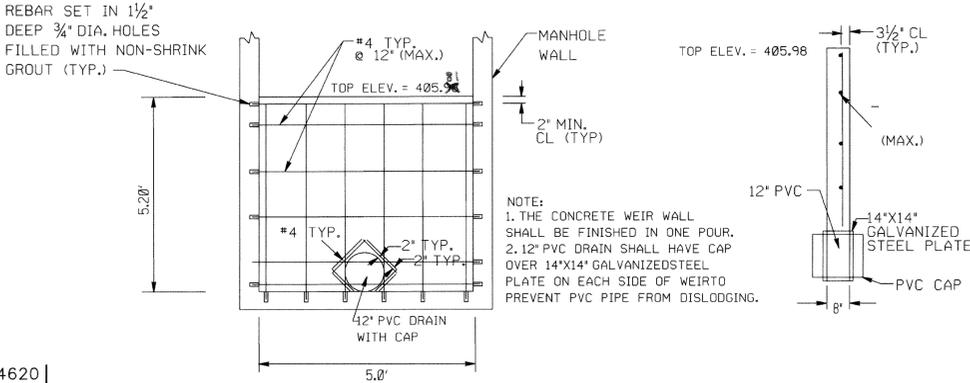
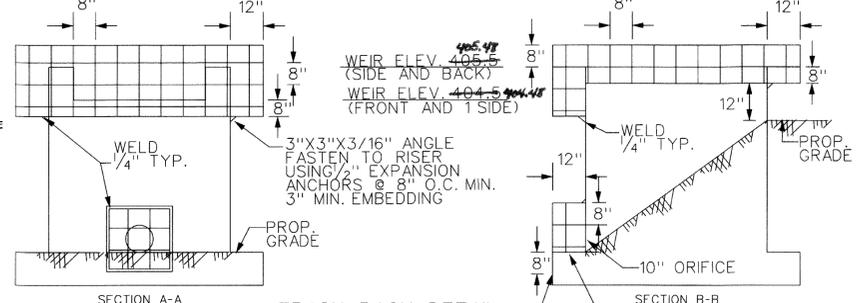
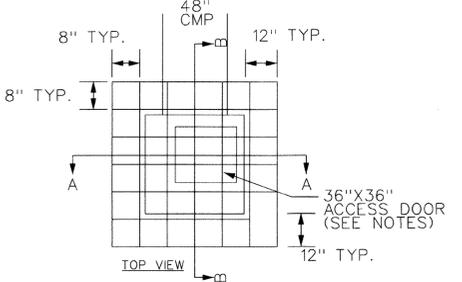


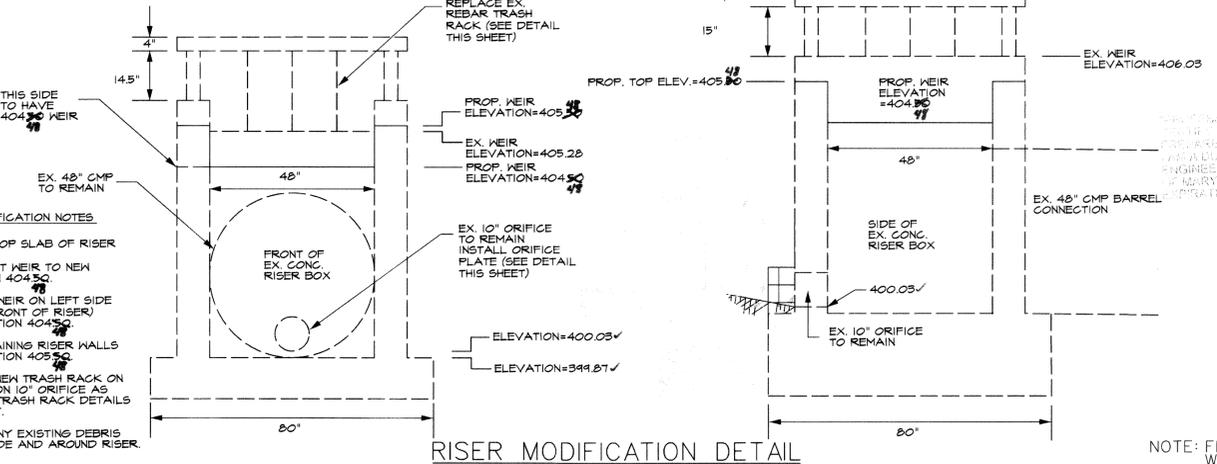
SEE SHEET 7 OF 16 FOR STREAM GRADING



MANHOLE M-1 MODIFICATIONS  
NOT TO SCALE



- TRASH RACK NOTES**
- 1) THE EXISTING TOP SLAB OF THE RISER SHALL BE REMOVED.
  - 2) THE CONTRACTOR SHALL FIELD MEASURE THE RISER STRUCTURE DIMENSIONS FOR EXACT FITTING OF TRASH RACKS.
  - 3) THE CONTRACTOR SHALL HOT-DIP GALVANIZE TRASH RACKS AS PER ASTM A123.
  - 4) TUBING SHALL CONFORM TO ASTM A53, GRADE B.
  - 5) ANGLES SHALL CONFORM TO ASTM A36.
  - 6) ALL #8 REBAR TO BE WELDED TO EACH OTHER WHERE THEY CROSS AT 8" EACH WAY.
  - 7) CONTRACTOR TO PROVIDE 36"x36" HINGED ACCESS DOOR TO TOP RACK USING #8 REBAR SPACED 8" TO 8" O.C. BOTH WAYS. OWNER TO PROVIDE LOCK FOR UNHINGED SIDE.
  - 8) TRASH RACKS SHALL BE PAINTED BATTLESHIP GREY.
  - 9) TOP RACK SHALL BE A MIN. OF 12" FROM FACE OF STRUCTURE AND 8" FROM TOP. ORIFICE RACK SHALL BE A MIN. OF 6" FROM FACE OF STRUCTURE.
  - 10) BARS SHALL HAVE A MAX. SPACING OF 8" C.C.
  - 11) TRASH RACKS SHALL BE REMOVABLE.



RISER MODIFICATION DETAIL  
1"=2'

**STORMWATER MANAGEMENT SUMMARY TABLE**

STUDY POINT	AREA AC.	WQV. REQ. CF	WQV. PROV. CF	REV. REQ. CF	REV. PROV. CF	Q10 EX. CFS	Q10 PROP. CFS	Q100 EX. CFS	Q100 PROP. CFS
DA-01	20.35	0.0	0.0	0.0	0.0	73	73	133	133
DA-02	11.90	0.0	0.0	0.0	0.0	123	123	215	215
DA-03	11.70	0.0	0.0	0.0	0.0	133	128	290	256
DA-04	15.46	0.0	0.0	0.0	0.0	195	192	387	352

THE PROPOSED IMPROVEMENTS INVOLVE RETROFITTING AN EXISTING DETENTION POND TO ROUTE ADDITIONAL STORM DRAIN FLOW THROUGH THE FACILITY. THERE IS NO PROPOSED IMPERVIOUS AREA, SO WQV AND REV ARE NOT REQUIRED. THERE IS NO PROPOSED DEVELOPMENT, SO CPV IS NOT REQUIRED. Q10 AND Q100 ARE BEING SATISFIED WITHIN THE DETENTION FACILITY. Q10 AT THE POND OUTFALL WILL BE REDUCED FROM 133 TO 128 CFS. Q100 IS BEING REDUCED AT THE POND OUTFALL FROM 290 TO 256 CFS.

**FLOODPLAIN COORDINATE TABLE**

NO.	NORTH	EAST	ELEV.	NO.	NORTH	EAST	ELEV.
318	574607.7079	1366442.1696	400.23	304	574717.9934	1366264.9343	400.22
319	574601.2206	1366447.4899	400.23	305	574729.6984	1366285.2634	400.22
320	574598.6256	1366446.4512	400.23	306	574732.0770	1366322.0576	400.22
321	574589.2838	1366436.0714	400.23	307	574732.0770	1366339.2261	400.23
322	574599.5339	1366418.9448	400.23	308	574728.9984	1366356.1625	400.23
323	574617.0498	1366394.5522	400.23	309	574712.6731	1366376.1245	400.23
324	574624.9644	1366387.6756	400.23	310	574698.6045	1366390.1931	400.23
325	574626.1321	1366357.3746	400.23	311	574687.6083	1366398.4402	400.23
326	574636.0234	1366347.6638	400.23	312	574678.5526	1366400.8638	400.23
327	574640.9718	1366337.0390	400.23	313	574670.7004	1366422.0776	400.23
328	574646.8578	1366319.8500	400.23	314	574662.1371	1366406.3592	400.23
329	574649.8407	1366300.4665	400.22	315	574645.5294	1366421.6694	400.23
330	574650.6544	1366263.2476	400.22	316	574640.7287	1366425.1726	400.23
331	574657.6608	1366248.3915	400.22	317	574626.4565	1366431.1410	400.23

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*[Signature]* 10/20/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 11/17/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 1/16/09  
 DIRECTOR, DEP. DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SCD *[Signature]* 9/30/08 DATE

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 No. 12297  
 9/17/08

NO.	REVISIONS DESCRIPTION	DATE

10 NORTH PARK DRIVE  
 HUNT VALLEY, MD 21030  
 PHONE: (410) 316-7800  
 FAX: (410) 316-7817  
 www.kci.com

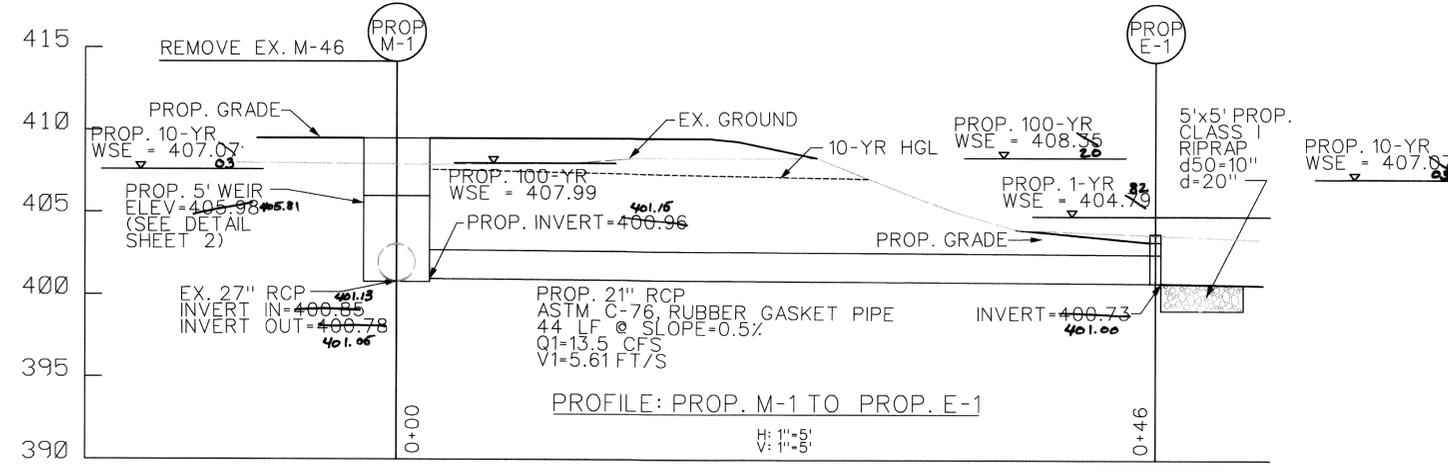
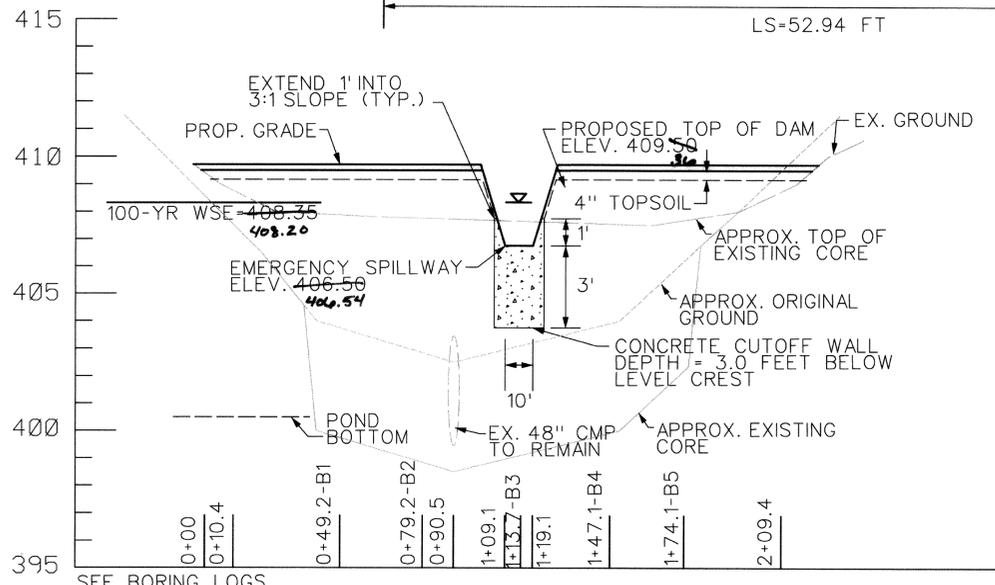
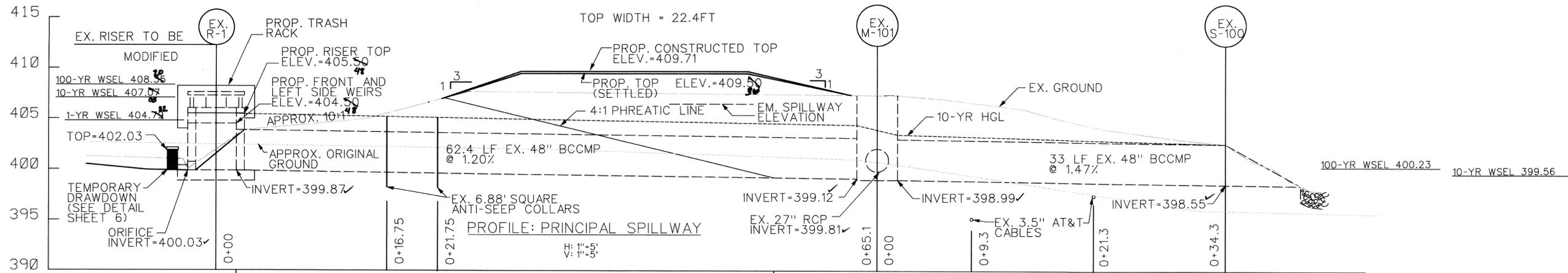


BRAMPTON HILLS, SECTION 2, AREA 1, OPEN SPACE LOT 58 & LONG GATE, SECTION 1, AREA 3, OPEN SPACE LOT 105  
**STORMWATER MANAGEMENT RETROFIT CAPITAL PROJECT #D-1141, #D-1158**

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STORMWATER MANAGEMENT DIVISION  
 601 COLUMBIA DRIVE, SUITE 101, HUNTSVILLE, MARYLAND 21086  
 (410) 316-8487

WHETFIELD HOMEOWNERS ASSOCIATION  
 1500 WOODBURN DRIVE, SUITE 100, HUNTSVILLE, MARYLAND 21086  
 (410) 316-8487

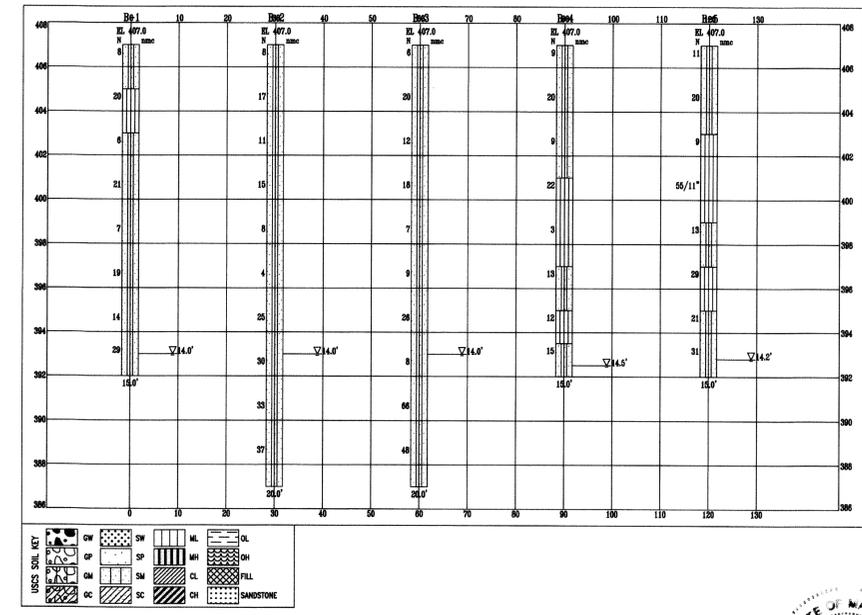
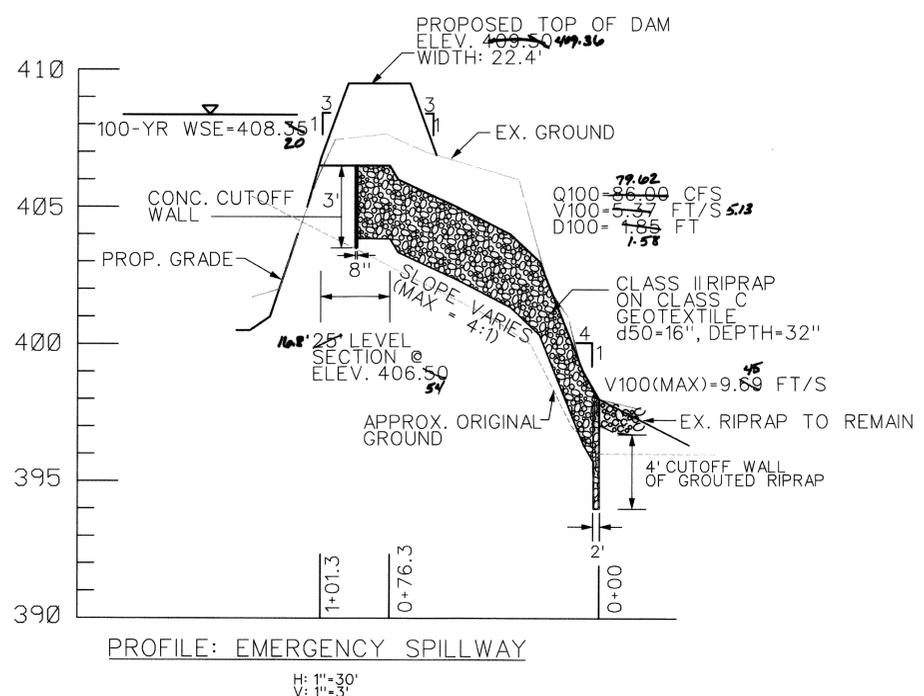
PLAT 554988A TAX MAP 30, GRID 196, PARCEL 38064, ZONING RORFSC  
 ELECTION DISTRICT NO. 2, HOWARD COUNTY, MD  
 ADJACENT LOTS: BRAMPTON HILLS PLATS 28623, 28624, 28625, 28626, 28627, 28628, 28629, 28630, 28631, 28632, 28633, 28634, 28635, 28636, 28637, 28638, 28639, 28640, 28641, 28642, 28643, 28644, 28645, 28646, 28647, 28648, 28649, 28650, 28651, 28652, 28653, 28654, 28655, 28656, 28657, 28658, 28659, 28660, 28661, 28662, 28663, 28664, 28665, 28666, 28667, 28668, 28669, 28670, 28671, 28672, 28673, 28674, 28675, 28676, 28677, 28678, 28679, 28680, 28681, 28682, 28683, 28684, 28685, 28686, 28687, 28688, 28689, 28690, 28691, 28692, 28693, 28694, 28695, 28696, 28697, 28698, 28699, 28700, 28701, 28702, 28703, 28704, 28705, 28706, 28707, 28708, 28709, 28710, 28711, 28712, 28713, 28714, 28715, 28716, 28717, 28718, 28719, 28720, 28721, 28722, 28723, 28724, 28725, 28726, 28727, 28728, 28729, 28730, 28731, 28732, 28733, 28734, 28735, 28736, 28737, 28738, 28739, 28740, 28741, 28742, 28743, 28744, 28745, 28746, 28747, 28748, 28749, 28750, 28751, 28752, 28753, 28754, 28755, 28756, 28757, 28758, 28759, 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29761, 29762, 29763, 29764, 29765, 29766, 29767, 29768, 29769, 29770, 29771, 29772, 29773, 29774, 297



STRUCTURE TABLE				
NO.	TYPE	TOP ELEV.	NORTHING	EASTING
M-1	MOD-G5.11	409.50	574521	1366439
E-1	D-5.11	403.73	574502	1366481

PIPE SCHEDULE		
DIA.	LENGTH	TYPE
21"	44' 45.1'	CL. III
27"	10'	CL. III



APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*John DeMunnis* 10/2/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Andy Kiser* 12/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Thomas J. Suter* 1/7/09  
 DIRECTOR, DEP. DATE

THESE PLANS FOR SMALL POND CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.

*Shelby Song* 2/20/08  
 HOWARD SCD DATE

"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. 164703, EXPIRATION DATE: 12/31/2010"



NO. REVISIONS DESCRIPTION DATE

10 NORTH PARK DRIVE  
 HUNT VALLEY, MD 21030  
 PHONE: (410) 316-7800  
 FAX: (410) 316-7817  
 www.kci.com

**KCI**  
 TECHNOLOGIES

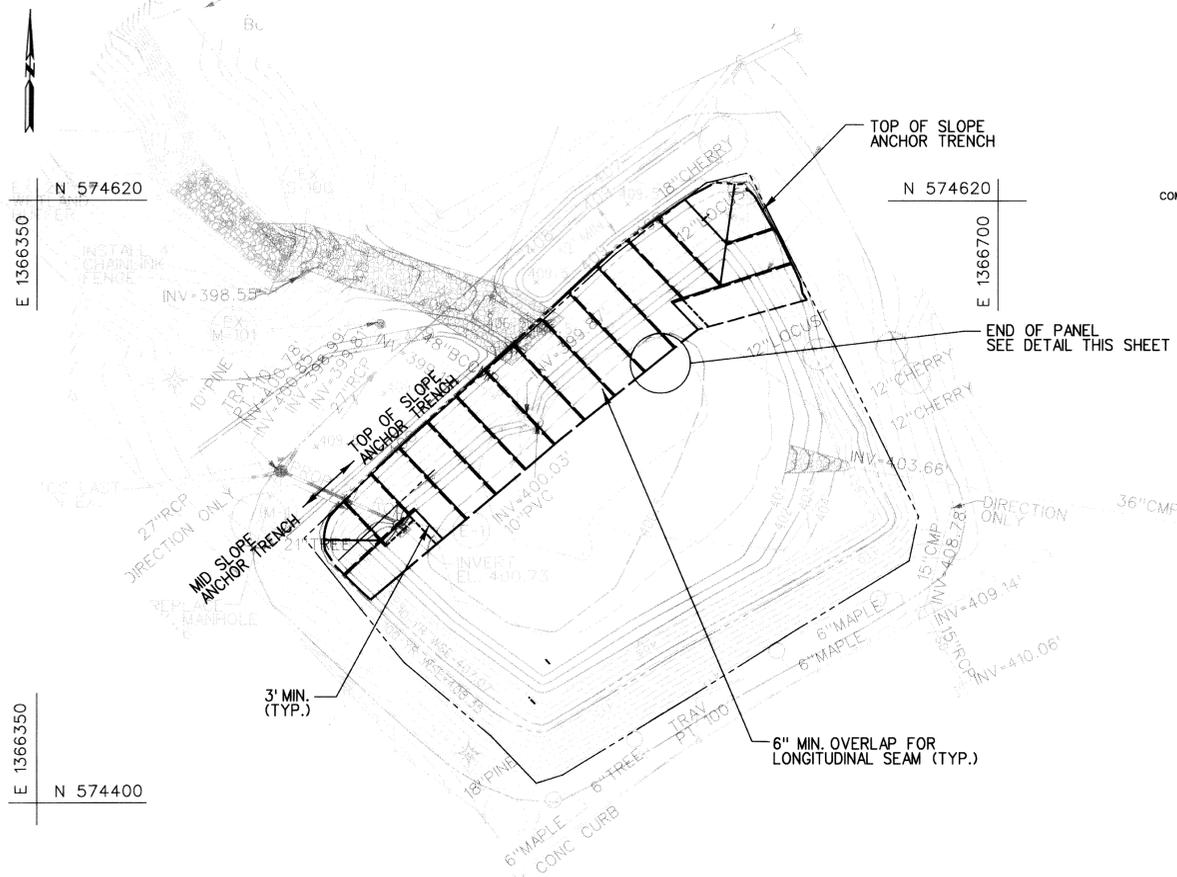
BRAMPTON HILLS, SECTION 2, AREA 1, OPEN SPACE LOT 58 & LONG GATE, SECTION 1, AREA 3, OPEN SPACE LOT 105  
 STORMWATER MANAGEMENT RETROFIT  
 CAPITAL PROJECT #D-1141, #D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION DIVISION  
 6701 COLUMBIA GATEWAY DRIVE, 5TH FLOOR, COLUMBIA, MARYLAND 21046  
 (410) 318-6417

WHITFIELD HOMEOWNERS ASSOCIATION  
 10000 WOODBURN ROAD, SUITE 100, WOODBURN, MARYLAND 21796  
 ELECTION DISTRICT NO. 2, HOWARD COUNTY, MD

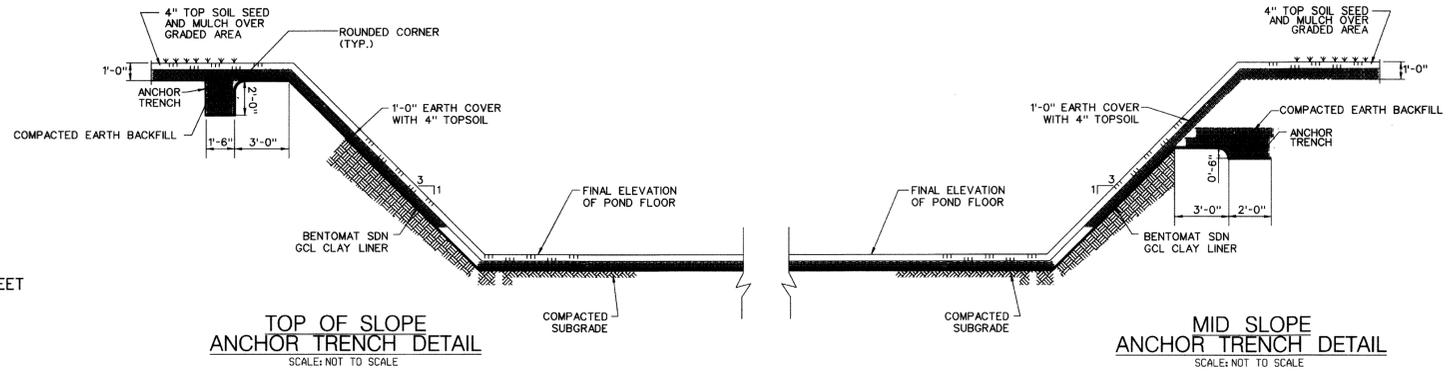
ADJACENT LOTS: PLAT 558AR88A, TAX MAP 30, GRID 154, PARCEL 382464, ZONING BROWSC  
 ADJACENT LOTS: PLAT 558AR88A, TAX MAP 30, GRID 154, PARCEL 382464, ZONING BROWSC  
 ADJACENT LOTS: PLAT 558AR88A, TAX MAP 30, GRID 154, PARCEL 382464, ZONING BROWSC  
 LONG GATE 1/2 LOT 4, PLAT 588I, TAX MAP 30, GRID 6, PARCEL 484, ZONING RSC

SCALE: AS SHOWN  
 DATE: SEPTEMBER 2008  
 RCJ JOB NO.: 01043223.03  
 CAPITAL PROJECT NO.: D-1158, D-1141  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

SHEET NO. 3 OF 16  
 SDP-08-019

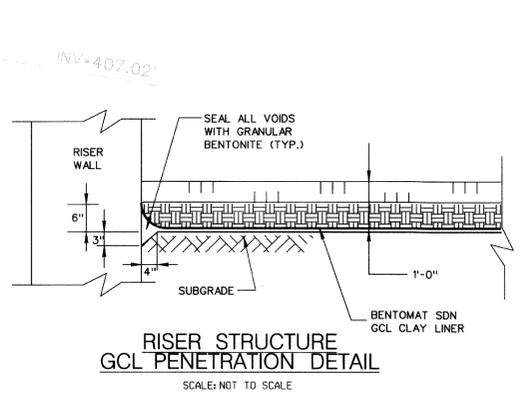


**GCL SEAMING SCHEMATIC DETAIL**  
SCALE: 1" = 30'

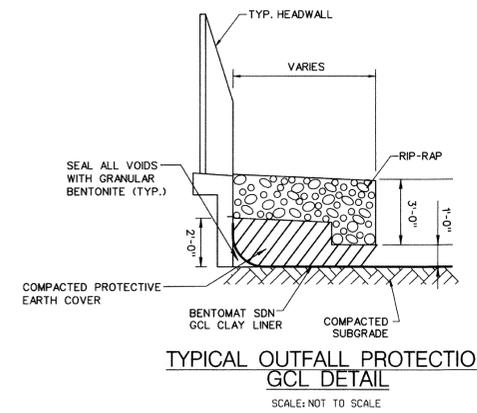


**TOP OF SLOPE ANCHOR TRENCH DETAIL**  
SCALE: NOT TO SCALE

**MID SLOPE ANCHOR TRENCH DETAIL**  
SCALE: NOT TO SCALE



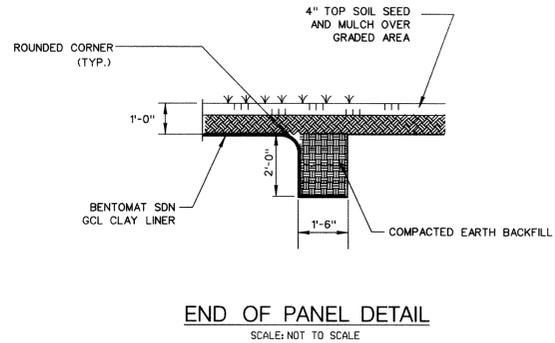
**RISER STRUCTURE GCL PENETRATION DETAIL**  
SCALE: NOT TO SCALE



**TYPICAL OUTFALL PROTECTION GCL DETAIL**  
SCALE: NOT TO SCALE

OUTFALL PROTECTION					
PIPE DIA.	TYPE	LENGTH	WIDTH	DEPTH	D50
24"	CL. I	5'	5'	19"	10"
36"	CL. I	22'	10'	19"	10"

ALL OUTFALL PROTECTION SHALL BE PLACED ON CLASS C GEOTEXTILE



**END OF PANEL DETAIL**  
SCALE: NOT TO SCALE

- NOTES:**
- SEAMS AT THE ENDS OF THE PANELS SHOULD BE CONSTRUCTED SUCH THAT THEY ARE SHINGLED IN THE DIRECTION OF THE GRADE TO PREVENT THE POTENTIAL FOR RUNOFF FLOW TO ENTER THE OVERLAP ZONE. END PANEL SEAMS ARE NOT PERMITTED ON SLOPES.
  - THE END OF ALL SEAMS SHALL BE A MINIMUM OF 3' FROM THE TOE OF SLOPE.

- NOTES:**
- SUBGRADE SURFACE SHALL BE SMOOTH AND FREE OF VEGETATION, SHARP EDGED ROCKS, STONES, STICKS, CONSTRUCTION DEBRIS AND OTHER FOREIGN MATTER THAT COULD DAMAGE THE GCL. THE SUBGRADE SURFACE SHALL BE ROLLED WITH A SMOOTH-DRUM COMPACTOR TO REMOVE ANY WHEEL RUTS, FOOTPRINTS OR OTHER ABRUPT GRADE CHANGES. SUBGRADE SURFACE SHALL BE APPROVED BY THE ENGINEER PRIOR TO GCL INSTALLATION.
  - GCL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EQUIPMENT WHICH CAN DAMAGE THE GCL SHALL NOT BE ALLOWED TO TRAVEL DIRECTLY ON IT. THE GCL SHALL BE PLACED SO THAT SEAMS ARE PARALLEL TO THE DIRECTION OF THE SLOPE. THE GCL SHALL NOT BE LEFT UNCOVERED OVERNIGHT.
  - COVER SOILS SHALL CONSIST OF A COHESIVE MATERIAL (SC, CL, OR SIMILAR) FREE OF ANGULAR STONES OR OTHER FOREIGN MATTER THAT COULD DAMAGE THE GCL. COVER SOILS SHALL BE APPROVED BY THE ENGINEER.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Alfred Demoss* 10/2/08  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Cindy Kim* 12/09  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Dennis F. ...* 1/1/09  
DIRECTOR DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* 9/30/08  
HOWARD SOIL CONSERVATION DISTRICT DATE

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. 31201 EXPIRATION DATE: 1/29/09



NO.	REVISIONS DESCRIPTION	DATE

10 NORTH PARK DRIVE  
HUNT VALLEY, MD 21030  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
www.kci.com

**KCI**  
TECHNOLOGIES

BRAMPTON HILLS, SECTION 2, AREA 1, OPEN SPACE LOT 58 & LONG GATE, SECTION 1, AREA 3, OPEN SPACE LOT 105  
STORMWATER MANAGEMENT RETROFIT CAPITAL PROJECT #D-1141, #D-1158

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE, 5TH FLOOR, COLUMBIA, MARYLAND 21046  
WHEELER D. (410) 316-4447 ASSOCIATION  
PO BOX 2838 BALTIMORE, MD 21208  
ELECTION DISTRICT NO. 2, HOWARD COUNTY, MD

ADJACENT LOTS: PLAT 558988A, TAX MAP 30, GRID 106, PARCEL 18060A, ZONING RESC. 454, ZONING 60L  
LONG GATE, 1/4, LOT 66, PLAT 889A, TAX MAP 30, GRID 6, PARCEL 454, ZONING RESC. 454, ZONING 60L  
LONG GATE, 1/4, LOT 14, PLAT 889A, TAX MAP 30, GRID 6, PARCEL 454, ZONING RESC. 454, ZONING 60L

**PHASE I**  
GCL SEAMING AND ANCHOR TRENCH DETAILS

SCALE: 1" = 30'

DATE: SEPTEMBER 2008

KCI JOB NO.: 01043223.03

CAPITAL PROJECT NO.: D-1158, D-1141

PERMIT ISSUE:

CONSTRUCTION ISSUE:







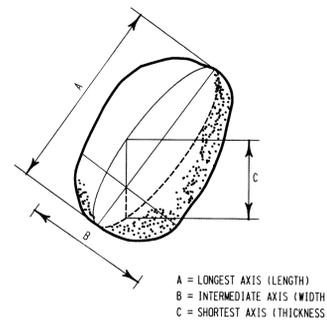
SIZES FOR STONE TYPES			
AXIS	A (LONGEST)	B (INTERMEDIATE)	C (SHORTEST)
STONE TYPE	MAX.	RANGE	MIN.
STONE TOE	CLASS II	CLASS II	CLASS II
IMBRICATED STONE	3.0'	2.0' - 3.0'	2.0'
DROP STONE	3.0'	1.5' - 2.0'	1.2'

ALL STONES SHALL BE ANGULAR AND BLOCKY IN SHAPE.

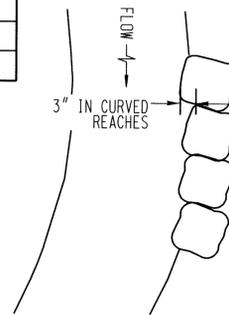
RIFLE GRADE CONTROL MATERIAL	
% LESS THAN	SIZE (INCHES)
10	0.5
30	1.9
50	2.8
60	3.5
84	4.5
100	5.6

GRANULAR FILTER MATERIAL	
% LESS THAN	US STD SIEVE
100	2.5 in
85-100	1.0 in
60-100	0.5 in
35-70	No. 10
20-50	No. 40
3-20	No. 200

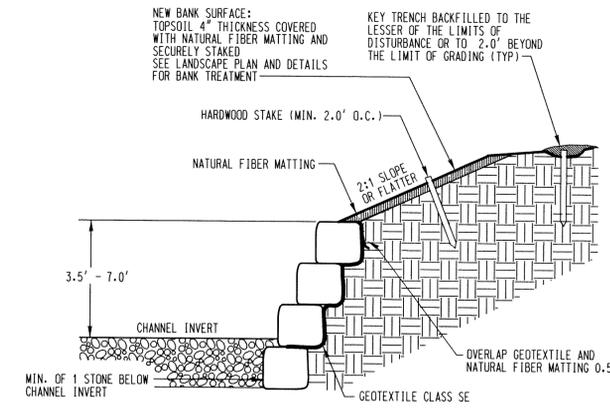
NOTE: STONES SHALL BE ROTATED INTO THE BANK DURING PLACEMENT SUCH THAT THE UPSTREAM STONE OVERLAPS THE DOWNSTREAM STONE BY A MINIMUM OF 3 INCHES.



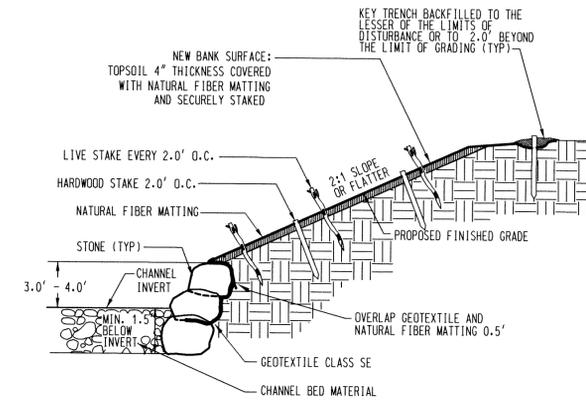
ROCK AXIS DEFINITION  
NOT TO SCALE



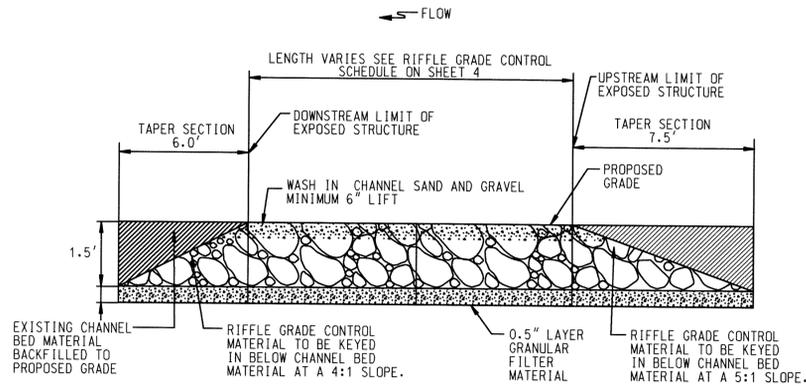
TYPICAL PLAN VIEW  
IMBRICATED BANK PROTECTION  
NOT TO SCALE



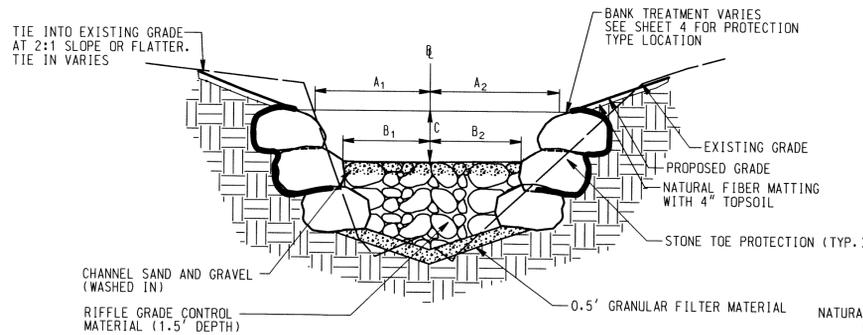
TYPICAL IMBRICATED BANK PROTECTION DETAIL  
NOT TO SCALE



TYPICAL STONE TOE PROTECTION WITH NATURAL FIBER MATTING DETAIL  
NOT TO SCALE



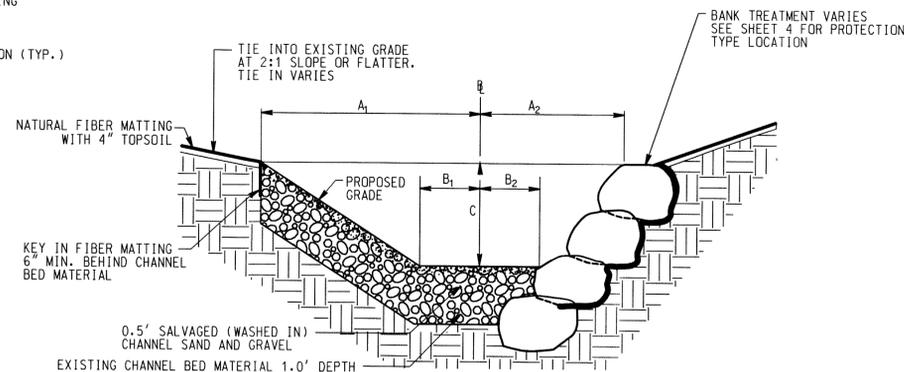
TYPICAL RIFLE GRADE CONTROL PROFILE  
NOT TO SCALE



TYPICAL SECTION - RIFLE GRADE CONTROL  
NOT TO SCALE

TYPICAL RIFLE SECTION SCHEDULE

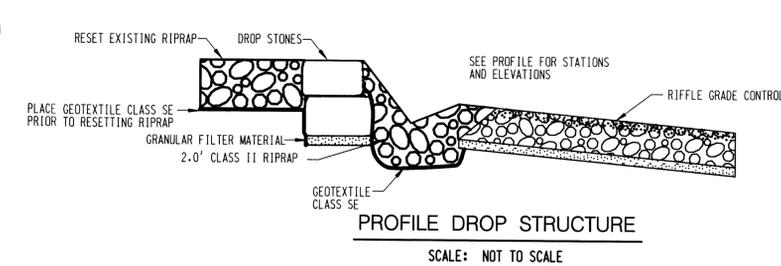
FROM STATION	TO STATION	A <sub>1</sub>	A <sub>2</sub>	B <sub>1</sub>	B <sub>2</sub>	C
0+61	0+75	8.0'	6.0'	2.0'	3.0'	3.0'
0+93	1+00	8.0'	6.0'	2.0'	3.0'	3.0'
1+18	1+36	8.0'	8.0'	2.0'	2.0'	3.0'



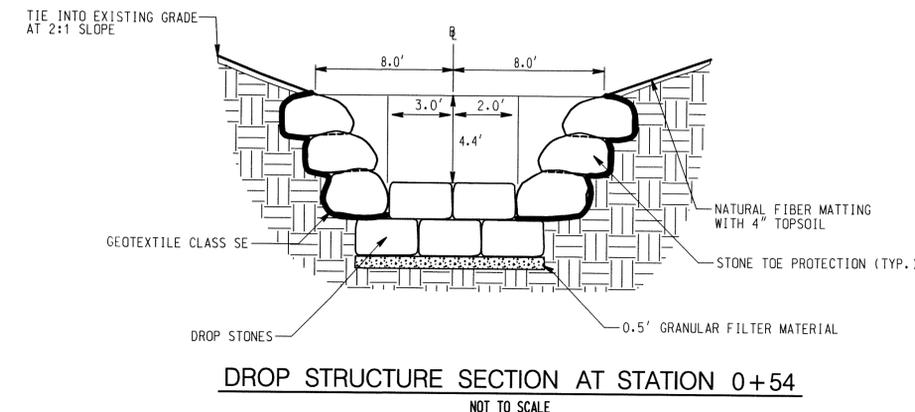
TYPICAL SECTION - POOL RIGHT  
FACING DOWNSTREAM  
NOT TO SCALE

TYPICAL POOL SCHEDULE

AT STATION	A <sub>1</sub>	A <sub>2</sub>	B <sub>1</sub>	B <sub>2</sub>	C
0+85.0	10.0'	6.0'	1.0'	2.0'	4.0'
1+08.0	12.0'	4.0'	1.0'	2.0'	4.0'



PROFILE DROP STRUCTURE  
SCALE: NOT TO SCALE



DROP STRUCTURE SECTION AT STATION 0+54  
NOT TO SCALE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com



BRAMPTON HILLS SECTION 2 AREA 1 OPEN SPACE LOT 58 & LONG GATE SECTION 2 AREA 1 OPEN SPACE LOT 105  
STORMWATER MANAGEMENT RETROFIT  
CAPITAL PROJECT #D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STORMWATER MANAGEMENT DIVISION  
890 COLUMBIA GATEWAY DRIVE, SUITE 200, COLLEGE PARK, MARYLAND 20740  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STORMWATER MANAGEMENT DIVISION  
890 COLUMBIA GATEWAY DRIVE, SUITE 200, COLLEGE PARK, MARYLAND 20740  
ELECTION DISTRICT NO. 2, HOWARD COUNTY, MD  
STATE OF MARYLAND  
I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 81901  
EXPIRATION DATE: JANUARY 24, 2011

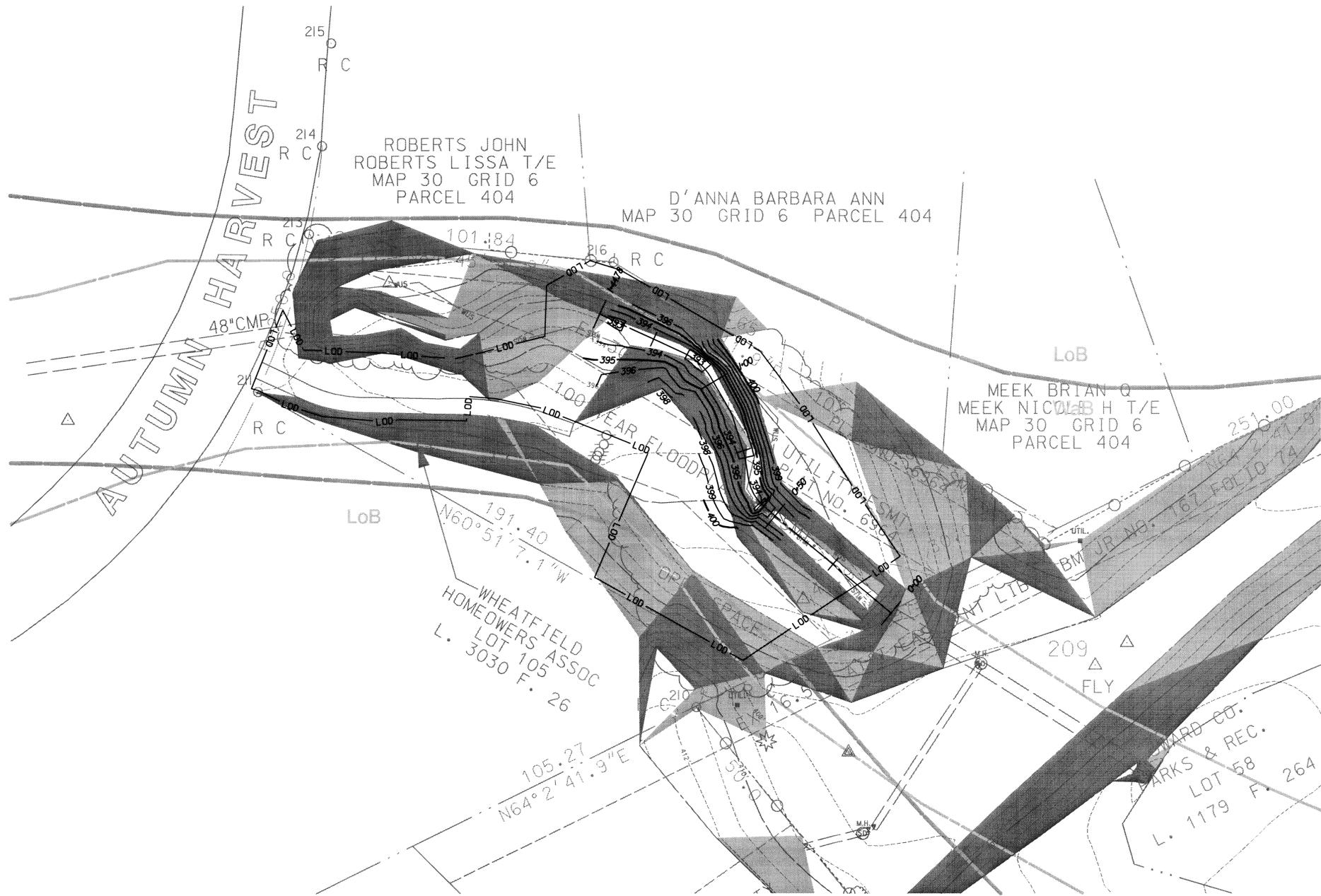
PHASE II  
DETAIL  
SHEET

SCALE: 1" = 20'  
DATE: MARCH, 2010  
JOB NO.: 01-081795.15  
CAPITAL PROJECT NO.: D1158, D1141  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

PLOTTED: 12:38 PM on Wednesday, March 24, 2010  
BY: jacob@kci.com  
FILE: W:\2008\01081795.15\Drawings\Geo\01.dwg

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
DIRECTOR DATE

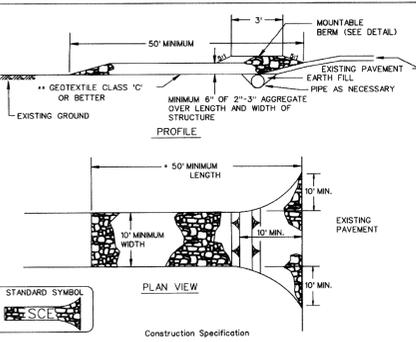
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 81901 EXPIRATION DATE: JANUARY 24, 2011







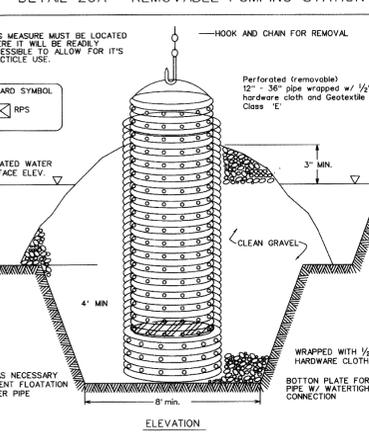
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



- Construction Specifications
- Length - minimum of 50' (+30' for single residence lot).
  - Width - 10' minimum, should be fixed at the existing road to provide a turning radius.
  - Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. \*\*The plan approval authority may not require single family residences to use geotextile.
  - Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
  - Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5" slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
  - Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

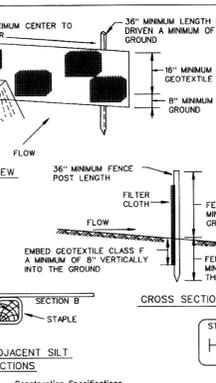
DETAIL 20A - REMOVABLE PUMPING STATION



- Construction Specifications
- The outer pipe should be 48" dia. or shall in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backflow from entering the perforations.
  - After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
  - The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe (between 12" and 36" diameter). The perforations shall be 1/2" x 8" slots or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth with Geotextile Class E.
  - The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE D-12 - 5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

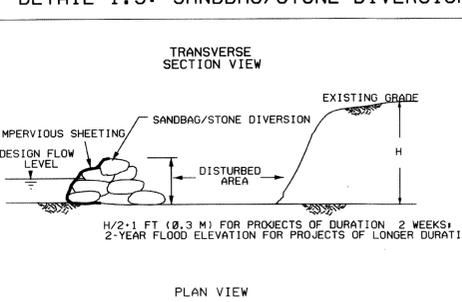


- Construction Specifications
- Fence posts shall be a minimum of 36" long driven 18" minimum into the ground. Wood posts shall be 1/2" x 1/2" square (minimum) cut, or 1/2" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 100 pound per linear foot.
  - Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:
 

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gpm/1' minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
  - Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
  - Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

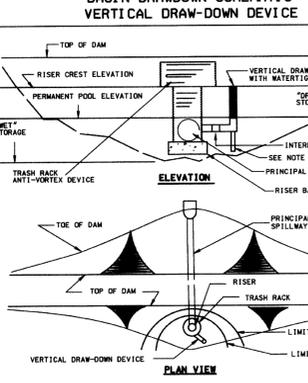
DETAIL 1.5 - SANDBAG/STONE DIVERSION



- Construction Specifications
- Perforations in the draw-down device may not extend into the wet storage.
  - The total area of the perforations must be greater than 2 times the area of the internal orifice.
  - The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
  - Provide support of draw-down device to prevent sagging and flotation. An acceptable preventive measure is to stake both sides of draw-down device with 1" x 1" stakes and/or 2" round wooden posts set 3' minimum into the ground than joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-18 - 38 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

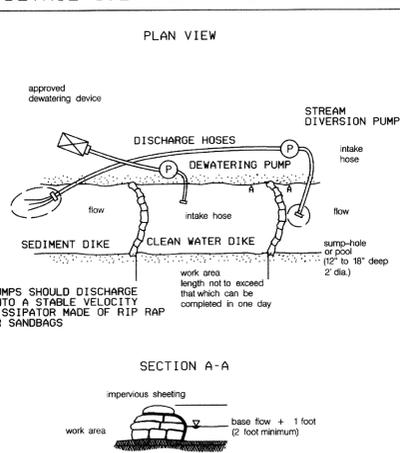
BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE



- Construction Specifications
- Perforations in the draw-down device may not extend into the wet storage.
  - The total area of the perforations must be greater than 2 times the area of the internal orifice.
  - The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
  - Provide support of draw-down device to prevent sagging and flotation. An acceptable preventive measure is to stake both sides of draw-down device with 1" x 1" stakes and/or 2" round wooden posts set 3' minimum into the ground than joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-18 - 38 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1.2 - PUMP-AROUND PRACTICE

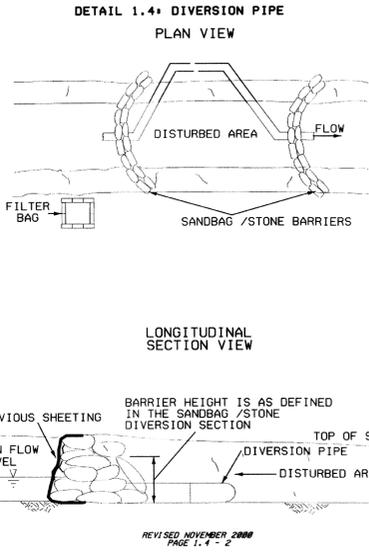


- Construction Specifications
- Filter bag shall be made of non-woven geotextile with a minimum surface area of 225 square feet per side.
  - All structural seams shall be sewn with a double stitch using a double needle machine with high strength thread. Seam strength shall withstand 100 lb using ASTM D-4884 test method.
  - Filter bag shall have a nozzle large enough to accommodate a four-inch diameter pump discharge hose.
  - Nozzle shall be sealed tightly around the pump discharge hose with a strap or similar device to prevent unfiltered water from escaping.
  - Filter bag shall be placed on a level or gently sloping (5% maximum) area.
  - Filter bag shall be placed upon a base of straw bales or three inches of clean stone to promote dewatering through bottom surface of the filter bag.
  - Pumping rates shall be controlled to prevent excessive pressure within the filter bag. As the bag becomes filled with sediment the pumping rate shall be reduced.
  - The filter bag shall be dewatered, removed and disposed of upon completion of pumping operations or after it has reached capacity. When dewatering occurs first, the dewatered sediment from the bag shall be spread in an upland area and stabilized within 24 hours.
  - The geotextile fabric shall meet the following minimum requirements with properties determined in accordance with the following procedures:
 

WEIGHT	10 OZ/YD	ASTM D-3778
GRAB TENSILE	210 LBS	ASTM D-4633
PUNCTURE	150 LBS	ASTM D-4633
FLOW RATE	70 GAL/MIN/FT2	ASTM D-4491
PERMEABILITY (SEC)	1.3	ASTM D-4991
UV RESISTANCE	70%	ASTM D-4352
APPARENT OPENING SIZE (AOS)	40-80	ASTM D-4751

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 1.2 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MARYLAND GUIDELINES TO WATERWAY CONSTRUCTION DETAIL 1.4 - DIVERSION PIPE



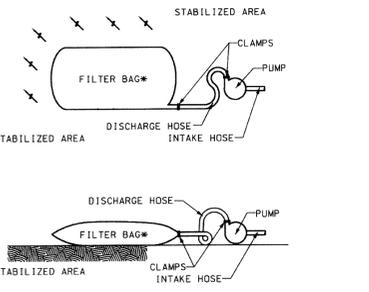
REVISOR NOVEMBER 2000 PAGE 1.4 - 2

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

- Definition
- Purpose
- To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- Conditions Where Practice Applies
- This practice is limited to areas having 2:1 or flatter slopes where:
    - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
    - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
    - The original soil to be vegetated contains material toxic to plant growth.
    - The soil is so acidic that treatment with limestone is not feasible.
  - For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.
 

Construction and Material Specifications

    - Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
    - Topsoil Specifications - Soil to be used as topsoil must meet the following:
      - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
      - Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutedge, poison ivy, waste, or others as specified.
      - Where the subsoils either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons per acre (per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.



\* NON-WOVEN GEOTEXTILE FILTER BAG WHICH RETAINS ALL SEDIMENT PARTICLES LARGER THAN 150 MICRONS.

SILT BAG DEWATERING DEVICE FOR PUMPED WATER NOT TO SCALE

- NOTES: 1. PLACE FILTER BAGS ON STABLE OR WELL VEGETATED AREAS WHICH ARE FLATTER THAN 5% AND WILL NOT ERODE WHEN SUBJECTED TO BAG DISCHARGES.
- CLAMP PUMP DISCHARGE HOSES SECURELY INTO FILTER BAGS.
  - LIMIT PUMPING RATE TO 1/2 THE MANUFACTURER'S MAXIMUM PUMPING RATE.
  - WHEN SEDIMENTS FILL 1/2 THE VOLUME OF A FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE. PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS.

TEMPORARY VEGETATIVE STABILIZATION

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.
- SOIL AMENDMENTS: APPLY 600 LBS PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.
- SEEDING: \* FOR PERIODS OF MARCH 1 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15, SEED WITH 2.5 BU PER ACRE OF CEREAL RYE PLUS 3 LBS PER ACRE OF TALL FESCUE OR 5 LBS PER ACRE OF REDTOP OR 20 LBS PER ACRE OF PERENNIAL RYEGRASS. \*\* FOR PERIOD OF MAY 1 TO AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS OR 40 LBS PER ACRE OF JAPANESE OR FOXTAIL MILLET.
- FOR THE PERIOD OF NOVEMBER 16 TO FEBRUARY 28, PROTECT THE SITE BY APPLYING TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOO.
- MULCHING SPECIFICATIONS: MULCH SHALL BE APPLIED TO ALL SEEDBED AREAS IMMEDIATELY AFTER SEEDING. APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDBED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRES. \*\* MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS. \*\*\* IF OTHER SEED MIXTURES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS. \*\*\*\* IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATION, CHAPTER 20.

PERMANENT VEGETATIVE STABILIZATION

- ALL DISTURBED AREAS, WHICH ARE NOT TO BE PAVED, SHALL BE PERMANENTLY STABILIZED AS FOLLOWS:
- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS AFTER SPREADING FOUR INCHES OF TOPSOIL.
  - SOIL AMENDMENTS: APPLY 500 LBS PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.
  - SEEDING: \* FOR PERIODS OF MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15, SEED WITH 125 LBS PER ACRE OF TALL FESCUE, 15 LBS PER ACRE OF PERENNIAL RYEGRASS, AND 10 LBS OF KENTUCKY BLUEGRASS. \*\* FOR PERIOD OF MAY 16 TO AUGUST 14, SEED WITH 110 LBS PER ACRE OF TALL FESCUE AND 3 LBS PER ACRE OF WEEPING LOVEGRASS. \*\*\* FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY: OPTIONS - 1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOO OR 2) SEED WITH 125 LBS PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
  - MULCHING SPECIFICATIONS: MULCH SHALL BE APPLIED TO ALL SEEDBED AREAS IMMEDIATELY AFTER SEEDING. APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDBED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRES. \*\* MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS. \*\*\* IF OTHER SEED MIXTURES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS, CHAPTER 20, TABLE 25. \*\*\*\* IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATION, CHAPTER 20.



APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Howard County Dept. of Planning and Zoning

1/22/08

1/20/09

1/2/09

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

9/30/08

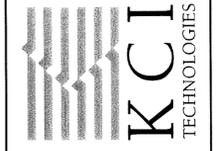
DATE

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B)				FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DEPTHS		
1	RYE	140	3/1-4/30 8/15-11/15	600 LB/AC (15 LB/1000 SF)	2 tons/ac (100 LB)
2	RYE PLUS FOXTAIL MILLET	150	3/1-4/30 8/15-11/15	1 INCH	1000 SF)

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B)				FERTILIZER RATE (10-20-20)			LIME
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DEPTHS	N	P205	K2O	
1	TALL FESCUE (85%)	125	3/1-5/15	90 LB/AC	175 lb/oc	175 lb/oc	2 tons/ac
1	PERENNIAL RYEGRASS (10%)	15	8/15-10/15	(2.0 LB/	(4.0 LB/	(4.0 LB/	(100 LB/
1	KENTUCKY BLUEGRASS (5%)	10		1000 SF)	1000 SF)	1000 SF)	
2	KENTUCKY BLUEGRASS (50%)	150	3/1-5/15				
2	HARD FESCUE (40%)		8/15-10/15				
2	RED TOP (10%)						



BRAMPTON HILLS SECTION 2 AREA 1 OPEN SPACE LOT 58 & 2 AREA 1 OPEN SPACE LOT 105  
LONG GATE SECTIOR WATER MANAGEMENT RETROFIT CAPITAL PROJECT #D-114, 14D-158

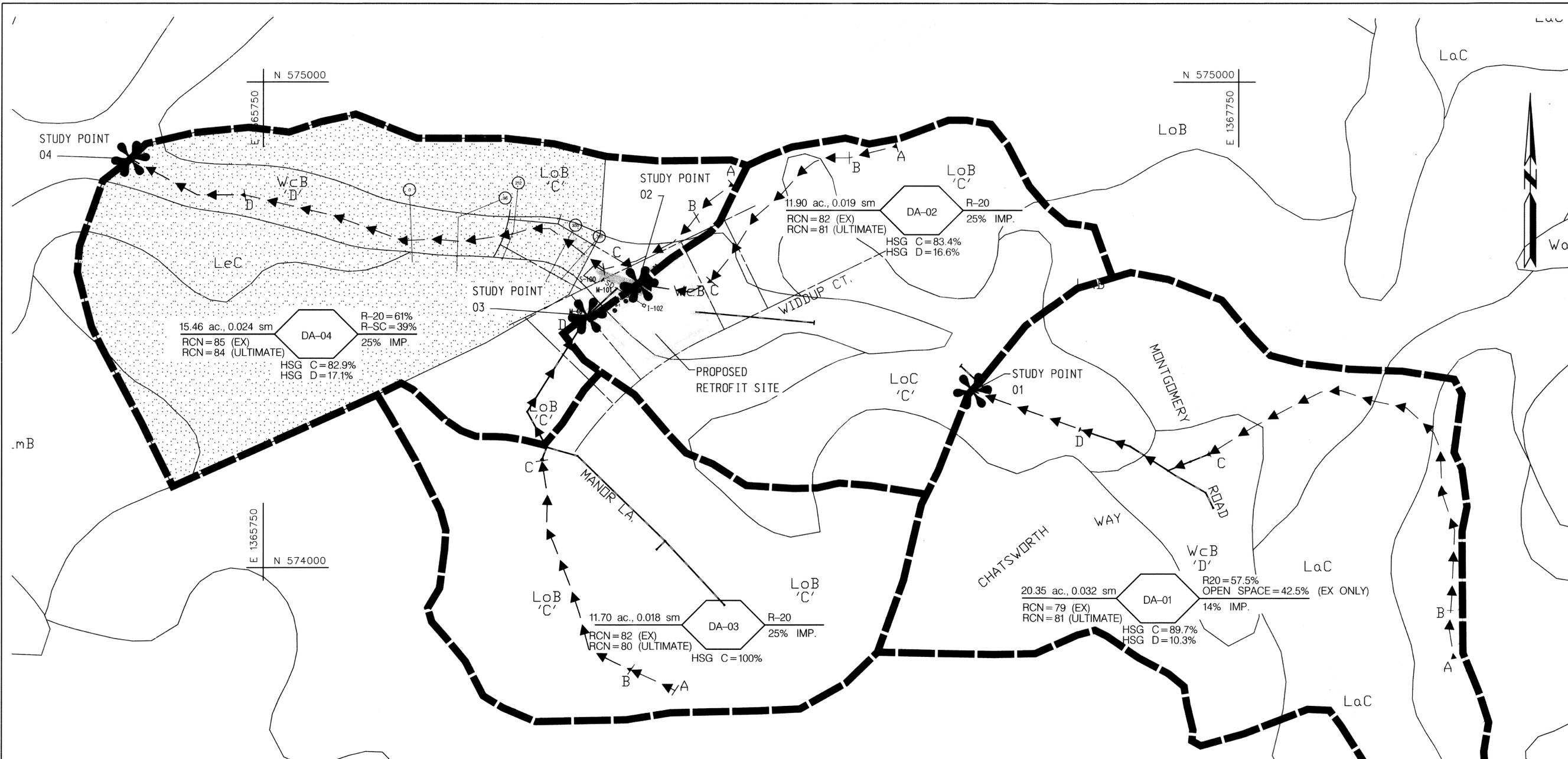
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS WATER MANAGEMENT DIVISION  
675 COLUMBIA GATEWAY DRIVE, COLUMBIA, MARYLAND 21046

WHEATFIELD HOMEOWNERS ASSOCIATION  
10000 ROCKY HILL ROAD, SUITE 100, HUNTSVILLE, MD 21086  
ELECTRICIAN: JOHN J. HUNTER, INC.  
PAINT: BRAMPTON HILLS, MD 21030, USE PAREL, 9800A ZONING BOARD  
ADJACENT LOTS: BRAMPTON HILLS, 21 LOTS 38A, 39A, 40A, 41A, 42A, 43A, 44A, 45A, 46A, 47A, 48A, 49A, 50A, 51A, 52A, 53A, 54A, 55A, 56A, 57A, 58A, 59A, 60A, 61A, 62A, 63A, 64A, 65A, 66A, 67A, 68A, 69A, 70A, 71A, 72A, 73A, 74A, 75A, 76A, 77A, 78A, 79A, 80A, 81A, 82A, 83A, 84A, 85A, 86A, 87A, 88A, 89A, 90A, 91A, 92A, 93A, 94A, 95A, 96A, 97A, 98A, 99A, 100A, 101A, 102A, 103A, 104A, 105A, 106A, 107A, 108A, 109A, 110A, 111A, 112A, 113A, 114A, 115A, 116A, 117A, 118A, 119A, 120A, 121A, 122A, 123A, 124A, 125A, 126A, 127A, 128A, 129A, 130A, 131A, 132A, 133A, 134A, 135A, 136A, 137A, 138A, 139A, 140A, 141A, 142A, 143A, 144A, 145A, 146A, 147A, 148A, 149A, 150A, 151A, 152A, 153A, 154A, 155A, 156A, 157A, 158A, 159A, 160A, 161A, 162A, 163A, 164A, 165A, 166A, 167A, 168A, 169A, 170A, 171A, 172A, 173A, 174A, 175A, 176A, 177A, 178A, 179A, 180A, 181A, 182A, 183A, 184A, 185A, 186A, 187A, 188A, 189A, 190A, 191A, 192A, 193A, 194A, 195A, 196A, 197A, 198A, 199A, 200A, 201A, 202A, 203A, 204A, 205A, 206A, 207A, 208A, 209A, 210A, 211A, 212A, 213A, 214A, 215A, 216A, 217A, 218A, 219A, 220A, 221A, 222A, 223A, 224A, 225A, 226A, 227A, 228A, 229A, 230A, 231A, 232A, 233A, 234A, 235A, 236A, 237A, 238A, 239A, 240A, 241A, 242A, 243A, 244A, 245A, 246A, 247A, 248A, 249A, 250A, 251A, 252A, 253A, 254A, 255A, 256A, 257A, 258A, 259A, 260A, 261A, 262A, 263A, 264A, 265A, 266A, 267A, 268A, 269A, 270A, 271A, 272A, 273A, 274A, 275A, 276A, 277A, 278A, 279A, 280A, 281A, 282A, 283A, 284A, 285A, 286A, 287A, 288A, 289A, 290A, 291A, 292A, 293A, 294A, 295A, 296A, 297A, 298A, 299A, 300A, 301A, 302A, 303A, 304A, 305A, 306A, 307A, 308A, 309A, 310A, 311A, 312A, 313A, 314A, 315A, 316A, 317A, 318A, 319A, 320A, 321A, 322A, 323A, 324A, 325A, 326A, 327A, 328A, 329A, 330A, 331A, 332A, 333A, 334A, 335A, 336A, 337A, 338A, 339A, 340A, 341A, 342A, 343A, 344A, 345A, 346A, 347A, 348A, 349A, 350A, 351A, 352A, 353A, 354A, 355A, 356A, 357A, 358A, 359A, 360A, 361A, 362A, 363A, 364A, 365A, 366A, 367A, 368A, 369A, 370A, 371A, 372A, 373A, 374A, 375A, 376A, 377A, 378A, 379A, 380A, 381A, 382A, 383A, 384A, 385A, 386A, 387A, 388A, 389A, 390A, 391A, 392A, 393A, 394A, 395A, 396A, 397A, 398A, 399A, 400A, 401A, 402A, 403A, 404A, 405A, 406A, 407A, 408A, 409A, 410A, 411A, 412A, 413A, 414A, 415A, 416A, 417A, 418A, 419A, 420A, 421A, 422A, 423A, 424A, 425A, 426A, 427A, 428A, 429A, 430A, 431A, 432A, 433A, 434A, 435A, 436A, 437A, 438A, 439A, 440A, 441A, 442A, 443A, 444A, 445A, 446A, 447A, 448A, 449A, 450A, 451A, 452A, 453A, 454A, 455A, 456A, 457A, 458A, 459A, 460A, 461A, 462A, 463A, 464A, 465A, 466A, 467A, 468A, 469A, 470A, 471A, 472A, 473A, 474A, 475A, 476A, 477A, 478A, 479A, 480A, 481A, 482A, 483A, 484A, 485A, 486A, 487A, 488A, 489A, 490A, 491A, 492A, 493A, 494A, 495A, 496A, 497A, 498A, 499A, 500A, 501A, 502A, 503A, 504A, 505A, 506A, 507A, 508A, 509A, 510A, 511A, 512A, 513A, 514A, 515A, 516A, 517A, 518A, 519A, 520A, 521A, 522A, 523A, 524A, 525A, 526A, 527A, 528A, 529A, 530A, 531A, 532A, 533A, 534A, 535A, 536A, 537A, 538A, 539A, 540A, 541A, 542A, 543A, 544A, 545A, 546A, 547A, 548A, 549A, 550A, 551A, 552A, 553A, 554A, 555A, 556A, 557A, 558A, 559A, 560A, 561A, 562A, 563A, 564A, 565A, 566A, 567A, 568A, 569A, 570A, 571A, 572A, 573A, 574A, 575A, 576A, 577A, 578A, 579A, 580A, 581A, 582A, 583A, 584A, 585A, 586A, 587A, 588A, 589A, 590A, 591A, 592A, 593A, 594A, 595A, 596A, 597A, 598A, 599A, 600A, 601A, 602A, 603A, 604A, 605A, 606A, 607A, 608A, 609A, 610A, 611A, 612A, 613A, 614A, 615A, 616A, 617A, 618A, 619A, 620A, 621A, 622A, 623A, 624A, 625A, 626A, 627A, 628A, 629A, 630A, 631A, 632A, 633A, 634A, 635A, 636A, 637A, 638A, 639A, 640A, 641A, 642A, 643A, 644A, 645A, 646A, 647A, 648A, 649A, 650A, 651A, 652A, 653A, 654A, 655A, 656A, 657A, 658A, 659A, 660A, 661A, 662A, 663A, 664A, 665A, 666A, 667A, 668A, 669A, 670A, 671A, 672A, 673A, 674A, 675A, 676A, 677A, 678A, 679A, 680A, 681A, 682A, 683A, 684A, 685A, 686A, 687A, 688A, 689A, 690A, 691A, 692A, 693A, 694A, 695A, 696A, 697A, 698A, 699A, 700A, 701A, 702A, 703A, 704A, 705A, 706A, 707A, 708A, 709A, 710A, 711A, 712A, 713A, 714A, 715A, 716A, 717A, 718A, 719A, 720A, 721A, 722A, 723A, 724A, 725A, 726A, 727A, 728A, 729A, 730A, 731A, 732A, 733A, 734A, 735A, 736A, 737A, 738A, 739A, 740A, 741A, 742A, 743A, 744A, 745A, 746A, 747A, 748A, 749A, 750A, 751A, 752A, 753A, 754A, 755A, 756A, 757A, 758A, 759A, 760A, 761A, 762A, 763A, 764A, 765A, 766A, 767A, 768A, 769A, 770A, 771A, 772A, 773A, 774A, 775A, 776A, 777A, 778A, 779A, 780A, 781A, 782A, 783A, 784A, 785A, 786A, 787A, 788A, 789A, 790A, 791A, 792A, 793A, 794A, 795A, 796A, 797A, 798A, 799A, 800A, 801A, 802A, 803A, 804A, 805A, 806A, 807A, 808A, 809A, 810A, 811A, 812A, 813A, 814A, 815A, 816A, 817A, 818A, 819A, 820A, 821A, 822A, 823A, 824A, 825A, 826A, 827A, 828A, 829A, 830A, 831A, 832A, 833A, 834A, 835A, 836A, 837A, 838A, 839A, 840A, 841A, 842A, 843A, 844A, 845A, 846A, 847A, 848A, 849A, 850A, 851A, 852A, 853A, 854A, 855A, 856A, 857A, 858A, 859A, 860A, 861A,









SOILS TABLE

SYMBOL	TYPE
LoB	C
LoC	C
LeC	C
LmB	C
WcB	D

- LEGEND**
- EX. WOODS (EX. CONDITIONS ONLY)
  - ZONING: R-SC\* (8 LOTS / AC.)
  - DRAINAGE AREA BOUNDARY
  - SOILS BOUNDARY
  - TIME OF CONCENTRATION PATH
  - STUDY POINT
- \*REMAINDER OF SITE ZONED R-20 (2 LOTS PER AC.)

TIME OF CONCENTRATION PATHS

AREA	SEGMENT	TYPE	LENGTH (FT.)	SLOPE (%)	TOTAL TIME (HRS.)
1	A-B	SHEET	100	5.0	0.23 (EX) 0.18 (ULT)
	B-C	SHALLOW CONC.	890	4.8	
	C-D	STORM DRAIN	292	6.0	
2	A-B	SHEET	100	10.0	0.15 (EX) 0.11 (ULT)
	B-C	SHALLOW CONC.	400	7.5	
3	A-B	SHEET	100	5.0	0.21 (EX) 0.16 (ULT)
	B-C	SHALLOW CONC.	500	5.6	
	C-D	STORM DRAIN	345	2.0	
4	A-B	SHEET	100	12.5	0.20 (EX) 0.16 (ULT)
	B-C	SHALLOW CONC.	224	6.7	
	C-D	CHANNEL	1255	3.2	

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*[Signature]* 10/2/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 1/7/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 1/7/09  
 DIRECTOR, DEP. DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* 2/20/08  
 HOWARD SCD DATE

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. 17201, EXPIRATION DATE 1/24/09.



NO.	REVISIONS DESCRIPTION	DATE

10 NORTH PARK DRIVE  
 HUNT VALLEY, MD 21030  
 PHONE: (410) 316-7800  
 FAX: (410) 316-7817  
 www.kci.com

BRAMPTON HILLS, SECTION 2, AREA 1, OPEN SPACE LOT 68 & LONG GATE, SECTION 1, AREA 3, OPEN SPACE LOT 105  
 STORMWATER MANAGEMENT RETROFIT CAPITAL PROJECT #D-1141, #B-1158

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STORMWATER MANAGEMENT DIVISION  
 675 COLUMBIA GATEWAY DRIVE, 5TH FLOOR, COLUMBIA, MARYLAND 21046  
 WESTFIELD, MD 21087  
 TO: BOZ 2159 BALTIMORE, MD 21202  
 ELECTION DISTRICT NO. 2, HOWARD COUNTY, MD

ADJACENT LOTS: 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

DRAINAGE AREA AND SOILS MAP

SCALE: 1" = 100'

DATE: SEPTEMBER 2008

KCI JOB NO.: 01043223.03

CAPITAL PROJECT NO.: D-1158, D-1141

PERMIT ISSUE:

CONSTRUCTION ISSUE: