construction

### Wall Dimensions:

2,270 sq ft  
Height: 11 ft



## Project Details

- MNDOT Project
- Gravity wall / unreinforced
- Wall built along county road / highway
- Design utilized a 6" cap and fence on top of the wall



## RETAINING WALL: PARKING LOT & ROADWAY

**Project:**

Cherrywood Point  
Complex  
Minnetonka, MN

**Product:**

LondonBoulder

**Wall Design Engineer:**

Civil Design  
Professionals

**Wall Contractor:**

Cedar Ridge  
Landscaping

**Civil Engineer:**

Solution Blue

**Manufacturer:**

JME Companies  
Monticello, MN

**Construction Manager:**

Weis Builders, Inc.

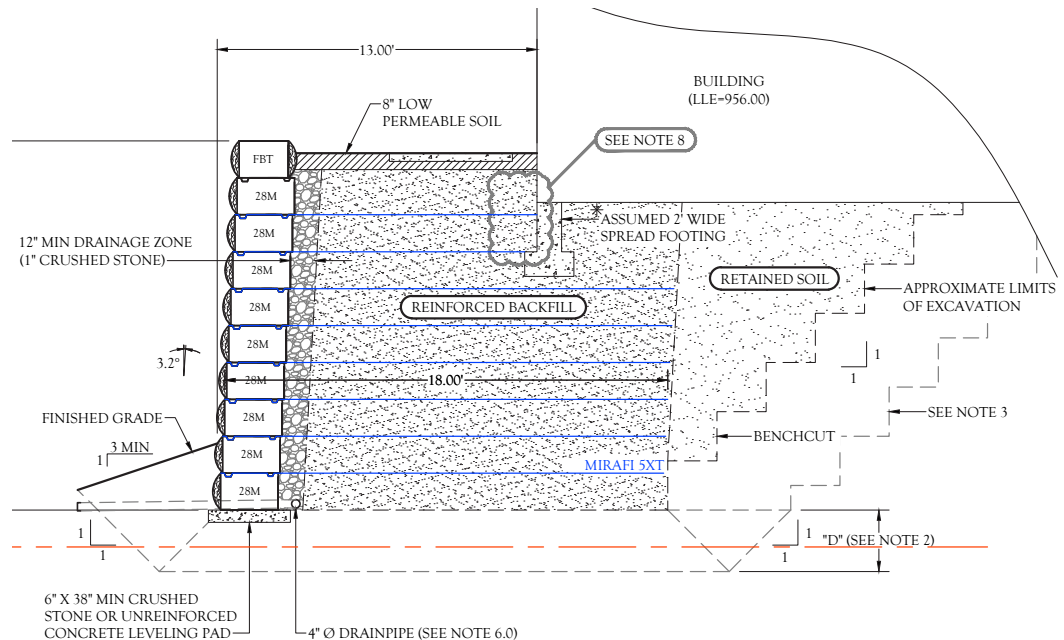
**Wall Dimensions:**

3,279 sq ft



**Project Details**

- 3 walls on site
- Both reinforced and gravity walls used in this design
- 2 sided block were utilize on the top course of the design
- Fence built on top of the wall (see below)



## RETAINING WALL: PARKING LOT & ROADWAY

**Project:**

Commercial Retail

**Product:**

LondonBoulder LB42  
Blocks and LondonBoul-  
der LB28 Blocks

**Wall Design Engineer:**

Vickery Engineering  
& Consulting  
Minnetonka, MN

**Wall Contractor:**

Supreme Lawn & Land-  
scaping, Waite Park, MN

**Manufacturer:**

JME Companies  
Monticello, MN

**Supplier:**

Quarry Creek Nursery,  
St. Cloud, MN

**Wall Dimensions:**

8 ft tall x 180 ft long

**The Challenge:**

Salt used on the roadway above the wall ended up washing into the area behind the wall and subsequently exited through the face of the wall.

Small segmental retaining wall blocks cannot withstand the freeze/thaw cycles that salt creates.



## RETAINING WALL: PARKING LOT & ROADWAY

**Project:**

Commercial Retail

**Product:**

LondonBoulder LB42  
Blocks and LondonBoul-  
der LB28 Blocks

**Wall Design Engineer:**

Vickery Engineering  
& Consulting  
Minnetonka, MN

**Wall Contractor:**

Supreme Lawn & Land-  
scaping, Waite Park, MN

**Manufacturer:**

JME Companies  
Monticello, MN

**Supplier:**

Quarry Creek Nursery,  
St. Cloud, MN

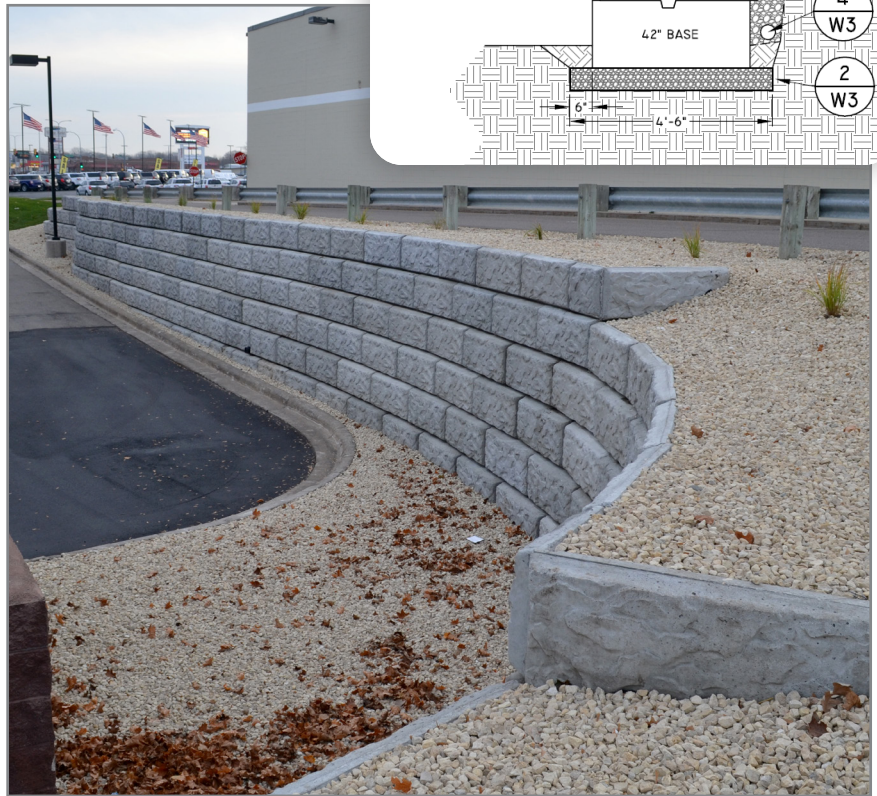
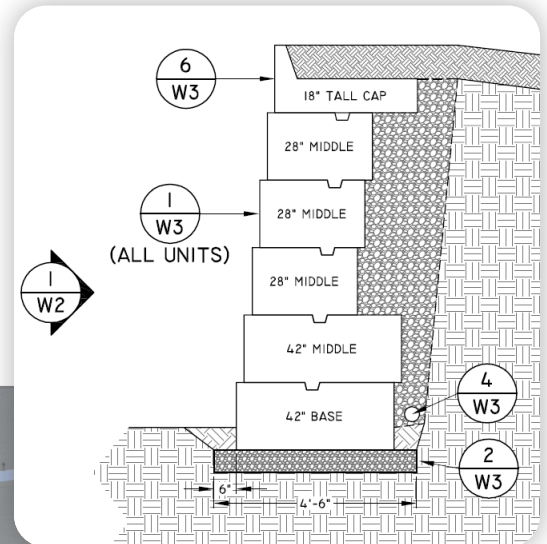
**Wall Dimensions:**

8 ft tall x 180 ft long

### The Solution:

LondonBoulder Big Blocks are a wet cast produced retaining wall block. The mix design in the production of LondonBoulder Big Blocks includes an air entraining agent. This air entraining agent creates bubbles in the concrete. These bubbles reduce surface tension between water and solids in the mix which gives the LondonBoulder Big Blocks durability to withstand the freeze/thaw cycle that salt creates.

Also, because the original small block wall was built before the road, the geogrid that was required for a small block wall of this height was laid out under the current road. Vickery Engineering used a wall design using LondonBoulder Big Block that required no geogrid reinforcement so that the roadway above the wall remained undisturbed for construction.



**Project:**  
CostCo & Auto Rec  
Bodyworks

**Manufacturer:**  
JME Companies  
Monticello, MN

**Product:**  
LondonBoulder

**Construction Manager:**  
Jackson Dean  
Construction

**Wall Design Engineer:**  
Civil Design  
Professionals

**Wall Dimensions:**  
18 ft Wall: CostCo -  
Gravity wall, no  
reinforcements  
16.5 ft Wall: Auto Rec  
Bodyworks

**Site/Wall Contractor:**  
Precision Hardscapes,  
Inc (CostCo) Diversi-  
fied Foundations (Auto  
Rect Bodyworks)

### The Challenge:

With the property constraints, there was minimal room to excavate behind the wall to use any geogrid reinforcements.



**Project:**

CostCo & Auto Rec  
Bodyworks

**Manufacturer:**

JME Companies  
Monticello, MN

**Product:**

LondonBoulder

**Construction Manager:**

Jackson Dean  
Construction

**Wall Design Engineer:**

Civil Design  
Professionals

**Wall Dimensions:**

18 ft Wall: CostCo -  
Gravity wall, no  
reinforcements  
16.5 ft Wall: Auto Rec  
Bodyworks

**Site/Wall Contractor:**

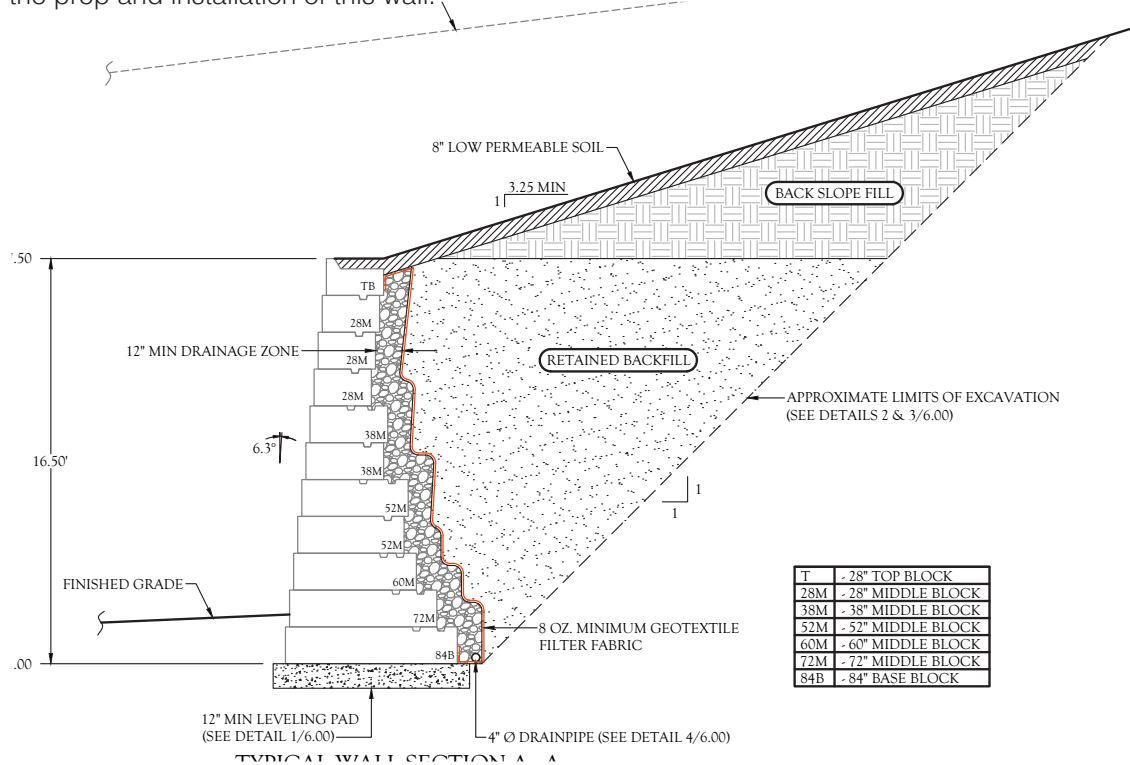
Precision Hardscapes,  
Inc (CostCo) Diversi-  
fied Foundations (Auto  
Rect Bodyworks)



**The Solution:**

Using the LondonBoulder system!

This project combined the 6 different block sizes to create the most cost effective design for the owner. With the sheer mass of the LondonBoulder system, geogrid was not needed. This enabled minimal excavation as well as significant cost savings in the prep and installation of this wall.





**Product**

Route 263 Flood Repair  
Witehouse Station, NJ

**Manufacturer:**

Bethlehem Precast,  
Inc.  
Bethlehem, PA

**Product:**

LondonBoulder

**Wall Design Engineer:**

Civil Solutions Group  
Minneapolis MN

**Wall Contractor:**

H.C. Constructors  
Witehouse Station, NJ

**Wall Dimensions:**

Varying heights  
1,524 sq ft

**Site/Wall Contractor:**

H.C. Constructors  
Witehouse Station, NJ

**The Challenge:**

With the trout fishing season fast approaching and Route 623 in need of significant flood repair, the local municipality began searching for a long-lasting, aesthetically pleasing, efficiently built retaining wall system - one that could keep Route 623 from crumbling back into the stream during future high-water events.

With a limited budget and an even more limited time frame, Hazen, New Jersey's Route 623 Flood Repair project went out for bid.



**The Solution:**

Early considerations were given to a competing product whose design called for roughly 40 steel manta ray anchors to be placed beneath the road surface. With a price tag of around \$40,000 all by themselves, these anchors became a prohibitively expensive alternative.

Using a little ingenuity, Bethlehem Precast teamed up with Civil Solutions Group to design a LondonBoulder Retaining Wall that could eliminate the need for the expensive anchors, allowing them to maintain the attractive natural aesthetics of the streambed while saving significant money and installation time.

To accomplish this, the LondonBoulder keyway was lined with a 1" X 1" X 9" long shim to create a permanent one-inch setback. This setback amount was just enough to provide the stability needed to remove the anchors from the design, but not so much that it would reduce valuable space at the top of the wall already occupied by the paved road. Built in tight quarters with cars passing by just above the worksite, only 17 workdays were needed to complete this relatively complicated 1,524 square foot retaining wall.

