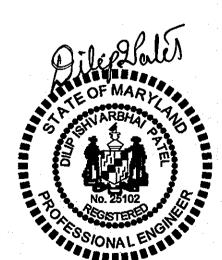


PROPOSED RETAINING WALL ELEVATION

NOT TO SCALE

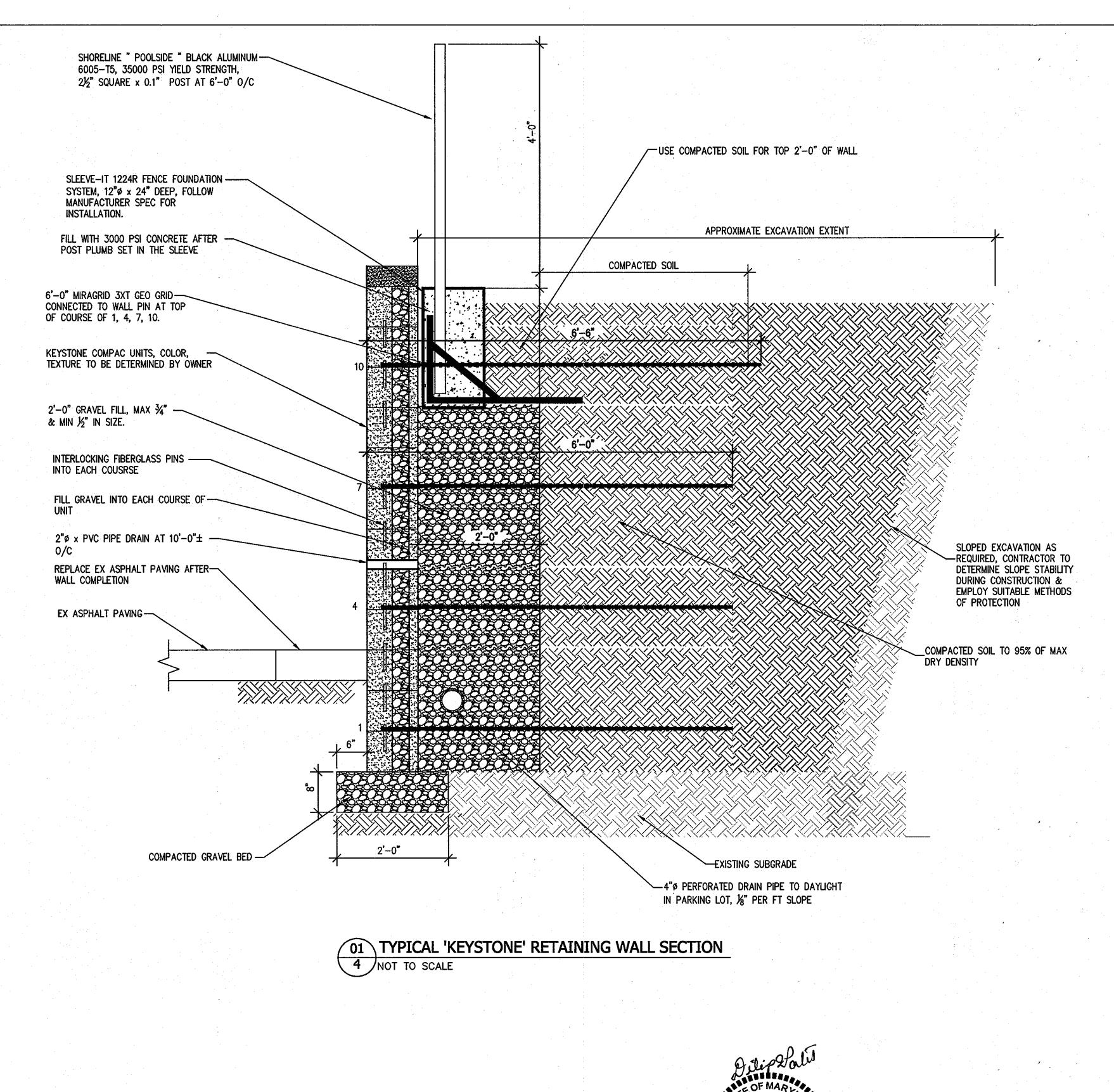
NOTES: REFER CIVIL ENG DWGS FOR BALANCE OF INFORMATION.



"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 25102, Expiration Date: 08.25.2012" Address Chart **EXISTING RETAINING WALL** FISHER, COLLINS & CARTER, INC. **DEMOLITION PLAN & PROPOSED** Parcel Number Street Address OWNER/DEVELOPER
GODFREY GARVEY
3290 PINE ORCHARD LANE
ELLICOTT CITY, MARYLAND 21042 **KEYSYONE WALL ELEVATION** 3290 PINE ORCHARD LANE 1053 ELLICOTT CITY, MARYLAND 21042 02.22.)2 DATE REVISED SITE DEVELOPMENT PLAN DATE DESCRIPTION STRUCTURAL ENGINEERS:
ENCO Structural
Engineers, Inc.
7226 Lee Deforest Dr., SUITE 202
Columbio, MD 21046
Phone: 410–853–8181, Fac: 443–276–6890
BML: automorphisms.com REVISION BLOCK PINE ORCHARD LANE SECTION/AREA ZONED B-1 TAX MAP No.: 24 GRID No.: 1 PARCEL No.: 1053 1053 RETAINING WALL REPLACEMENT HOWARD COUNTY, MARYLAND DATE: JANUARY 19, 2012 SECOND ELECTION DISTRICT SCALE: AS SHOWN TAX MAP | ELEC. DIST. CENSUS TR. BLOCK NO. 685/231 SECOND 6022 24 WATER CODE SEWER CODE SDP-93-39

CONTRACTOR TO CONTACT "MISS UTILITY" BEFORE CONSTRUCTION BEGINS TO LOCATE ALL UTILITIES IN THE AREAS OF CONSTRUCTION. NOTIFY OWNER/ENGINEER OF UTILITIES & ANY EFFECT ON PROPOSED CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE EXISTING UTILITIES DURING CONSTRUCTION. NOTIFY ENGINEER IF ANY EXISTING UTILITIES AFFECT THE INTENT OF CONSTRUCTION TO OBTAIN ALTERNATE DETAILS.

THE PURPOSE OF THIS PLAN IS TO REPLACE EXISTING RETAINING WALL WITH A NEW WALL



"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 25102,

02.22.12

Expiration Date: 09.25.2012"

GENERAL STRUCTURAL NOTES

- THIS PROJECT SHALL BE DESIGNED AND CONSTRUCTED IN FULL COMPLIANCE WITH ALL APPLICABLE SECTIONS OF THE IBC 2009 CODE WITH HOWARD COUNTY ADOPTED ADDITIONAL ORDINANCES.
- 2. THE RETAINING WALL HAS BEEN DESIGNED FOR LATERAL SOIL PRESSURE OF 45 PSF.
- DETAILS DESIGNATED AS "TYPICAL" SHALL BE UNDERSTOOD TO APPLY AT ALL OCCURRENCES OF THE CONDITION INDICATED IN THE DETAIL TITLE, WHETHER THE DETAIL IS EXPLICITLY CALLED ON THE PLAN OR NOT, EXCEPT AT LOCATIONS WHERE SPECIAL SECTIONS OR DETAILS ARE REFERENCED ON THE PLAN(S). SPECIAL SECTIONS ARE REFERENCED WITH A SECTION NUMBER AND SHALL ONLY BE TAKEN TO APPLY WHERE INDICATED ON THE PLAN.
- SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL INFORMATION ONLY. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.
- THE CONTRACTOR SHALL ESTABLISH THE METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION SUBJECT TO COMPLIANCE WITH ALL PROJECT REQUIREMENTS. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL REQUIRED REVISIONS TO THE STRUCTURAL SYSTEM, WHICH MAY RESULT FROM ACCEPTANCE OF CONTRACTOR PROPOSED ALTERNATIVES OR SUBSTITUTIONS.
- CONTRACTOR TO CALL MISS UTILITY PRIOR TO ANY CONSTRUCTION COMMENCEMENT TO LOCATE EXISTING UTILITIES LOCATION. NOTIFY ENGINEER UPON DISCOVERY OF EXISTING UTILITIES. FOR DETAILS UPDATE & DIRECTIONS. CONTRACTOR IS RESPONSIBLE FOR UTILITY PROTECTION, MAINTENANCE & OPERATION DURING CONSTRUCTION.

# **EXISTING CONDITIONS**

INFORMATION PROVIDED ON THESE DRAWINGS RELATED TO EXISTING CONDITIONS IS BASED ON FIELD OBSERVATION. CONTRACTOR TO CONTACT STRUCTURAL ENGINEER UPON DISCOVERY OF ANY DISCREPANCY BETWEEN CONTRACT DRAWINGS AND ACTUAL EXISTING CONDITIONS.

ALL EXISTING PARKING LOT & SURROUNDING STRUCTURES ON GROUND TO REMAIN INTACT UNLESS SPECIFICALLY NOTED OR INDICATED ON THESE DRAWINGS. COORDINATE WITH THE OWNER.

THE RETAINING WALL THAT IS SHOWN TO BE REPLACED HAS BEEN DESIGNED IN ACCORDANCE WITH PROFESSIONAL ENGINEERING INDUSTRY PRACTICE. HOWEVER, WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY DAMAGE THAT MAY ARISE FOR ANY PORTION OF THE BUILDING NOT REDESIGNED, ALTERED OR CONSTRUCTED UNDER THIS SET OF DESIGN DRAWINGS OR OF DEFICIENCIES IN THE CONDITION OF THE BUILDING PRIOR TO THIS DOCUMENTS RELATED PROPOSED REPAIR & RENOVATION.

### SHOP DRAWING SUBMITTALS

- 1. SHOP DRAWING SUBMITTALS FOR ALL MAJOR STRUCTURAL COMPONENTS AND SYSTEMS SHALL BE INCLUDED AS A PART OF THE SCOPE OF THIS PROJECT AND MUST BE FORWARDED TO AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.
- 2. APPROVED SHOP DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE, AND SHALL BE CONSIDERED PERTINENT INFORMATION WHICH IS SUPPLEMENTAL TO THE CONTRACT DRAWINGS, BUT SHALL NOT BE CONSTRUED TO MODIFY THE PROJECT REQUIREMENTS OR THE CONTRACTOR'S OBLIGATIONS AS SET FORTH IN THE CONTRACT DOCUMENTS.
- 3. CONTRACTOR SHALL ALLOW A MINIMUM OF 2 WEEKS IN THE SCHEDULE FOR ENGINEER'S REVIEW OF SHOP DRAWINGS.
- 4. CONTRACTOR SHALL SUBMIT THE FOLLOWING STRUCTURAL SHOP DRAWINGS AND PRODUCT DATA AS INDICATED BELOW.
- 5. DRAWINGS: CONCRETE REINFORCING DRAWINGS. KEYSTONE RETAINING WALL DRAWINGS.
- 6. SUBMITTALS:
- CONCRETE MIX DESIGN(S)
- 7. PRODUCT DATA SUBMITTALS: KEYSTONE MASONRY UNITS. FIBERGLASS LOCKING PINS. CONCRETE CURING/SEALING COMPOUND GRADATION FOR CRUSHED STONE/ GRAVEL. MIRAGRID 3XT.

# SPECIAL INSPECTIONS

- CONTRACTOR OR OWNER SHALL HIRE A SPECIAL INSPECTIONS ENGINEER OF RECORD PER REQUIREMENTS OF CHAPTER 17. 'STRUCTURAL TESTS & SPECIAL INSPECTIONS' PER INTERNATIONAL BUILDING CODE.
- THE SPECIAL INSPECTIONS ENGINEER OF RECORD (SIER) SHALL INSPECT FOOTINGS SUB-GRADE, SOIL COMPACTION TESTING, ANCHORS, CONCRETE CONSTRUCTION & MATERIALS, REINFORCING STEEL INSTALLATION, MASONRY CONSTRUCTION, RAILING INSTALLATION, PREPARED FILL, IN PLACE DENSITY FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS, SHOP DRAWINGS & IBC CODE. THE INSPECTIONS REPORTS SHALL BE SUBMITTED TO ENGINEER WITHIN 5 DAYS AFTER INSPECTION OCCURS.
- THE CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER OF RECORD (SER/EOR) FOR PERIODIC OBSERVATIONS AT CRITICAL STAGES OF CONSTRUCTION SUCH AS FOOTING, WALL SUB GRADE, WALL PLACEMENT, BACKFILL, RAILING, PAVING INSTALLATION PRIOR TO CLOSING THE CONSTRUCTED PORTION TO BE FOLLOWED WITH ANOTHER CONSTRUCTION.

## **GENERAL NOTES:**

## CONTRACTOR:

CONTRACTOR SHALL BE EXPERIENCED IN KEYSTONE RETAINING WALL CONSTRUCTION OF SIMILAR SIZE PROJECTS IN SCOPE FOR AT LEAST 10 YEARS. CONTRACTOR SHALL SHOW EVIDENCE OF PAST PROJECTS TO ENGINEER & OWNER TO QUALIFY HIS BID FOR THE PROJECT.

## MODULAR UNITS:

- 1. MODULAR WALL UNITS SHALL BE KEYSTONE'RETAINING WALL UNITS MANUFACTURED IN ACCORDANCE WITH ASTM C-90 & ASTM C-140. 2. CONCRETE WALL units SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. STANDARD
- WEIGHT CONCRETE SHALL HAVE MAXIMUM MOISTURE ABSORPTION OF 8%. 3. STANDARD & COMPAC UNITS SHALL HAVE A MINIMUM OF 1 SQFT FACE AREA EACH. 4. KEYSTONE MODULAR UNITS SHALL PROVIDE IN PLACE WEIGHT OF 130 PCF, INCLUDING THE UNIT FILL
- WHICH IS CONTAINED WITHIN THE NOMINAL DIMENSION OF THE UNIT. 5. UNITS SHALL HAVE ANGLED SIDES CAPABLE OF CONCAVE & CONVEX ALIGNMENT CURVES WITH A MINIMUM RADIUS OF 3.5 FT.

## FIBERGLASS CONNECTING PINS:

1. CONNECTING PINS SHALL BE ½"DIAMETER THERMOSET ISOPTHALIC POLYEXTER RESIN-PULTUREDED FIBERGLASS REINFORCEMENT RODS SUPPLIED BY UNIT MANUFACTURER. 2. PINS SHALL HAVE A MINIMUM FLEXURAL STRENGTH OF 128,000 PSI & SHORT BEAM SHEAR OF 6400

## KEYSTONE KAPSEAL CONSTRUCTION ADHESIVE:

1. MATERIAL SHALL CONFORM TO ASTM 2339 AND SHALL BE SUPPLIED BY THE KEYSTONE UNIT

BASE LEVELING & PAD MATERIAL: MATERIAL SHALL CONSIST OF COMPACTED CRUSHED STONE. "PEA GRAVEL" OR ANY OTHER POORLY GRADED STONE SHALL NOT BE USED.

## UNIT FILL:

1. FILL FOR UNITS SHALL BE FREE DRAINING CRUSHED STONE OR GRAVEL, 1/2" TO 3/4" WITH NO MORE THAN 5% PASSING THE NO. 50 SIEVE AND CONFORMING TO ASTM D448. GRADATION OF FILL SHALL BE APPROVED BY THE ENGINEER. "PEA GRAVEL" SHALL NOT BE USED.

1. MATERIAL MAY BE SITE EXCAVATED SOILS WHEN APPROVED BY THE ENGINEER. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE BACKFILL OR IN THE 2. WHERE BORROW OR IMPORTED FILL IS REQUIRED CONTRACTOR SHALL SUBMIT SAMPLES AND MATERIAL

# FOUNDATION SOIL PREPARATION:

I. FOUNDATION SOIL SHALL BE EXCAVATED AS REQUIRED FOR LEVELING PAD DIMENSIONS SHOWN ON DRAWINGS. UNSUITABLE SOIL SHALL BE REMOVED & REPLACED WITH ACCEPTABLE MATERIAL. OVER-EXTENDED AREAS SHALL BE BACKFILLED WITH APPROVED COMPACTED BACKFILL MATERIAL

#### BASE LEVELING PAD:

1. LEVELING PAD SHALL BE PLACED UPON AN APPROVED FOUNDATION AS SHOWN ON THE DRAWINGS. AGGREGATE MATERIAL SHALL BE COMPACTED TOM PROVIDE DENSE SURFACE, COMPACTION SHALL BE TO 95% OF STANDARD PROCTOR DENSITY AS DETERMINED PER ASTM D698. LEVELING PAD SHALL BE PREPARED 7 LEVELED TO ENSURE COMPLETE CONTACT OF RETAINING WALL UNIT WITH BASE.

## UNIT INSTALLATION:

EACH UNIT SHALL BE CHECKED FOR LEVEL & ALIGNMENT.

SPECIFICATIONS TO THE ENGINEER FOR APPROVAL.

- 2. ENSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE & PROPERLY SEATED. 3. UNITS ARE PLACED SIDE BY SIDE FOR FULL LENGTH OF WALL ALIGNMENT IN STRAIGHT LINE MANNER. 4. INSTALL FIBERGLASS CONNECTING PINS & FILL ALL VOIDS IN & AROUND THE MODULAR UNITS WITH UNIT FILL MATERIAL. TAMP & ROD UNIT TO INSURE THAT ALL VOIDS ARE COMPLETELY FILLED. 5. SWEEP EXCESS MATERIAL FROM TOP OF UNITS & INSTALL NEXT COURSES. ENSURE THAT EACH UNIT COMPLETELY FILLED, BACKFILLED & COMPACTED PRIOR TO PROCEEDING NEXT COURSE.
- MINIMUM OF 1". TWO PINS ARE REQUIRED PER UNIT. 7. FOLLOW WALL ERECTION & UNIT FILL PLACEMENT CLOSELY WITH ANY OTHER BACKFILLING REQUIRED. COMPACTION OF ALL SOILS SHALL BE TO 95% OF STANDARD PROCTOR DENSITY AS PER ASTM D698. THE TOP 8"OF THE STRUCTURE FILL SHALL BE A LOW PERMEABILITY SOIL & GRASS GROWING SOIL.

8. AS APPROPRIATE WHERE WALL CHANGES ELEVATION. UNITS CAN BE STEPPED WITH GRADE.

6. PLACE EACH SUBSEQUENT COURSES ENSURING THAT PINS PROTRUDE INTO ADJOINING COURSES A

# CAP INSTALLATION:

1. PLACE KEYSTONE CAP UNITS OVER PROJECTING PINS FROM UNITS BELOW, BACKFILL & COMPACT TO FINISHED GRADE WITH LOW PERMEABILITY SOIL. 2. AS REQUIRED PROVIDE PERMANENT MECHANICAL CONNECTION TO WALL UNITS WITH KEYSTONE

KAPSEAL CONSTRUCTION ADHESIVE.APPLY ADHESIVE TO TOP SURFACE OF UNIT BELOW & PACE CAP UNIT INTO POSITION.

# GEOGRID SOIL REINFORCEMENT:

1. INSTALL GEOGRID REINFORCEMENT & BACKFILL TO LINES & GRADES DESIGNATED ON THE DRAWINGS. GEOGRID SHALL BE MIRAFI MIRAGRID 3XT CONFORM TO ASTM D6637 & ASTM D5262.

# CONCRETE & GROUT FILLING:

1. PLACE CONCRETE OR GROUT OF 28 DAYS COMPRESSIVE STRENGTH OF 3000 PSI INTO UNITS & BETWEEN UNITS BY FORMING BACK OF UNITS TO HAVE SOLID WALL FOR EXTENT AS INDICATED IN DRAWINGS.

THE PURPOSE OF THIS PLAN IS TO REPLACE

OWNER / DEVELOPER
GODFREY GARVEY

3290 PINE ORCHARD LANE

**ELLICOTT CITY, MARYLAND 21042** 

EXISTING RETAINING WALL WITH A NEW WALL **KEYSTONE RETAINING WALL SECTION Address Chart** & GENERAL NOTES

WATER CODE

Street Address Parcel Number 3290 PINE ORCHARD LANE 1053 ELLICOTT CITY, MARYLAND 21042

REVISED SITE DEVELOPMENT PLAN

PINE ORCHARD LANE

ZONED B-1 TAX MAP No.: 24 GRID No.: 1 PARCEL No.: 1053 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JANUARY 19, 2012 SCALE: AS SHOWN

SHEET 4 OF 4

3-8-12

DESCRIPTION

DATE

REVISION BLOCK

PROJECT SECTION/AREA PARCEL RETAINING WALL REPLACEMENT N/A 1053 TAX MAP | ELEC. DIST. | CENSUS T BLOCK NO. B-1 685/231 24

STRUCTURAL ENGINEERS: ENCO Structural Engineers, Inc. 7226 Lee Deforest Dr. SUITE 202 Columbia, MD 21046 Phone: 410-953-8181, Fax: 443-276-6890

FISHER, COLLINS & CARTER, INC.

<u>Engineering consultants & land surveyors</u>

SECOND 6022 SEWER CODE

598000

SDP-93-39