Sam Page
County Executive



Daniel W. Dreisewerd, P.E., PTOE Acting Director

Stephanie Leon Streeter, P.E. Deputy Director

May 09, 2019

Mr. Michael Yount, PE Engineering Solutions, P.C. 5393 Old Baumgartner Road Saint Louis, MO 63129

Re: Permit Application #19BLD-01786:

Residential Master Plans for

Building Products, Inc., using the Anchor Diamond 6"

Block Retaining Wall System

Dear Mr. Yount:

I am pleased to inform you that the plans submitted for review of the **Anchor Diamond** 6" Retaining Walls are **approved** and the new master plan numbers are as follows:

Single Tier, 6' high max, 3:1 Max Slope, Compacted Rock Backfill, No Surcharge	707-19-94
Single Tier, 6' high max, No Slope, Compacted Rock Backfill, No Surcharge	707-19-95
Single Tier, 6' high max, No Slope, Compacted Rock Backfill, 120psf LL Surcharge	707-19-96
Double Tier, 4' high max (each tier), 3:1 Max Slope, Compacted Rock Backfill, No Surcharge	707-19-97
Double Tier, 4' high max (each tier), No Slope, Compacted Rock Backfill, No Surcharge	707-19-98
Double Tier, 4' high max (each tier), No Slope, Compacted Rock Backfill, 120psf LL Surcharge	707-19-99

Please inform your customers of the following **procedures they need to follow** when applying for a residential retaining wall permit with Saint Louis County:

- 1. Submit a **completed permit application** form that includes the **selected master plan number.**
- 2. Submit four (4) site plans showing the location and length of the wall, drawn to scale, with the top-of-wall and bottom-of-wall elevations noted at the ends and midpoint of each wall, at a minimum. Dimension the wall(s) distance from any structures, parking lots, easements and property lines. Show with arrows the existing and proposed direction of site drainage at and around the proposed wall area.
- 3. Submit four (4) copy sets of the approved master plan (13 pages total).
- 4. Your customers should be made aware that a Saint Louis County Pre-grading Inspection may be required to assess any potential major changes on the site grading and drainage when a retaining wall is proposed closer than 10-feet to a property line. Conditions on the site plans submitted may also indicate a Saint Louis County Pre-grading Inspection is needed.

Please call me at 314-615-7149 or e-mail at rdelbert@stlouisco.com if you have any guestions.

Dura Dalhart

Sincerely

Ryan Delbert

Building Code Review Section Division of Code Enforcement

St. Louis County Masterplan Construction Drawings

Index of Drawings:

Title & Index

Sheet 2 Specifications

Specifications (cont.)

Sheet 4 Specifications (cont.)

GENERAL CONSTRUCTION DETAILS

Sheet 5 Details

Details (cont.)

Sheet 7 Details (cont.)

DESIGN SECTIONS

Sheet 8 3:1 Slope Above Wall, No Surcharge

Sheet 9 Level Backslope, No Surcharge

Sheet 10 Level Backslope, 120 psf Live Load Surcharge (Residential Driveway)

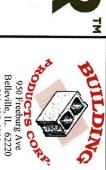
Sheet 11 2 - Terrace 3:1 Slope Above Wall, No Surcharge

2 - Terrace Level Backslope, No Surcharge

2 - Terrace Level Backslope, 120 psf Live Load Surcharge (Residential Driveway)

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Masterplan, St. Louis County, Mo.



Engineering Solutions, P.C.

Phone (314) 842-8200 St. Louis, Mo. 63129

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5393 Old Baumgartner Rd

Title & Index

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Sheet 1 of 13

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construction recommendations and/or as noted herein. contractor shall be responsible for compliance with all OSHA regulations. All installation shall be per the retaining wall manufacturer's shall locate & protect all existing utilities, and shall be responsible for all worker and public safety at the retaining wall site. The Retaining walls not meeting these parameters should be individually engineered. This plan must be used in its entirety. The contractor sections and/or soil parameters shown herein, are excluded. The user of this masterplan is responsible for confirming its applicability. retaining walls) and walls in contact with water such as lakes, rivers, ponds or creeks or any application outside of these specific design that support a house or other structure or that apply a surcharge to a house or other structure (including swimming pools and other shall specify the structural requirements of single tier walls up to six feet in height for the specific applications shown. Retaining walls This masterplan is for Anchor Diamond (all face textures) retaining walls on one or two family residential properties only. These plans

of at least 25'. The site plan shall clearly define drainage in the wall area. relative to a on site benchmark. The site plan shall show the ground surface inclinations above and below the wall for a lateral distance property lines, easements & existing or proposed structures. This site plan shall show elevations along the top and bottom of the wall All walls requiring a St. Louis County permit shall be shown on a site plan drawn to scale showing the locations of the wall relative to

toe of the wall being required. Water should not be allowed to pond above the wall. concentration to one point should be avoided. The owner should expect some periodic maintance of the soil cap & the soil cover at the be connected to the perforated draintile used for internal wall drainage. If it is necessary to direct the water over the top of the wall can be used to divert surface water. Any drain piping should be watertight piping to an acceptable outfall below the wall & should not feasible, it is recommended that surface water be diverted to not drain over the top of the wall. A swale or drainage boxes/structures A drainage design is not part of this masterplan. However drainage is an important component of the complete wall design. When

Guard Rails/Fencing

qualified engineer. Retaining Walls specifications. Wind loaded fences or vehicular guard rails can affect the retaining wall and should be designed by a Non-Wind Loading guard rails/fencing shall be installed installed above the wall where required per code in accordance with Anchor

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dimensions of 6" thick and 24" wide. The Leveling Pad shall be constructed 1" minus crushed limestone compacted to at least 90% modified proctor with minimum

Retaining Wall Units shall be Anchor Diamond (any face) as manufactured by Building Products

compacted by multiple passes of a vibratory plate compactor. The reinforced wall backfill material shall be 1" clean crushed limestone. Material shall be placed in lifts, 8" max each, and



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> PROFE Michael James Yount - Engineer PE-2003001121 JAKO, ATTENDED TO NUMBER

Specifications

Sheet 2 of 13

Materials (cont.)

approved equivalent Geogrid shall be Geostar Optima HP 200, Carthage Mills GX150, Miragrid 3XT, Startagrid SG150 as indicated on the plan, or

Filter Fabric shall be Carthage Mills FX40 or Mirafi 140N or approved equivalent.

Drain Tile shall be 4" HDPE perforated wrapped in fabric (sock) & extended to daylight at the wall low point

The Soil Cap shall consist of compacted low plastic impervious soil above the structural backfill in areas not to be paved

Wall Foundation Excavation

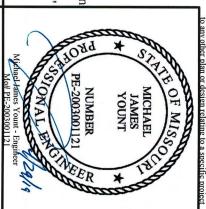
See sewer & utility backfill section to follow. any utility trenches in the area. The contracractor shall identify if the backfill in these trenches has been property placed & compacted effective internal angle of friction of 26 degrees. Any soils that are soft, plastic (LL > 50%), frozen, or wet and untested fills shall be of friction of at least 26 degrees. Foundation soil shall be low plastic and have a minimum bearing capacity of 1,500 psf and an removed and recompacted to 90% modified Proctor under the direction of the geotechnical engineer. Care should be taken to identify rock to confirm the soil parameters comply with the design assumptions. The retained material shall be low plastic with a internal angle OSHA safety requirements. The exposed foundation material & retained materials shall be observed prior to placing the leveling pad Foundation soil shall be excavated as required for the leveling pads and the structural backfill zone. All excavations shall comply with

geogrid shall be removed prior to placing backfill. The geogrids shall be cut to the design lengths "L" and placed between the blocks at the elevations shown on the plans. The geogrid's the reinforcing fill material. The geogrid shall be placed so that a minimum of 10" of grid is between the block layers. Slack in the primary strength direction shall be perpendicular to the wall face (into the fill). The geogrid shall be placed horizontally and laid flat on

Wall Construction

of geogrid between the block layers. The geogrids must be kept taut & level. All geogrid installation shall be in accordance with the geogrid shall be orientated so that the direction of maximum strength is perpendicular to the face of the wall. There shall be at least 10" equipment shall be used in the 4' zone directly behind the wall. The front of the wall shall be backfilled and compacted to finished materials. The geogrids shall be cut to the lengths shown and placed in accordance with the tables shown on the design sections. The grade. Filter fabric shall separate the granular backfill from the retained soil and the soil cap. Filter fabric shall not cover the foundation compacted in such a manner that minimizes wrinkles and movement of the geogrid. During backfill placement only hand operated placed in maximum 8" lifts and compacted by multiple passes with a vibratory plate compactor. Backfill shall be placed, spread and courses until the level of the first layer of geogrid is reached. Install draintile & daylight prior to backfilling. Backfill material shall be with the leveling pad. Install the next course in a running bond stack. Adjust for setback per course. Continue stacking subsequent modified proctor. Install the first course of blocks on the leveling pad, units must be level in all directions & be in complete contact manufacturers specifications. Install the soil cap, compact & finish grade for proper drainage per the approved site plan Provide a minimum 6" thick x 24" wide crushed limestone leveling pad centered beneath the base block compacted to at least 90%

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Specifications Sheet 3 of 13 (cont.)

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Belleville, IL. 62220 800-427-6282 950 Freeburg Ave

Engineering 5393 Old Baumgartner Rd Solutions, P.C. St. Louis, Mo. 63129

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Sewer & Utuility Trench Backfill

as directed by a geotechnical engineer. modified proctor. Any excavations made below the wall should be backfilled with 1" or 2" minus compacted to 90% modified proctor, or Any excavation to be backfilled within a distance of (2) times the wall height from the wall face must be compacted to at least 90%

Protection of Work

be completed in accordance with the approved site development plan. include proper contouring of fills in adjacent areas to prevent the flow of excessive surface water toward the wall. Finish grading should The surfaces surrounding the wall shall be graded at the end of each day to provide positive drainage away from the wall. Grading shall

contractor The stability of temporary excavation during wall construction is beyond the scope of this design and is the responsibility of the

drainage collection systems are completed. Owner's Representative to ensure water runoff is directed away from the wall structure until final grading and surface 10 feet of the face of the retaining wall during construction adjacent to the wall. Care should be taken by the Owner or disturb the wall or place temporary construction loads on the wall that exceed design loads, including loads such as water behind the back of the wall face. Equipment with wheel loads in excess of 150 psf live load shall not be operated within pressure, temporary grades, or equipment loading. Heavy paving or grading equipment shall be kept a minimum of 3 feet The Owner or Owner's Representative is responsible for ensuring that construction by others adjacent to the wall does not

Design Parameters

construction. Global stability and settlement are outside of the scope of this design. pre-construction soils investigation may reduce the risk of discovering poor materials & increasing the overall cost of the project during material. If actual conditions are of lesser strength or quality than the design parameters redesign or remediation may be required. A This design is based on design parameters that must be field verified. This verification should include both existing soils & the new fill

50 PSF	120 PCF	26°	FOUNDATION SOIL (Low plastic silty clay)
0 PSF	120 PCF	26°	RETAINED BACKFILL (Low plastic silty clay)
0 PSF	100 PCF	38°	REINFORCING ZONE FILL (1" Clean)
Cohesion	Unit Weight	Friction Angle	

No changes shill be made to these plans without written approval of Engineering Solutions, P.C.

MINIMUM FACTORS OF SAFETY

BEARING CAPACITY = 1,500 PSF **OVERTURNING = 1.5 INTERNAL SLIDING = 1.5 EXTERNAL SLIDING = 1.5**



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Specifications (cont.)

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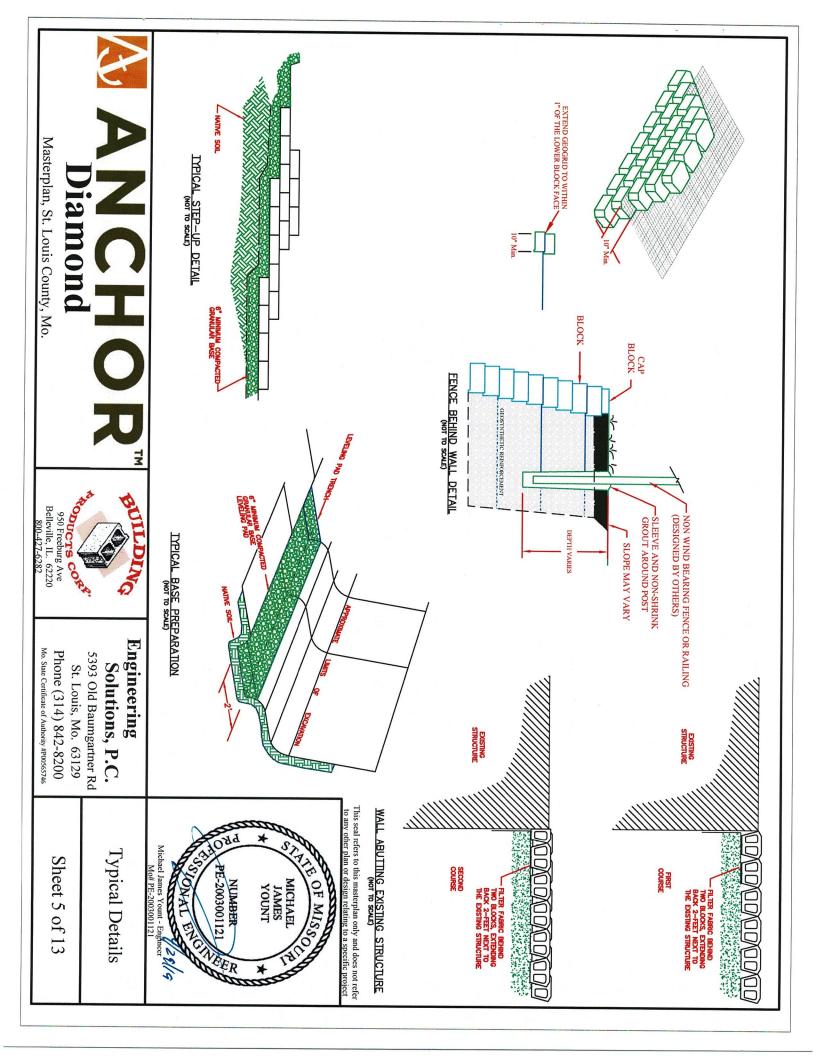
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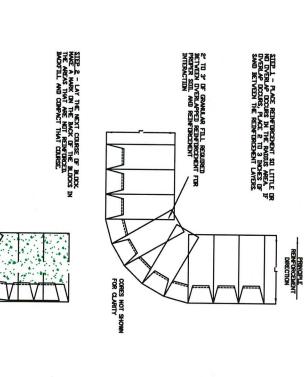
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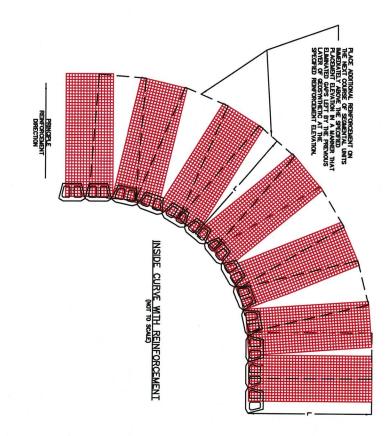
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OUTSIDE CURVE MITH REINFORCEMENT

ANCHOR Diamond

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Michael James Yount - Engineer
Mo# PE-2003001121

Typical Details
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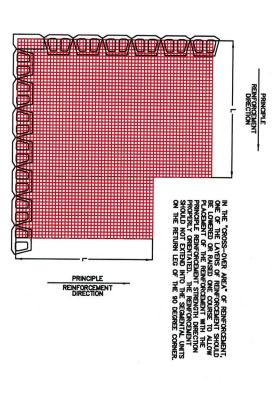
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NOTES:
PLACEMENT OF REINFORCEMENT
EXTENSION ON SPECIFIED
REINFORCEMENT ELEVATIONS. PRINCIPLE REINFORCEMENT DIRECTION PRINCIPLE
REINFORCEMENT
DIRECTION H/4 EXTENSION BEYOND BACK OF BLOCK

¥

REINFORCEMENT NOT SHOWN FOR CLARITY

REINFORCEMENT H/4 BEYOND
THE CORNER AT THE SPECIFIED
REINFORCEMENT ELEVATIONS

ANCHOR DIAMOND PRO BLOCK

90 DEGREE INSIDE CORNER WITH REINFORCEMENT

(NOT TO SCALE).

To any other plan or design relating to a specific project

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ANCHOR DIAMOND PRO BLOCK

90 DEGREE OUTSIDE CORNER WITH REINFORCEMENT
(NOT TO SCALE)

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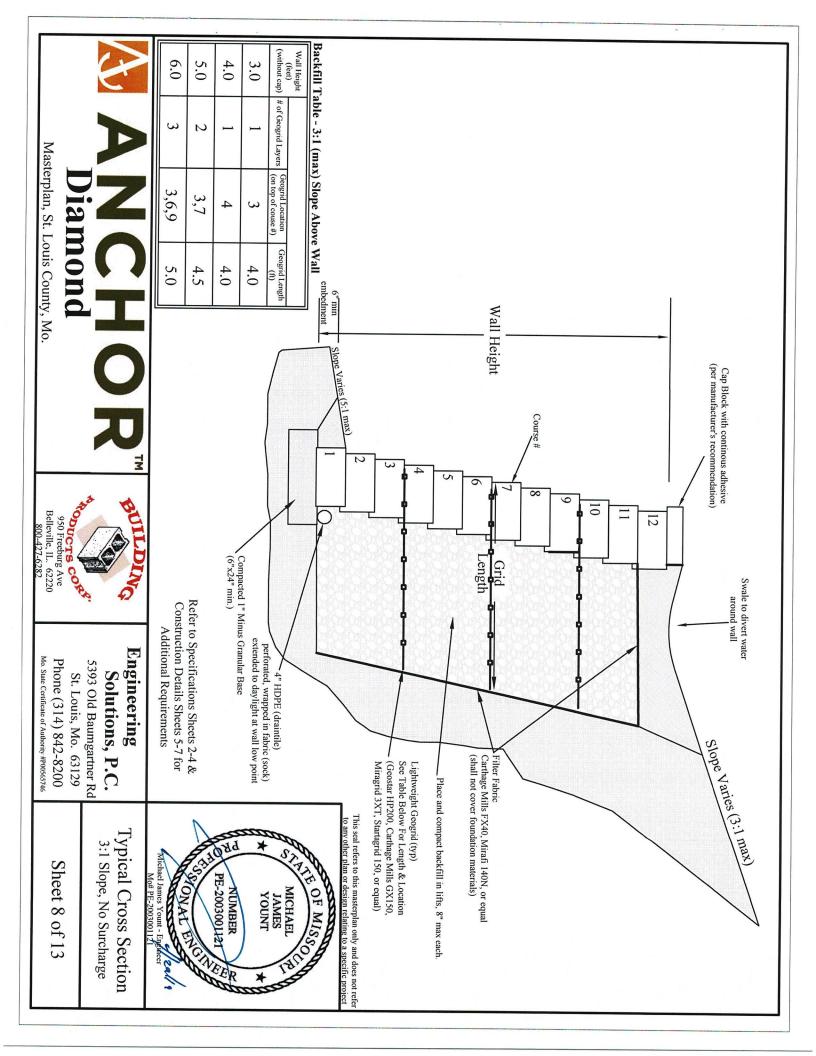
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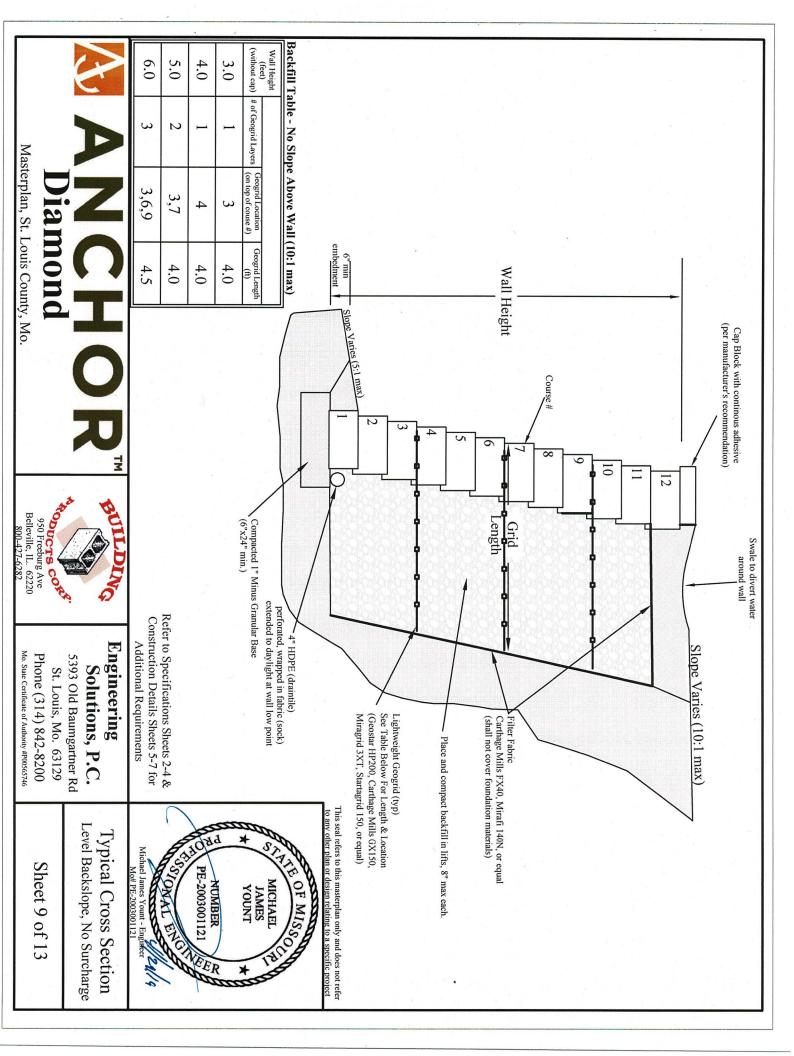
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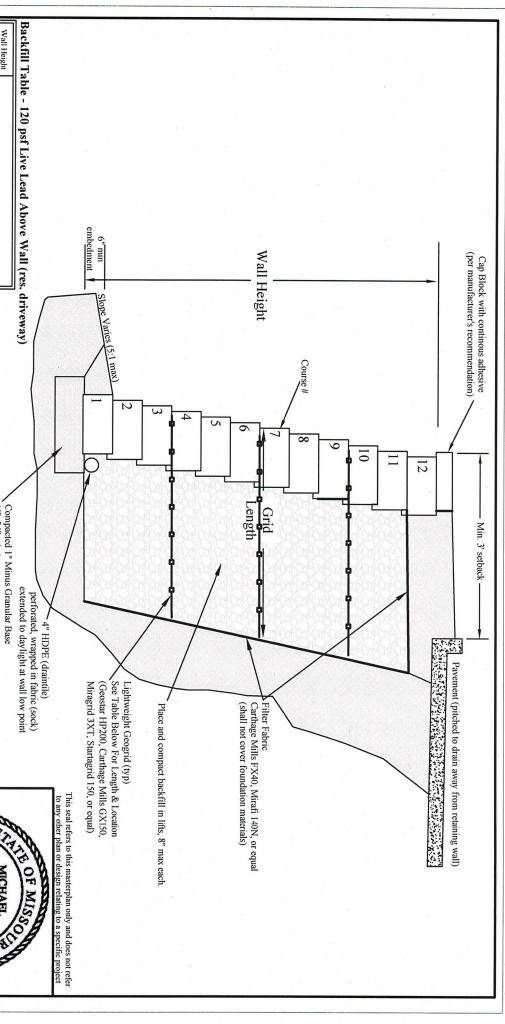
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Backfill Table - 120 psf Live Lead Above Wall (res. driveway)

(feet) # of Geogrid Layers

(on top of couse #) Geogrid Location

Geogrid Length
(ft)

4.0

6.0 5.0

3,6,9

4.5

4.0 3.0

2

3,7 4

4.0

4.0

Wall Height

Compacted 1" Minus Granular Base (6"x24" min.)

Refer to Specifications Sheets 2-4 & Construction Details Sheets 5-7 for

Additional Requirements



MICHAEI JAMES YOUNT

5393 Old Baumgartner Rd Level Backslope, 120 psf Surchargo Typical Cross Section (Residential Driveway)

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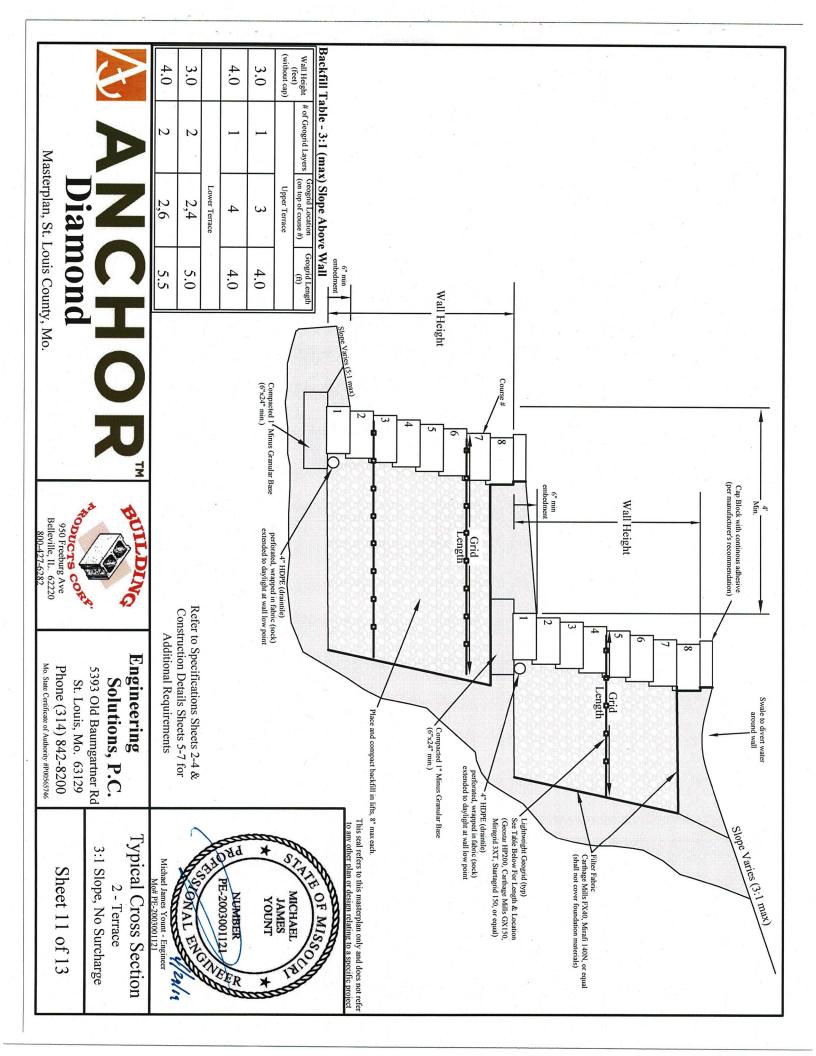
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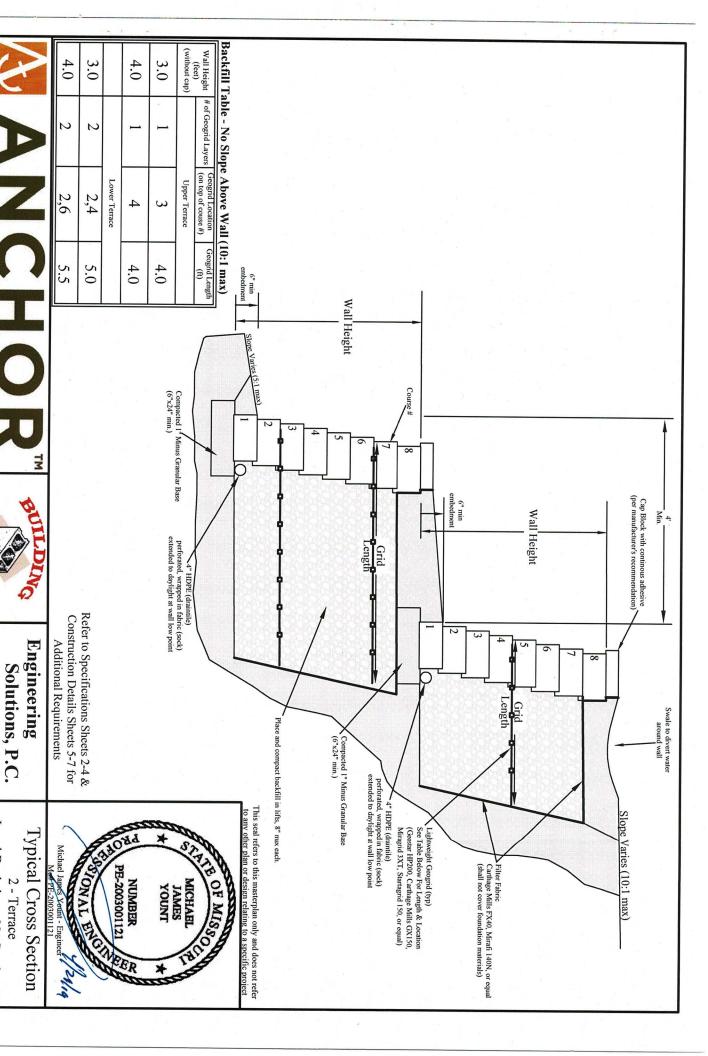
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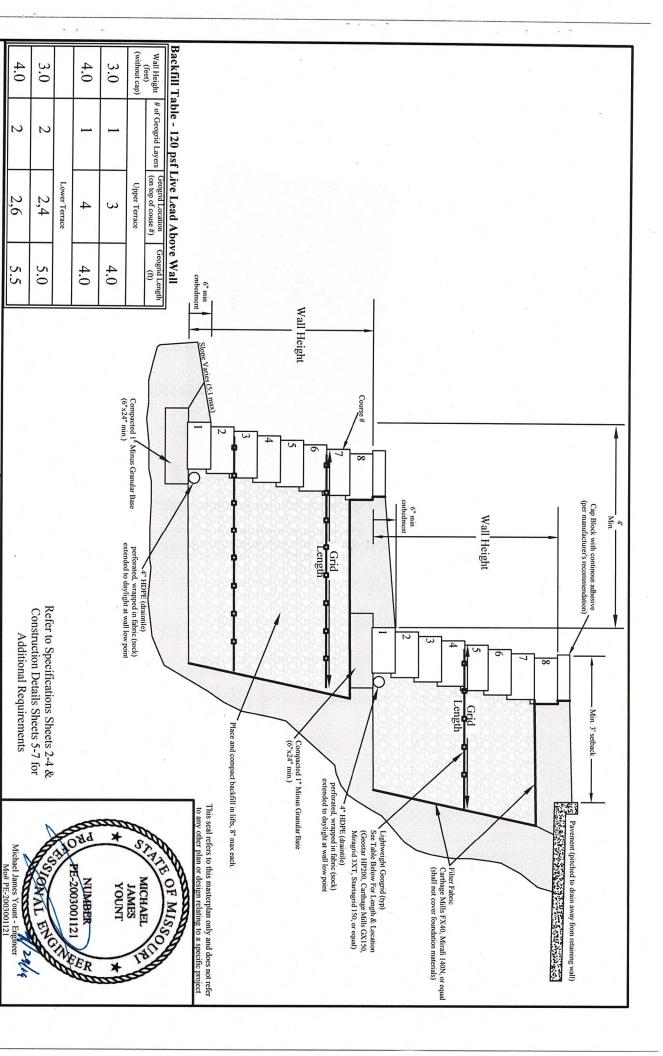
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5393 Old Baumgartner Rd

Level Backslope, No Surcharge

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St. Louis, Mo. 63129



4.0 3.0

2

2,6 2,4

2

5.0

Lower Terrace

4

4.0

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Refer to Specifications Sheets 2-4 & Construction Details Sheets 5-7 for Additional Requirements

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> Typical Cross Section Michael James Yount - Engineer Mo# PE-2003001121

Level Backslope, 120 psf Surcharge (Residential Driveway) 2 - Terrace

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