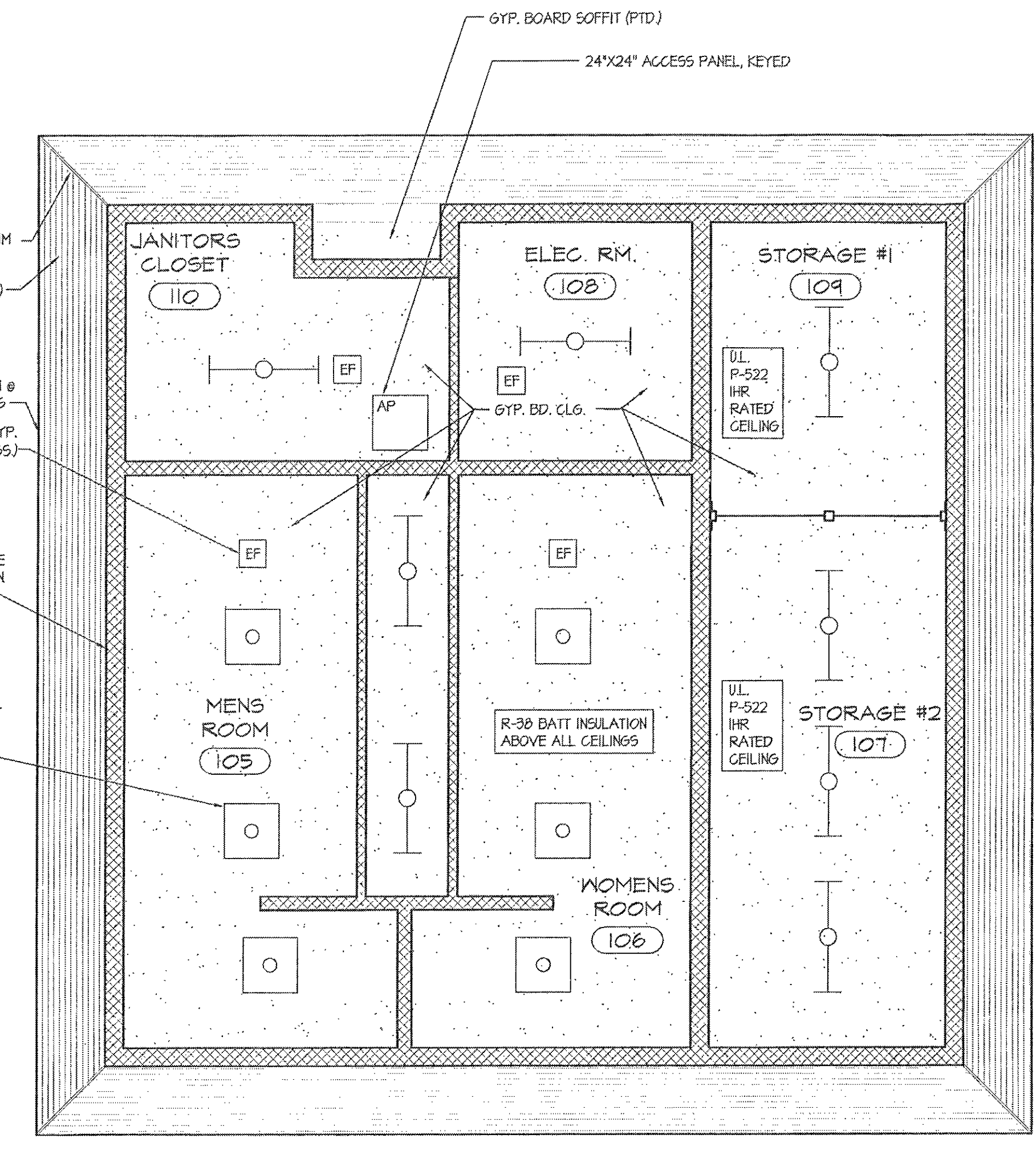


1 FLOOR PLAN  
 SCALE: 1/4" = 1'-0"



2 REFLECTED CEILING PLAN  
 SCALE: 1/4" = 1'-0"

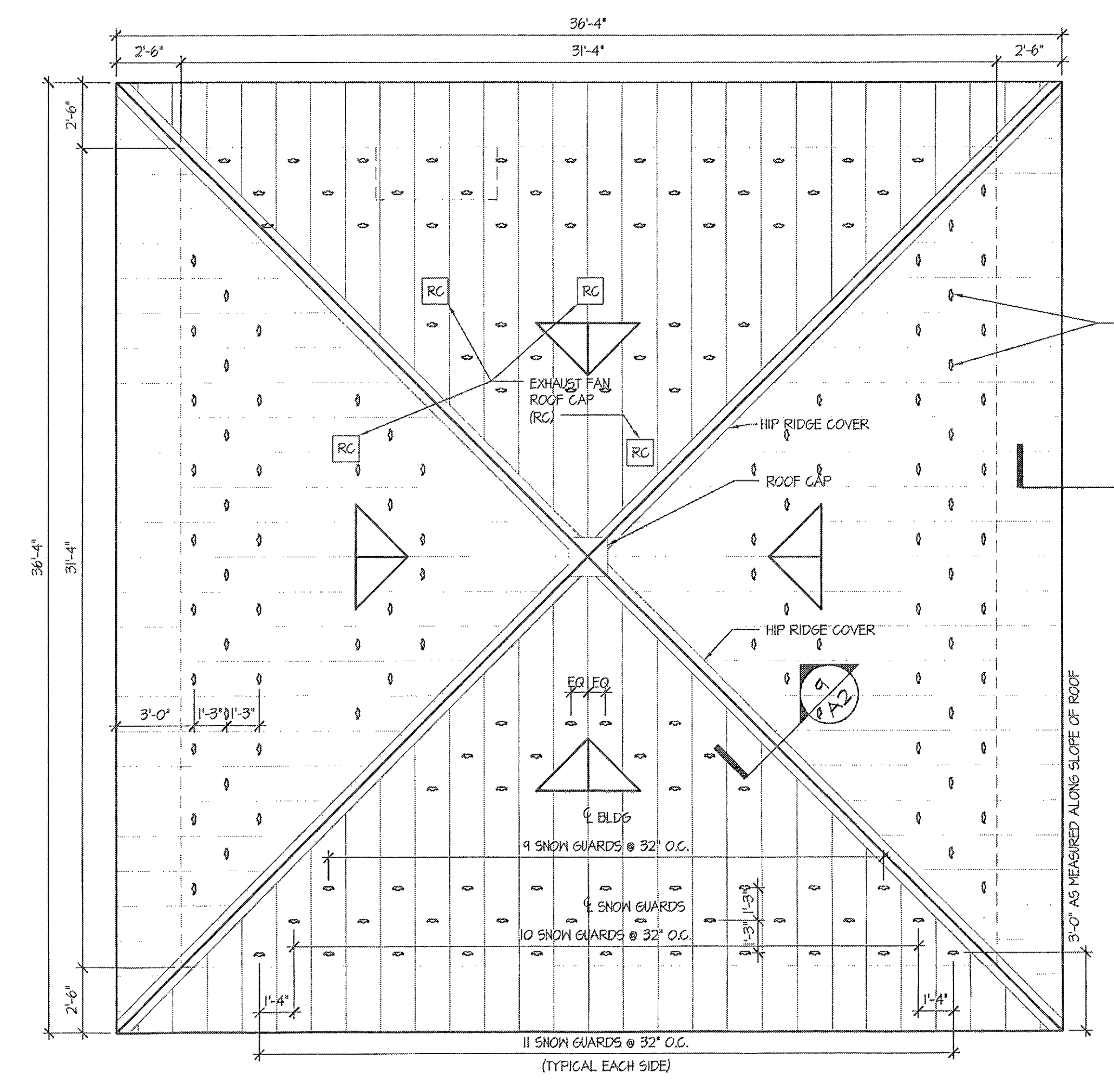
**LEGEND**

	6x6x6 GELING
	ACCESS PANEL
	EXHAUST FAN REGISTER
	SURFACE MOUNTED FLUORESCENT FIXTURE
	2x2 RECESSED FLUORESCENT FIXTURE
	ROOF CAP FOR EF
	CEILING GRILLE

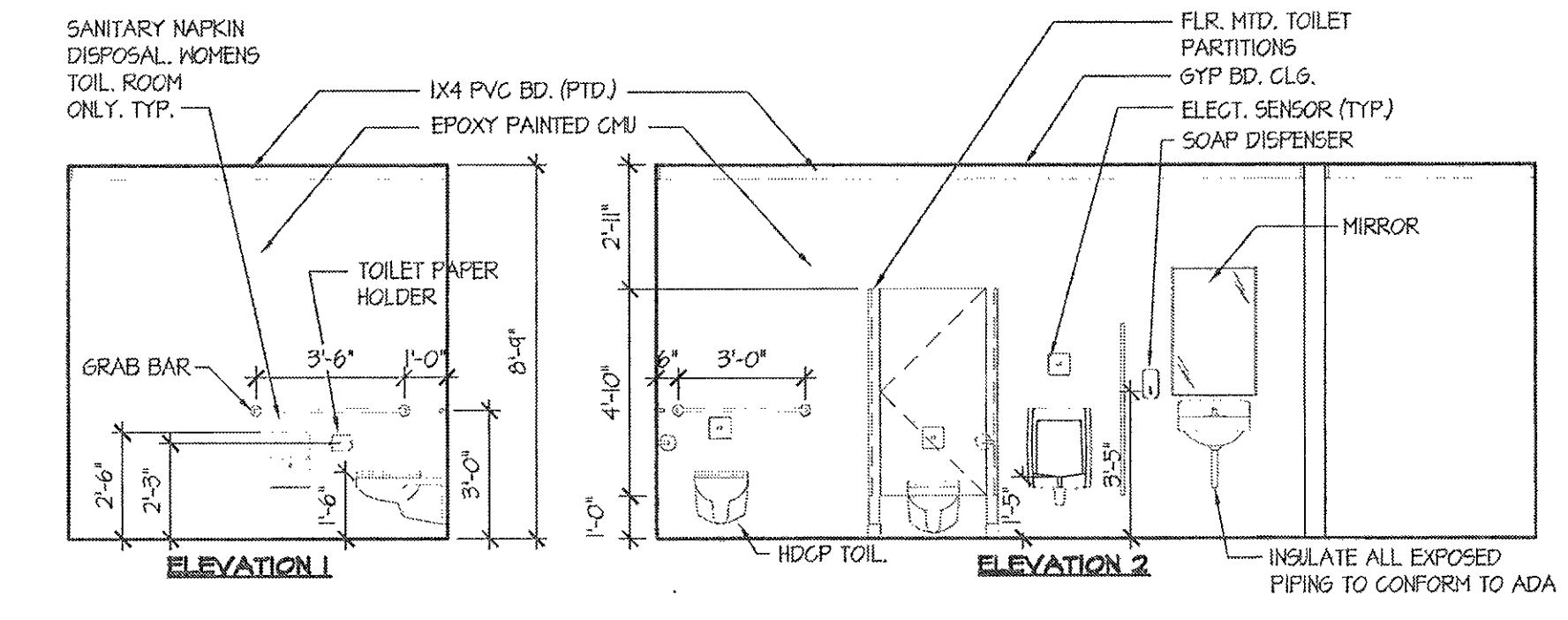
GENERAL CONTRACTOR TO PROVIDE POSITIVE DRAINAGE TO ALL FLOOR DRAINS WITH CONTINUOUS 1/8" FT. SLOPES

SEE CIVIL DNGS. FOR SPOT ELEVATIONS OF CONG. SLAB

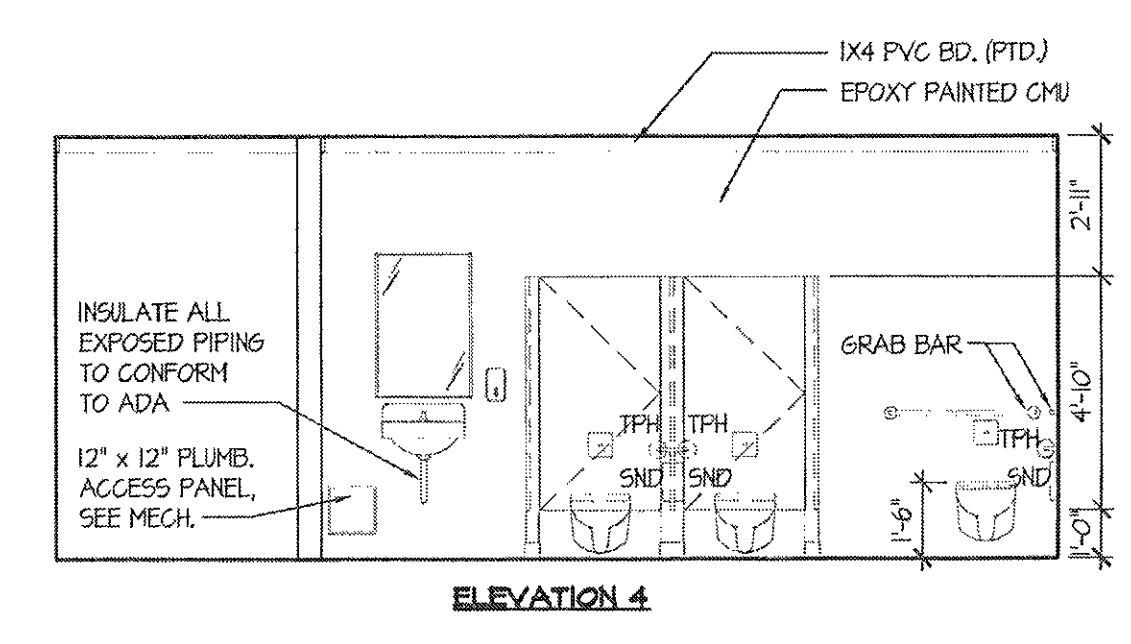
SNOW GUARDS SECURED TO STANDING SEAM @ 32" O.C. MAX. BY 2 S.S. SCREWS WITH NEOPRENE WASHERS PENETRATING METAL ROOF AND EXTENDING 1" MIN. THRU ROOF SHEATHING



3 ROOF PLAN  
 SCALE: 1/4" = 1'-0"



4 TOILET ROOM ELEVATIONS - MEN  
 SCALE: 1/4" = 1'-0"



5 TOILET ROOM ELEVATIONS - WOMEN  
 SCALE: 1/4" = 1'-0"

RECEIVED  
 MAR 2 2 2013  
 LICENSES & PERMITS  
 DIVISION

**REVISIONS**

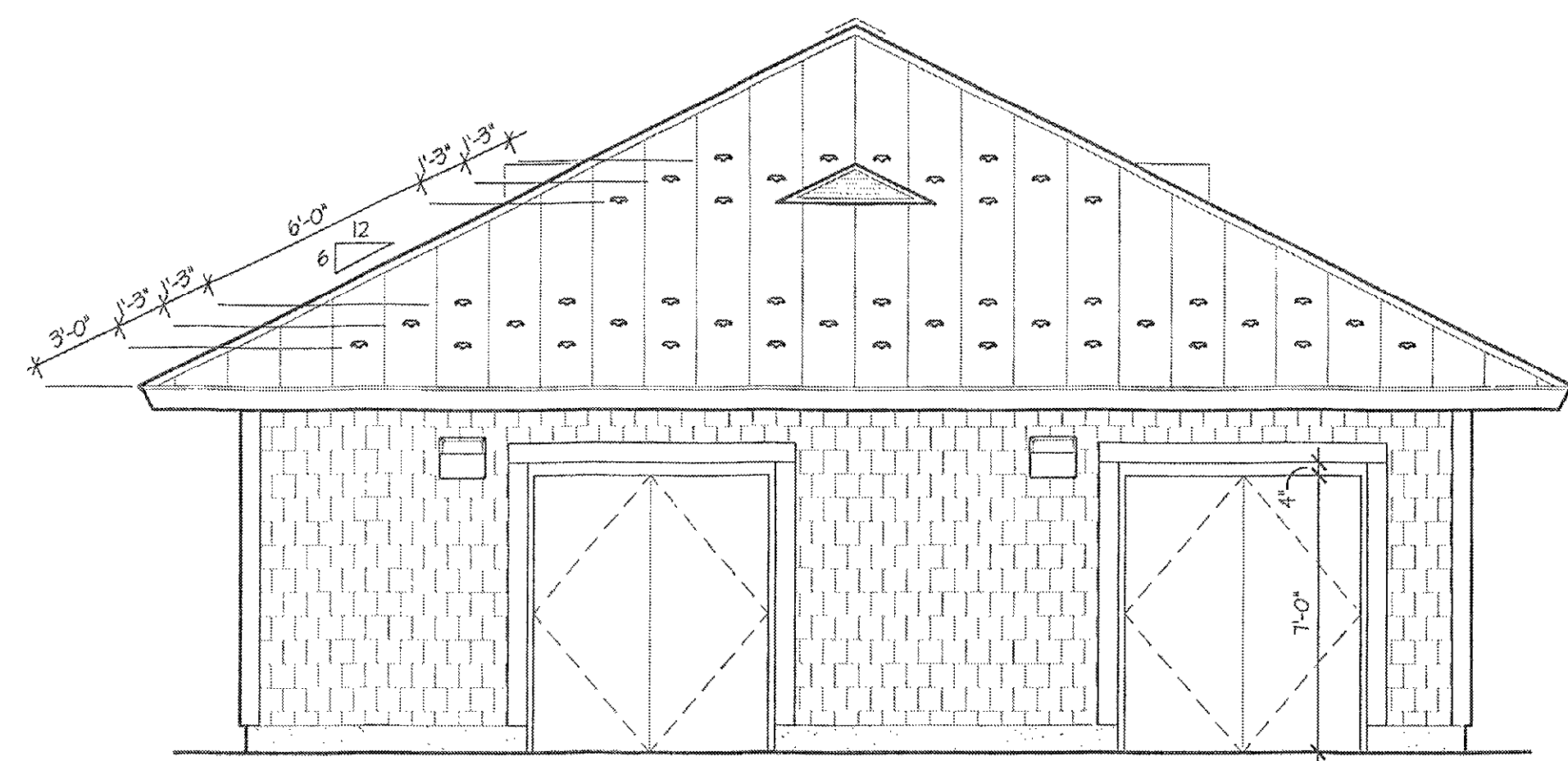
NO.	DATE	DESCRIPTION

COMFORT STATION  
 TO  
 ALPHA RIDGE PARK  
 HOWARD COUNTY, MD.  
 FOR  
 HOWARD COUNTY  
 DEPARTMENT OF  
 RECREATION & PARKS

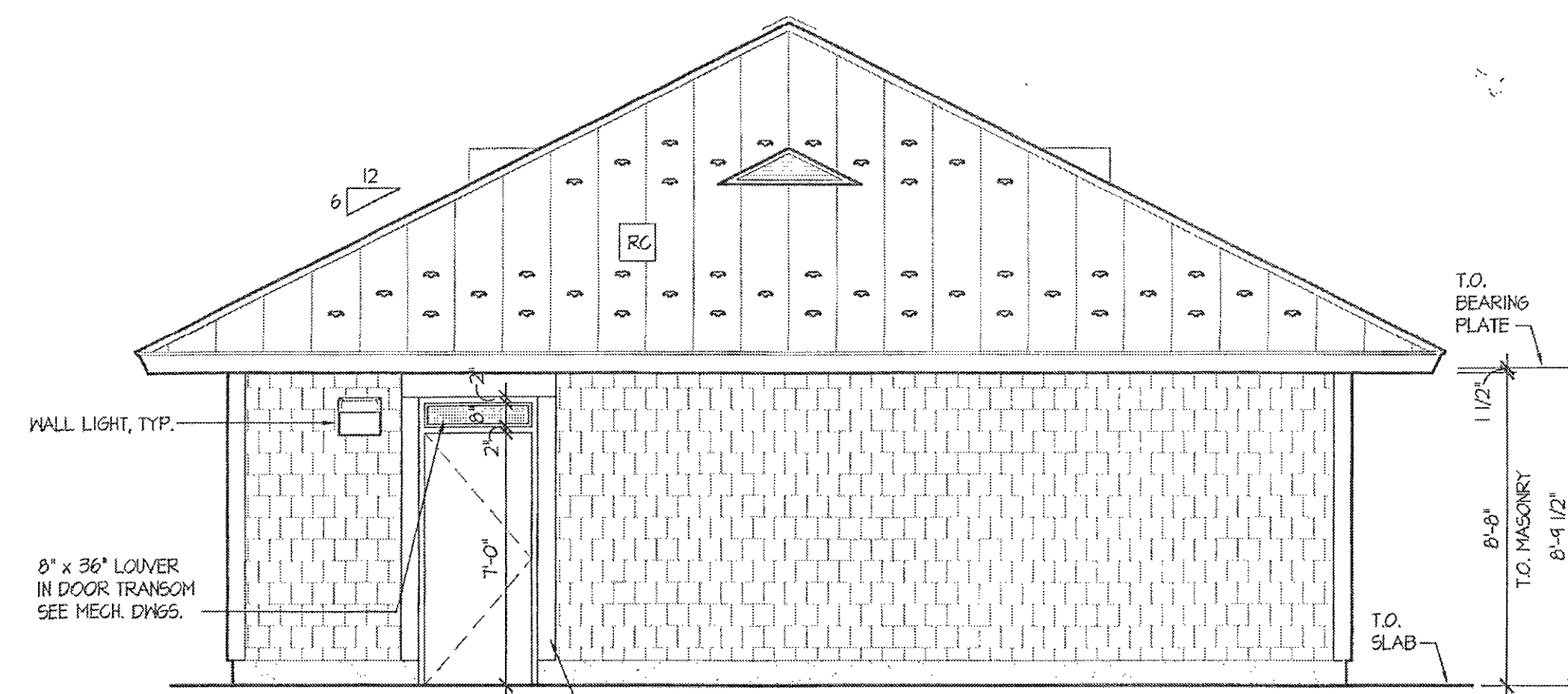
PROJECT NUMBER: 105-B  
 PRELIMINARY ISSUE: SEPTEMBER 11, 2012  
 CONSTRUCTION ISSUE: --/--  
 CADD FILE NAME: 105-B-Drawings.dwg

PLANS & INTERIOR  
 ELEVATIONS

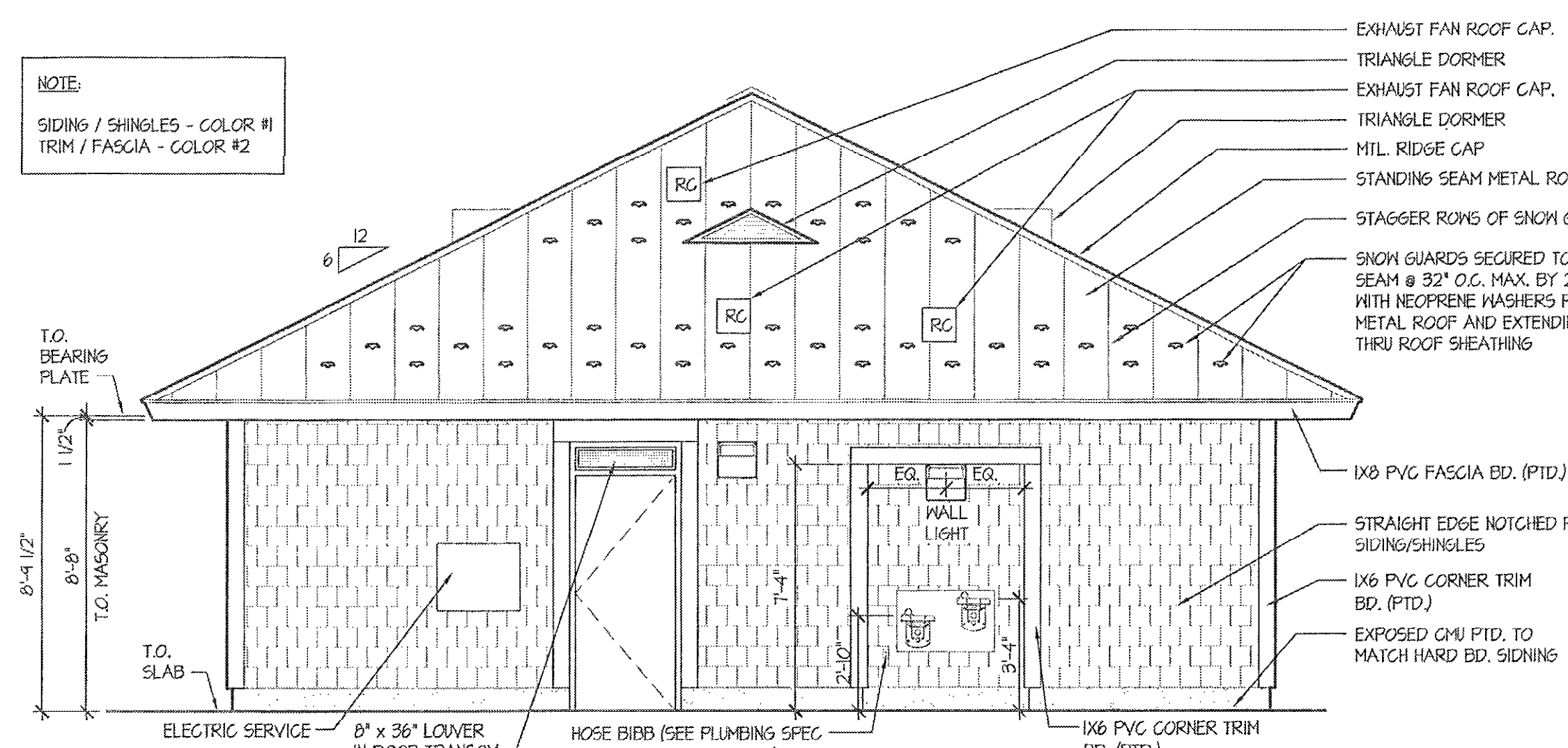
SHEET NUMBER:  
**A-1**



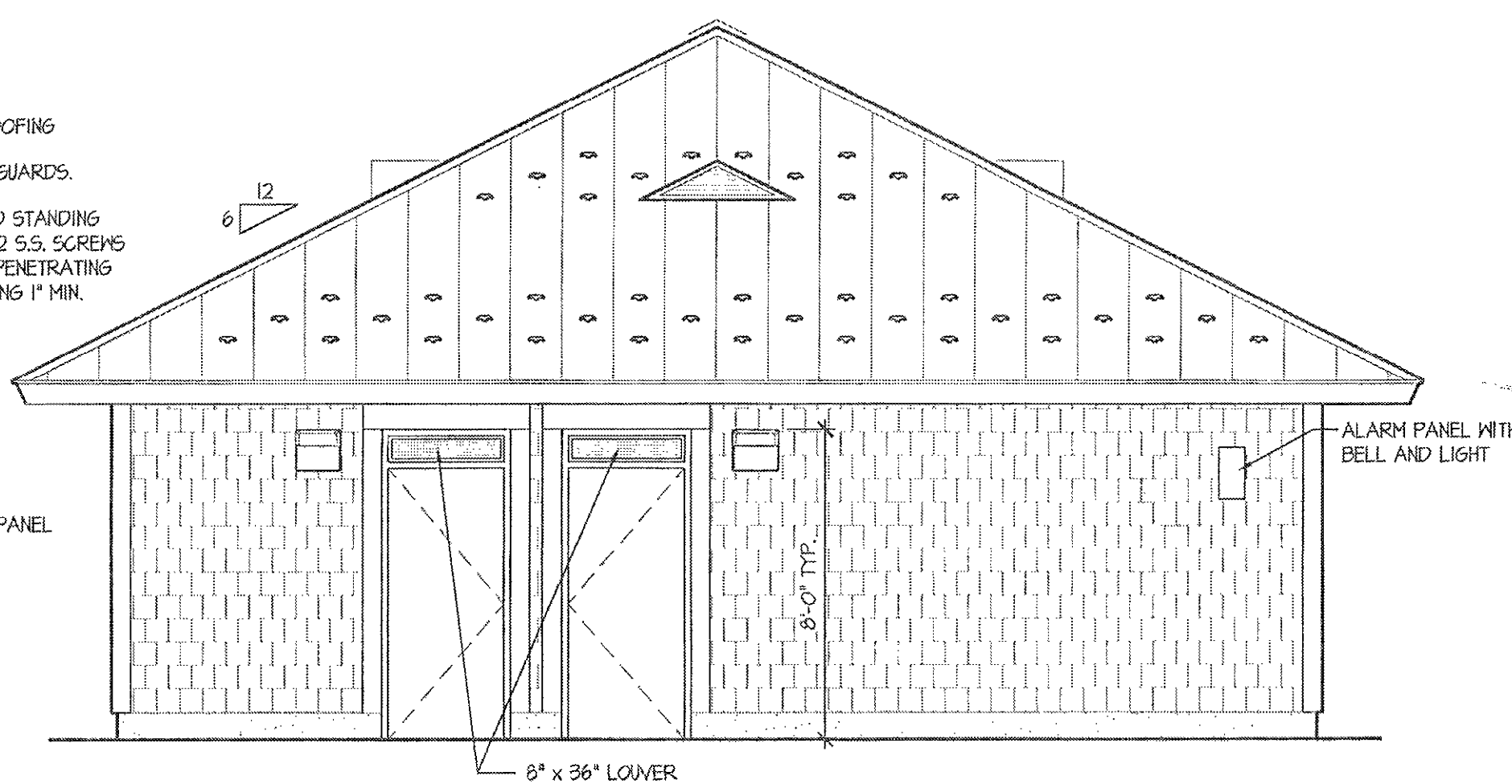
1 ELEVATION  
SCALE: 1/4" = 1'-0"



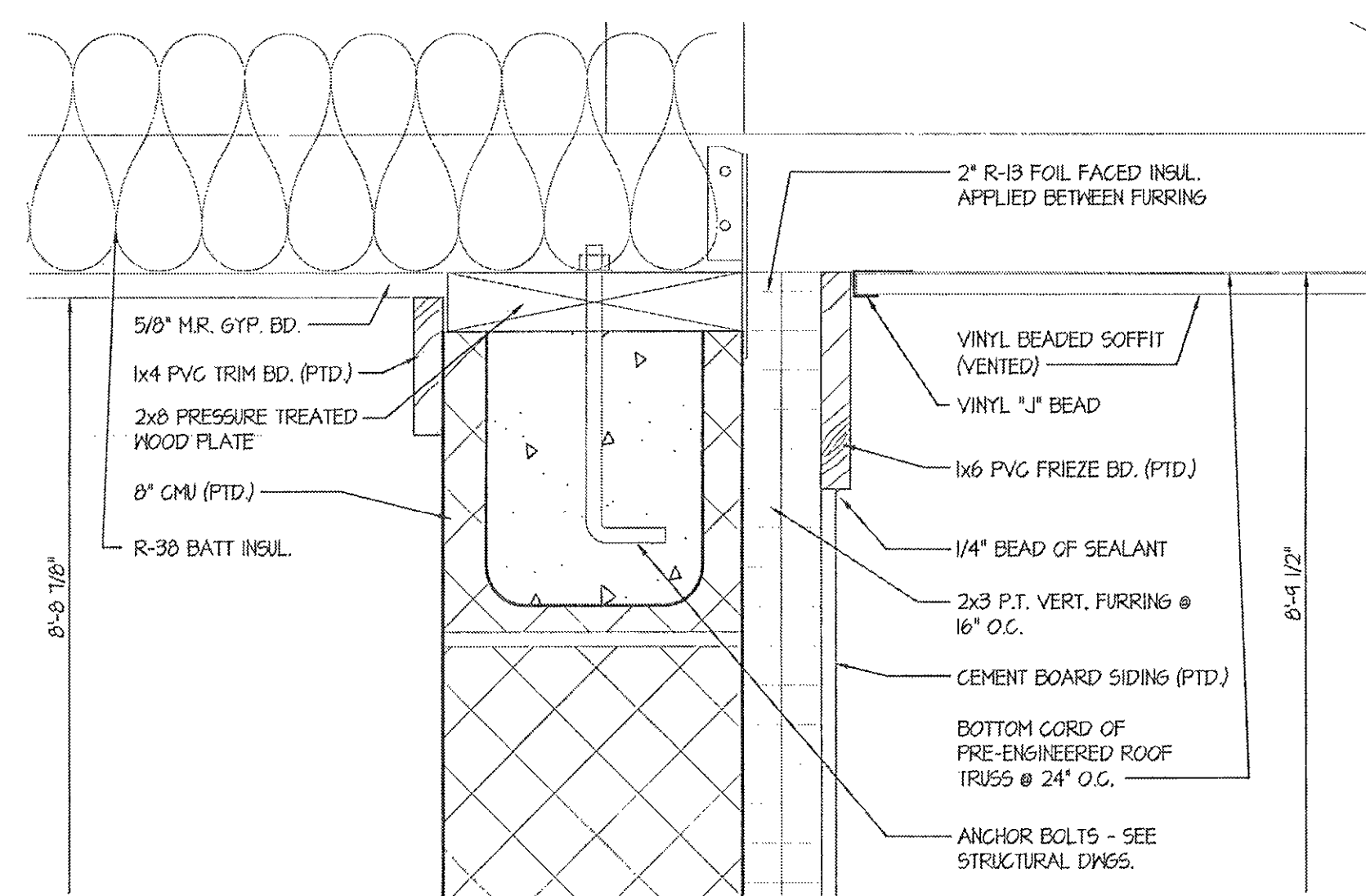
4 ELEVATION  
SCALE: 1/4" = 1'-0"



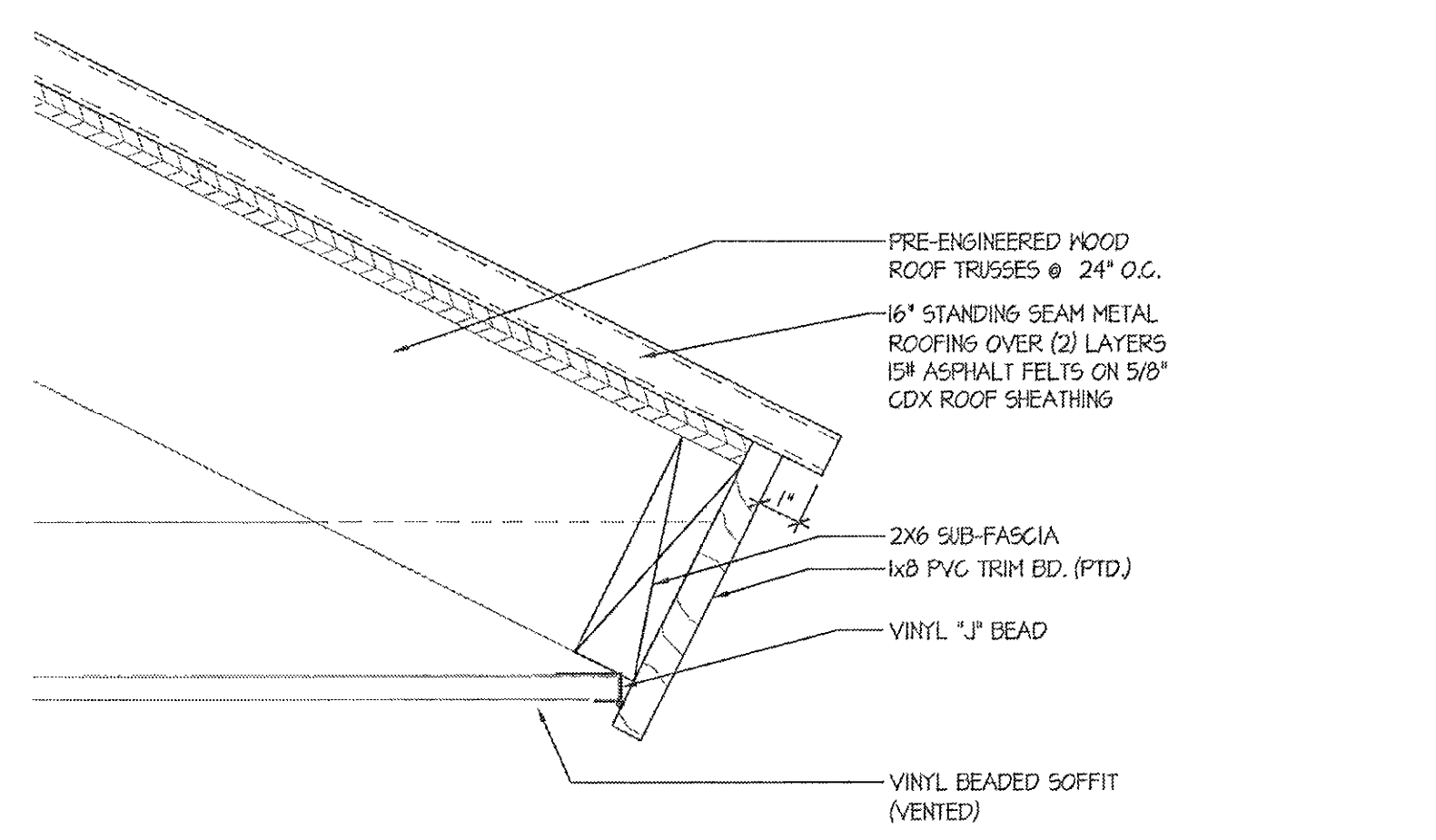
2 ELEVATION  
SCALE: 1/4" = 1'-0"



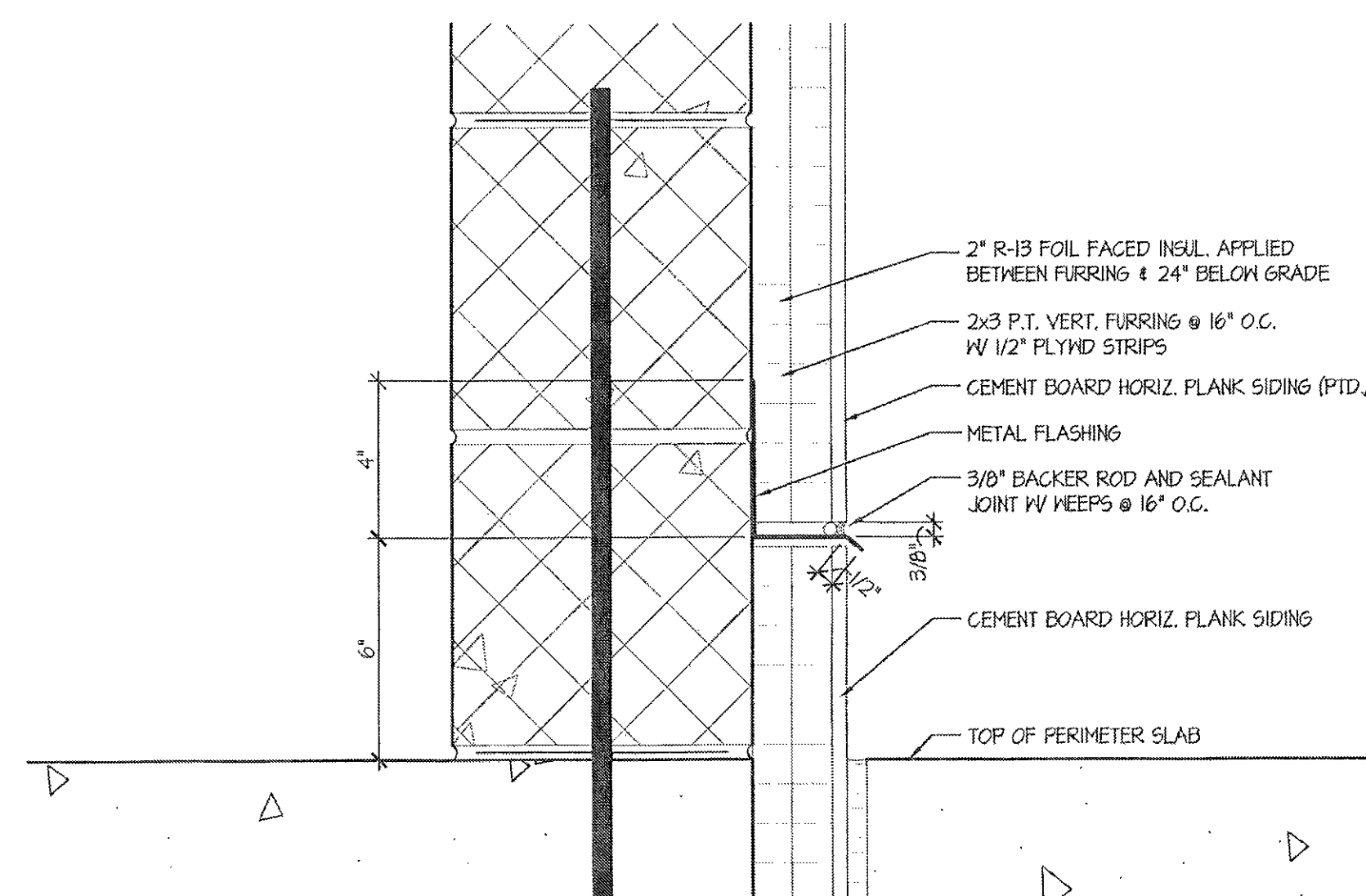
3 ELEVATION  
SCALE: 1/4" = 1'-0"



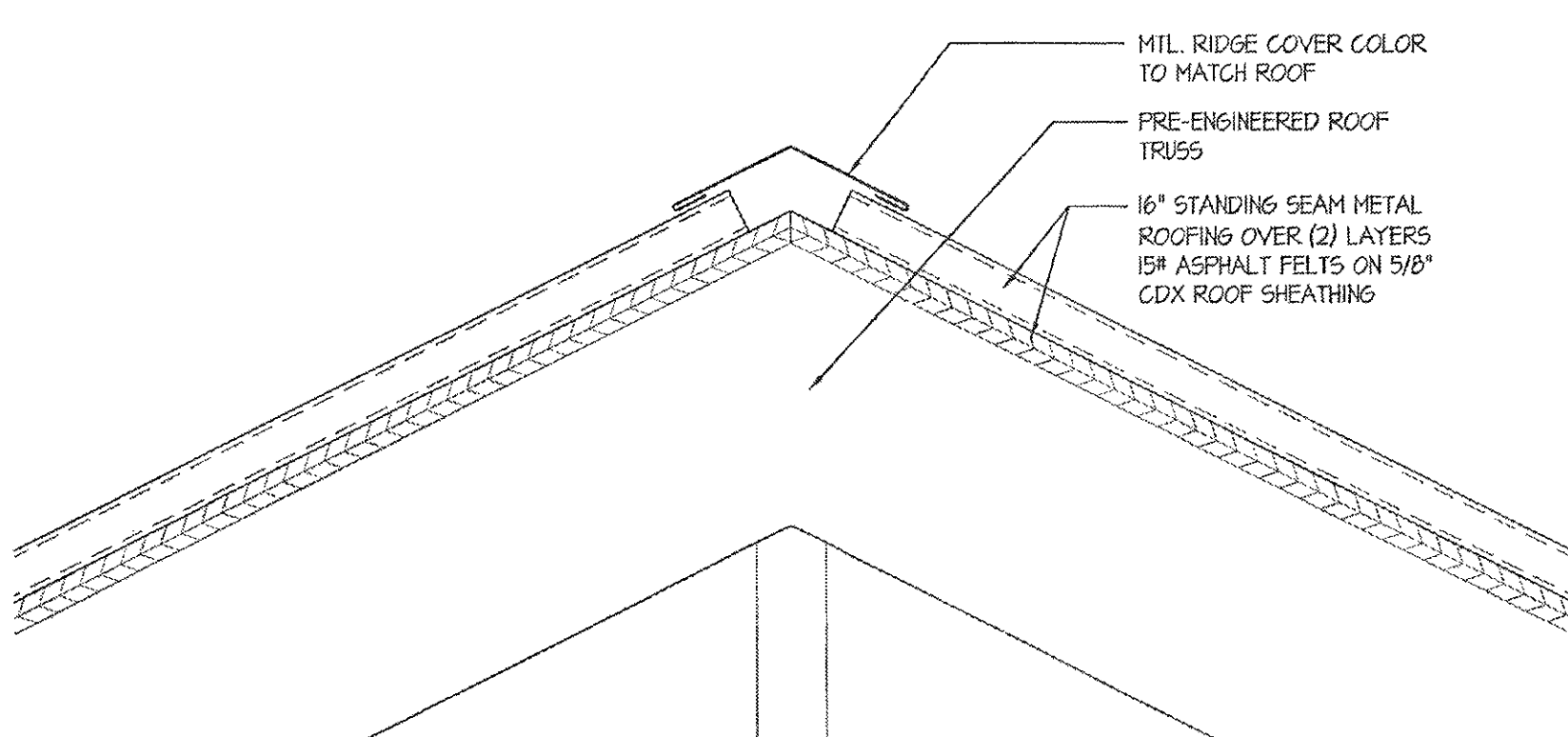
6 SECTION DETAIL  
SCALE: 3/4" = 1'-0"



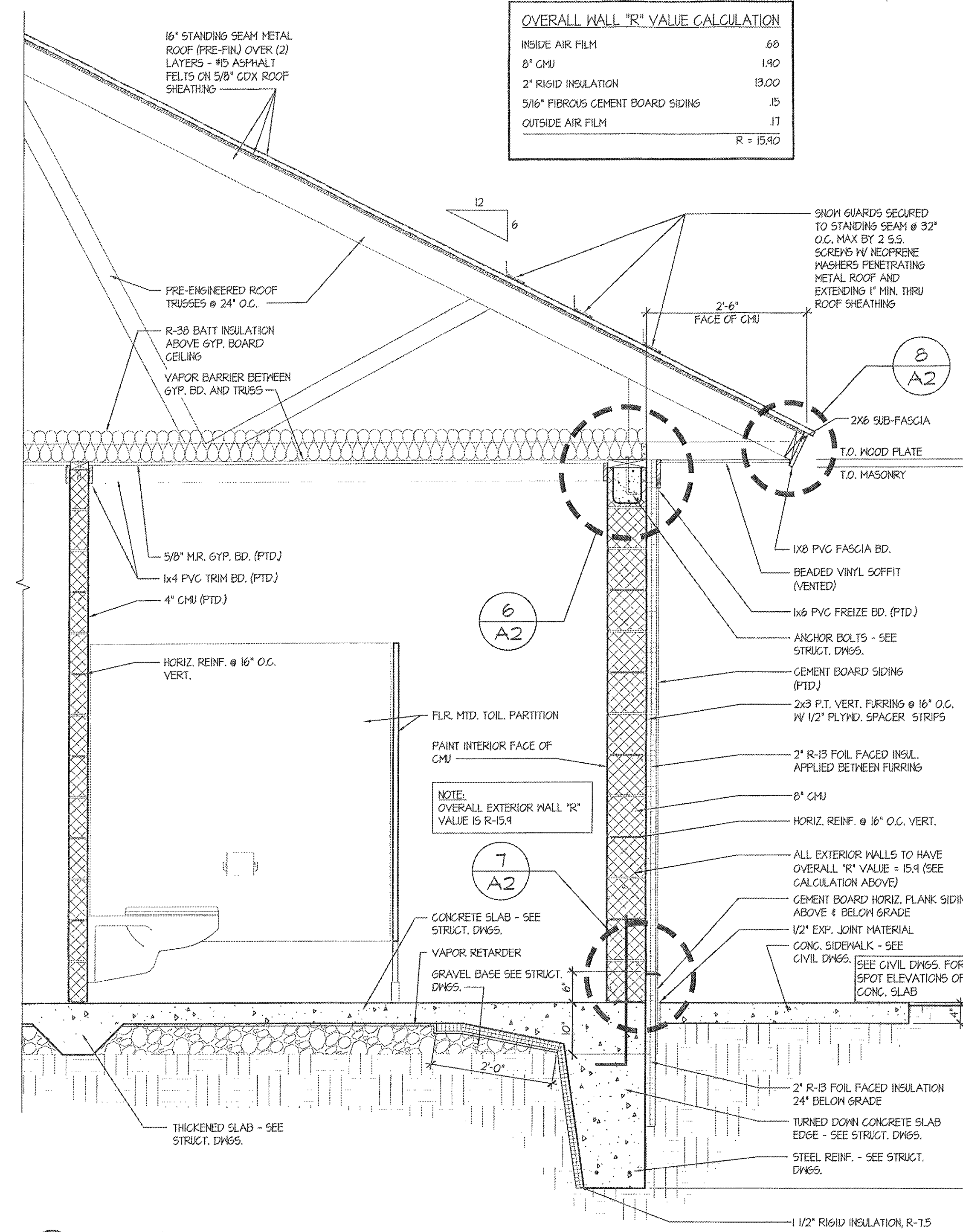
8 SECTION DETAIL  
SCALE: 3/4" = 1'-0"



7 SECTION DETAIL  
SCALE: 3/4" = 1'-0"



9 HIP RIDGE DETAIL  
SCALE: 3/4" = 1'-0"

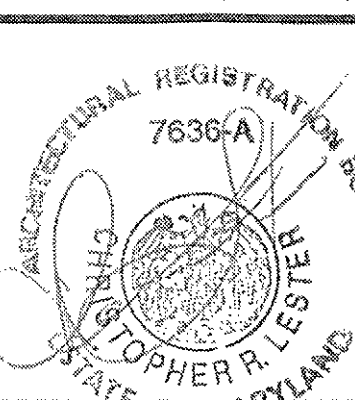


5 SECTION  
SCALE: 3/4" = 1'-0"

OVERALL WALL "R" VALUE CALCULATION	
INSIDE AIR FILM	6.0
8" CMU	1.00
2" RIGID INSULATION	13.00
5/8" FIBROUS CEMENT BOARD SIDING	.15
OUTSIDE AIR FILM	.17
<b>R =</b>	<b>15.32</b>



George Vaeth Associates, Inc.  
Architecture • Interior Design  
5501 Twin Knolls Rd., Suite 108  
Columbia, Maryland 21045  
Tel. (410) 997-1000 Fax (410) 997-2719  
Email gva-inc@gvaarchitects.com



RECEIVED

MAR 2 2 2013  
LICENSES & PERMITS  
DIVISION

REVISIONS

NO.	DATE	DESCRIPTION

COMFORT STATION  
TO  
ALPHA RIDGE PARK  
HOWARD COUNTY, MD.  
FOR  
HOWARD COUNTY  
DEPARTMENT OF  
RECREATION & PARKS

PROJECT NUMBER: 105-B  
PRELIMINARY ISSUE: SEPTEMBER 11, 2012  
CONSTRUCTION ISSUE: -/-  
CADD FILE NAME: 105-B-Drawings.dwg

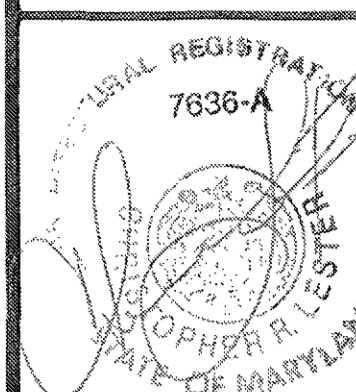
ELEVATIONS, SECTION  
& DETAILS

SHEET NUMBER:

A-2



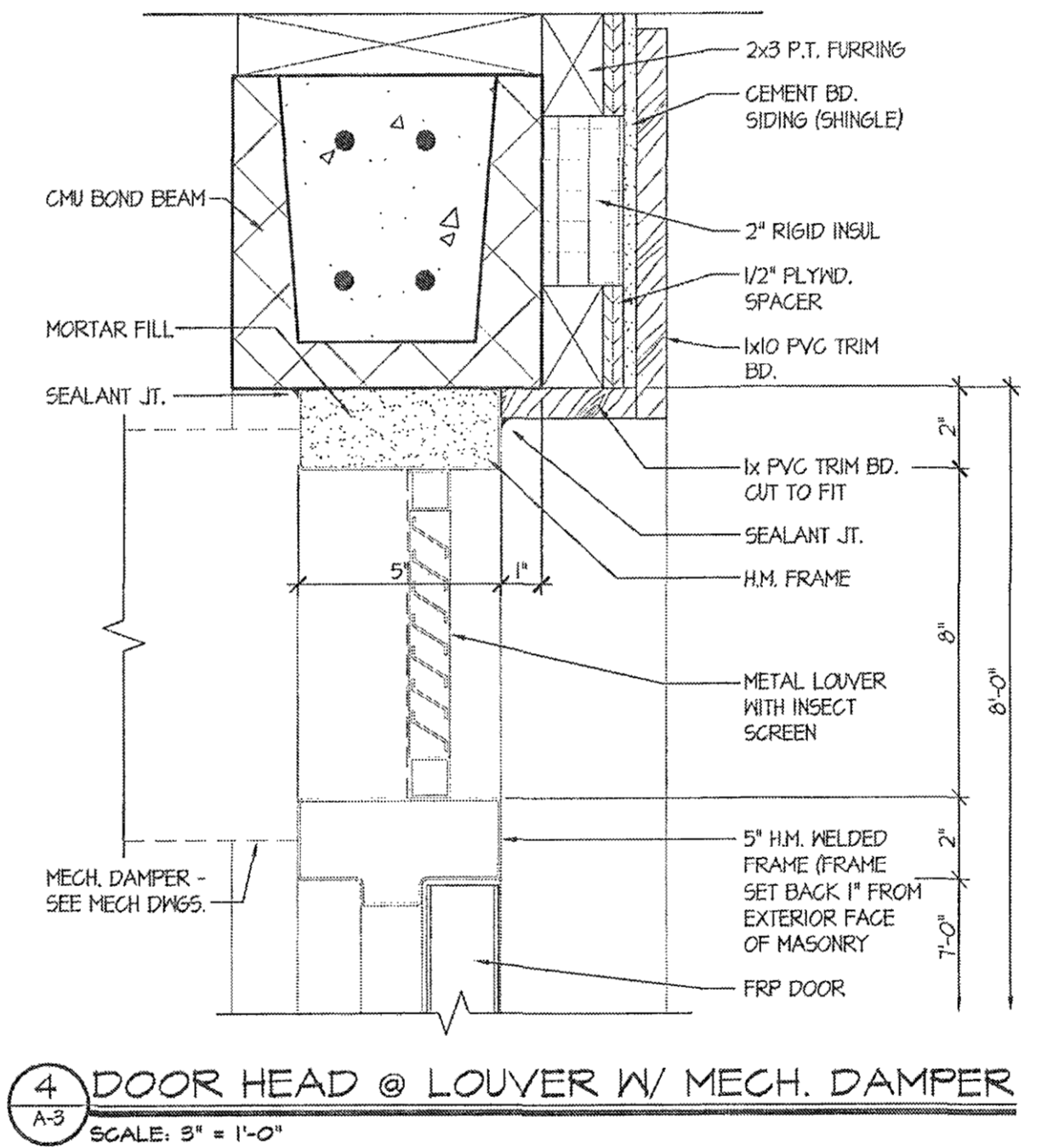
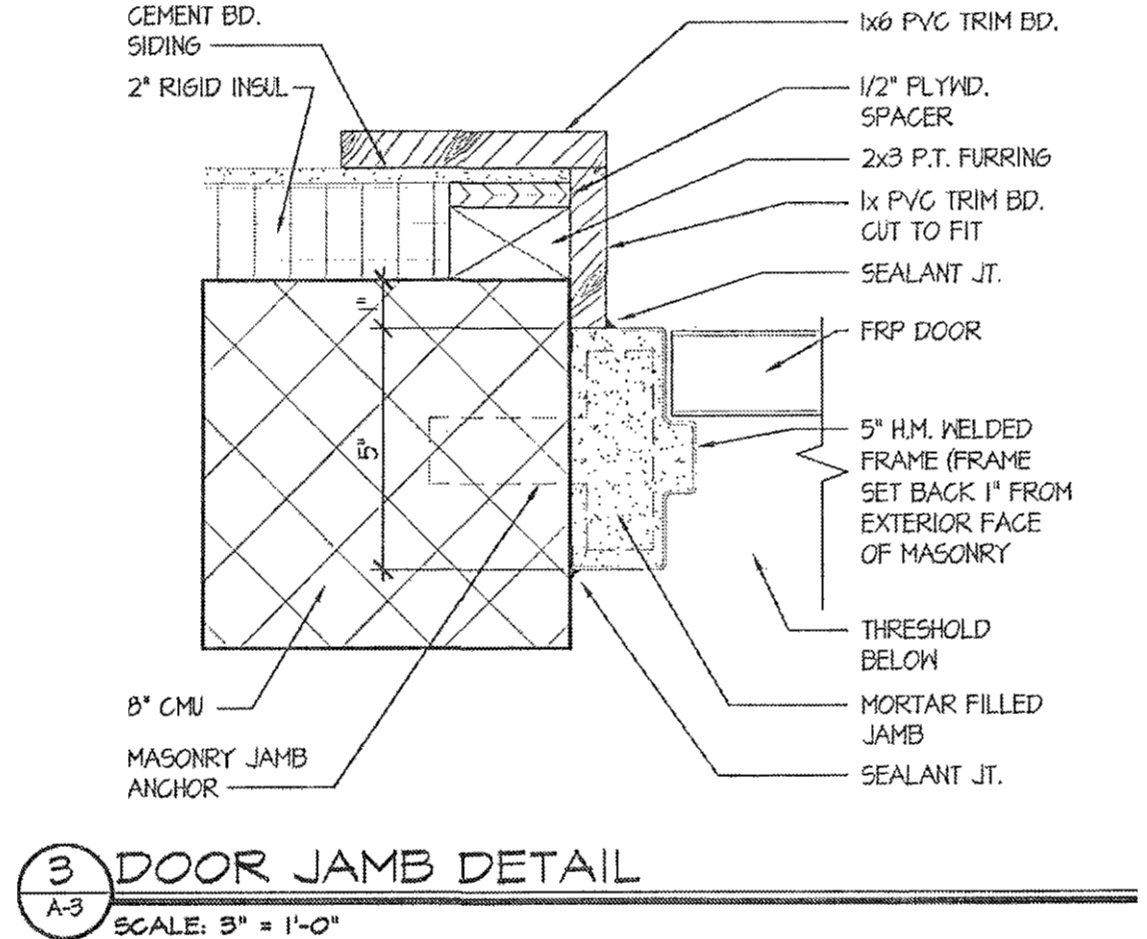
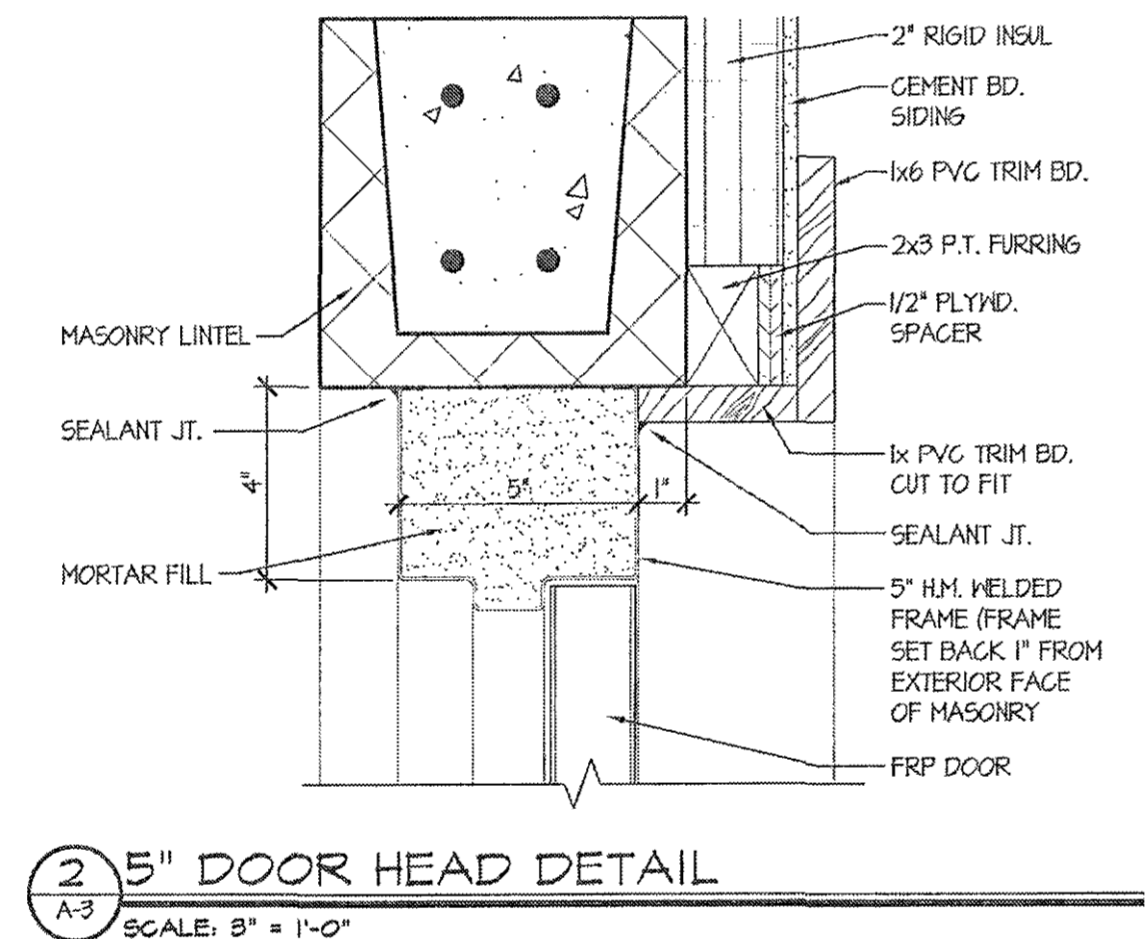
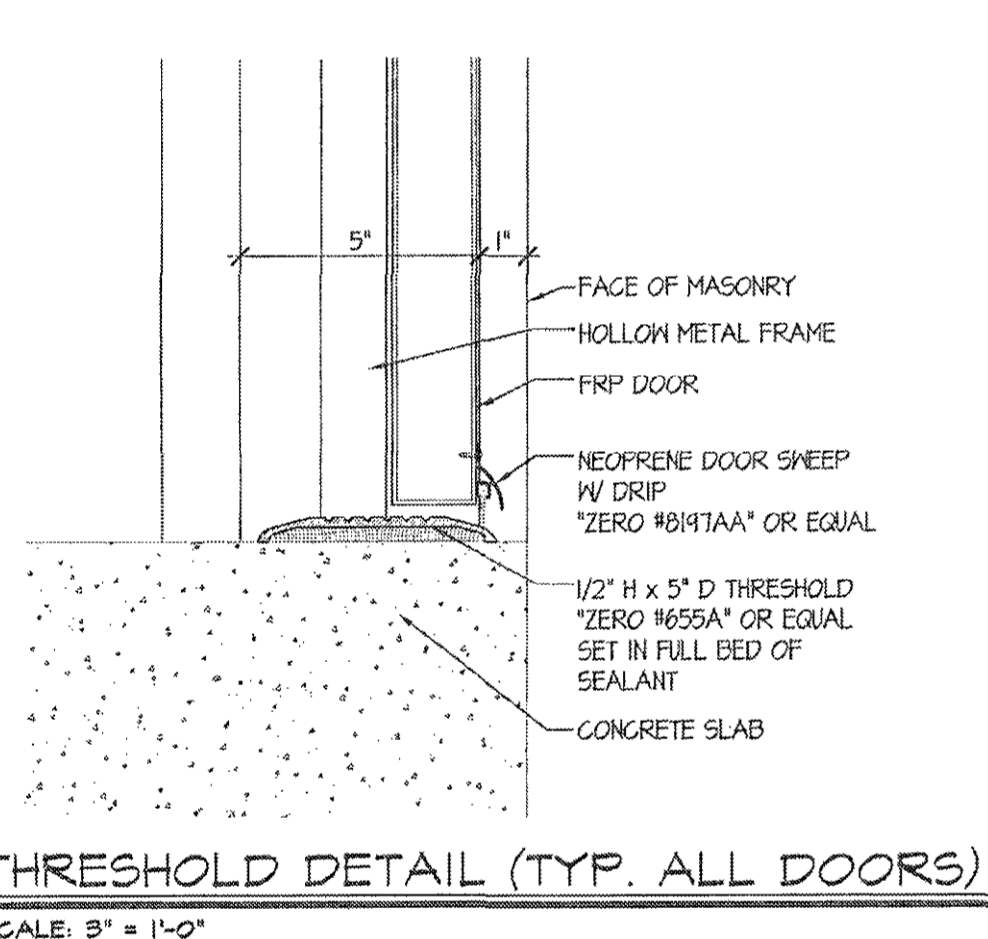
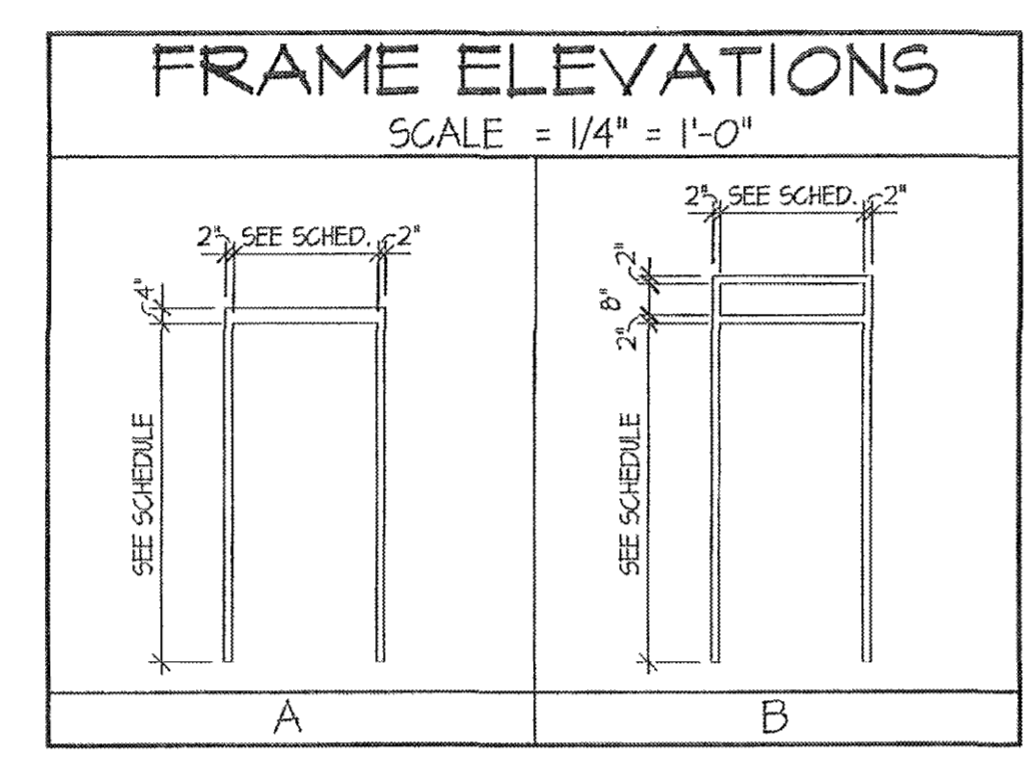
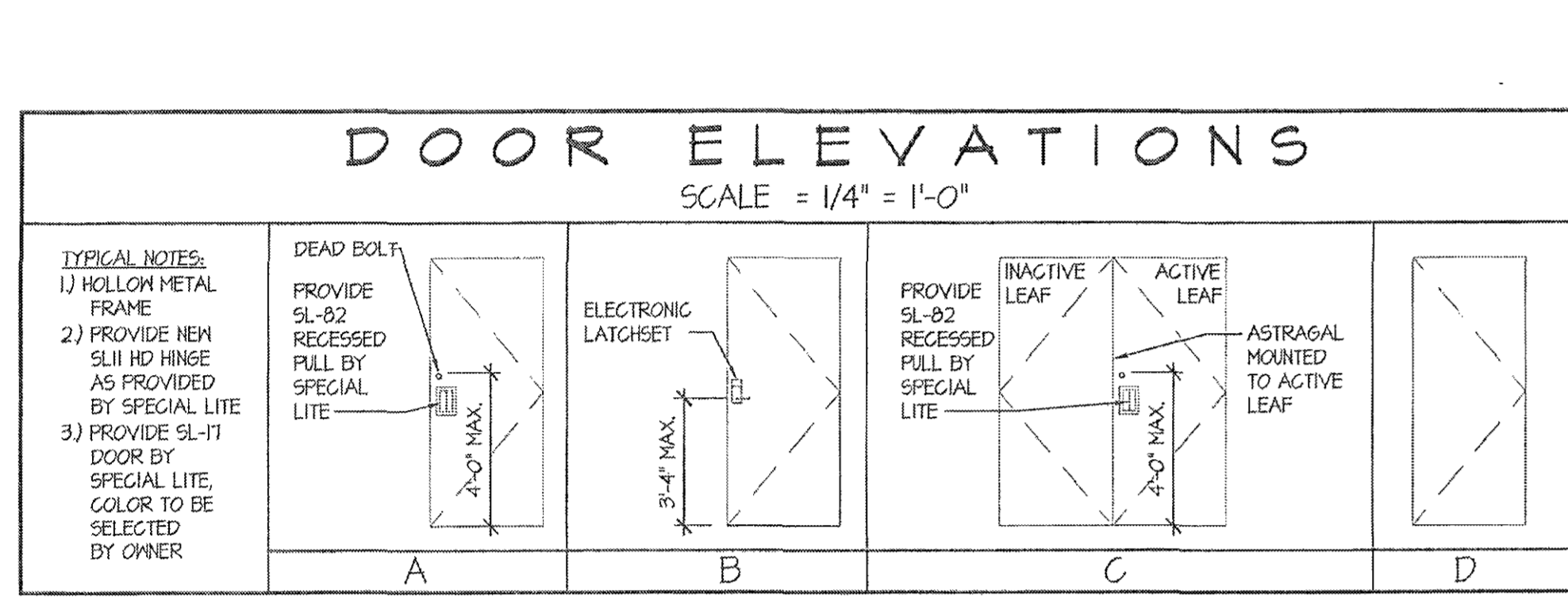
George Vaeth Associates, Inc.  
Architecture • Interior Design  
5501 Twin Knolls Rd., Suite 108  
Columbia, Maryland 21045  
Tel (410) 997-1000 Fax (410) 997-2719  
Email gva@vaeth.com



OPENING NUMBER	FRAME			DOOR			FRAME			H.W. LABEL	HARDWARE SET	KEY NUMBER	REMARKS		
	WIDTH	HEIGHT	DOOR THICKNESS	DOOR ELEVATION	DOOR MATERIAL	UNDERCUT (in inches)	FRAME THICKNESS (in inches)	FRAME ELEVATION	FRAME MATERIAL						
06	3'-0"	7'-0"	1 3/4"	B	FRP	5"	B	HM	LOUVER	8" X 36"	4/A-3	3/A-3	1/A-3	1	
07	3'-0"	7'-0"	1 3/4"	B	FRP	5"	B	HM	LOUVER	8" X 36"	4/A-3	3/A-3	1/A-3	1	
08	3'-0"	7'-0"	1 3/4"	C	FRP	5"	A	HM	-	-	2/A-3	3/A-3	1/A-3	4	
09	3'-0"	7'-0"	1 3/4"	A	FRP	5"	B	HM	LOUVER	8" X 36"	4/A-3	3/A-3	1/A-3	2	
10	3'-0"	7'-0"	1 3/4"	C	FRP	5"	A	HM	-	-	2/A-3	3/A-3	1/A-3	4	
11	3'-0"	7'-0"	1 3/4"	A	FRP	5"	B	HM	LOUVER	8" X 36"	4/A-3	3/A-3	1/A-3	2	
12	2'-4"	7'-0"	1 3/4"	D	FRP	5"	A	HM	-	-	2/A-3	3/A-3	-	3	

HARDWARE SCHEDULE	
<b>HARDWARE SET NO. 1:</b> 1 SPECIAL-LITE SL-II HD HINGE, CLEAR 1 LOCKSET, ELECTRONIC, FAIL SECURE 1 CLOSER 1460 WITH HOLD OPEN 1 SKEEP W/ DRIP EDGE	<b>HARDWARE SET NO. 2:</b> 1/2" PAIR BUTT HINGES, FEBTIN 1 LATCH SET PASSAGE (FOU) 1 WALL OR FLOOR BUMPER
<b>HARDWARE SET NO. 3:</b> 1 RECESSED PULL, SPECIAL-LITE SL-82, CLEAR 1 RECESSED PULL, SPECIAL-LITE SL-82, CLEAR 1 DEAD BOLT 1 FRAME FLUSH BOLTS 4 RICK PLATES 2 SETS WEATHERSTRIPPING 1 THRESHOLD 2 HALL OR FLOOR BUMPERS 2 SKEEPS W/ DRIP EDGES	<b>HARDWARE SET NO. 4:</b> 2 SPECIAL-LITE SL-II HD HINGES, CLEAR 1 RECESSED PULL, SPECIAL-LITE SL-82, CLEAR 1 DEAD BOLT 1 FRAME FLUSH BOLTS 2 CLOSERS, 1460 W/ HOLD OPEN 4 RICK PLATES 2 SETS WEATHERSTRIPPING 1 THRESHOLD 2 HALL OR FLOOR BUMPERS 2 SKEEPS W/ DRIP EDGES

**ABBREVIATIONS:**  
FRP FIBERGLASS REINF.  
POLYESTER  
CNG CLEAR WIRE GLASS  
HM HOLLOW METAL  
LAM LAMINATED GLASS  
M/G METAL/GLASS  
SCM SOLID CORE WOOD  
STL STEEL



**RECEIVED**  
MAR 22 2013  
LICENSES & PERMITS DIVISION

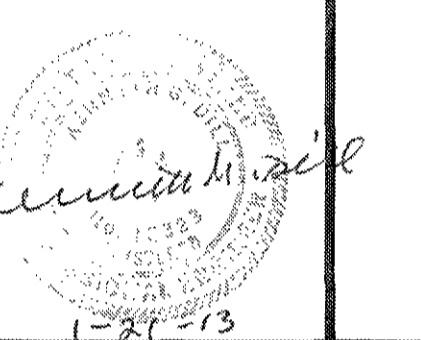
REVISIONS		
NO.	DATE	DESCRIPTION

**COMFORT STATION TO ALPHA RIDGE PARK HOWARD COUNTY, MD. FOR HOWARD COUNTY DEPARTMENT OF RECREATION & PARKS**

PROJECT NUMBER: 105-B  
PRELIMINARY ISSUE: SEPTEMBER 11, 2012  
CONSTRUCTION ISSUE: -/-  
CADD FILE NAME: 105-B-Drawing.dwg

**DOOR SCHEDULE & DETAILS**

SHEET NUMBER: **A-3**



RECEIVED

MAR 22 2013  
 LICENSES & PERMITS  
 DIVISION

REVISIONS

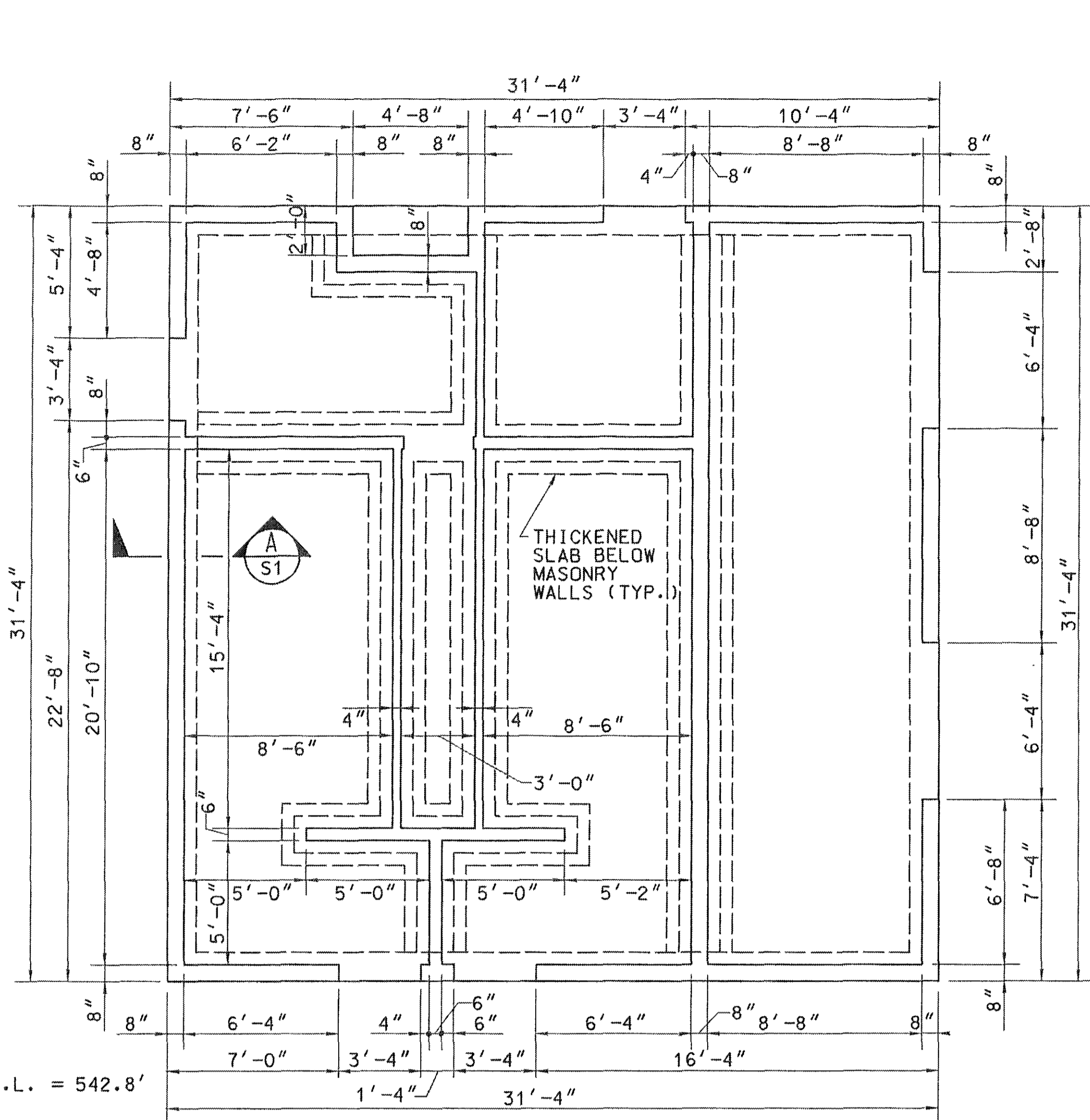
NO.	DATE	DESCRIPTION	UPDATED CODE
1	9/17/12		

COMFORT STATION  
 TO  
 ALPHA RIDGE PARK  
 HOWARD COUNTY, MD.  
 FOR  
 HOWARD COUNTY  
 DEPARTMENT OF  
 RECREATION & PARKS

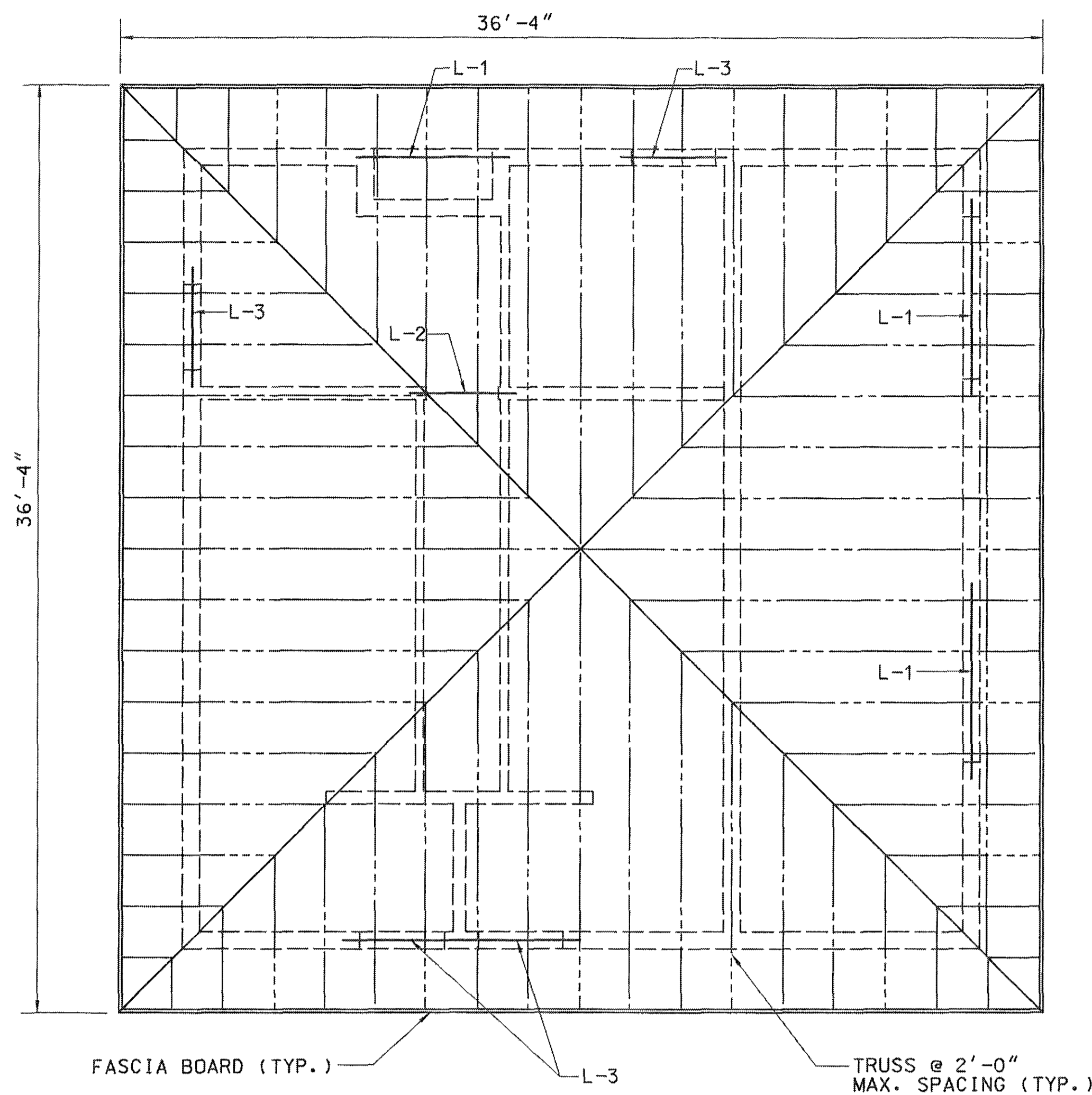
PROJECT NUMBER: 1015-B  
 PRELIMINARY ISSUE: SEPTEMBER 2012  
 CONSTRUCTION ISSUE: ---  
 CADD FILE NAME:

PLANS, SECTIONS  
 AND DETAILS

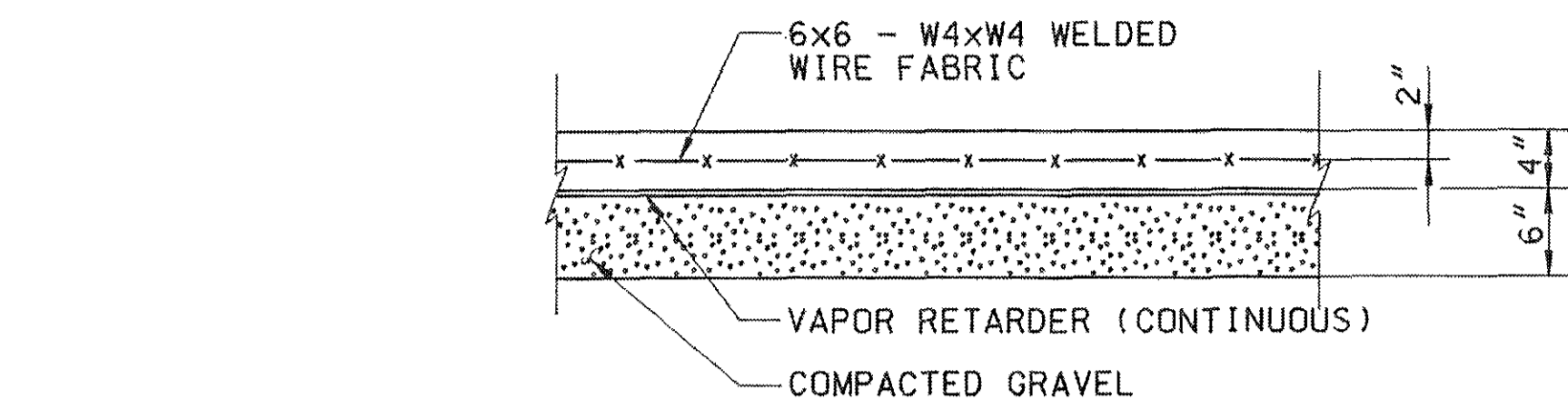
SHEET NUMBER:  
**S-1**



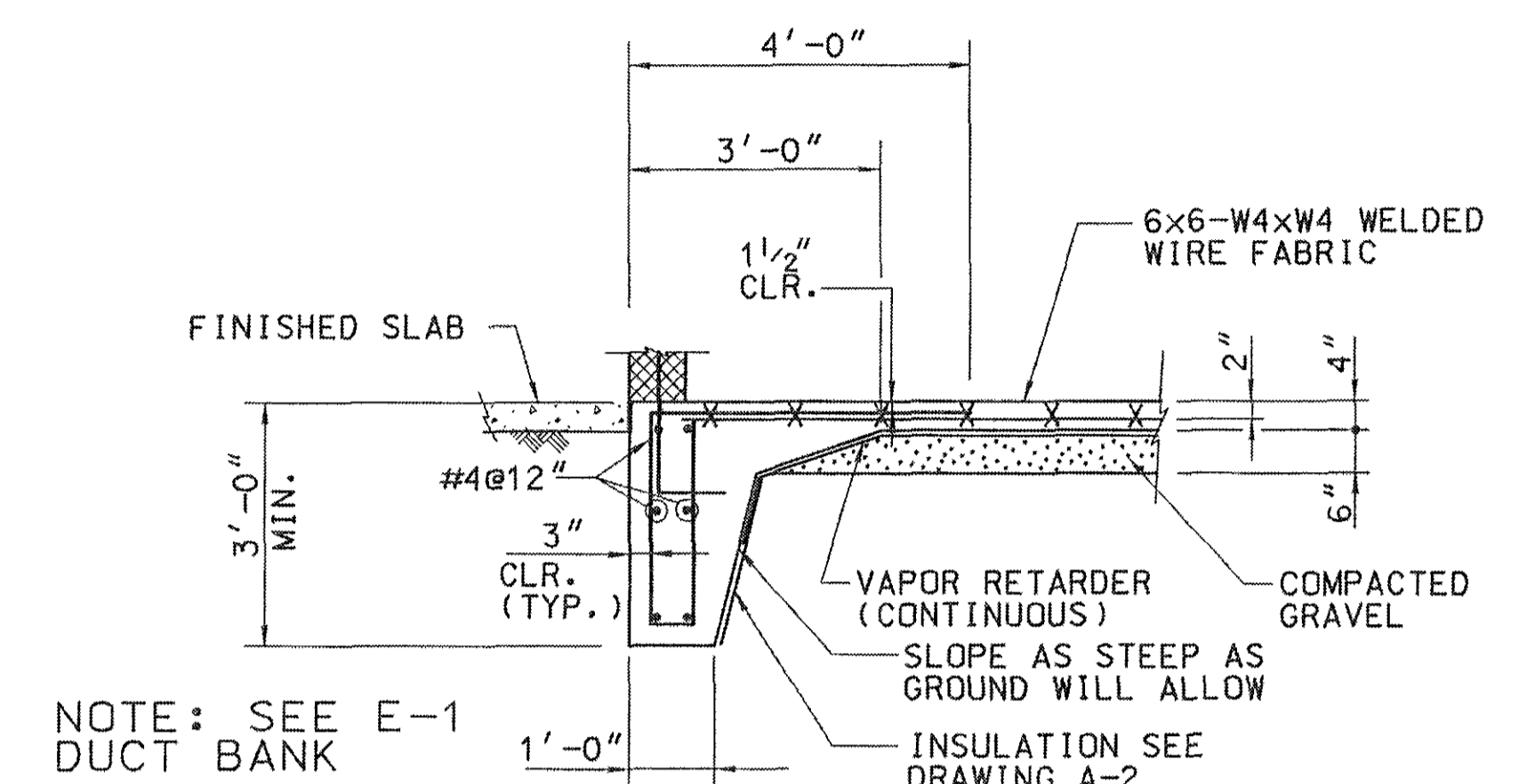
FOUNDATION PLAN - COMFORT STATION NO. 1  
 SCALE: 1/4" = 1'-0"



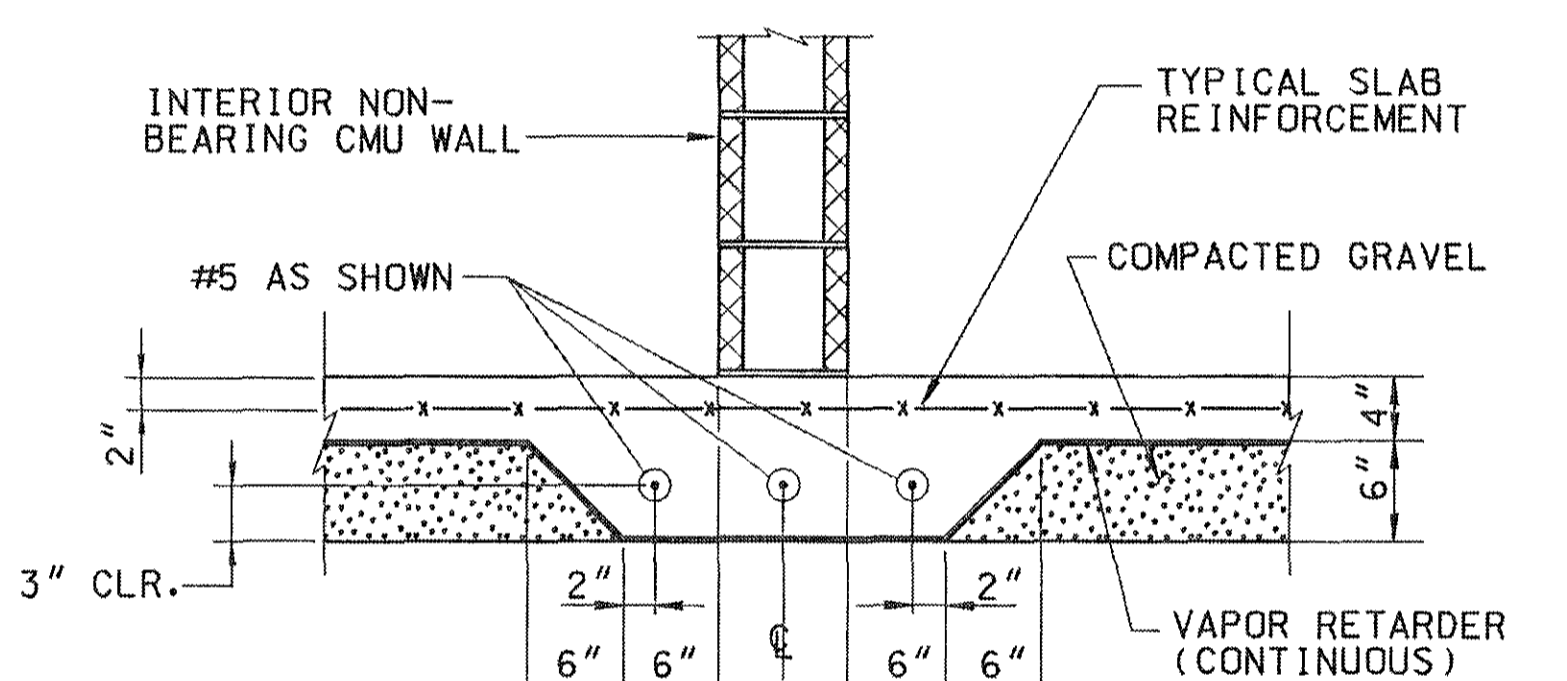
ROOF FRAMING PLAN - COMFORT STATION NO. 1  
 SCALE: 1/4" = 1'-0"



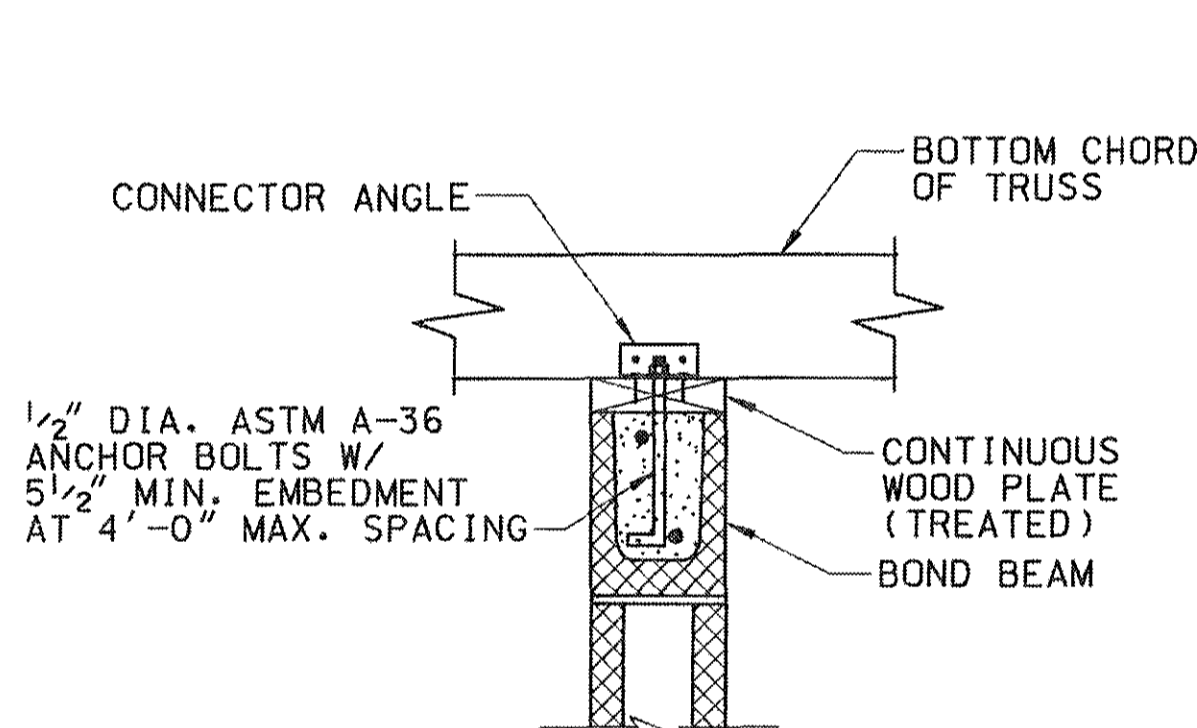
SLAB ON GRADE DETAIL  
 SCALE: 1" = 1'-0"



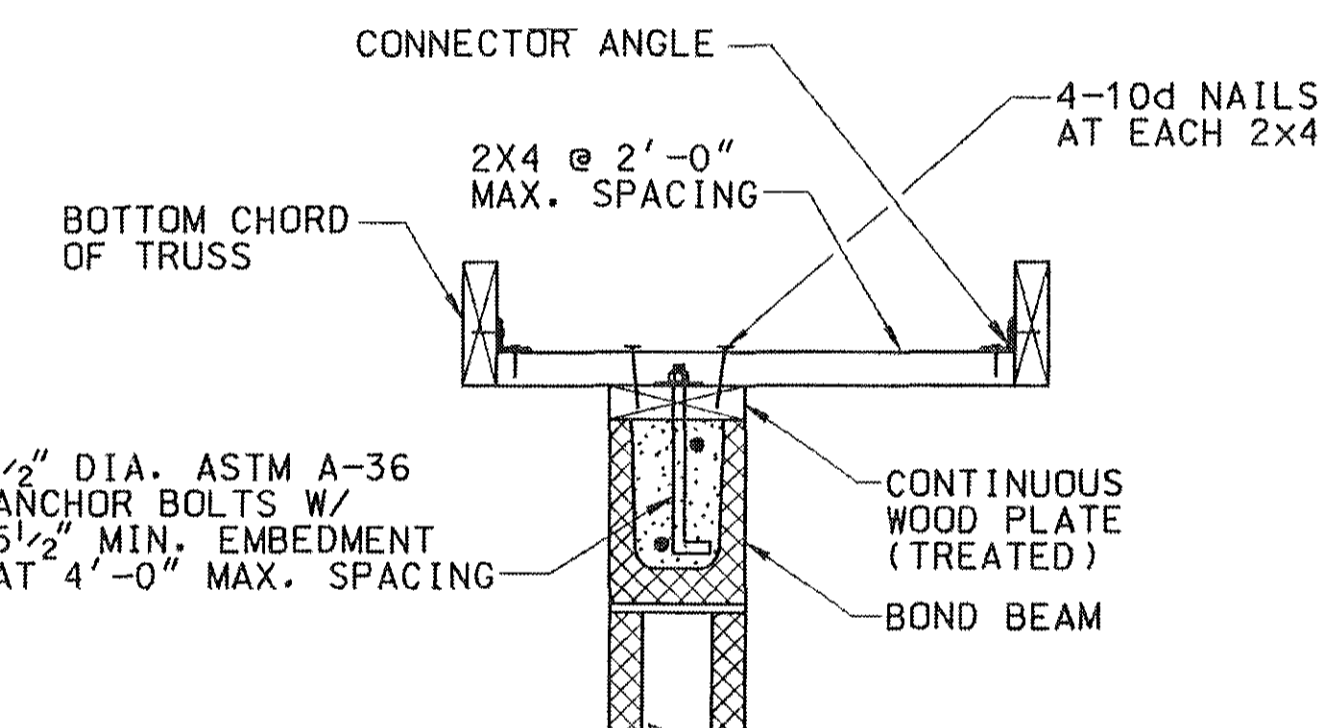
SECTION A  
 SCALE: 1/2" = 1'-0"



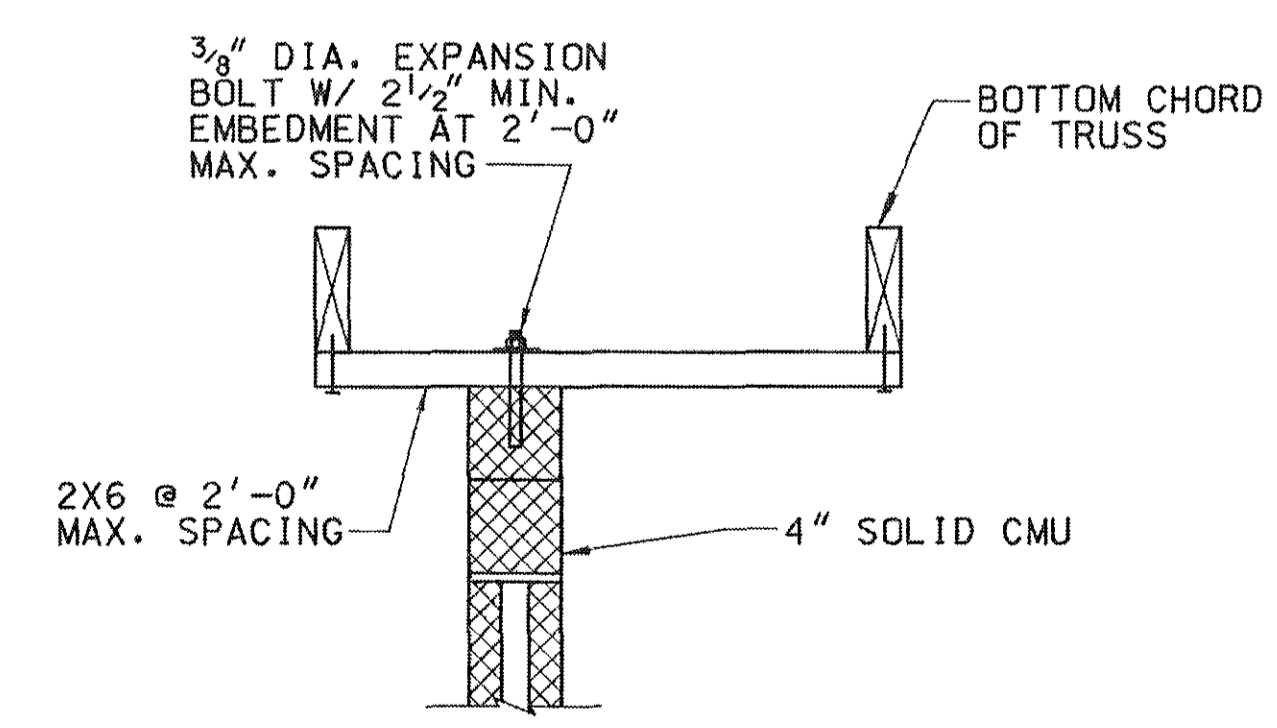
THICKENED SLAB DETAIL  
 SCALE: 1" = 1'-0"



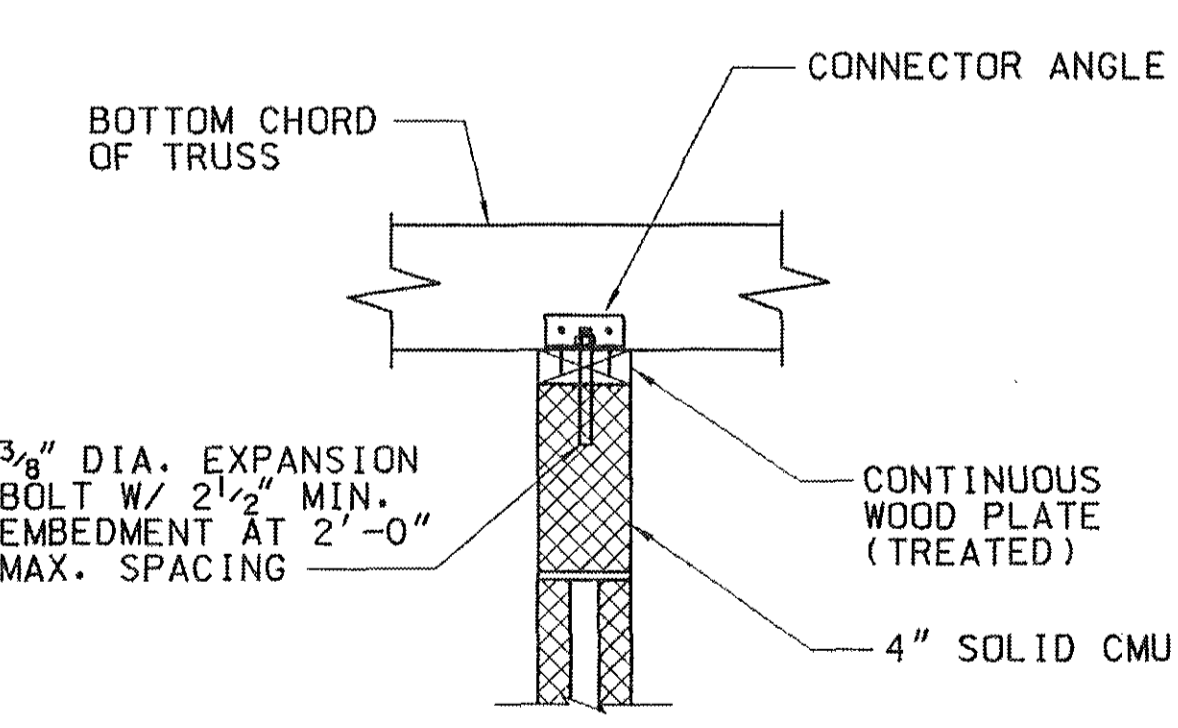
TOP OF TYPICAL INTERIOR WALL  
 PERPENDICULAR TO TRUSS  
 SCALE: 1 1/2" = 1'-0"



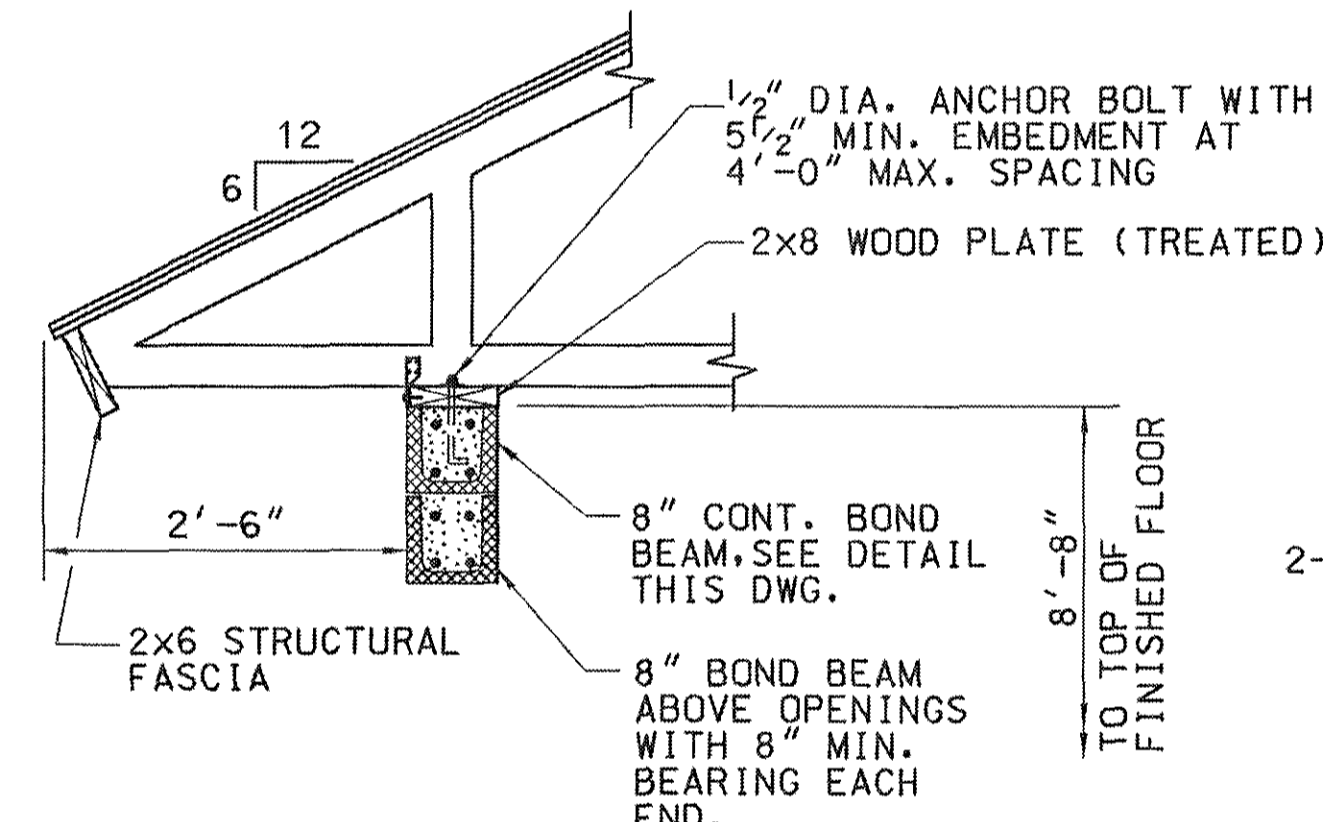
TOP OF TYPICAL INTERIOR WALL  
 PARALLEL TO TRUSS  
 SCALE: 1 1/2" = 1'-0"



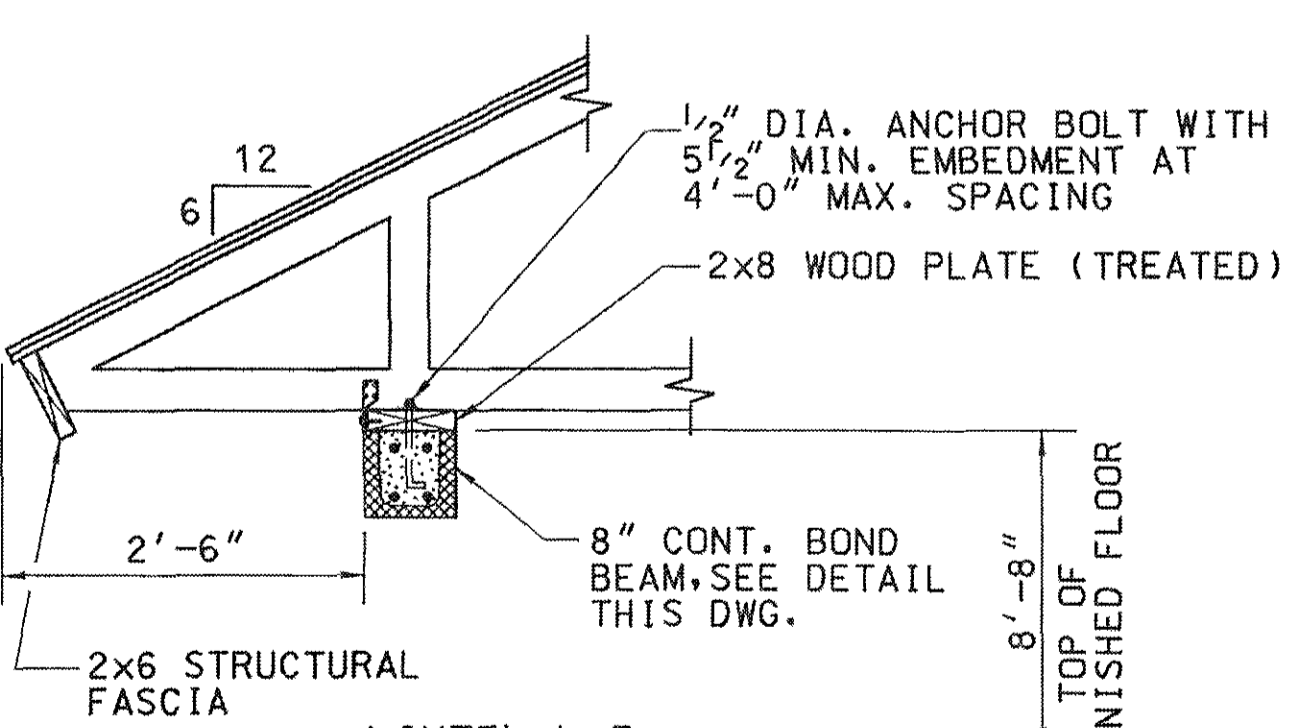
TOP OF 4" INTERIOR WALL  
 PARALLEL TO TRUSS  
 SCALE: 1 1/2" = 1'-0"



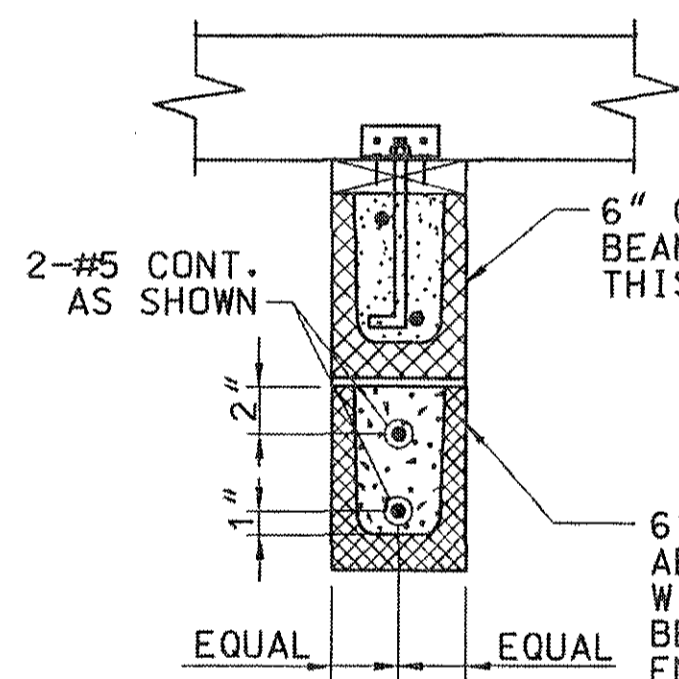
TOP OF 4" INTERIOR WALL  
 PERPENDICULAR TO TRUSS  
 SCALE: 1 1/2" = 1'-0"



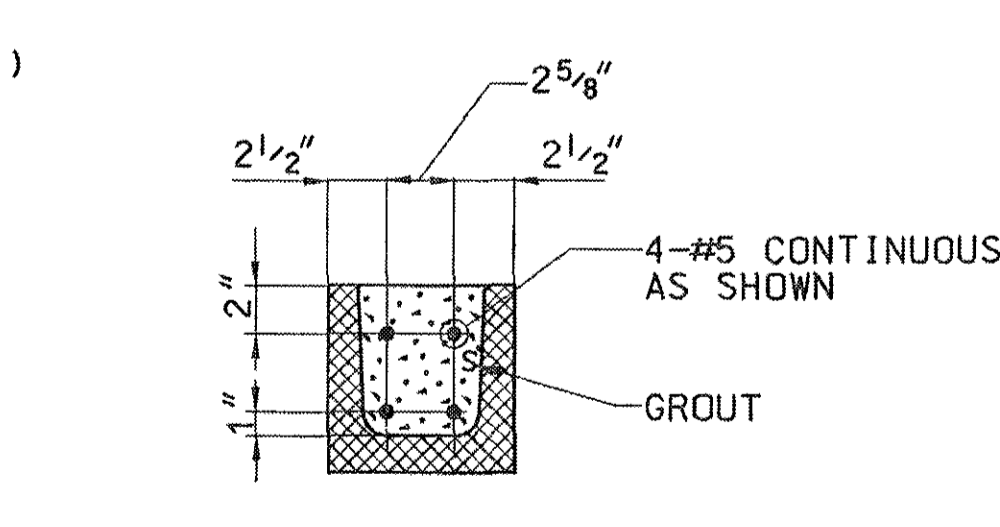
LINTEL L-1  
 SCALE: 3/4" = 1'-0"



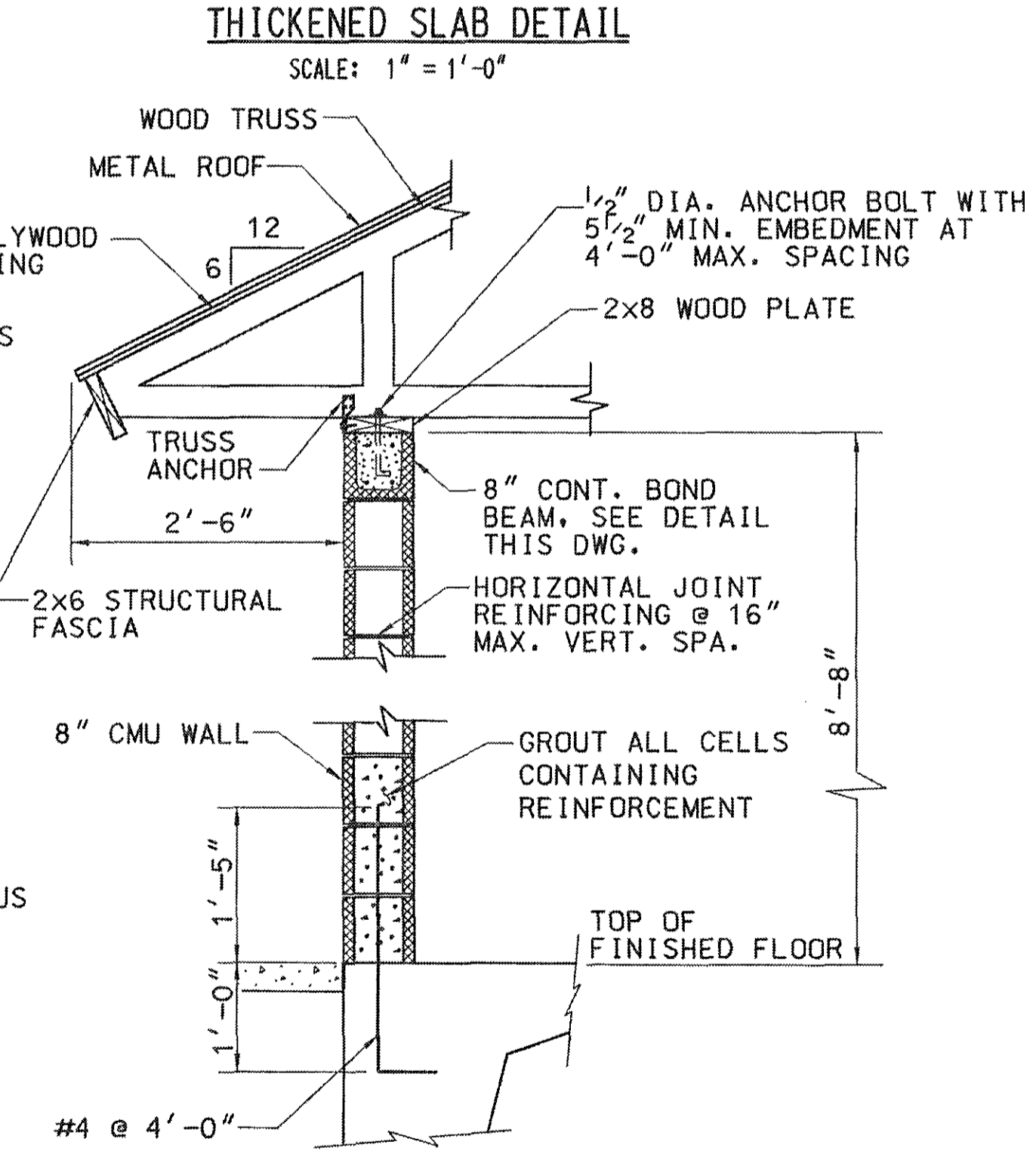
LINTEL L-3  
 SCALE: 3/4" = 1'-0"



LINTEL L-2 DETAIL  
 SCALE: 1 1/2" = 1'-0"



8" BOND BEAM / LINTEL DETAIL  
 SCALE: 1 1/2" = 1'-0"



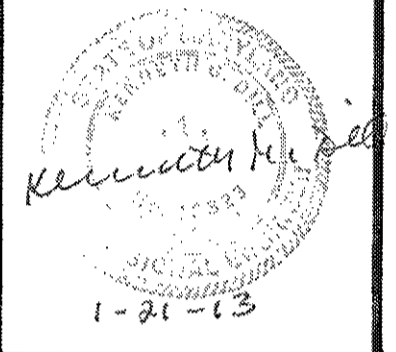
TYPICAL WALL SECTION  
 SCALE: 3/4" = 1'-0"



George Vaeth Associates, Inc.  
 Architecture • Interior Design  
 5501 Twin Knolls Rd. Suite 108  
 Columbia, Maryland 21045  
 Tel. (410) 997-1000 Fax (410) 997-2719  
 Email gva@vaeth.com

COMFORT STATION STRUCTURAL NOTES

1. CODES: MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE FOLLOWING CODES AND STANDARDS AS APPLICABLE  
 HOWARD COUNTY BUILDING CODE  
 INTERNATIONAL BUILDING CODE (IBC) 2012  
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION-ALLOWABLE STRESS DESIGN  
 AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)  
 AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY STRUCTURES (ACI 530/ASCE 5/TMS 402)  
 TRUSS PLATE INSTITUTE NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION (TPI 1)
2. DESIGN LOADS FOR BUILDING INCLUDING PRE-ENGINEERED WOOD TRUSSES  
 DEAD LOAD: ACTUAL CALCULATED DEAD LOAD  
 ROOF LIVE LOAD: 30 PSF, NO REDUCTION  
 SNOW LOAD:  
 GROUND SNOW LOAD: 25 PSF  
 SNOW EXPOSURE FACTOR: 0.9  
 SNOW LOAD IMPORTANCE FACTOR: 1.0  
 THERMAL FACTOR: 1.2  
 WIND LOAD  
 BASIC WIND SPEED: 115 MPH  
 RISK CATEGORY: II  
 WIND EXPOSURE: C  
 INTERNAL PRESSURE COEFFICIENTS: +0.18, -0.18  
 COMPONENTS AND CLADDING: 67.9 PSF  
 SEISMIC  
 SEISMIC IMPORTANCE FACTOR: 1.0  
 RISK CATEGORY: II  
 MAPPED SPECTRAL RESPONSE ACCELERATIONS:  $S_s=0.187$ ,  $S_1=0.063$   
 SITE CLASS: A  
 SPECTRAL RESPONSE COEFFICIENTS:  $SDS=0.125$ ,  $SD1=0.042$   
 DESIGN CATEGORY: B  
 BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY PLAIN MASONRY SHEAR WALLS  
 DESIGN BASE SHEAR COMFORT STATION: EXEMPT FROM ANALYSIS  
 SEISMIC RESPONSE COEFFICIENTS: 0.0833  
 RESPONSE MODIFICATION FACTOR: 1.5  
 ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE ANALYSIS PROCEDURE
3. FLOOR LIVE LOAD  
 FIRST FLOOR: 100 PSF.
4. FOUNDATION  
 DESIGN SOIL BEARING PRESSURE FOR SPREAD FOOTINGS AND STRIP FOOTINGS IS 2000 PSF
5. CONCRETE  
 28 DAY COMPRESSIVE STRENGTH,  $f'_c$ : 3500 PSI  
 REINFORCING STEEL BARS: ASTM A-615 GRADE 60  
 WELDED WIRE MESH: ASTM A-185  
 EXPOSED EDGES SHALL BE CHAMFERED  $\frac{3}{4}$ " BY  $\frac{3}{4}$ " UNLESS INDICATED OTHERWISE.
6. MASONRY  
 MINIMUM COMPRESSIVE STRENGTH OF MASONRY:  $f'_m = 1500$  PSI  
 HOLLOW CONCRETE MASONRY UNITS: ASTM C-90  
 SOLID CONCRETE MASONRY UNITS: ASTM C-145  
 MORTAR: PORTLAND CEMENT AND LIME, TYPE M OR S  
 GROUT: ASTM C-476 COARSE GROUT,  $f'_c = 3500$  PSI AT 28 DAYS
7. STRUCTURAL AND MISCELLANEOUS METALS  
 WIDE FLANGE BEAMS: ASTM A-992  
 CHANNELS, ANGLES, PLATES AND SHAPES: ASTM A-36 OR ASTM A 572 GRADE 50  
 PIPE: ASTM A-53 GRADE B, TYPE E OR S  
 TUBES: ASTM A-500, GRADE B  
 HIGH STRENGTH BOLTS: ASTM A-325  
 COMMON BOLTS: ASTM A-307  
 ANCHOR BOLTS AND THREADED RODS: ASTM A-36  
 WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE (D1.1)  
 WELDING ELECTRODES: E70XX  
 ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL HAVE TWO COATS OF BITUMASTIC PAINT
8. INSPECTION REQUIREMENTS  
 FOOTINGS AND REINFORCEMENT SHALL BE INSPECTED PRIOR TO POUR. CONFIRM FOOTING BEARING PRESSURE OF 2000 PSF. SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY MARYLAND P.E.



RECEIVED

MAR 8 2013  
 LICENSES & PERMITS  
 DIVISION

REVISIONS

NO.	DATE	DESCRIPTION
1	9/17/12	UPDATED CODE

COMFORT STATION  
 TO  
 ALPHA RIDGE PARK  
 HOWARD COUNTY, MD.  
 FOR  
 HOWARD COUNTY  
 DEPARTMENT OF  
 RECREATION & PARKS

PROJECT NUMBER: 1915-9  
 PRELIMINARY ISSUE: SEPTEMBER 2012  
 CONSTRUCTION ISSUE: --/--/--  
 CADD FILE NAME:

GENERAL NOTES

SHEET NUMBER:  
**S-2**

**HVAC SPECIFICATIONS**

1. ALL WORK AND EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, ETC., OF ALL AUTHORITIES HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL MECHANICAL CODE, THE LOCAL FIRE MARSHAL, UNDERWRITERS LABORATORY (UL), IR, FM, OSHA AND THE NATIONAL ELECTRICAL CODE (NEC). MODIFICATIONS REQUIRED BY THE ABOVE SAID AUTHORITIES TO BRING THE SPACE UNDER CONTRACT UP TO CODE SHALL BE MADE WITHOUT ADDITIONAL CHARGE. WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF CODE REQUIREMENTS, THE CONTRACT DOCUMENTS SHALL GOVERN. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLEMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
3. CONTRACTOR SHALL VERIFY ALL POINTS OF CONNECTION BEFORE COMMENCING WORK. CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES. CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS, DEBRIS, AND RUBBISH FROM SITE AND LEGALLY DISPOSE OF IT. ALL UNUSED EQUIPMENT SERVING THIS AREA SHALL BE REMOVED AND RETURNED TO THE OWNER.
4. CONTRACTOR SHALL COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR THEIR APPROVAL. SHOP DRAWINGS TO BE SUBMITTED INCLUDE: GRILLES, AND ALL EQUIPMENT. PROVIDE RISERS, DROPS AND OFFSETS AS REQUIRED. BRING AREAS OF POTENTIAL CONFLICT TO THE ENGINEER'S ATTENTION.
5. A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE GENERAL CONTRACTOR'S OFFICE AT THE JOB SITE. ACTUAL LOCATIONS OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC., AND ALL DEVIATIONS OF THE WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS SHALL BE MARKED ON THE RECORD/COORDINATION DRAWINGS. EACH TRADE SHALL REVIEW THE COORDINATION DRAWINGS AND RESOLVE ANY POTENTIAL CONFLICTS WITH OTHER TRADES PRIOR TO INSTALLING ANY PORTION OF THEIR WORK. CONTRACTOR SHALL NOT CORE, DRILL, OR CUT CONCRETE SLABS FOR ANY REASON WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE STRUCTURAL ENGINEER AND THE OWNER.
6. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY.
7. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTOR'S PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, FOR WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.
8. CONTRACTOR SHALL MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS, FITTINGS, DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM WITH DIVISION 16.
9. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE HEATING AND VENTILATING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.
10. ALL PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .399, AS WELL AS NFPA Pamphlet NO. 70, AND THE NATIONAL ELECTRICAL CODE (NEC), ARTICLE 90-7.
11. CLEAN ALL MECHANICAL EQUIPMENT AND DUCTWORK OF ALL CONSTRUCTION DUST AT PROJECT COMPLETION.

**PLUMBING CONSTRUCTION STANDARDS**

1. ALL WORK AND EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, ETC., OF ALL AUTHORITIES HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO: THE INTERNATIONAL PLUMBING CODE, THE LOCAL FIRE MARSHAL, UNDERWRITERS LABORATORY (UL), IR, FM, OSHA AND THE NATIONAL ELECTRICAL CODE (NEC). WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF CODE REQUIREMENTS, THE CONTRACT DOCUMENT SHALL GOVERN. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. MODIFICATIONS REQUIRED BY THE ABOVE SAID AUTHORITIES TO BRING THE SPACE UNDER CONTRACT UP TO CODE SHALL BE MADE WITHOUT ADDITIONAL CHARGE. CONTRACTOR IS RESPONSIBLE FOR ALL ROUGH-IN, FINAL CONNECTIONS, AND PROPER INSTALLATION OF FIXTURES AND ASSOCIATED PIPING MOUNT FAUCETS, AND TO SUPPLY ANY TRAPS, VALVE FITTINGS, VACUUM BREAKERS, PRESSURE GAGES, OR PRESSURE REGULATORS REQUIRED FOR A COMPLETE INSTALLATION THAT MEETS CODE.
2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLEMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
3. ALL PIPING SHALL RUN CONCEALED ABOVE CEILINGS OR IN WALL CHASE, UNLESS OTHERWISE NOTED. EXPOSED PIPING SHALL BE 3/4-INCH MINIMUM FROM ANY WALL SURFACE. PIPING SHALL BE RUN ON THE HEATED SIDE OF ROOF AND WALL INSULATION.
4. CONTRACTOR SHALL VERIFY ALL POINTS OF CONNECTION BEFORE COMMENCING WORK. CONTRACTOR SHALL COORDINATE WORK WITH EXISTING WORK AND OTHER TRADES. CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS, DEBRIS, AND RUBBISH FROM SITE AND LEGALLY DISPOSE OF IT.
5. CONTRACTOR SHALL COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR THEIR APPROVAL. SHOP DRAWINGS TO BE SUBMITTED INCLUDE: FIXTURES, VALVES, PUMPS, WATER HEATERS AND ALL EQUIPMENT.
6. A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE GENERAL CONTRACTOR'S OFFICE AT THE JOB SITE. ACTUAL LOCATIONS OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC., AND ALL DEVIATIONS OF THE WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS SHALL BE MARKED ON THE RECORD/COORDINATION DRAWINGS. EACH TRADE SHALL REVIEW THE COORDINATION DRAWINGS AND RESOLVE ANY POTENTIAL CONFLICTS WITH OTHER TRADES PRIOR TO INSTALLING ANY PORTION OF THEIR WORK. CONTRACTOR SHALL NOT CORE, DRILL, OR CUT CONCRETE SLABS FOR ANY REASON WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE STRUCTURAL ENGINEER AND THE OWNER.
7. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY.
8. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTOR'S PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK FOR WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.
9. ALL CUTTING, DRILLING, AND PATCHING OF WALLS, FLOORS, AND/OR STRUCTURAL MEMBERS FOR THE INSTALLATION OF THE PLUMBING SYSTEMS SHALL BE PROVIDED. STRUCTURAL COMPONENTS SHALL NOT BE CUT, DRILLED, OR MODIFIED IN ANY WAY WITHOUT THE STRUCTURAL ENGINEER'S REVIEW AND APPROVAL PRIOR.
10. SUPPORT ALL PIPING FROM STRUCTURE WITH UL LISTED HANGERS AND SUPPORTS SUITABLE FOR THE INTENDED INSTALLATION. DESIGN, SELECTION, SPACING, AND APPLICATION OF HANGERS AND SUPPORTS SHALL COMPLY WITH ANSI B31.1 AND MSS SP-69.
11. CONNECTIONS BETWEEN DISSIMILAR PIPING MATERIALS SHALL BE MADE WITH SUITABLE DIELECTRIC INSULATING UNIONS. ISOLATE COPPER PIPING FROM DISSIMILAR METALS, SUCH AS METAL STUDS AND VENT PIPING.
12. ALL NEW DOMESTIC WATER PIPING SHALL BE TYPE L COPPER.
13. PIPING SYSTEM SHALL BE INSULATED WITH 1/2 INCH THICK HEAVY-DUTY FIBERGLASS MATERIAL WITH ALL PURPOSE NONCOMBUSTIBLE VAPOR BARRIER JACKET. INSULATION SHALL HAVE A MAXIMUM THERMAL CONDUCTIVITY FACTOR (K) OF 0.23 BTU/IN-HR-FT<sup>2</sup>-F AT 75°F. ADHESIVE SYSTEMS THAT EMPLOY RELEASE PAPER WILL NOT BE ACCEPTABLE. AS AN ACCEPTABLE ALTERNATE TO THE ABOVE INSULATION, THE CONTRACTOR MAY PROVIDE OWENS-CORNING'S "SIL-1" DOUBLELURE PIPE INSULATION.
14. ALL NEW DOMESTIC WATER PIPING SHALL BE INSULATED WITH 3/4 INCH THICK ARMSTRONGS FLEXIBLE ELASTOMERIC CLOSED CELL PIPE INSULATION OR APPROVED EQUAL. THE INSULATION SHALL HAVE A MAXIMUM THERMAL CONDUCTIVITY FACTOR (K) OF 0.23 BTU/IN-HR-FT<sup>2</sup>-F AT 75°F AND A MAXIMUM WATER PERMEABILITY OF 0.15 PER-INCH. THE PIPE INSULATION BUTT JOINTS AND LONGITUDINAL JOINTS SHALL BE SEALED WITH ARMSTRONGS S20 ADHESIVE AND THE ENTIRE INSULATION INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ADHESIVE SYSTEMS THAT EMPLOY RELEASE PAPER WILL NOT BE ACCEPTABLE.
15. FITTINGS, VALVES, AND FLANGES SHALL BE INSULATED WITH THE SAME MATERIALS AND OF THE SAME THICKNESS AS THE ADJOINING PIPE.
16. REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE WATTS NO. 309-S SERIES OR APPROVED EQUAL. IF IT COMPLIES WITH THESE SPECIFICATIONS EQUIPMENT MANUFACTURED BY CLA-VAL COMPANY, FEBCO, HERSEY PRODUCTS, INC., OR WATTS REGULATION COMPANY WILL BE ACCEPTABLE. ASSEMBLY SHALL BE COMPLETE WITH STRAINER, DRAIN LINES, INLET AND OUTLET SHUT-OFF VALVES AND WATTS SERIES "A2" AIR GAP. THE PRESSURE LOSS OVER THE ENTIRE ASSEMBLY SHALL NOT EXCEED 10 PSI AT THE DESIGN FLOW. THE SIZE OF THE ASSEMBLY SHALL NOT BE SMALLER THAN THE LINE SIZE IN WHICH IT IS INSTALLED. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. PIPE RELIEF OUTLET DISCHARGE TO NEAREST FLOOR DRAIN. DO NOT INSTALL ABOVE FINISHED CEILINGS, UNLESS NOTED OR INDICATED OTHERWISE.
17. DOMESTIC WATER VALVES SHALL BE NIBCO 585-70 BALL OR APPROVED EQUAL, CLASS 125, 200 PSIG WOG, BRONZE BODY WITH SOLDERED ENDS.
18. DOMESTIC WATER PRESSURE REDUCING VALVE ASSEMBLIES SHALL BE SELECTED TO PROVIDE STABLE FLOW CONDITIONS WITHOUT CAVITATION OR VALVE CHATTER.
19. SHOCK ARRESTORS SHALL BE LOCATED DOWNSTREAM OF THE DOMESTIC WATER SERVICE VALVE, AT EACH SERVICE TO A GROUP OF FIXTURES, OR AS INDICATED ON THE DRAWINGS. SHOCK ARRESTORS SHALL BE AS MANUFACTURED BY PRECISION PLUMBING PRODUCTS OR APPROVED EQUAL AND CONFORM TO THE REQUIREMENTS OF THE PLUMBING AND DRAINAGE INSTITUTE.
20. PROVIDE STOP VALVES AT ALL FIXTURE AND EQUIPMENT SUPPLIES. ALL EXPOSED FIXTURE CONNECTIONS SHALL BE CHROME PLATED, STAINLESS STEEL OR FITTED WITH CHROME PLATED SLEEVES. PROVIDE VACUUM BREAKERS WHERE REQUIRED BY CODE AND AS SHOWN AS INDICATED ON DRAWINGS.
21. ALL DOMESTIC WATER PIPING SYSTEMS SHALL BE DISINFECTED IN ACCORDANCE WITH THE APPLICABLE CODES AND ANIWA 651.
22. HYDRAULICALLY PRESSURE TEST ALL PIPING AT THE FULL WORKING PRESSURE FOR A MINIMUM PERIOD OF 24-HOURS. STOP-LEAK COMPOUNDS WILL NOT BE ALLOWED. ALL PRESSURIZED WATER PIPING SYSTEMS SHALL BE RATED FOR 150 PSI WORKING PRESSURE. REPAIR ANY LEAKS AND RETEST TO DEMONSTRATE TIGHTNESS.
23. ALL NEW SANITARY, SOIL, WASTE, VENT AND STORM WATER PIPING SHALL BE SERVICE WEIGHT CAST IRON, BELL AND SPIGOT, PIPE AND FITTINGS, ANSI A12.5.1 AS MANUFACTURED BY TYLER PIPE AND FOUNDRY CO., U.S. PIPE AND FOUNDRY CO., CENTRAL FOUNDRY OR APPROVED EQUAL. TYLER "TY-SEAL" OR APPROVED EQUAL, NEOPRENE POSITIVE SEAL ELASTOMERIC COMPRESSION TYPE GASKETS SHALL BE USED AT ALL JOINTS. AS AN OPTION, ALL NEW SANITARY, SOIL, WASTE, VENT AND STORM WATER PIPING 4 INCHES AND SMALLER MAY USE HUBLESS SERVICE WEIGHT CAST IRON PIPE, FITTINGS AND JOINTS WITH TYLER "NO-HUB" STAINLESS STEEL CONNECTORS. IN ADDITION, ALL VENT PIPING MAY BE DWV COPPER PIPE AND FITTINGS WITH SOLDERED JOINTS. GASKETS, JOINTS, CONNECTORS, SPECIALTIES AND PIPE SHALL BE MANUFACTURED AND PROVIDED BY THE SAME MANUFACTURER. ALL DRAINAGE PIPE SHALL BE SUPPORTED DIRECTLY ON EACH SIDE OF A JOINT. ALL PIPING SUPPORTS AND RESTRAINTS SHALL BE IN STRICT ACCORDANCE WITH THE DRAINAGE PIPE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION GUIDELINES.
24. EXCEPT WHERE OTHERWISE INDICATED, HORIZONTAL SANITARY, SEWAGE AND WASTE PIPING SHALL SLOPE AT 1/4 INCH PER FOOT FOR PIPES 2 INCHES AND SMALLER, PIPES 3 INCHES AND LARGER SHALL SLOPE AT 1/8 INCH PER FOOT.
25. CLEAN-OUTS SHALL BE PROVIDED IN PIPING AT EACH CHANGE IN DIRECTION, IN ALL HORIZONTAL STRAIGHT RUNS MORE THAN 50 FEET LONG, AND AT ALL OTHER LOCATIONS AS NOTED ON THE DRAWINGS. ALL CLEAN-OUTS SHALL BE THE SAME SIZE AS THE PIPE DIAMETER UP TO AND INCLUDING PIPE 4 INCHES IN DIAMETER. FOUR INCH CLEAN-OUTS SHALL BE USED FOR ALL PIPE LARGER THAN 4 INCHES, UNLESS NOTED OTHERWISE. ALL CLEAN-OUT LOCATIONS SHALL BE NO MORE THAN 5 FEET ABOVE THE BASE OF THE HORIZONTAL OFFSET AND BE APPROVED BY THE ARCHITECT. THE CLEAN-OUT SHALL HAVE A SMOOTH POLISHED BRONZE FINISH WITH THE LETTERS "C.O." CAST IN THE COVER (FOR WALLS CLEAN-OUT WITH BRONZE PLUS & CHROME COVER PLATE). THE FLOOR CLEAN-OUTS SHALL BE ZURN MODEL 2N-1400-1 OR APPROVED EQUAL WITH BRONZE PLUS, SQUARE NICKEL BRONZE FRAME AND COVER. THE WALL CLEAN-OUTS SHALL BE ZURN MODEL 2N-1443-8P OR APPROVED EQUAL WITH BRONZE PLUS AND 7 INCHES X 7 INCHES NICKEL BRONZE COVER. NO SANITARY, SOIL OR WASTE PIPE SHALL EXTEND GREATER THAN 2'-0" TO A DEAD-END.
26. ALL PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .399, AS WELL AS NFPA Pamphlet NO. 70, NATIONAL ELECTRIC CODE (NEC), ARTICLE 90-7.
27. THE CONTRACTOR SHALL MAKE ALL FINAL EQUIPMENT AND FIXTURE CONNECTIONS AND PROVIDE THE NECESSARY ADAPTERS, FITTINGS, VALVES, DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE VALVES AND UNIONS WHERE NEEDED TO PERMIT DISCONNECTIONS OF EACH PIECE OF EQUIPMENT FOR REPAIRS. PLUMBING CONNECTIONS SHOWN ARE NOMINAL. VERIFY EXACT CONNECTION SIZE WITH EACH PIECE OF EQUIPMENT SUPPLIED. FOLLOW FIXTURE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS, AND EQUIPMENT DIMENSIONS. REFER TO CONSULTANT AND ARCHITECTURAL DOCUMENTS FOR ADDITIONAL INFORMATION. COORDINATE WITH THE EQUIPMENT SUPPLIER FOR ADDITIONAL INFORMATION.

MECHANICAL LEGEND		
SYMBOL	ABRV.	DESCRIPTION
		NEW EQUIPMENT OR DUCTWORK (SINGLE LINE)
		NEW EQUIPMENT OR DUCTWORK (DOUBLE LINE)
		DRAWING NOTE
	T-STAT	THERMOSTAT
	EF	CEILING MOUNTED EXHAUST FAN
	110D	110V OPERATED DAMPER
	EWH-1	ELECTRIC WALL HEATER DESIGNATION
	ECH-1	ELECTRIC CABINET HEATER DESIGNATION
	EF-1	EXHAUST FAN DESIGNATION
	O/A	OUTSIDE AIR
	S/A	SUPPLY AIR
	R/A	RETURN AIR
	DBWB	DRY BULB / WET BULB
	E.S.P.	EXTERNAL STATIC PRESSURE
	T.S.P.	TOTAL STATIC PRESSURE
	IN. W.G.	INCHES WATER GAUGE
	FT. W.G.	FEET WATER GAUGE
	GR	GRILLE
	RES	RESISTER
	TR. GR.	TRANSFER GRILLE
	UNO	UNLESS NOTED OTHERWISE

PLUMBING LEGEND		
SYMBOL	ABRV.	DESCRIPTION
	SAN. W.	SANITARY PIPING
	V	VENT PIPING
	CW	COLD WATER PIPING
	HW	HOT WATER PIPING
		PIPE UP
		PIPE DOWN
		PIPE TEE DOWN
	CO	CLEAN OUT, FLOOR
	CO	CLEAN OUT, EXPOSED
		BALL VALVE OR SHUT-OFF VALVE
		WALL HYDRANT
		HOSE BIBB
	FD W/ TP	FLOOR DRAIN WITH TRAP PRIMER
	I.E.	INVERT ELEVATION
	VTR	VENT THROUGH ROOF
	PRV	PRESSURE REDUCING VALVE



George Vaeth Associates, Inc.  
 Architecture • Interior Design  
 5501 Twin Knolls Rd., Suite 108  
 Columbia, Maryland 21045  
 Tel. (410) 997-1000 Fax (410) 997-2719  
 Email gva-inc@gvaarchitects.com

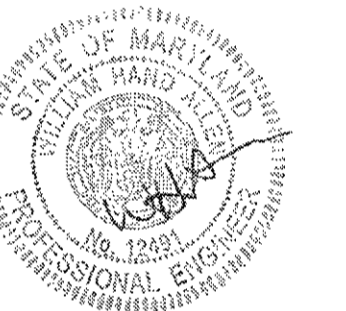
**Allen & Shariff**  
 ENGINEERING

7061 Deepape Drive  
 Columbia, MD 21045  
 410.381.7100  
 www.AllenShariff.com

RECEIVED

MAR 29 2013

LICENSES & PERMITS  
 DIVISION



**REVISIONS**

NO.	DATE	DESCRIPTION
-	3/2/11	65% Submission
	6/13/12	Final Review

COMFORT STATION  
 TO  
 ALPHA RIDGE PARK  
 HOWARD COUNTY, MD.  
 FOR  
 HOWARD COUNTY  
 DEPARTMENT OF  
 RECREATION & PARKS

PROJECT NUMBER:	1015-B
PRELIMINARY ISSUE:	SEPTEMBER 17 2012
CONSTRUCTION ISSUE:	-/-/-
CADD FILE NAME:	

**MECHANICAL AND PLUMBING  
 DATA SHEET**

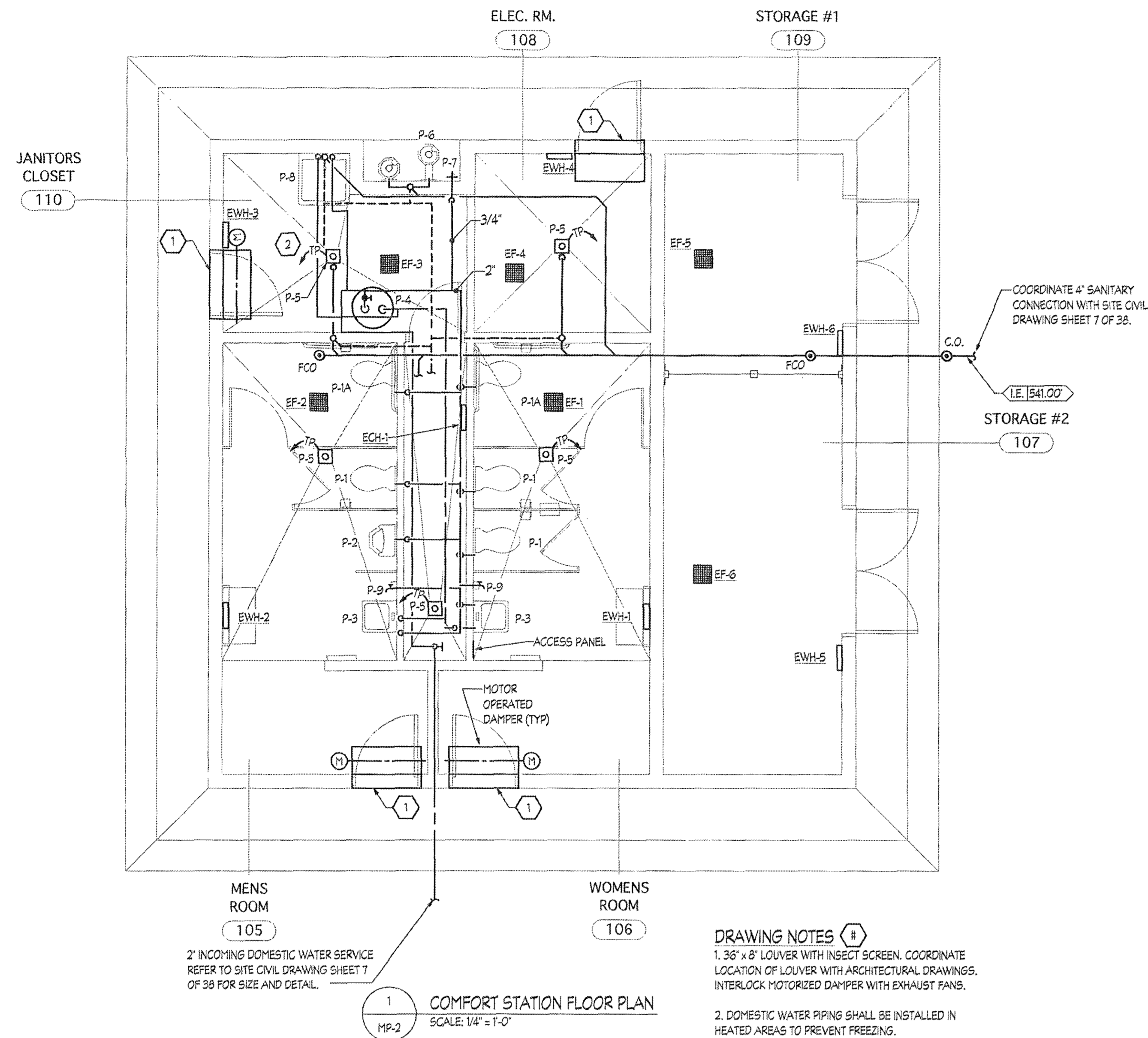
SHEET NUMBER:

**MP-1**



### REVISIONS

NO.	DATE	DESCRIPTION
1	3/2/11	65% Submission
2	6/13/12	Final Review



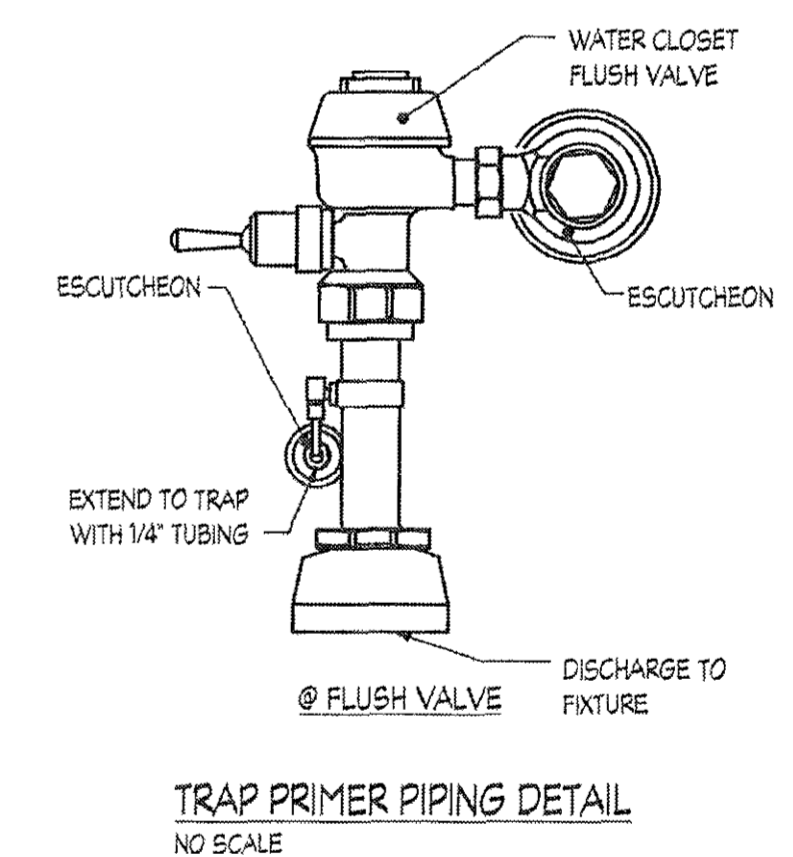
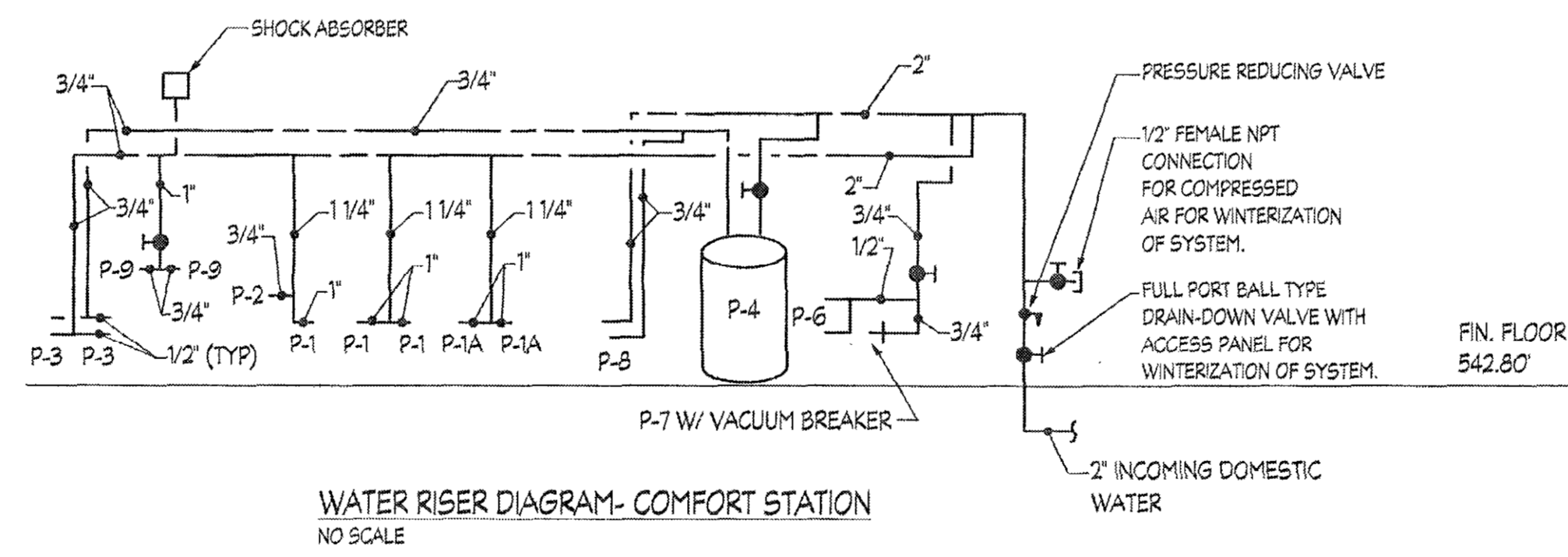
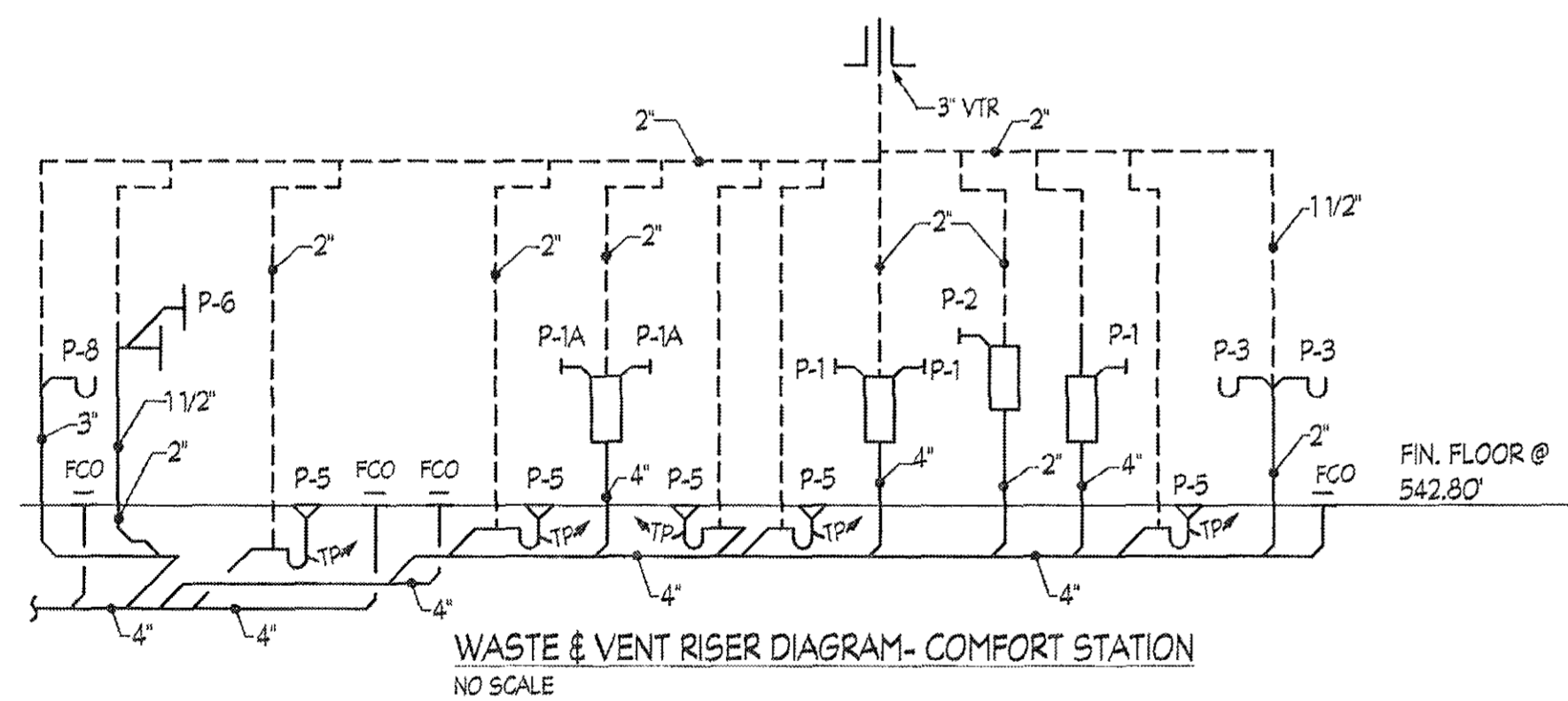
*\*NOTE:*

The sanitary riser diagram on applicable plumbing drawings shall be revised to show at least one (1) three-inch diameter vent stack, which shall run vertically and undiminished in size through the roof to the outside atmosphere. There shall be no piping offset greater than 45 degrees, and there shall be no horizontal piping within this required vent stack. (2009 National Standard Plumbing Code, Illustrated, Sections 11.2.3, Amended)

*all*

**DRAWING NOTES**

1. 36\"/>



UNIT	LOCATION	CFM	E.S.P. IN W.S.	RPM	MOTOR HP	VOLTS/ PHASE	TYPE	BASIS OF DESIGN	REMARKS
EF-1	WOMEN RESTROOM	250	1/4"	1050	81W	120/1	CEILING	GREENHECK SP-224	1, 2, 3
EF-2	MENS RESTROOM	250	1/4"	1050	81W	120/1	CEILING	GREENHECK SP-224	1, 2, 3
EF-3	JAN CLOSET	250	1/4"	1050	81W	120/1	CEILING	GREENHECK SP-224	1, 2, 4
EF-4	ELEC ROOM	250	1/4"	1050	81W	120/1	CEILING	GREENHECK SP-224	1, 2, 5
EF-5	STORAGE ROOM	250	1/4"	1050	81W	120/1	CEILING	GREENHECK SP-224	1, 2, 5
EF-6	STORAGE ROOM	250	1/4"	1050	81W	120/1	CEILING	GREENHECK SP-224	1, 2, 5

**REMARKS:**

1. PROVIDE BACKDRAFT DAMPER.
2. PROVIDE DISCONNECT SWITCH.
3. FAN AND MOD CONTROLLED BY LIGHTING SENSOR. COORD. WITH ELECTRICAL CONTRACTOR.
4. FAN AND MOD CONTROLLED BY LIGHT SWITCH. COORD. WITH ELECTRICAL CONTRACTOR.
5. FAN AND MOD CONTROLLED BY THERMOSTAT.

DESIGNATION	SERVES	KW	VOLT/PHASE	TYPE	MANUFACTURER	MODEL	REMARKS
ECH-1	CHASE	0.5	120/1	FIN TUBE	QMARK	WH1500	1
EW-H-1	WOMENS	4.8	208/1	WALL HEATER	QMARK	AWH-450B-2	1
EW-H-2	MENS	4.8	208/1	WALL HEATER	QMARK	AWH-450B-2	1
EW-H-3	JAN. CLO.	2.0	208/1	WALL HEATER	QMARK	AWH-440B-2	1
EW-H-4	ELEC ROOM	2.0	208/1	WALL HEATER	QMARK	AWH-440B-2	1
EW-H-5	STORAGE ROOM	2.0	208/1	WALL HEATER	QMARK	AWH-440B-2	1
EW-H-6	STORAGE ROOM	2.0	208/1	WALL HEATER	QMARK	AWH-440B-2	1

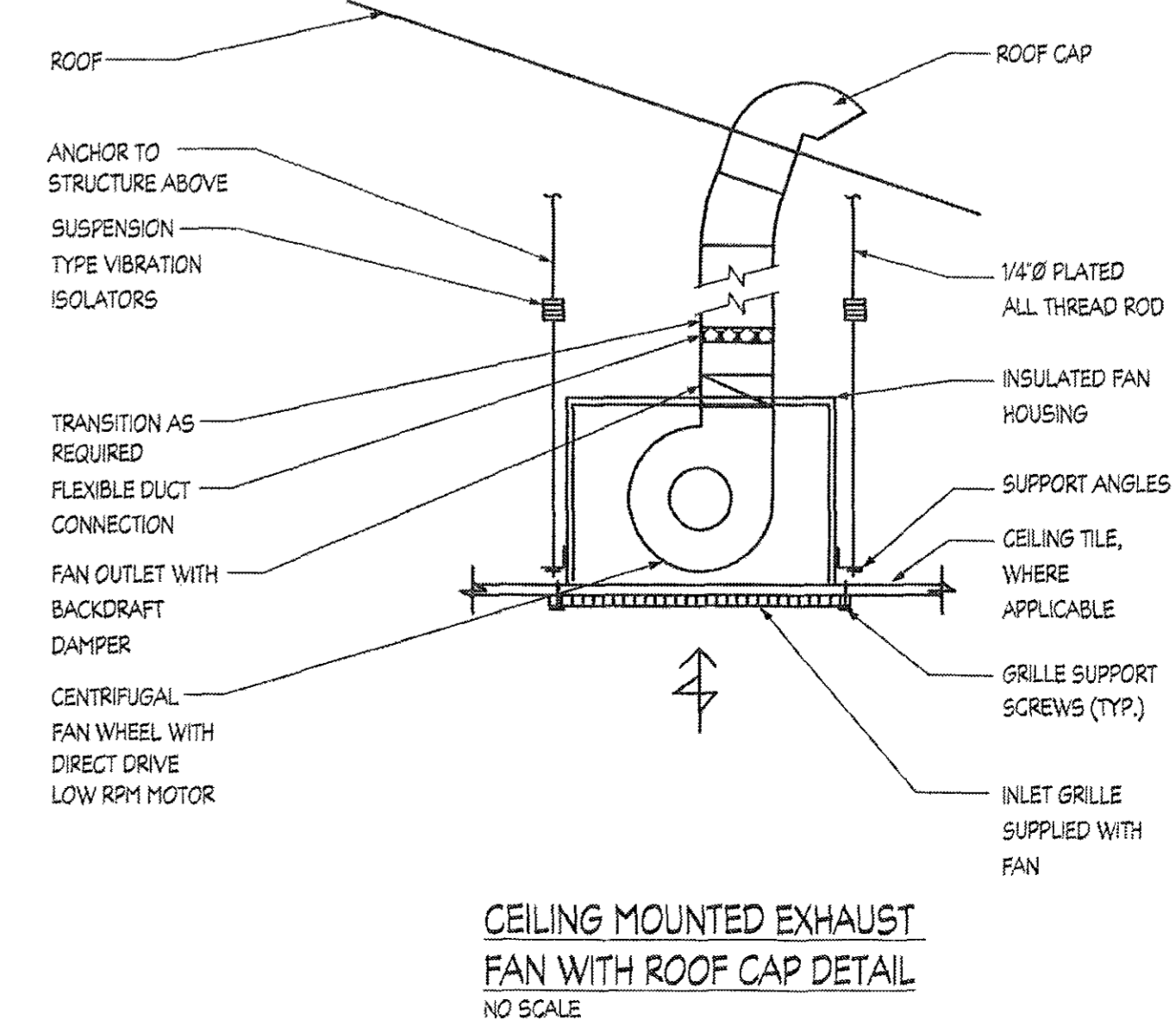
**REMARKS:**

1. PROVIDE MOUNTING BRACKET, DISCONNECT SWITCH, UNIT MOUNTED THERMOSTAT.

DESIGNATION	FIXTURE TYPE	C.W.	H.W.	WASTE	MANUFACTURER	MODEL NO.	TRIM	REMARKS
P-1	WATER CLOSET	1"	-	4"	KOHLER	K4450-C	SLOAN G2 OPTIMA 8111	1, 4, 6, 7, 10
P-1A	WATER CLOSET	1"	-	4"	KOHLER	K4450-C	SLOAN G2 OPTIMA 8111	1, 2, 4, 6, 7, 10
P-2	URINAL	3/4"	-	2"	KOHLER	K498B-T	SLOAN G2 OPTIMA 8188-O-5	1, 2, 3, 10
P-3	LAVATORY	1/2"	1/2"	1 1/2"	KOHLER	K172B	SLOAN ETF 650	1, 2, 3, 7, 10
P-4	WATER HEATER	3/4"	3/4"	-	A.O. SMITH	DEN-30		1, 8, 11
P-5	FLOOR DRAIN	-	-	3"	JOSAM	30000A-50-VP		1, 5, 10
P-6	DRINKING FOUNTAIN	1/2"	-	1 1/2"	MURDOCK	M-53	B-LEAD	1, 9, 10
P-7	WALL HYDRANT	3/4"	-	-	JOSAM	7-050		1
P-8	MOP SINK	3/4"	3/4"	3"	STERN WILLIAMS	S-B-900	S.W. T-10-V8	1, 10
P-9	HOSE BIBB	3/4"	-	-	JOSAM	7-070		1

**REMARKS:**

1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE FIXTURE ROUGH-IN, I.E., SUPPLIES, STOPS, TRAPS, CARRIERS, GRID DRAINS, TAILPIECES, ETC. NOT ALL REQUIRED COMPONENTS ARE SPECIFIED ABOVE.
2. FIXTURES SHALL BE ADA COMPLIANT. PROVIDED WITH ADA COMPLIANT ACCESSORIES. MOUNT ADA COMPLIANT. SEE ARCHITECTURAL PLAN FOR ELEVATIONS.
3. PROVIDE SKAL + GUARD INSULATING DEVICES ON EXPOSED UNDERCOUNTER PLUMBING.
4. COORDINATE VALVE SENSOR INSTALLATION WITH ADA GRAB BAR. SENSOR SHALL BE LOCATED SO THAT GRAB BAR DOES NOT INTERFERE WITH OPERATION.
5. PROVIDE DEEP SEAL TRAP.
6. PROVIDE APPROVED ELONGATED OPEN FRONT TOILET SEAT.
7. SENSOR OPERATED AND BATTERY POWERED.
8. WATER HEATER 30 GAL. 4.5 KW 208V/1Ø/60HZ.
9. FOR DOUBLE DRINKING FOUNTAINS MOUNT ONE AT ADA HEIGHT.
10. SEE PLANS & RISERS FOR VENT SIZES.
11. PROVIDE THERMAL EXPANSION TANK, AHITROL MODEL A8T-12.
12. PROVIDE 4" HOUSE KEEPING SERVICE PAD AND PLASTIC DRIP PAN UNDERNEATH WATER HEATER. RUN 3/4" DRAIN FROM DRIP PAN & SPILL OVER FLOOR DRAIN.



## COMFORT STATION TO ALPHA RIDGE PARK HOWARD COUNTY, MD. FOR HOWARD COUNTY DEPARTMENT OF RECREATION & PARKS

PROJECT NUMBER: 1015-B  
 PRELIMINARY ISSUE: SEPTEMBER 17 2012  
 CONSTRUCTION ISSUE: --/--  
 CADD FILE NAME:

### MECHANICAL AND PLUMBING FLOOR PLAN

SHEET NUMBER:  
**MP-2**



ELECTRICAL SPECIFICATIONS - NEW WORK

- SCOPE OF WORK:
  - THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL, STORAGE, UNPACKING AND PLACEMENT TO INCLUDE, BUT NOT LIMITED TO THE FOLLOWING ITEMS:
    - A COMPLETE POWER AND LIGHTING DISTRIBUTION SYSTEM, WHICH INCLUDES ALL PANELS, FEEDERS, BRANCH CIRCUITS, SAFETY SWITCHES, TRANSFORMERS AND CONNECTIONS THERETO.
    - COMPLETE BRANCH CIRCUIT SYSTEM.
    - COMPLETE LIGHTING FIXTURE INSTALLATION, INCLUDING LAMPS.
    - COMPLETE EMERGENCY LIGHTING.
    - TEMPORARY ELECTRICAL POWER AND LIGHTING AS REQUIRED FOR CONSTRUCTION.
    - TESTING OF ALL CABLES AND CIRCUIT WIRING FOR CONTINUITY OF POWER AND FOR INTEGRITY OF THE GROUNDING SYSTEM.
    - WIRING DEVICES AND FLOOR BOXES.
    - LIGHTING CONTROLS.
    - GROUNDING OF THE ELECTRICAL SYSTEM.

- WORK AND EQUIPMENT SHALL COMPLY WITH THE LATEST AND APPLICABLE ADOPTED NATIONAL BUILDING CODES (INTERNATIONAL BUILDING CODE (IBC), NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND ALL LOCAL AMENDMENTS TO THE NATIONAL CODES, AS WELL AS ALL AUTHORITIES HAVING JURISDICTION, THE ESTABLISHED NATIONAL STANDARDS SHALL BEAR THEIR LABEL ON ALL NEW EQUIPMENT (UNDERWRITERS LABORATORY-UL), FACTORY MUTUAL-FM AND ALL WORK SHALL BE IN COMPLIANCE WITH THE OCCUPATIONAL AND SAFETY ADMINISTRATION (OSHA), MODIFICATIONS REQUIRED BY THE ABOVE SAID AUTHORITIES TO BRING THE PROJECT SPACE UNDER CONTRACT UP TO CODE SHALL BE MADE WITHOUT ADDITIONAL CHARGE, WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF CODE REQUIREMENTS, THE CONTRACT DOCUMENTS SHALL GOVERN. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR REVIEW.

- CONTRACTOR SHALL ARRANGE FOR THE PAYMENT OF ALL NECESSARY PERMITTING AND INSPECTION FEES. THIS CONTRACTOR SHALL SCHEDULE ALL REQUIRED INSPECTIONS OF THE PROJECTS WITH THE LOCAL JURISDICTION AT THE REQUIRED STAGES OF COMPLETION.

- MEP DOCUMENTS ARE DIAGNOSTIC AND INDICATE MAJOR COMPONENTS, GENERAL LOCATION OF WORK AND SYSTEMS, COORDINATE ALL TRADES AND BE FAMILIAR WITH CONDITIONS, NEW AND EXISTING, WHICH MAY AFFECT THE WORK, VERIFY AND FIELD CHECK DIMENSIONS AND CONDITIONS PRIOR TO THE START OF ANY WORK AND REVIEW THE DOCUMENTS FOR ANY CONDITIONS WHICH AFFECT THIS WORK. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. THIS CONTRACTOR SHALL REVIEW ALL SUPPORTING AND COMPLIMENTARY DOCUMENTS, WHICH ARE CONSIDERED A PART OF THE CONTRACT DOCUMENT PACKAGE, THESE DOCUMENTS INCLUDE: ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DOCUMENTS AND SPECIFICATIONS. THESE DOCUMENTS COMPLIMENT EACH OTHER AND MUST BE UTILIZED BY ALL CONTRACTORS IN ORDER TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION, WHICH CONFLICTS WITH THESE DOCUMENTS AND SPECIFICATIONS, SHALL BE BROUGHT TO THE ARCHITECT AND ENGINEERS ATTENTION.

- MAKE ARRANGEMENTS FOR, AND PAY ALL COSTS, AS APPLICABLE FOR TEMPORARY WATER, PLUMBING, POWER, LIGHTING AND HVAC AS REQUIRED TO PROPERLY CONDUCT THE WORK SPECIFIED IN THIS CONTRACT AND MAINTAIN ALL EXISTING SERVICES, PROVIDE AND MAINTAIN FOR THE ENTIRE LENGTH OF THIS CONTRACT, EXITS, EMERGENCY LIGHTING AND FIRE PROTECTION TO CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODES.

- VERIFY POINTS OF CONNECTION BEFORE COMMENCING WORK. CONFIRM THE REQUIREMENTS FOR PREMIUM TIME OR SPECIAL PROCEDURES WITH THE OWNER AND INCLUDE THE COST IN THE BID PROPOSAL. BY SUBMITTING A BID PROPOSAL, THE CONTRACTOR AGREES TO ACCEPT EXISTING SITE CONDITIONS NOT SPECIFICALLY EXCLUDED. EXCLUSIONS SHALL BE PROVIDED IN WRITING AS A SEPARATE DOCUMENT TO THE ARCHITECT AND ENGINEER.

- ALL MATERIALS SHALL BE NEW, FREE FROM DEFECTS AND LISTED BY THE UNDERWRITERS LABORATORIES, INC (UL) BEFORE PROJECTING MATERIALS OR EQUIPMENT. SUBMIT ENGINEERING DATA FOR MATERIAL AND EQUIPMENT PROPOSED FOR USE. VERIFY EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE ALLCOWMENT ON THE PROJECT. THE PRODUCT MANUFACTURERS AND COMPONENT MODEL NUMBERS ARE GIVEN TO ESTABLISH A LEVEL OF QUALITY AND PERFORMANCE, AND ARE NOT INTENDED TO EXCLUDE EQUIVALENT PRODUCTS OF ALTERNATE MANUFACTURERS. ALTERNATE MANUFACTURERS OF EQUIVALENT PRODUCTS WILL BE CONSIDERED. COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR REVIEW AND APPROVAL. SHOP DRAWINGS TO BE SUBMITTED SHALL INCLUDE, BUT NOT BE LIMITED TO: LIGHTING FIXTURES, CONTROL DEVICES, WIRING DEVICES (SWITCHES AND RECEPTACLES), POWER DISTRIBUTION EQUIPMENT, PANELBOARDS, CIRCUIT BREAKERS AND SAFETY SWITCHES.

- MAINTAIN A SET OF MEP RECORD DRAWINGS IN THE GENERAL CONTRACTORS OFFICE, AT THE PROJECT SITE OFFICE. INDICATE ACTUAL LOCATIONS OF ALL EQUIPMENT, CONDUIT AND ETC., AS WELL AS DEVIATIONS OF WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS. WHERE CONFLICTS EXIST BETWEEN EQUIPMENT OF MULTIPLE DISCIPLINES, THIS CONTRACTOR SHALL DEVELOP FIELD COORDINATION DRAWINGS TO ASSIST IN THE INSTALLATION AS WELL AS A RECORD TO INDICATE THESE ISSUES TO THE ARCHITECT AND ENGINEER.

- X-RAYING OF STRUCTURE: DO NOT CORE DRILL, PENETRATE OR CUT EXISTING CONCRETE FLOOR SLABS WITHOUT CONSULTING WITH THE BASE BUILDINGS STRUCTURAL ENGINEER OF RECORD, AND/OR A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER. DO NOT PROCEED WITH WORK WITHOUT WRITTEN PERMISSION FROM THE ABOVE PROFESSIONALS. ARRANGE MOBILIZATION AND PAYMENT FOR X-RAY EQUIPMENT, IF NECESSARY, TO INVESTIGATE ALL POTENTIAL STRUCTURAL IMPEDIMENTS.

- GUARANTEE EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE YEAR BEGINNING FROM THE DAY OF FINAL ACCEPTANCE OF THE WORK OR BENEFICIAL OCCUPANCY BY THE OWNER, WHICHEVER COMES FIRST. GUARANTEE WORK SHALL BE PERFORMED PROMPTLY AND AT NO ADDITIONAL COST TO THE OWNER. GUARANTEE SHALL APPLY TO MATERIALS, EQUIPMENT AND SERVICES. WORK SHALL BE PERFORMED USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES.

- INSTALL WORK IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING WORK UNDER THIS CONTRACT.

- MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AND CLEAN DEBRIS FROM THE SITE AT THE END OF EACH WORKING DAY.

- IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ARCHITECT AND ENGINEER. HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. DO NOT PROCEED WITH ANY WORK, FOR WHICH ADDITIONAL COMPENSATION IS EXPECTED BEYOND THE CONTRACT AMOUNT, WITHOUT AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

- ELECTRIC SERVICE WORK SHALL COMPLY WITH ALL REQUIREMENTS AND REGULATIONS OF THE LOCAL UTILITY COMPANY, AS WELL AS ANY PERTINENT LOCAL AND NATIONAL BUILDING CODES AND THE NEC. ALL SERVICE DISTRIBUTION PANELS, DISCONNECT SWITCHES AND ETC. SHALL BE LISTED FOR USE AS SERVICE ENTRANCE EQUIPMENT AND BE PROVIDED WITH APPROPRIATE TERMINATION LUGS TO ACCEPT UTILITY COMPANY CABLES. PROVIDE ALL REQUIRED EQUIPMENT FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM. COORDINATE ALL CHANGES, ADDITIONS AND ANY NEW WORK TO THE SERVICE ENTRANCE WITH THE UTILITY COMPANY.

- WHEREVER FIRE RATED PARTITIONS OR CONCRETE SLABS ARE PENETRATED BY FEEDER CONDUITS, BRANCH CIRCUIT CONDUIT AND CABLES, THE PENETRATIONS SHALL BE SEALED WITH CODE APPROVED, LABORATORY TESTED AND LABELED SEALANT OF THE FIRE RESISTANCE RATING, WHICH IS NOT LESS THAN THAT OF THE PENETRATED ASSEMBLY.
- PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORD WITH THE OCCUPATIONAL SAFETY HEALTH ADMINISTRATION (OSHA) REGULATIONS, AS WELL AS NFPA TO THE NATIONAL ELECTRICAL CODE.

- PANELBOARDS; ALL PANELBOARDS SHALL BE EQUAL IN MANUFACTURER TO "SQUARE D" COMPANY TYPE NDD. THE PANELBOARDS SHALL BE PROVIDED WITH THE FOLLOWING STANDARD FEATURES:
  - COPPER BISSING
  - BOLT-ON MOLDED CASE, THERMAL MAGNETIC CIRCUIT BREAKERS.
  - BUSBARS AND BREAKERS SHALL MAKE A FULLY RATED (KALC) SYSTEM, SERIES RATED EQUIPMENT IS NOT ACCEPTABLE
  - PROVIDE PANEL WITH SEPARATE EQUIPMENT GROUND BUS TERMINAL BLOCK.
  - PROVIDE TYPED PANEL DIRECTORIES.
  - PROVIDE DEAD FRONT CONSTRUCTION AND HINGED FRONT DOORS WITH A SPRING-LOADED, KEY LOCKABLE LATCH.
  - OTHER FEATURES SHALL BE AS INDICATED ON THE PANEL SCHEDULES.

- CONDUCTORS: ALL CONDUCTORS SHALL BE COPPER UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHOWN ON THE DOCUMENTS SHALL BE RATED A MINIMUM OF 90 DEG C TYPE THINWALL 800 VOLT INSULATION.
- CONDUCTORS #10AWG AND SMALLER SHALL BE SOLID TYPE CONDUCTORS. CONDUCTORS #14AWG AND LARGER SHALL BE STRANDED TYPE.
- MINIMUM CONDUCTOR SIZE TO BE #12AWG UNLESS NOTED OTHERWISE.
- ALL CONDUCTORS MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE.
- ALL BRANCH CIRCUITS INSTALLED IN CONDUIT SHALL BE PROVIDED WITH A SEPARATE GREEN INSULATED GROUND CONDUCTOR.

- CABLES: METAL CLAD CABLE (MC) WITH AN INSULATED GREEN GROUND CONDUCTOR SHALL BE USED IN ALL CONCEALED BRANCH WIRING APPLICATIONS UNLESS OTHERWISE NOTED. TYPE ARMOR CLAD CABLE (ACC) OR BX CABLE IS NOT PERMITTED.
- TYPE NM cable (RHW) CAN BE UTILIZED WHERE ALLOWED BY THE CODE AND WHERE SPECIFICALLY MENTIONED ON THE CONTRACT DOCUMENTS. ALL TYPE NM CABLE UTILIZED SHALL BE PROVIDED WITH A SEPARATE GROUND CONDUCTOR.

- INSTALLATION OF CONDUIT AND CABLE:
  - CABLE AND CONDUIT SHALL BE INSTALLED CONCEALED IN FINISHED AREAS. BRANCH CIRCUITS INSTALLED IN UNFINISHED AREAS SHALL BE INSTALLED IN CONDUIT.
  - ALL EMPTY CONDUITS SHALL BE INSTALLED WITH PULL LINES.
  - CONDUITS INSTALLED INDOORS SHALL BE EMT.
  - CONDUITS SERVING MOTORS, TRANSFORMERS OR VIBRATING EQUIPMENT INSTALLED IN INDOOR DRY LOCATIONS SHALL BE FLEXIBLE METALLIC CONDUIT (FMC)
  - CONDUITS INSTALLED OUTDOORS OR EXPOSED TO DAMP OR MOIST ENVIRONMENTS SHALL BE INSTALLED IN MC.
  - CONDUITS SERVING MOTORS, TRANSFORMERS OR VIBRATING EQUIPMENT INSTALLED IN OUTDOORS OR IN DAMP OR MOIST LOCATIONS SHALL BE LIQUIDTITE FLEXIBLE METAL CONDUIT FLEXIBLE METALLIC CONDUIT (LFMC).
  - ALL CONNECTORS FOR SOLID CONDUIT (EMT AND FMC) SHALL BE COMPRESSION TYPE FITTINGS. ALL CONNECTORS FOR FLEXIBLE CONDUIT AND CABLE SHALL BE UL LISTED FOR USE WITH THAT EQUIPMENT.
  - ALL CABLE AND CONDUIT SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING LINES AND SHALL BE PROPERLY SUPPORTED AS RECOMMENDED BY THE NEC. THE ABOVE SHALL NOT BE SUPPORTED BY MECHANICAL PIPING OR "TIED" TO WORK HANGERS. CABLES SHALL NOT BE SUPPORTED BY OTHER ELECTRICAL CONDUIT.
  - WHERE BRANCH CIRCUIT CABLE ENTERS AN ELECTRICAL CLOSET, THE CABLES SHALL NOT BE INSTALLED BUNDLED TOGETHER. RATHER THE CABLES SHALL BE PULLED INTO THE ROOM, DRESSED AND TRAINED INTO SINGLE AND DOUBLE ROWS, WHICH ARE NEATLY FASTENED TO KINDORP RACK VIA THE PROPER TYPE OF CABLE PRESSURE CONNECTORS. THE CABLE SHALL BE SUPPORTED AND SMOOTHLY TRANSITIONED INTO THE INDICATED BRANCH CIRCUIT PANELBOARD.
  - COORDINATE ALL CONDUITS, AND CABLE RUNS WITH MECHANICAL PIPING AND DUCTWORK TO AVOID CONFLICTS.
  - CONDUITS SHALL NOT BE USED AS EQUIPMENT GROUND RETURN PATHS. SEE 18. D ABOVE.
  - PROVIDE PLENUM RATED CABLES IN ALL PLENUM CEILING.

- OUTLET BOXES
  - USE SHEET STEEL, ZINC COATED OR CADMIUM PLATED OUTLET BOXES CONCEALED FOR INTERIOR WORK.
  - USE CAST BOXES, ZINC-CADMIUM FINISH MALLEABLE IRON, FOR EXPOSED EXTERIOR WORK AND FOR EXPOSED CONCEALED WORK IN WET, DAMP OR EXTERIOR LOCATIONS.
  - WALL BOXES SHALL BE 4" SQUARE X 1/2" DEEP WHERE WALL CONSTRUCTION PERMITS.
  - GANG BOXES SHALL BE ONE PIECE.
  - FLUSH MOUNT BOXES IN ALL FINISHED WALLS. INSTALL PLASTERINGS IN DRYWALLED OR PLASTERED WALLS AND RASSED COVERS AS REQUIRED IN WALLS WITH OTHER FINISHES SO COVER PLATES WILL FIT TIGHT AGAINST WALL SURFACE.
  - PROPERLY SUPPORT ALL BOXES PER THE NEC TO ALLOW FOR A RIGID HOLD AND PROPER ALIGNMENT.

- WIRING DEVICES:
  - ALL LIGHTING SWITCHES SHALL BE RATED 20 AMPERE 120/277 VOLT AC QUIET TYPE SNAP SWITCHES.
  - PROVIDE NEMA 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES UNLESS OTHERWISE NOTED.
  - RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM DUPLEX RECEPTACLES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS.
  - ALL WIRING DEVICES, SHALL BE WORK IN COLOR AND MANUFACTURED BY HUBBELL, PE 9 OR LEVITON.
  - PROVIDE DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS NOTED OTHERWISE:

- FINISHED AREAS: PRIME PAINTED STEEL IN THE COLOR OF THE DEVICE.
- UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL AS APPROPRIATE FOR THE TYPE OF BOX.
- WHERE MORE THAN ONE DEVICE IS INDICATED, PROVIDE A MULTI-GANG BOX AND A COMMON GANG DEVICE PLATE.

- PROVIDE CUTTING AND PATCHING AS REQUIRED TO ACCOMPLISH THE ELECTRICAL WORK PORTRAYED ON THE DRAWINGS.

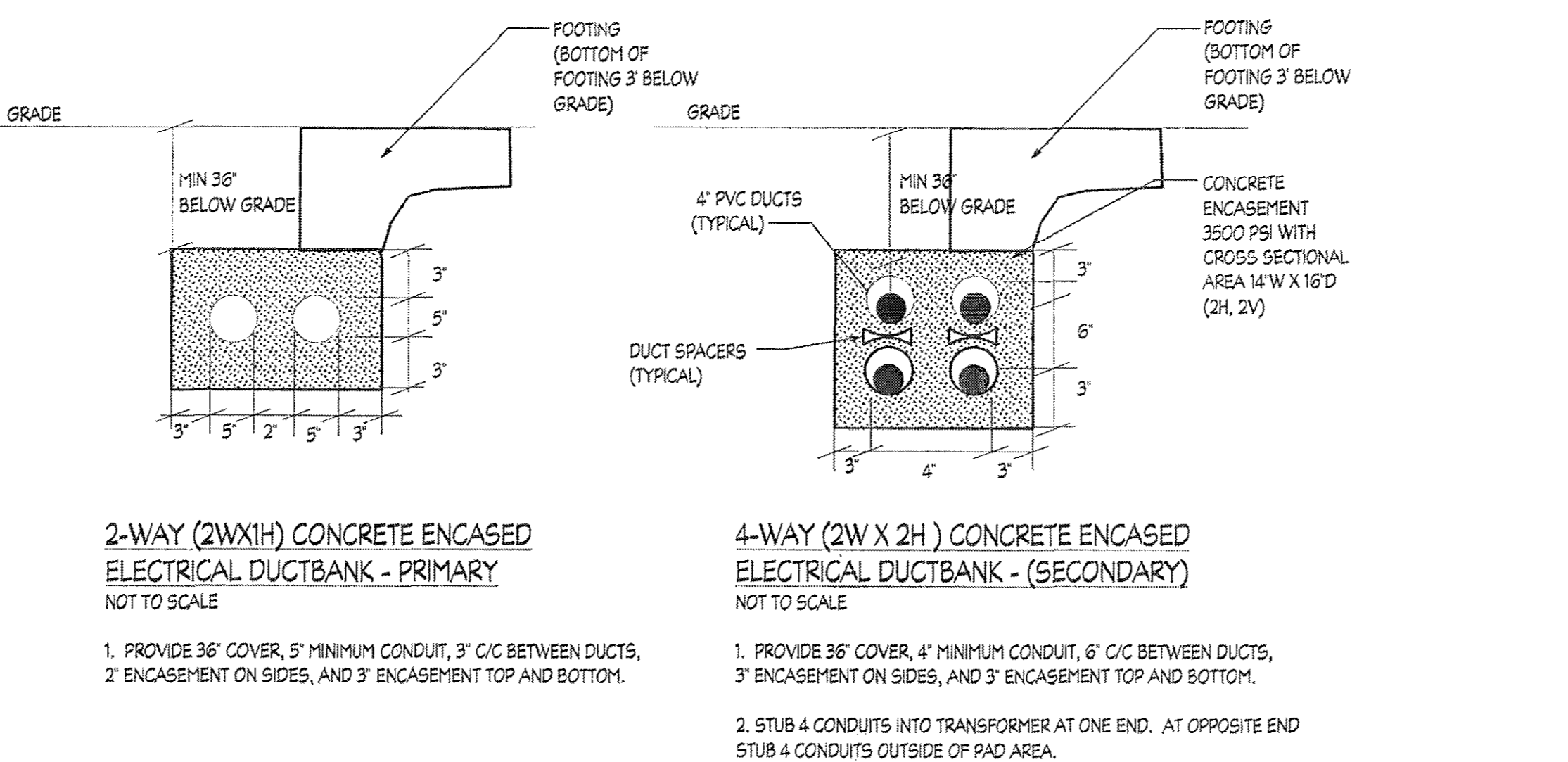
- DISCONNECT SWITCHES: PROVIDE FUSED OR NON-FUSED HEAVY DUTY DISCONNECT SWITCHES. SIZE AND RATINGS AS INDICATED ON THE DRAWINGS. ALL DISCONNECTS SHALL HAVE HANDLE LOCKING PROVISIONS IN THE ON AND OFF POSITIONS.

ELECTRICAL SYMBOLS				
SYMBOL	ABRV.	DESCRIPTION	MOUNT	REMARKS
PNL	PNL	ELECTRICAL PANEL		
		208Y/120V		
		HOME RUN		ARROWHEADS INDICATE # OF CIRCUITS
		CONNECT TO CIRCUIT BREAKER INDICATED		
		WIRE RUN (GLASSES INDICATED IF WIRES IF MORE THAN 2, 2#12 + #12@ 3/4" G. MIN.)		
	MMS	SWITCH	ON UNIT UNO	
		MANUAL MOTOR STARTER		
		WALL MOUNTED OCCUPANCY SENSOR SWITCH	48" AFF UNO	
	PC	SWITCH		
		PHOTOCCELL		
	TC	SWITCH		
		TIME CLOCK IN NEMA 1 ENCLOSURE.		
	RCPT	DUPLEX RECEPTACLE	18" AFF UNO	
	GFCI	DUPLEX RECEPTACLE	18" AFF UNO	MOUNT 6" ABOVE LAV. OR COUNTER
		GFCI		
		MOTORIZED DAMPER		
		DISCONNECT SWITCH. F STANDS FOR FUSE.		
	JB	JUNCTION BOX		
	AFF	ABOVE FINISHED FLOOR		
	CLS	CEILING		
	UNO	UNLESS NOTED OTHERWISE		
	ADA	AMERICANS WITH DISABILITIES ACT COMPLIANCE		
	P	POLES		
	Ø	PHASE		
	G. GRD	GROUND		
	C	CONDUIT		
	WP	WEATHER PROOF		
	GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
	ENCL	ENCLOSURE		
	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.		
	MGB	MAIN GROUND BUS		
	MOT	MOTOR OPERATED DAMPER		
	NTS	NOT TO SCALE		
	AFG	MOTOR CONNECTION		
		ABOVE FINISHED GRADE		
		2 POLE OVERRIDE SWITCH		
		CEILING MOUNTED OCCUPANCY SENSOR		
		TOGGLE SWITCH. SINGLE POLE, 20A RATED, 2-POLE, 3-WIRE, MOUNT + 48" AFF UNO		
		TOGGLE SWITCH. THREE WAY, SINGLE POLE, 20A 3-WIRE, MOUNT + 48" AFF UNO.		
		TOGGLE SWITCH. THREE WAY, DOUBLE POLE, 20A 4-WIRE, MOUNT + 48" AFF UNO.		
		CONTRACTOR IN NEMA 1 ENCLOSURE		
		LIGHTING PROTECTION AIR TERMINAL		
		LIGHTING PROTECTION GROUND ROD		

NOTE: ALL SYMBOLS SHOWN ABOVE ARE NOT NECESSARY USED ON THIS PROJECT.

LIGHT FIXTURE SCHEDULE			
SYMBOL	DESCRIPTION	LAMPS	MANUFACTURER AND MODEL #
A	METAL HALIDE MOUNTED AT 14" AFF	2-F32 T8 120V	LITHONIA KAD 1781 R85C T8 SCWA SPD04 DDB
B	BOLLARD LUMINAIRE	2-F32 T8 120V	HYDREL CE-2878 42 LED WHITE3K MVOLT 57M BLS BL
C	4" FLUORESCENT STRIP - SURFACE MTD/ OR SUSPENDED	2-F32 T8 120V	WILLIAMS OR EQUAL 77-4-232-EB2-12D
D	2 X2 FLUORESCENT RECESSED-U TUBE	2-F32 T8 120V	WILLIAMS OR EQUAL HE9G-522-232-U-R1212S-120V-EB2
W	COMPACT FLUORESCENT WALL PACKS WITH BATTERY BACK UP BALLAST	42W CFL 120V	GE LIGHTING. PROVIDE RECYCLE BATTERY BACK UP BALLAST, INSTALLED INSIDE BUILDING

1. SEE SHEET E-4 FOR SITE LIGHTING SPECIFICATIONS.



2-WAY (2WX1/2") CONCRETE ENCASED ELECTRICAL DUCTBANK - PRIMARY NOT TO SCALE

- PROVIDE 3/8" COVER, 5" MINIMUM CONDUIT, 3" C/C BETWEEN DUCTS, 2" ENCASEMENT ON SIDES, AND 3" ENCASEMENT TOP AND BOTTOM.

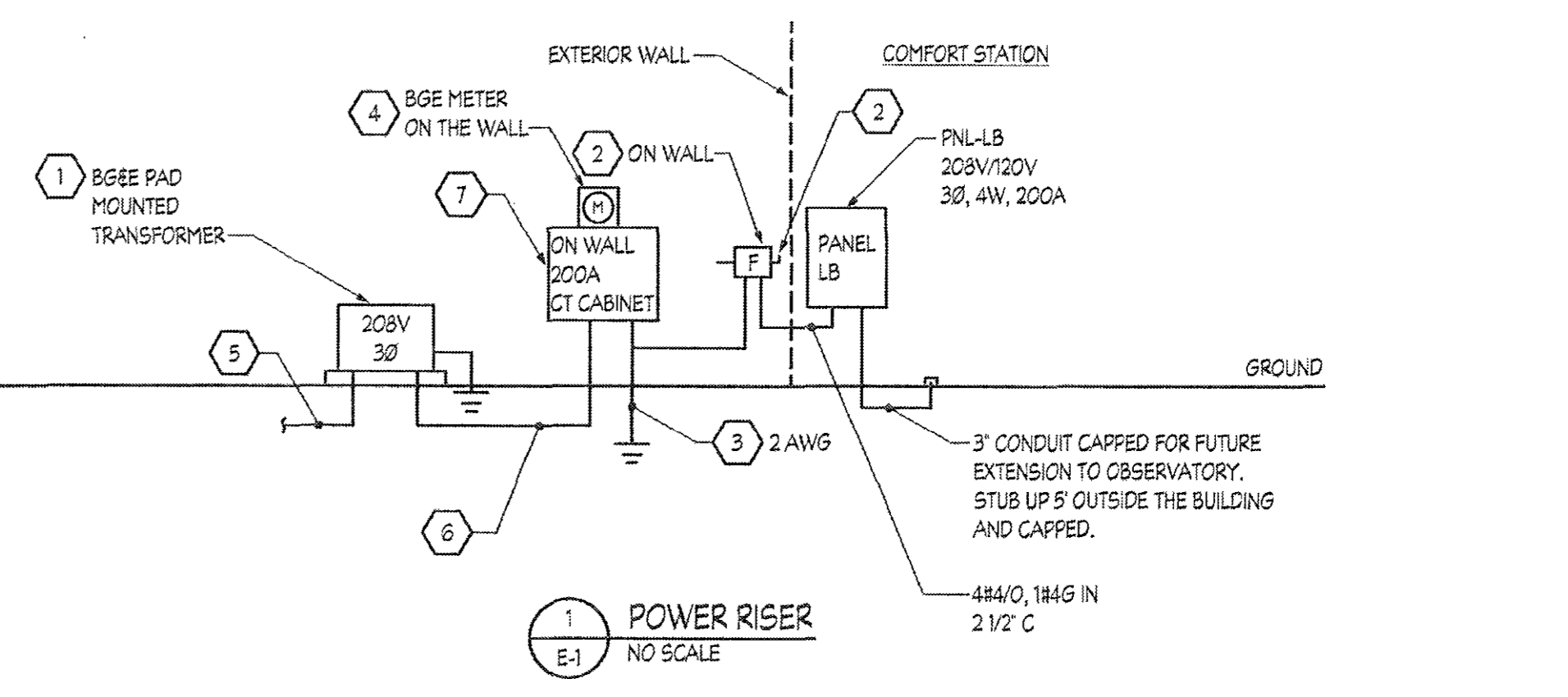
4-WAY (2W X 2H ) CONCRETE ENCASED ELECTRICAL DUCTBANK - (SECONDARY) NOT TO SCALE

- PROVIDE 3/8" COVER, 4" MINIMUM CONDUIT, 6" C/C BETWEEN DUCTS, 3" ENCASEMENT ON SIDES, AND 3" ENCASEMENT TOP AND BOTTOM.
- STUB 4 CONDUITS INTO TRANSFORMER AT ONE END, AT OPPOSITE END STUB 4 CONDUITS OUTSIDE OF PAD AREA.

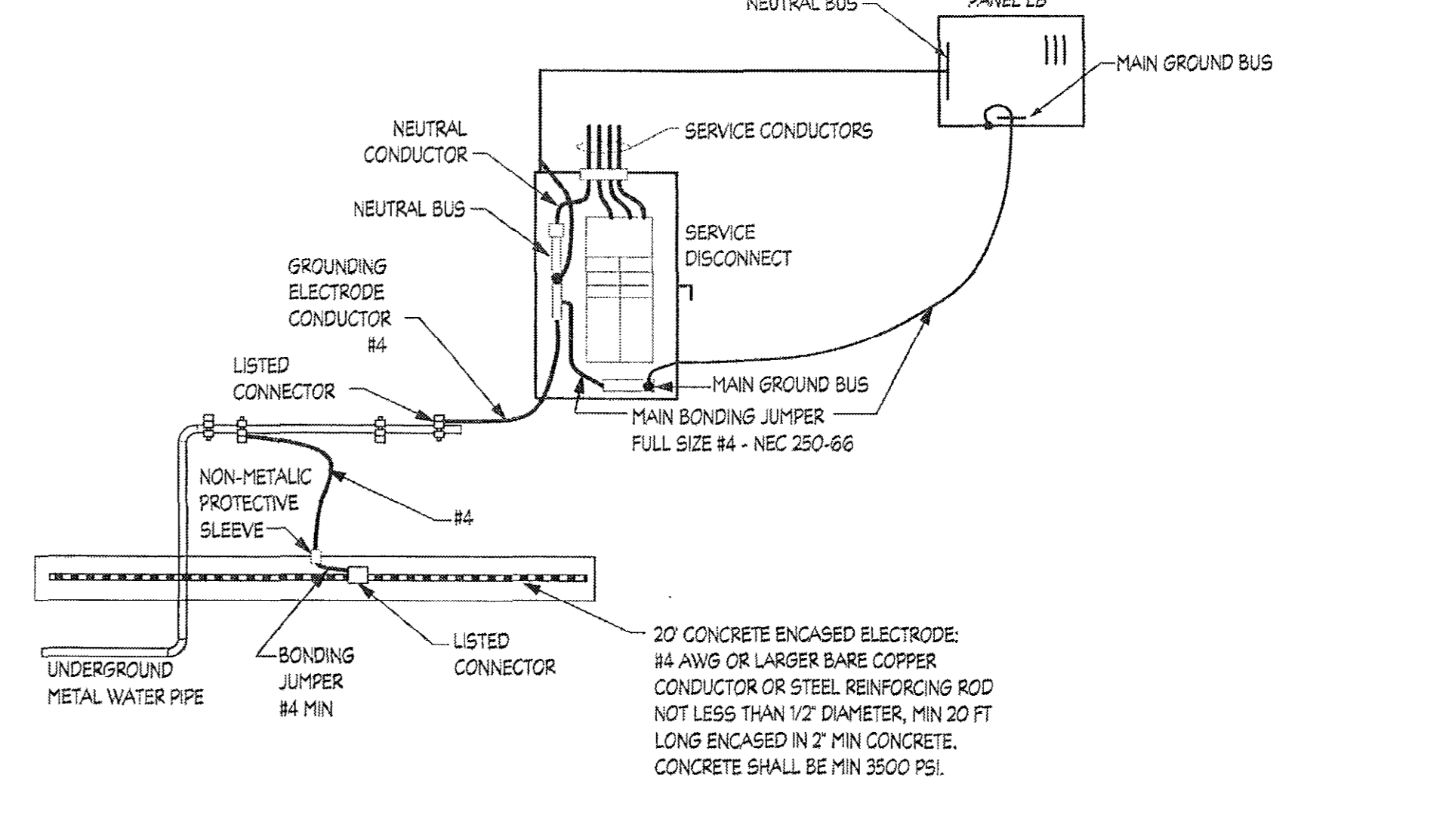
PANEL LB									
LOCATION: ELECTRIC ROOM 108		208Y/120V, 3Ø, 4W				MOUNTING		SURFACE	
		CONDUCTOR		CKT BKR		KALC		CKT BKR	
CKT	EQUIPMENT	C	WIRE	F	AMP	VOLT	KVA	C	CKT BKR
1	EF-1, M.O.D. - WOMENS 108	3/4	2#12, 1#12G	1	20	120	0.1 A	11	2
2	LG INTERIOR ROOMS/EF-3/EF-4/M.O.D. 108	3/4	2#12, 1#12G	1	20	120	0.6 B	2.4	4
3	RECEPTACLES - RMS 108, 108 110	3/4	2#12, 1#12G	1	20	120	0.6 B	2.4	4
4	BWH-1 - WOMENS 108	-	-	-	-	-	-	-	-
5	BWH-4 - ELCT. 108	3/4	2#12, 1#12G	2	20	208	1.0 C	2.4	6
6	BWH-2 - MENS 108	3/4	2#12, 1#12G	1	20	120	1.0 A	2.4	6
7	BWH-3 - JANITOR 110	3/4	2#12, 1#12G	1	20	120	0.4 C	0.5	12
8	EF-5, EF-6, M.O.D. - 108 AND 107, TIMECLOC	3/4	2#12, 1#12G	1	20	120	0.2 B	2.4	10
9	RECEPTACLES GENERAL	3/4	2#12, 1#12G	1	20	120	0.4 C	0.5	12
10	ECH-1 - JANITOR 110	3/4	2#12, 1#12G	1	20	120	0.4 C	0.5	12
11	WH-1 - JANITOR 110	3/4	2#10, 1#10G	2	30	208	2.8 A	1.0	14
12	BWH-3 - JANITOR 110	3/4	2#12, 1#12G	2	20	208	2.3 B	1.0	16
13	BWH-2 - MENS 108	3/4	2#12, 1#12G	1	20	120	1.0 C	0.1	18
14	EF-2, M.O.D. - RM 108	3/4	2#12, 1#12G	1	20	120	0.1 A	1.0	20
15	HAND DRYER - WOMENS 108	3/4	2#12, 1#12G	1	20	120	0.1 A	1.0	20
16	HAND DRYER - WOMENS 108	3/4	2#12, 1#12G	1	20	120	0.1 A	1.0	20
17	LIGHTS EXTERIOR	3/4	2#10, 1#10G	1	20	120	0.7 B	0.2	22
18	WAY FINDING LIGHTS	3/4	2#8, 1#8G	1	20	120	0.1 C	0.2	24
19	SITE LIGHTS	3/4	2#8, 1#8G	2	20	208	0.8 A	0.2	26
20	SITE LIGHTS	3/4	2#8, 1#8G	2	20	208	0.8 B	1.0	28
21	BWH-5 - STORAGE 107	3/4	2#12, 1#12G	2	20	208	-	-	-
22	BWH-6 - STORAGE 109	3/4	2#12, 1#12G	2	20	208	-	-	-
23	RECEPTACLES WP, GFI - EXTERIOR	3/4	2#12, 1#12G	1	20	120	0.1 C	0.5	36
24	FLUSH VALVE SENSORS	3/4	2#12, 1#12G	1	20	120	0.1 C	0.5	36
25	ELECTOR PUMP ALARM PANEL	3/4	2#12, 1#12G	1	20	120	0.1 C	0.5	36
26	ELECTOR PUMPS	3/4	2#10, 1#10G	3	30	208	2.4 A	3.0	40
27	LC LOAD CENTER	-	-	-	-	-	2.4 B	3.0	40
28	FLUTURE	-	-	-	-	-	2.4 C	3.0	42

REMARKS:  
\* PROVIDE BREAKER WITH LOCKABLE FEATURE IN THE 'ON' POSITION AS REQUIRED BY CODE.

PHASE A LOAD	17.5
PHASE B LOAD	18.7
PHASE C LOAD	13.6
TOTAL KVA	49.9
TOTAL CONNECTED AMP	139



- RISER NOTES:**
- NEW UTILITY TRANSFORMER AND PAD, 208Y/120V, 3Ø, 4W. REFER TO CIVIL PLANS FOR LOCATION. PROVIDE CONCRETE PAD, GROUND RING AND (4) 1/2" 3/4" COPPER-CLAD STEEL GROUND RODS. CONTRACTOR TO PURCHASE PAD FROM BGE TO MATCH BGE TRANSFORMER.
  - NEW 240V, 200A, 4P SERVICE RATED FUSED DISCONNECT SWITCH WITH LOCKING ARRANGEMENT IN NEMA 3 ENCLOSURE FOR PANEL LB.
  - PROVIDE SERVICE AND BUILDING GROUNDING SYSTEM AS PER NEC.
  - UTILITY METER MOUNTED ON OUTSIDE OF BUILDING.
  - PROVIDE (2) 5" CONCRETE ENCASED CONDUIT DUCTBANK, FROM BGE MANHOLE TO THE TRANSFORMER. SEE PRIMARY DUCTBANK DETAIL ON THIS SHEET. ROUTING SHALL BE COORDINATED WITH BGE. PRIMARY CABLE BY BGE.
  - PROVIDE (4) 4" CONCRETE ENCASED CONDUIT DUCTBANK PER SECONDARY DUCTBANK DETAIL ON THIS SHEET. CABLE PROVIDED BY BGE.
  - CT WITH HEAVY DUTY, RAIN-TIGHT ENCLOSURE.



- GROUNDING NOTES:**
- ALL GROUNDING ELECTRODES THAT ARE PRESENT AT THE BUILDING SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. REFER TO NATIONAL ELECTRICAL CODE (NEC) SECTION 250 PART 3.
  - GROUNDING ELECTRODE CONDUCTOR SHALL BE NOT LESS THAN REQUIRED BY NEC TABLE 250.66.
  - TEST GROUND SYSTEM RESISTANCE & VERIFY LESS THAN 5 OHMS.
  - ALL GROUNDING AND BONDING CONDUCTORS SHALL BE COPPER.
  - DO NOT TIE NEUTRAL AND GROUND BUS AT PANEL B.

**GVA**  
George Vaeth Associates, Inc.  
Architect • Interior Design  
5501 Twin Knolls Rd., Suite 108  
Columbia, Maryland 2104



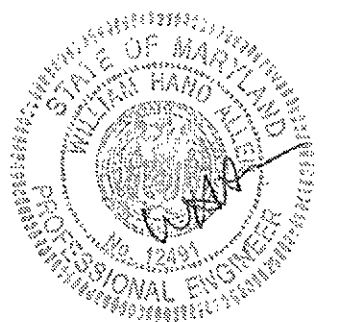
George Vaeth Associates, Inc.  
 Architecture • Interior Design  
 5501 Twin Knolls Rd., Suite 108  
 Columbia, Maryland 21045  
 Tel. (410) 997-1000 Fax (410) 997-2719  
 Email gva@georgevaeth.com

Allen & Shariff  
 ENGINEERING

7061 Deepage Drive  
 Columbia, MD 21045  
 410.381.7100  
 www.AllenShariff.com

RECEIVED

MAR 29 2013  
 LICENSES & PERMITS  
 DIVISION



REVISIONS

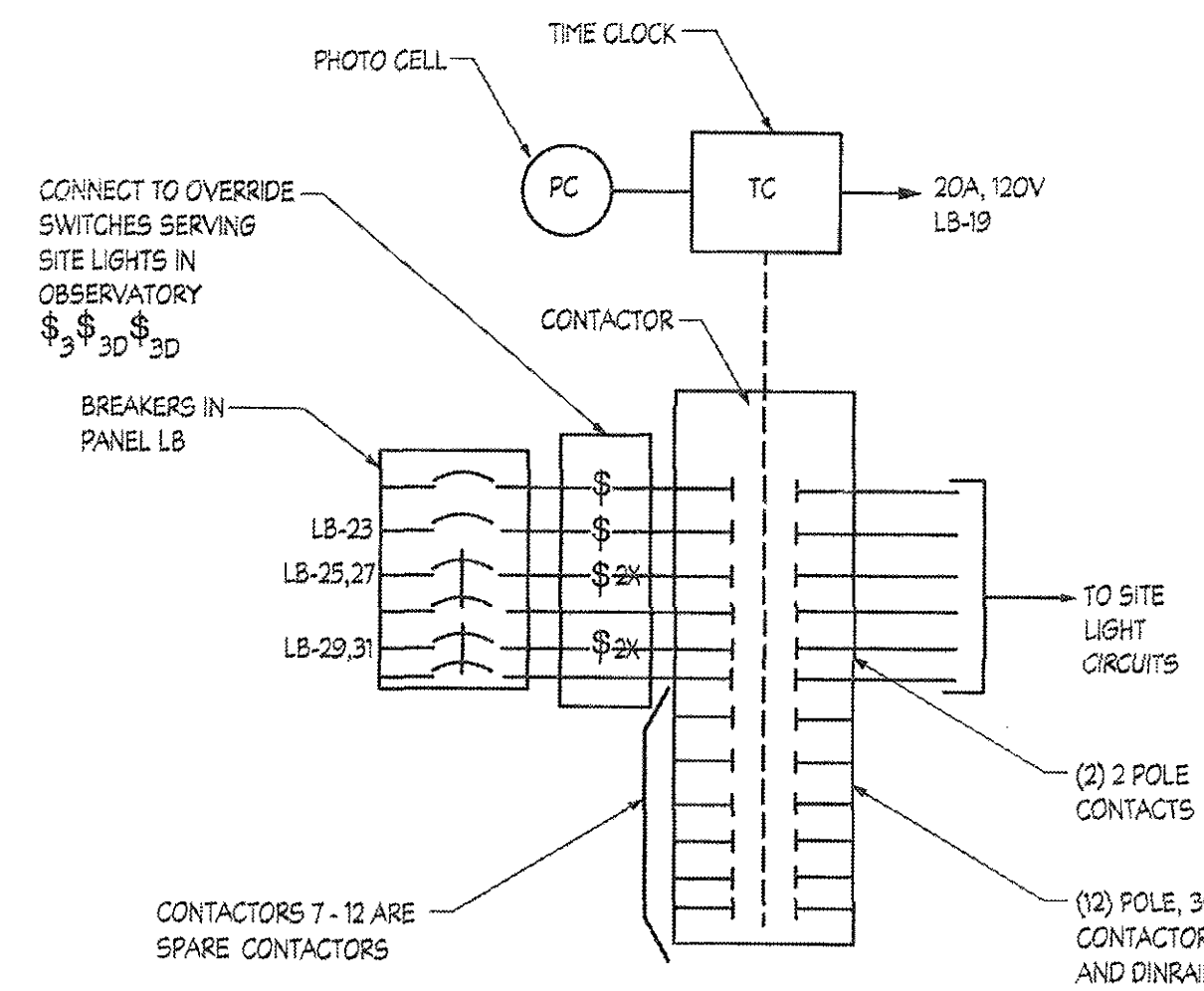
NO.	DATE	DESCRIPTION
1	3/2/11	65% Submission
2	6/13/12	Final Review
3	7/12/12	BG&E Coordination

COMFORT STATION  
 TO  
 ALPHA RIDGE PARK  
 HOWARD COUNTY, MD.  
 FOR  
 HOWARD COUNTY  
 DEPARTMENT OF  
 RECREATION & PARKS

PROJECT NUMBER:	1015-B
PRELIMINARY ISSUE:	SEPTEMBER 17 2012
CONSTRUCTION ISSUE:	-/-/-
CADD FILE NAME:	

ELECTRICAL  
 FLOOR PLAN

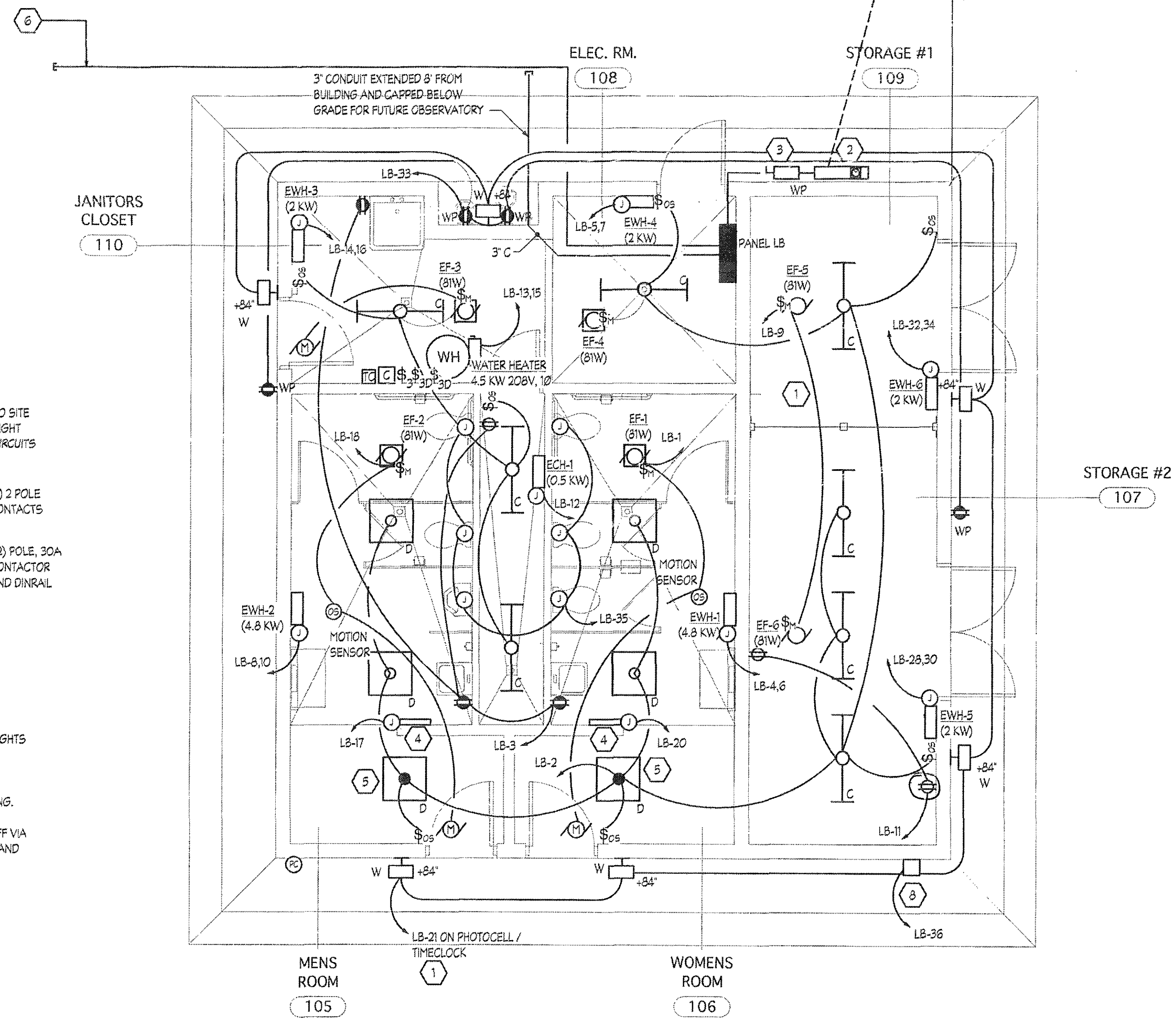
SHEET NUMBER:  
 E-2



2 SITE LIGHTING CONTROL DETAIL  
 NOT TO SCALE

SITE LIGHTING CONTROL NOTES

- (1) THREE-WAY, SINGLE POLE SWITCH PROVIDED IN OBSERVATORY AND JANITOR'S CLOSET FOR BOLLARD LIGHTS.
- (2) THREE-WAY, DOUBLE POLE SWITCH PROVIDED IN OBSERVATORY AND JANITOR'S CLOSET FOR SITE LIGHTING.
- SITE LIGHTING TURNS ON VIA PHOTOCELL. SHUT OFF VIA PHOTOCELL OR OVERRIDE SWITCHES IN OBSERVATORY AND JANITOR'S CLOSET.



1 FLOOR PLAN - ELECTRICAL  
 1/4" = 1'-0"

GENERAL NOTES:

- LIGHTS AND EXHAUST FANS IN THE RESTROOM SHALL BE CONTROLLED VIA MOTION SENSOR.
- EXTERIOR LIGHTS SHALL BE CONTROLLED VIA PHOTOCELL 'ON' TIMECLOCK 'OFF' SYSTEM.
- PROVIDE LIGHTNING PROTECTION SYSTEM FOR BUILDING. REFER TO SPECIFICATIONS/DETAILS ON THIS SHEET FOR REQUIREMENTS.
- THE UNDER VOLTAGE RELAY OF EACH EMERGENCY LIGHT SHALL BE CONNECTED TO THE LIGHTING CIRCUIT THAT FEEDS THE AREAS AHEAD OF ANY LIGHTING CONTROL DEVICES. THE BREAKER SHALL BE LOCKABLE IN 'ON' POSITION.
- INSTALL LOCKABLE PHOTOCELL ON ROOF FACED NORTH, ADJUSTABLE EVERY 30°.

DRAWING NOTES:

- PROVIDE ASTRONOMIC, PROGRAMMABLE MULTI-CHANNEL TIME CLOCK AND TIE TO 20A, 120V DEDICATED CIRCUIT LB-19.
- BGE UTILITY METER, 200A, 208V, 3Ø, INSTALLATION PER BGE STANDARD.
- 200A SERVICE RATED FUSED DISCONNECT FUSES RATED AT 200A.
- JUNCTION BOX FOR ELECTRIC HAND DRYER.
- LIGHT FIXTURE WITH BATTERY BACK UP.
- PROVIDE (2) 4" CONDUIT WITH PULLSTRING, 3" MINIMUM BELOW GRADE FROM COMFORT STATION TO HOCKEY RINK FOR FUTURE USE, WHERE IT SHOULD BE STUBBED UP AND CAPPED. LENGTH OF CONDUIT APPROXIMATELY 400'. SEE SHEET E-3 FOR LOCATION OF HOCKEY RINK.
- PROVIDE JUNCTION BOX FOR CONNECTION TO FLUSH VALVE SENSORS. VERIFY LOCATION IN FIELD.
- PROVIDE JUNCTION BOX FOR CONNECTION TO EJECTOR PUMP ALARM PANEL. MOUNT HIGH ON WALL. COORDINATE EXACT LOCATION WITH ARCHITECTURE PLAN A-2 PRIOR TO INSTALLATION. PROVIDE CONTROL WIRING FROM PANEL TO PUMPS IN 3/4" CONDUIT. SEE SHEET E-4 FOR LOCATION OF EJECTOR PUMPS.







HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

9250 Bendix Road

Columbia, Maryland 21045

410-313-2414

Thomas E. Butler, P.E., Deputy Director of Public Works
Engineering, Development and Construction
www.howardcountymd.gov

FAX 410-313-6144
TDD 410-313-2323

Letter of Transmittal

DATE: MARCH 29, 2018

Bureau of Engineering, T&SP
9250 Bendix Road, Columbia, MD 21045
Ph. (410) 313-5806 Fax (410) 313-6141
mdavidson@howardcountymd.gov

TO: Howard County Planning and Zoning
3430 Court House Drive
Ellicott City, MD 21043

We are sending the following:

- Plans, Prints, Specs, Shop dwgs, Other - Mylar As-Built Drawings

Via:

- USPS, Fed Ex, UPS, Courier, Other

For Reason(s) Checked Below:

- For Your Approval, As Requested, Resubmit, For Your Use, Make Corrections Noted, Return

CAP. PROJECT NOS. PROJECT NAME
N-3964, SDP 90-18 Alpha Ridge Park

Table with 3 columns: PAGE NO., DESCRIPTION, QUANTITY. Row 1: Multiple sheets, mylars, prints and as-Built Drawings, 1

Remarks:

For uploading to GIS and storage.

Handwritten note: RBD DWGS GO on top, followed by Mylars, then large prints. Thanks!!

Kind Regards,
Howard County DPW

Handwritten signature of Marshall N. Davidson

Marshall N. Davidson, P.E.
Project Manager

CC: File

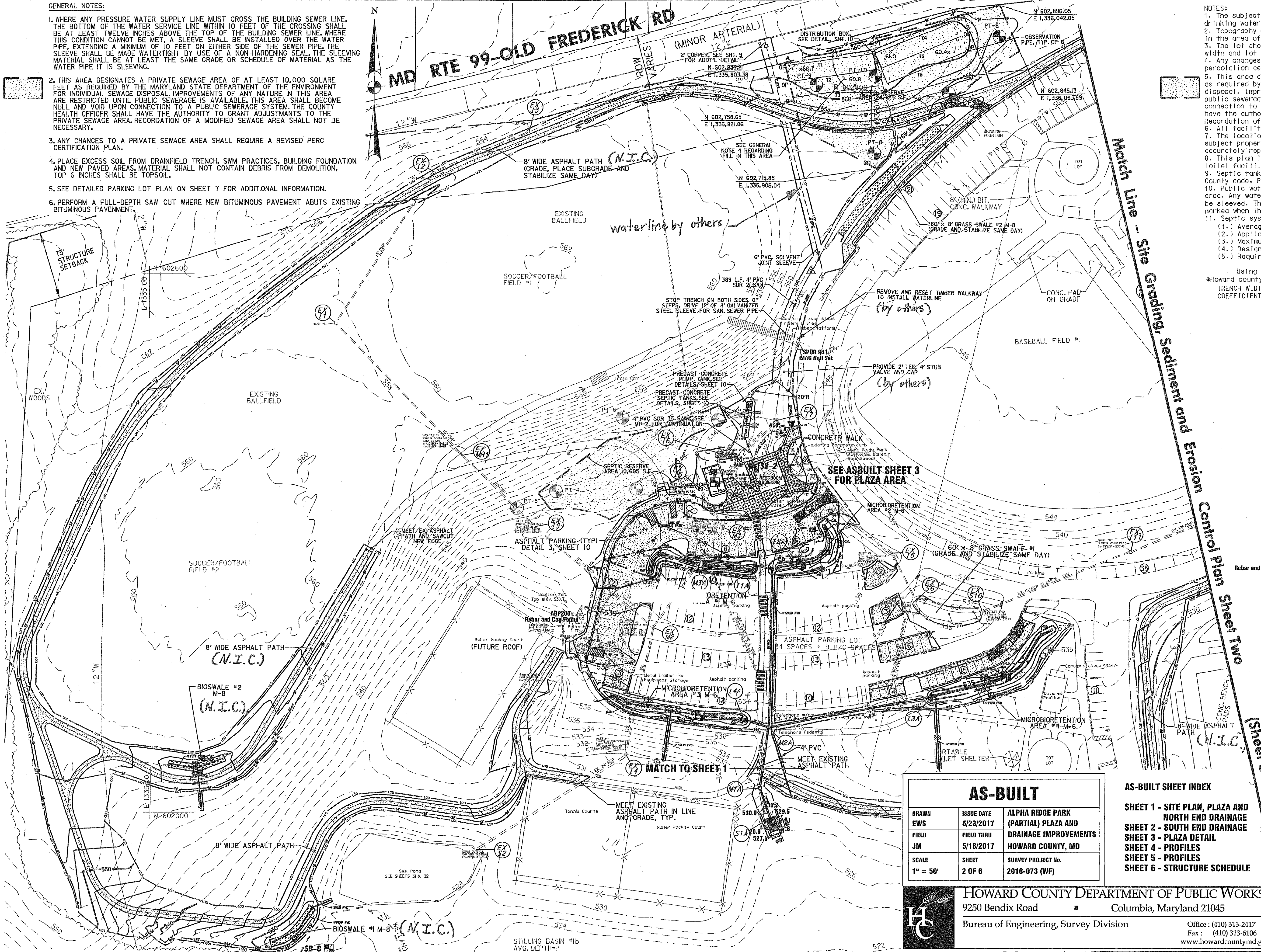
T:\Engineering\Transportation\MDavidson\Pine Tree Road and Glen Court\Pine Tree Road\Phase 1\AS BUILT\Transmittal to DPZ - 1-30-18.docx

**GENERAL NOTES:**

- WHERE ANY PRESSURE WATER SUPPLY LINE MUST CROSS THE BUILDING SEWER LINE, THE BOTTOM OF THE WATER SERVICE LINE WITHIN 10 FEET OF THE CROSSING SHALL BE AT LEAST TWELVE INCHES ABOVE THE TOP OF THE BUILDING SEWER LINE. WHERE THIS CONDITION CANNOT BE MET, A SLEEVE SHALL BE INSTALLED OVER THE WATER PIPE, EXTENDING A MINIMUM OF 10 FEET ON EITHER SIDE OF THE SEWER PIPE. THE SLEEVE SHALL BE MADE WATERTIGHT BY USE OF A NON-HARDENING SEAL. THE SLEEVING MATERIAL SHALL BE AT LEAST THE SAME GRADE OR SCHEDULE OF MATERIAL AS THE WATER PIPE IT IS SLEEVING.
- THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.
- ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERC CERTIFICATION PLAN.
- PLACE EXCESS SOIL FROM DRAINFIELD TRENCH, SWM PRACTICES, BUILDING FOUNDATION AND NEW PAVED AREAS. MATERIAL SHALL NOT CONTAIN DEBRIS FROM DEMOLITION, TOP 6 INCHES SHALL BE TOPSOIL.
- SEE DETAILED PARKING LOT PLAN ON SHEET 7 FOR ADDITIONAL INFORMATION.
- PERFORM A FULL-DEPTH SAW CUT WHERE NEW BITUMINOUS PAVEMENT ABUTS EXISTING BITUMINOUS PAVEMENT.

**NOTES:**

- The subject property & surrounding properties all obtain drinking water from a public source.
- Topography on this plot is field run by Howard County DPW in the area of the proposed Septic Easement.
- The lot shown hereon complies with the minimum ownership width and lot area as required by the Md. Dept. of the Environment.
- Any changes to a private sewage easement shall require a revised percolation certification.
- This area designates a private sewage area of at least 10,000 s.f. as required by the Md. State Dept. of Environment for individual sewage disposal. Improvements of any nature in this area are restricted until public sewerage is available. This area shall become null and void upon connection to a public sewerage system. The county health officer shall have the authority to grant adjustments to the private sewage area. Recordation of a modified sewage area shall not be necessary.
- All facilities will remain as shown on this plan.
- The locations of all known wells, typically monitoring wells, in the subject property shown, and within 100 feet of the property lines, are accurately represented.
- This plan is developed in support of a proposal to construct a toilet facility to serve park users.
- Septic tank capacity will be determined in accordance with Howard County Code, Paragraph 3.810(B)(1).
- Public water distribution lines may not cross the septic reserve area. Any water line within 10 feet of the septic reserve area must be sleeved. The boundary of the septic reserve area must be clearly marked when the water line is installed.
- Septic system design calculations:  
 (1.) Average Percolation Rate: 7 Min.  
 (2.) Application Rate (2-15 Min.) = 0.8 GPD/SF  
 (3.) Maximum Number of Daily Users= 1440  
 (4.) Design Capacity = 3 GPD/Park User X 1440 = 4320 GPD  
 (5.) Required Length of Trench =  $4320 \times 0.31 = 1338.72$   
 Using 6' Deep Trench Below Pipe: 31% of Trench Length Req.  
 \*Howard County Code, 3.807(E)(2)  
 TRENCH WIDTH = 3', EFFECTIVE SIDEWALL = 6',  
 COEFFICIENT TO REDUCE LENGTH = 0.31%



BY THE ENGINEER: I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. <i>Chris Shuen</i> 2-14-13 SIGNATURE OF ENGINEER DATE	
BY THE DEVELOPER: I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. <i>John R. Spil</i> AUGUST 22, 2012 SIGNATURE OF DEVELOPER DATE	
THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. <i>John P. Roberts</i> 2/14/13 HOWARD S.C.D. DATE	
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spil</i> 1/22/13 DIRECTOR DATE	APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>William Maura Roseman</i> 2/12/2013 COUNTY HEALTH OFFICER DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Janet Chen</i> 2/16/13 DIRECTOR OF PUBLIC WORKS DATE	<i>Thomas E. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shuman</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE	APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>Michael Williams</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>Kate Calabrese</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE	<i>David M. Wyle</i> 2/25/13 DIRECTOR DATE

AS-BUILT		
DRAWN EWS	ISSUE DATE 5/23/2017	ALPHA RIDGE PARK (PARTIAL) PLAZA AND DRAINAGE IMPROVEMENTS
FIELD JM	FIELD THRU 5/18/2017	HOWARD COUNTY, MD
SCALE 1" = 50'	SHEET 2 OF 6	SURVEY PROJECT NO. 2016-073 (WF)

- AS-BUILT SHEET INDEX**
- SHEET 1 - SITE PLAN, PLAZA AND NORTH END DRAINAGE
  - SHEET 2 - SOUTH END DRAINAGE
  - SHEET 3 - PLAZA DETAIL
  - SHEET 4 - PROFILES
  - SHEET 5 - PROFILES
  - SHEET 6 - STRUCTURE SCHEDULE

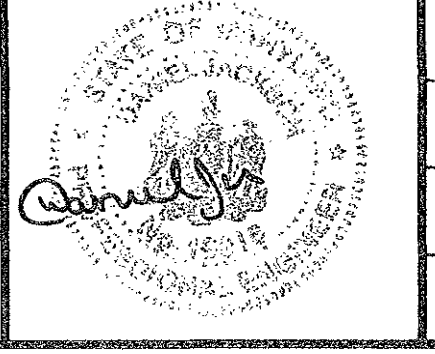
**HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS**  
 9250 Bendix Road ■ Columbia, Maryland 21045  
 Bureau of Engineering, Survey Division  
 Office: (410) 313-2417  
 Fax: (410) 313-6106  
 www.howardcountymd.gov

**OWNER:**  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELEMERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

**DEVELOPER:**  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5806  
 FAX 410-313-6144

**GPI GREENMAN-PEDERSEN, INC.**  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
 10977 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20701  
 WASH. (301) 410-2772 BALI. (410) 890-2625  
 FAX (301) 490-2649 www.gpinet.com

**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. 19916, Expiration Date: 01/14/2015.

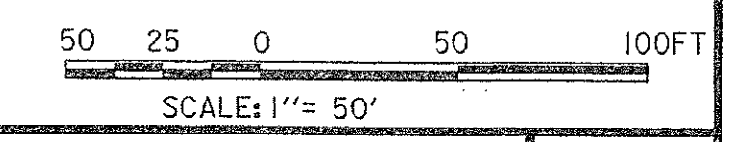


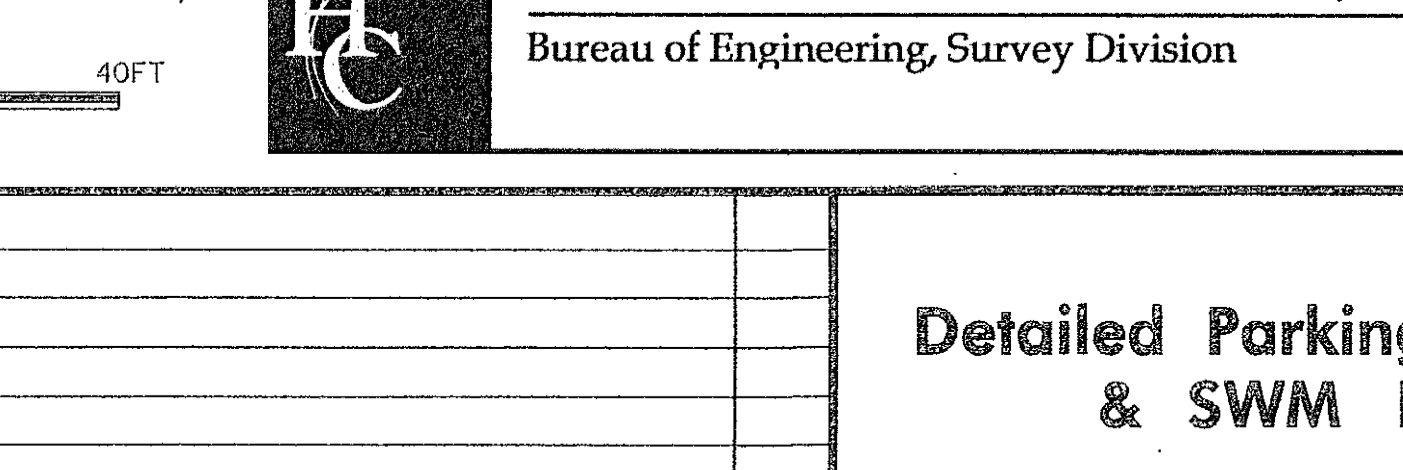
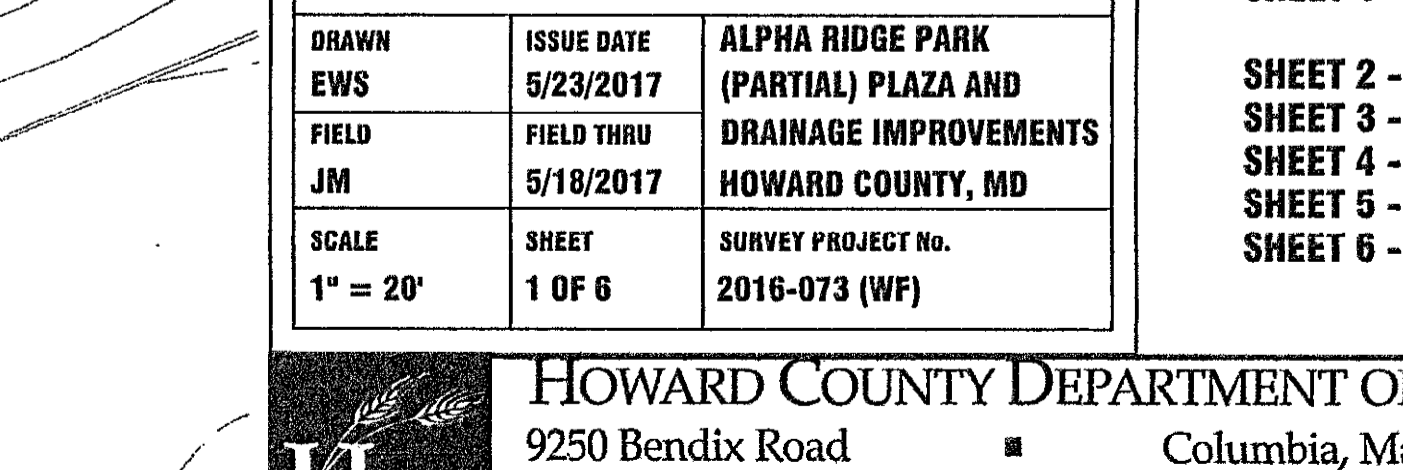
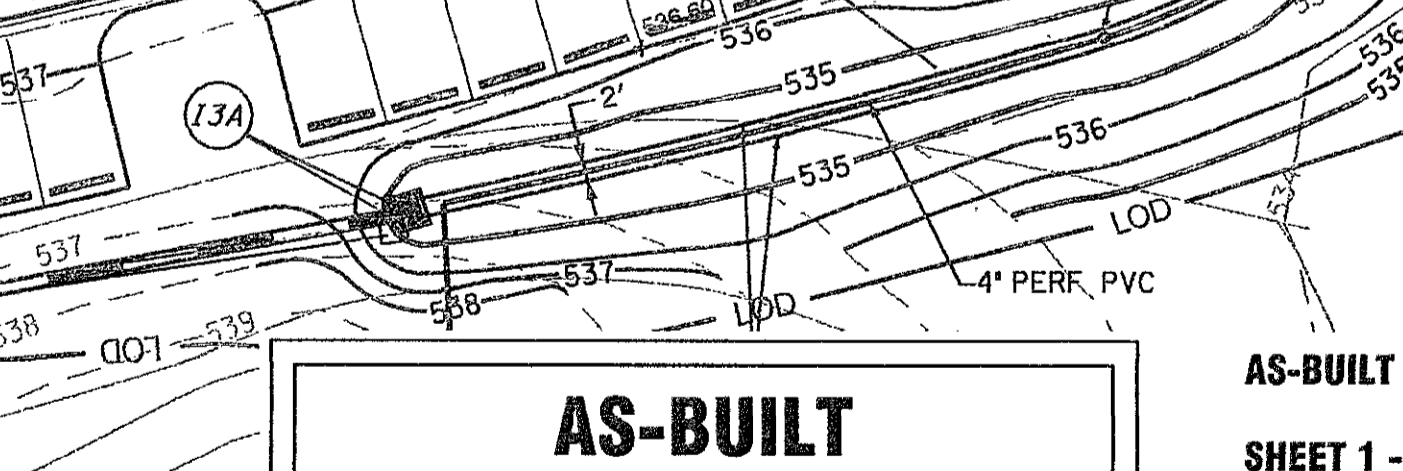
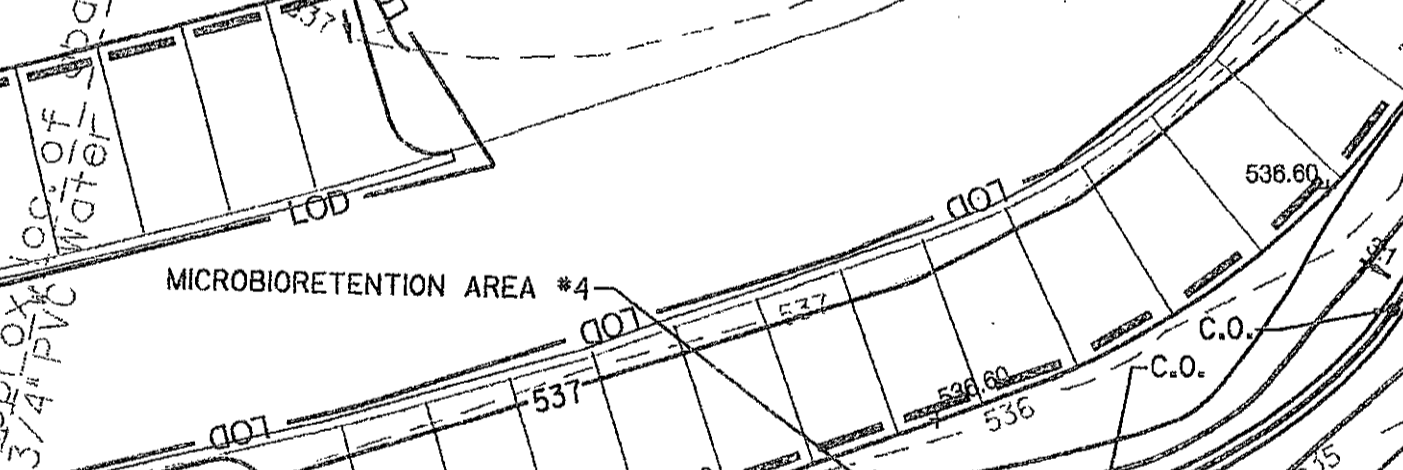
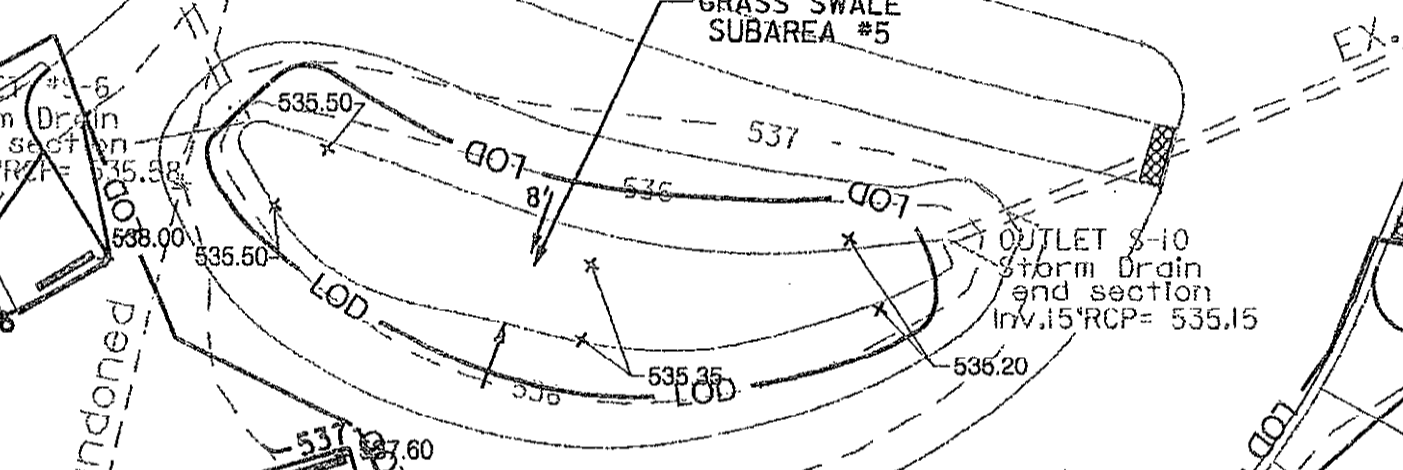
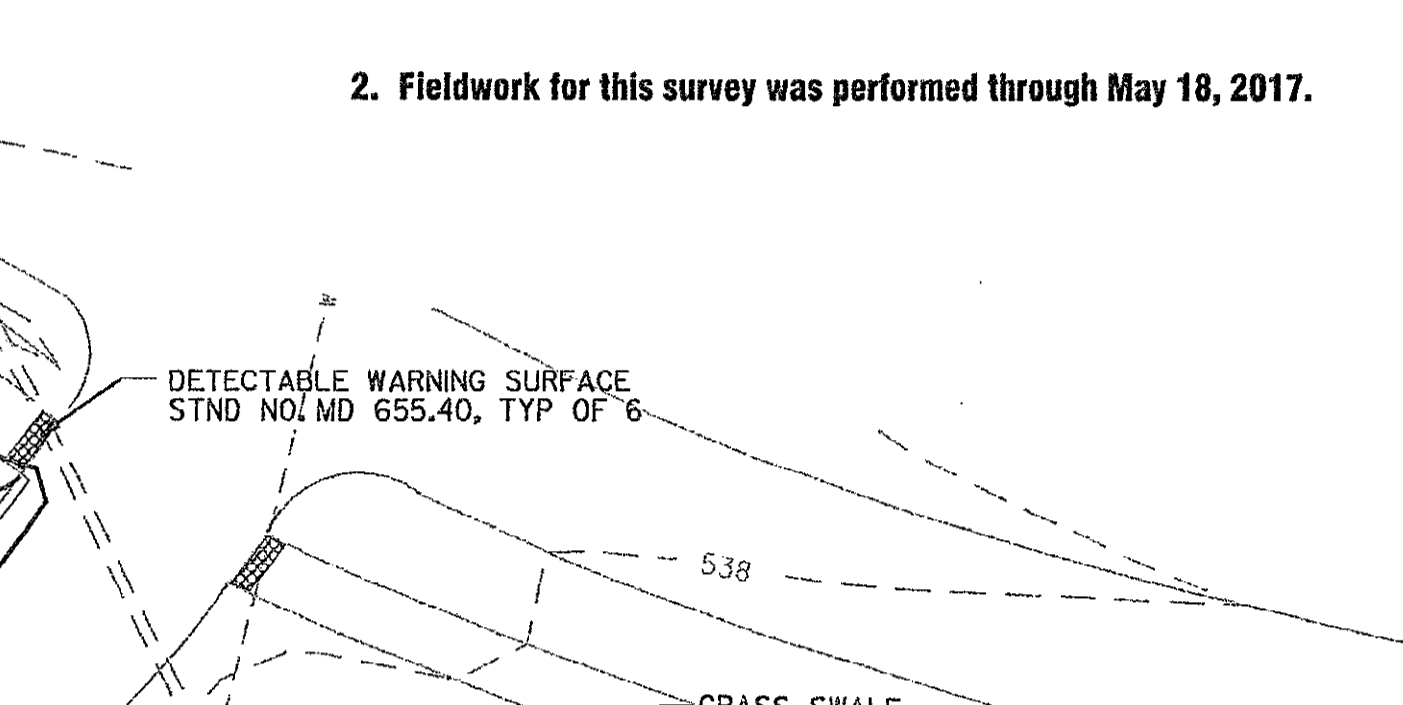
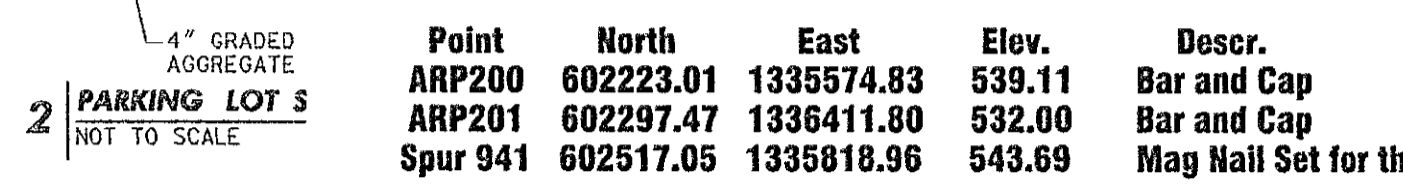
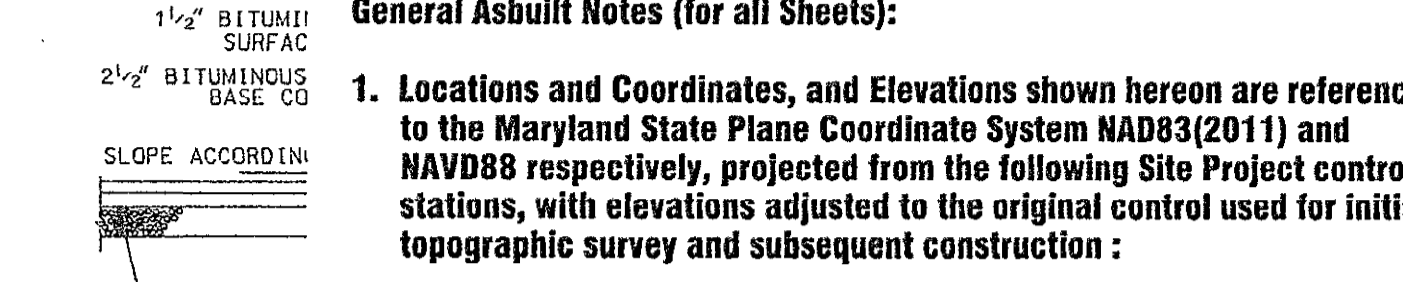
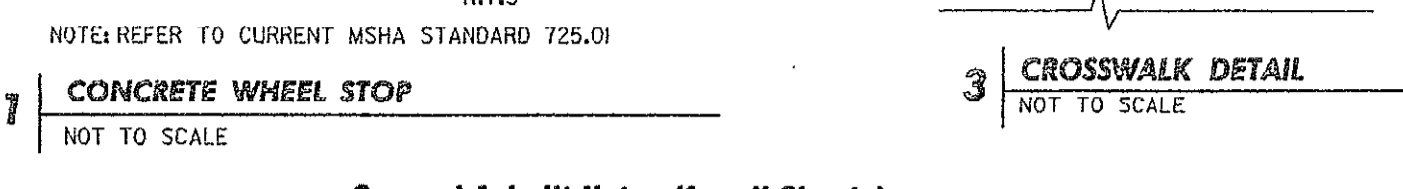
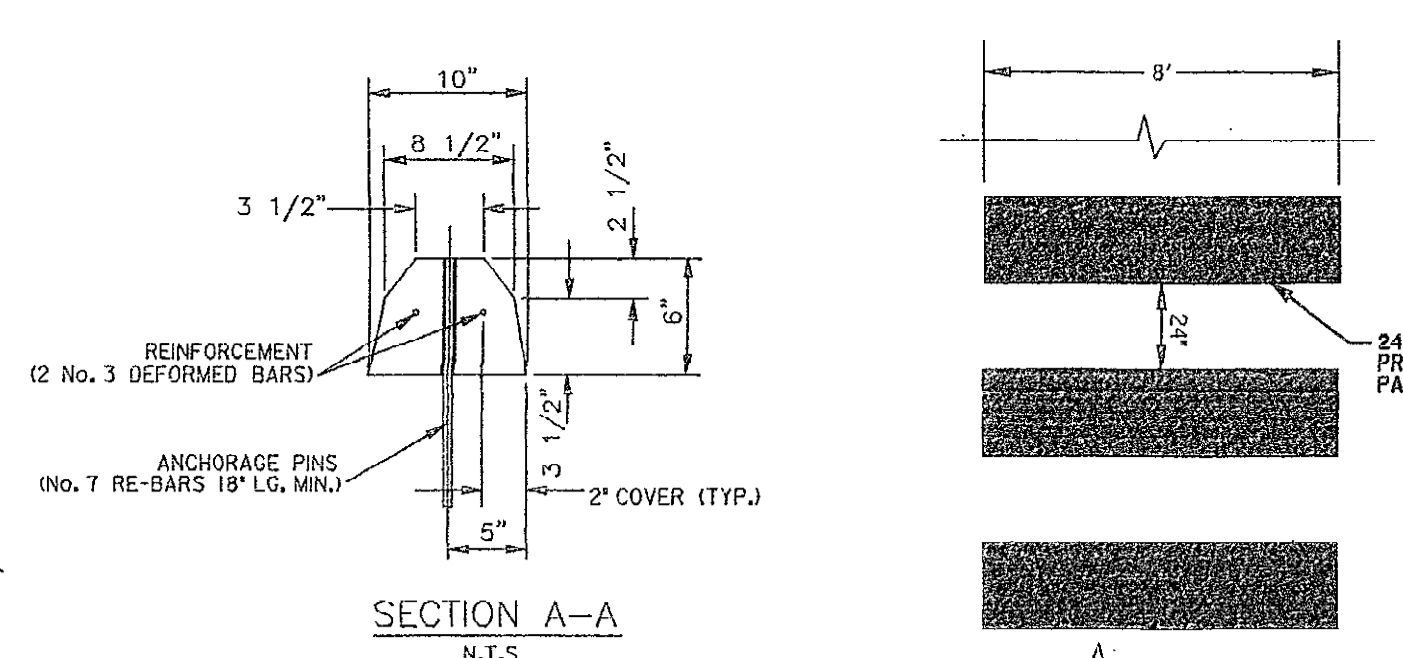
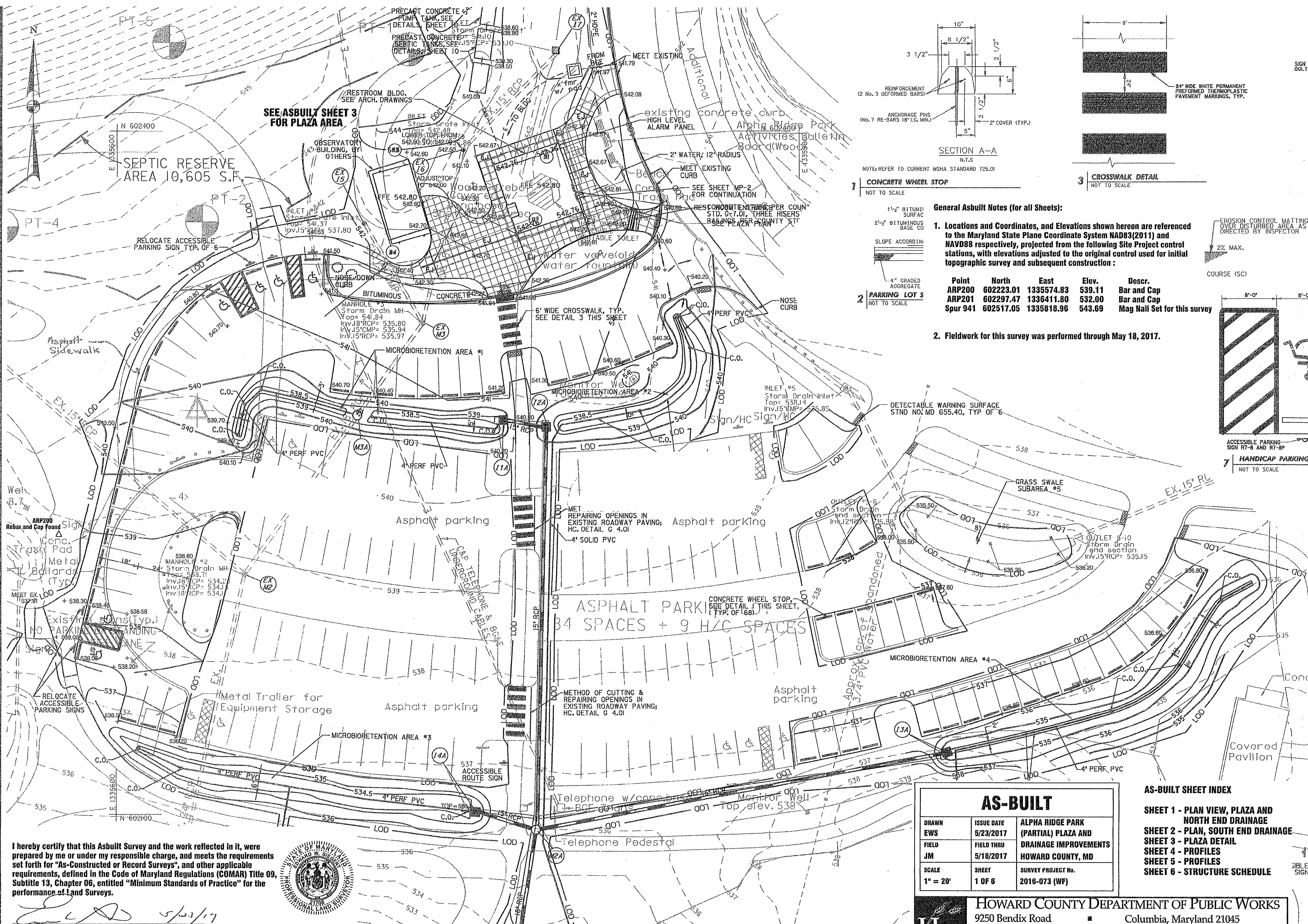
DES: R.H.			
DRN: A.W.W.	Removed waterline bends	6/07/12	
CHK: M.S.Z.	Reconfigured parking area to add additional spaces, added bathroom facility, paved walking trail, walkways for ADA compliance, and storm water management BMP's.	2/21/13	
DATE: Jan., 2013	BY NO	REVISION	DATE

**Site Grading, Erosion and Sediment Control Plan Sheet One**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID\*20,21, PARCELS 23 & 54

AS SHOWN  
 SHEET 4 OF 38





**General Asbuilt Notes (for all Sheets):**

- Locations and Coordinates, and Elevations shown hereon are referenced to the Maryland State Plane Coordinate System NAD83(2011) and NAVD88 respectively, projected from the following Site Project control stations, with elevations adjusted to the original control used for initial topographic survey and subsequent construction:

Point	North	East	Elev.	Descr.
ARP200	602223.01	1335574.83	539.11	Bar and Cap
ARP201	602297.47	1336411.80	532.00	Bar and Cap
Spur 941	602517.05	1335818.96	543.69	Mag Nail Set for this survey

- Fieldwork for this survey was performed through May 18, 2017.

AS-BUILT			
DRAWN	ISSUE DATE	ALPHA RIDGE PARK (PARTIAL) PLAZA AND DRAINAGE IMPROVEMENTS	
EWS	5/23/2017	HOWARD COUNTY, MD	
FIELD	FIELD THRU	SURVEY PROJECT NO.	
JM	5/18/2017	2016-073 (WF)	
SCALE	SHEET	1" = 20'	
	1 OF 6		

AS-BUILT SHEET INDEX			
SHEET 1	PLAN VIEW, PLAZA AND NORTH END DRAINAGE		
SHEET 2	PLAN, SOUTH END DRAINAGE		
SHEET 3	PLAZA DETAIL		
SHEET 4	PROFILES		
SHEET 5	PROFILES		
SHEET 6	STRUCTURE SCHEDULE		

POINT #	DESCRIPTION	NORTHING	EASTING
81	BUILDING CORNER	602395.84	1335793.77
82	BUILDING CORNER	603355.59	1335775.10
83	BUILDING CORNER	602388.17	1335728.06
84	BUILDING CORNER	602352.84	1335719.60

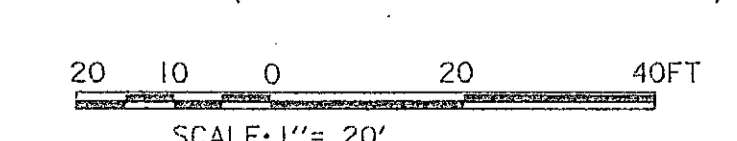
APPROVED: DEPARTMENT OF RECREATION AND PARKS	<i>John R. Boyd</i>	1/10/13	DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS	<i>R. Wilson for Maurea Rosman</i>	2/12/2013	DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS	<i>James H. ...</i>	2/15/13	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>...</i>	2/21/13	DATE
APPROVED: CHIEF-DIVISION OF LAND DEVELOPMENT	<i>...</i>	2/25/13	DATE
APPROVED: DIRECTOR	<i>...</i>	2/25/13	DATE

I hereby certify that this Asbuilt Survey and the work reflected in it, were prepared by me or under my responsible charge, and meets the requirements set forth for "As-Constructed or Record Surveys", and other applicable requirements, defined in the Code of Maryland Regulations (COMAR) Title 09, Subtitle 13, Chapter 06, entitled "Minimum Standards of Practice" for the performance of Land Surveys.

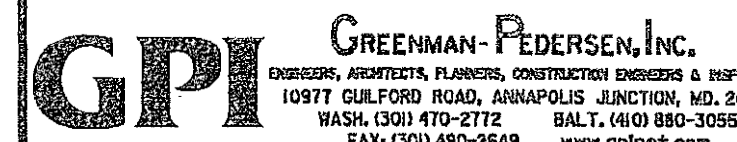
*Edward W. Slegert*  
 Edward W. Slegert  
 Professional Land Surveyor  
 Maryland Registration No. 21706  
 License Expires 06-02-2019



SEE SHEET 4 FOR CONTINUATION  
 ASBUILT SHEET 2



OWNER:	DEVELOPER:
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON



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. 19916, Expiration Date 01/14/2015.

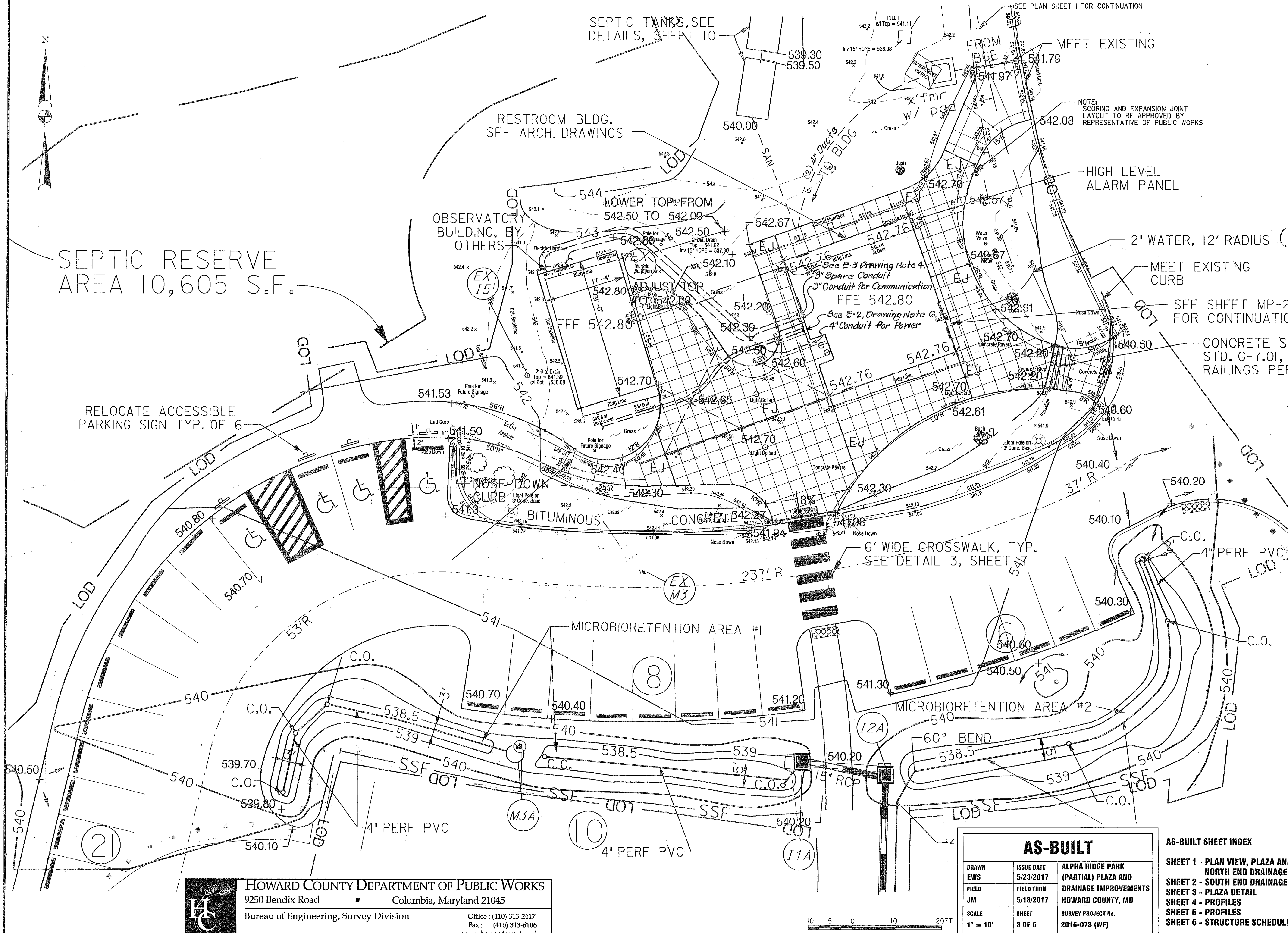


DES:	DRN:	CHK:	DATE:	BY	NO	REVISION	DATE
R.H.	A.W.W.	M.S.Z.	Jan., 2013				

Detailed Parking Lot Plan & SWM Plan

REVISED SITE DEVELOPMENT PLAN  
 ALPHA RIDGE PARK  
 ADDITIONS DESIGN  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID\*20,21, PARCELS 23 & 54

AS SHOWN  
 SHEET 7 OF 38



- NOTES:
1. EXTERIOR ELEVATION AT EVERY DOOR SHALL MATCH INSIDE FLOOR ELEVATION.
  2. SEE SHEET A-1 FOR BUILDING DIMENSIONS.
  3. SEE SHEETS 4 THROUGH 6 FOR SEDIMENT CONTROLS.

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Pugh</i> 1/12/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Salman for Maana Roshan</i> 2/12/2013 COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Jan. Miller</i> 2/6/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas R. Rulle</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaver</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>William J. ...</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>Val ...</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>Joseph ...</i> 2/27/13 DIRECTOR DATE

AS-BUILT	
DRAWN EWS	ISSUE DATE 5/23/2017
FIELD JM	FIELD THRU 5/18/2017
SCALE 1" = 10'	SHEET 3 OF 6
SURVEY PROJECT NO. 2016-073 (WF)	

AS-BUILT SHEET INDEX
SHEET 1 - PLAN VIEW, PLAZA AND NORTH END DRAINAGE
SHEET 2 - SOUTH END DRAINAGE
SHEET 3 - PLAZA DETAIL
SHEET 4 - PROFILES
SHEET 5 - PROFILES
SHEET 6 - STRUCTURE SCHEDULE

**HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS**  
 9250 Bendix Road ■ Columbia, Maryland 21045  
 Bureau of Engineering, Survey Division  
 Office: (410) 313-2417  
 Fax: (410) 313-6106  
 www.howardcountymd.gov

**OWNER:**  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

**DEVELOPER:**  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5806  
 FAX 410-313-6144

**GPI GREENMAN-PEDERSEN, INC.**  
 10971 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20704  
 BASH, MD 410-2712 BALT, MD 410-3055  
 FAX 410-400-2569 www.gpi.net

**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. 19916, Expiration Date: 01/14/2015.

*Carol ...*

DES: R.H.	DRN: A.W.W.	CHK: M.S.Z.	DATE: Jan., 2013
BY	NO	REVISION	DATE

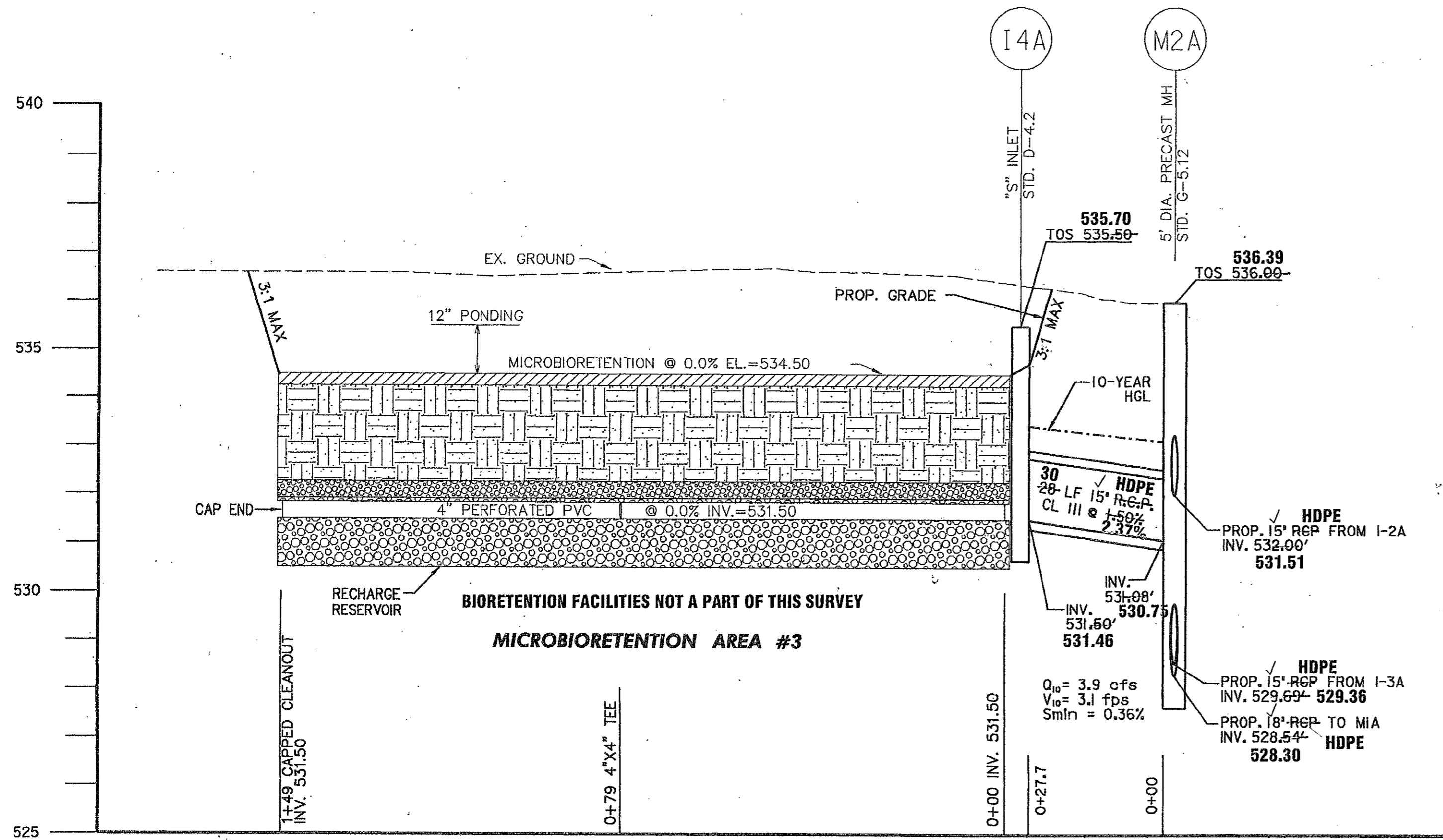
**Plaza Plan**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID\*20,21, PARCELS 23 & 54

AS SHOWN  
 SHEET 8 OF 38

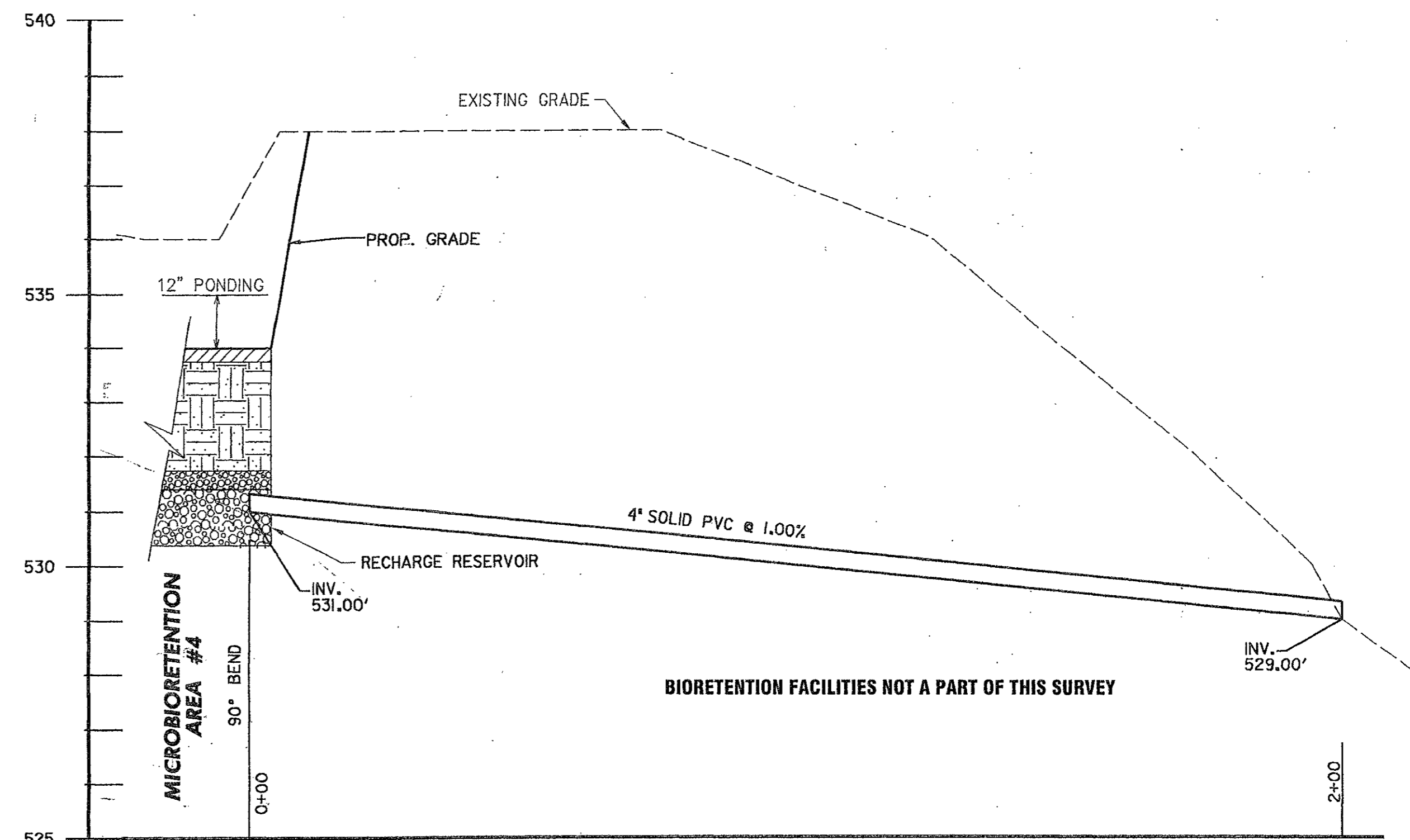




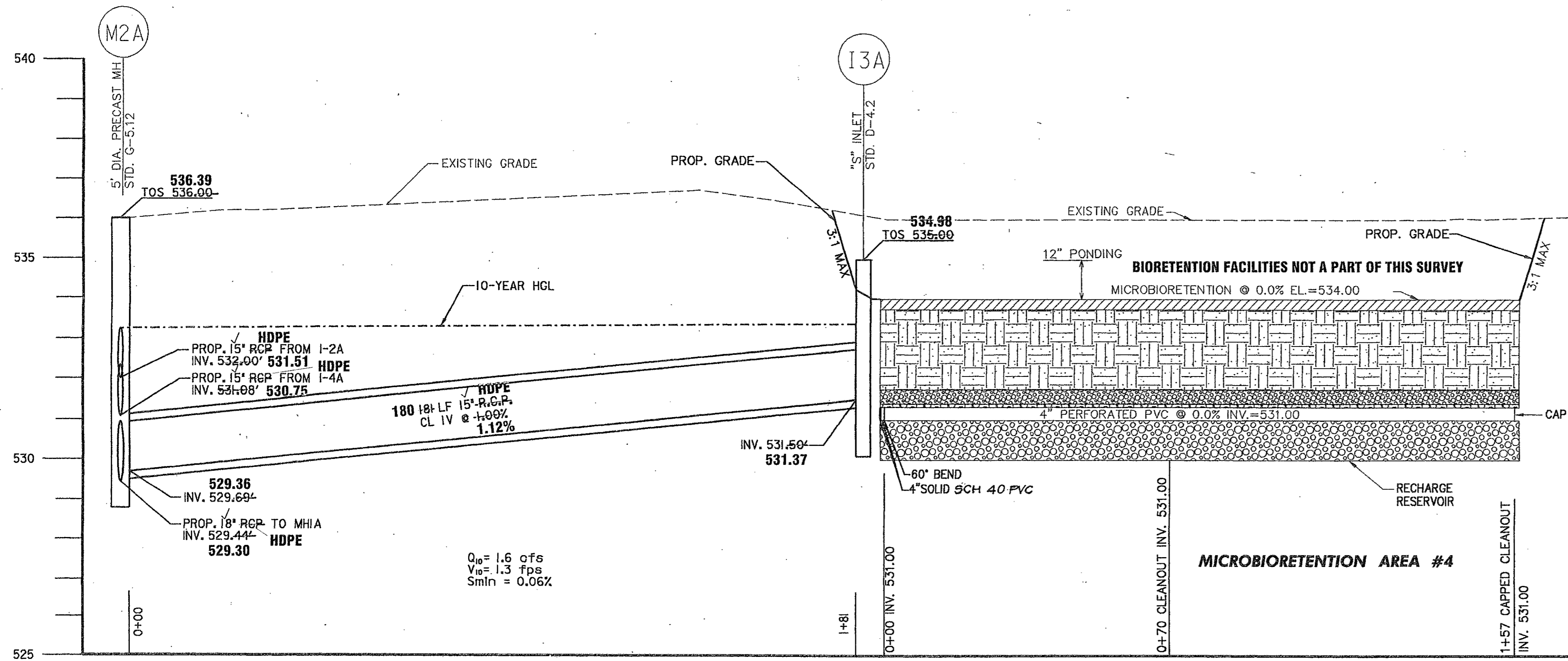


CROSSSECTION THROUGH MICROBIORETENTION AREA #3 AND PROFILE I4A TO M2A

SCALE H: 1" = 20' V: 1" = 2'

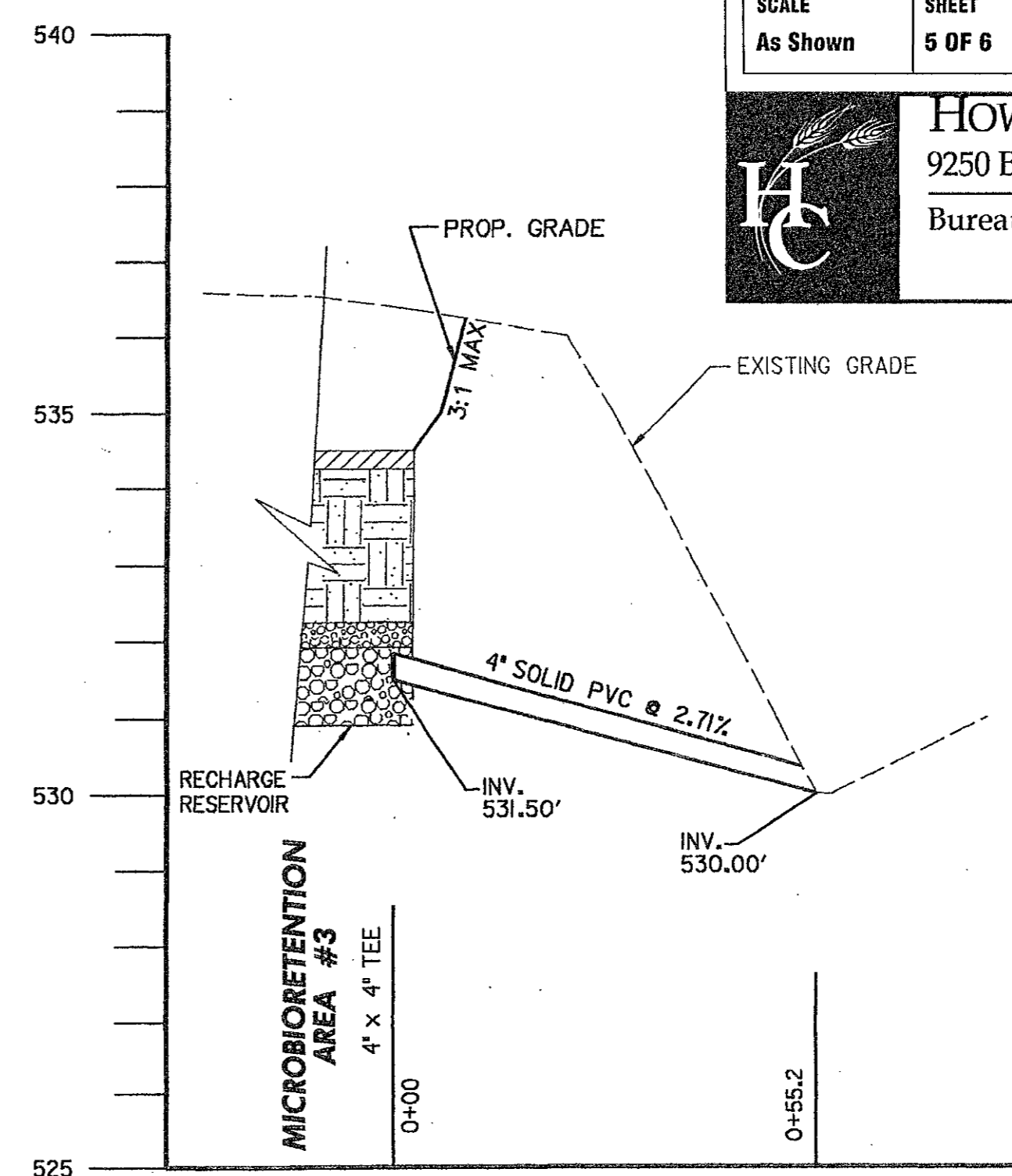


4" PVC PIPE FROM MICROBIORETENTION AREA #4



PROFILE M2A TO I3A AND CROSSSECTION THROUGH MICROBIORETENTION AREA #4

SCALE H: 1" = 20' V: 1" = 2'



4" PVC PIPE FROM MICROBIORETENTION AREA #3

AS-BUILT		
DRAWN	ISSUE DATE	ALPHA RIDGE PARK (PARTIAL) PLAZA AND DRAINAGE IMPROVEMENTS
EWS	5/23/2017	
FIELD	FIELD THRU	HOWARD COUNTY, MD
JM	5/18/2017	
SCALE	SHEET	SURVEY PROJECT No.
As Shown	5 OF 6	2016-073 (WF)

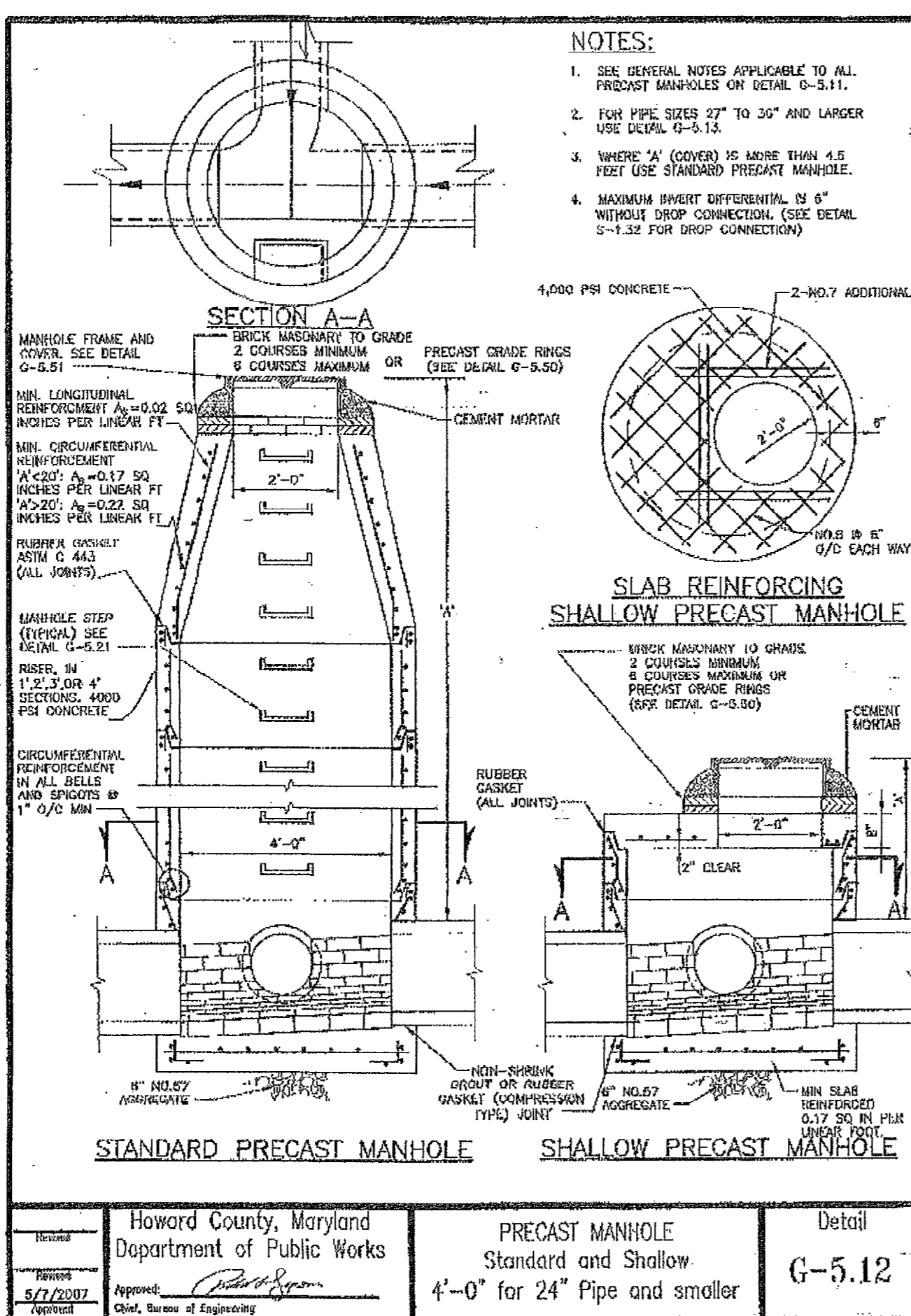
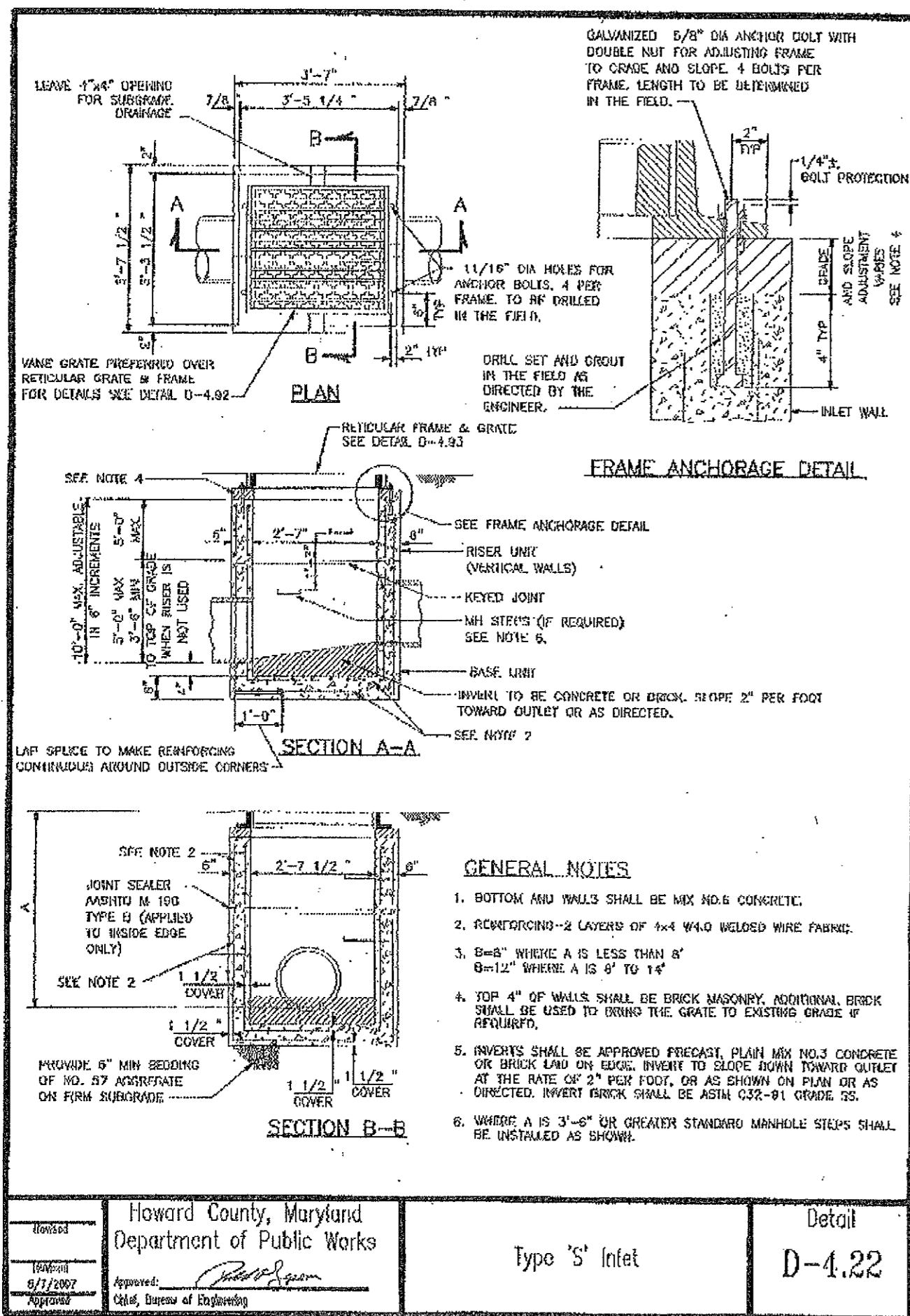
AS-BUILT SHEET INDEX

- SHEET 1 - SITE PLAN, PLAZA AND NORTH END DRAINAGE
- SHEET 2 - SOUTH END DRAINAGE
- SHEET 3 - PLAZA DETAIL
- SHEET 4 - PROFILES
- SHEET 5 - PROFILES
- SHEET 6 - STRUCTURE SCHEDULE

**HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS**  
 9250 Bendix Road ■ Columbia, Maryland 21045  
 Bureau of Engineering, Survey Division  
 Office: (410) 313-2417  
 Fax: (410) 313-6106  
 www.howardcountymd.gov

APPROVED: DEPARTMENT OF RECREATION AND PARKS	1/18/13
<i>John R. Byle</i>	DATE
DIRECTOR	
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS	2/12/2013
<i>Bryan for Maura Ream</i>	DATE
DIRECTOR	
APPROVED: DEPARTMENT OF PUBLIC WORKS	2/15/13
<i>James</i>	DATE
DIRECTOR OF PUBLIC WORKS	
APPROVED: CHIEF-BUREAU OF ENGINEERING	2/15/13
<i>Thomas E. Butler</i>	DATE
CHIEF-BUREAU OF ENGINEERING	
APPROVED: CHIEF, TRANSPORTATION & SPECIAL PROJECTS	2/14/13
<i>Steve Shaver</i>	DATE
CHIEF, TRANSPORTATION & SPECIAL PROJECTS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	2/22/13
<i>Chad</i>	DATE
CHIEF-DEVELOPMENT ENGINEERING DIVISION	
APPROVED: CHIEF-DIVISION OF LAND DEVELOPMENT	2/25/13
<i>Victor</i>	DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	
APPROVED: DIRECTOR	2/25/13
<i>Harold A. Langley</i>	DATE
DIRECTOR	

OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5306 FAX 410-313-6144	<b>GPI</b> GREENMAN-PEDERSEN, INC. ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION MANAGERS & INSPECTORS 10517 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20701 WASHINGTON, DC 20001-4700-2772 BALTIMORE, MD 21201-3055 FAX (410) 410-2549 www.gpinet.com	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. 33310, Expiration Date: 07/02/2014	DES: R.H. DRN: A.W.W. CHK: M.S.Z. DATE: May, 2012	BY: NO REVISION DATE	<b>Stormwater Management and Storm Drain Profiles</b>	REVISED SITE DEVELOPMENT PLAN <b>ALPHA RIDGE PARK ADDITIONS DESIGN</b> 3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54	SCALE: AS SHOWN SHEET 12 OF 38
---	---	---	--	--	----------------------	---	---	-----------------------------------



### STRUCTURE SCHEDULE

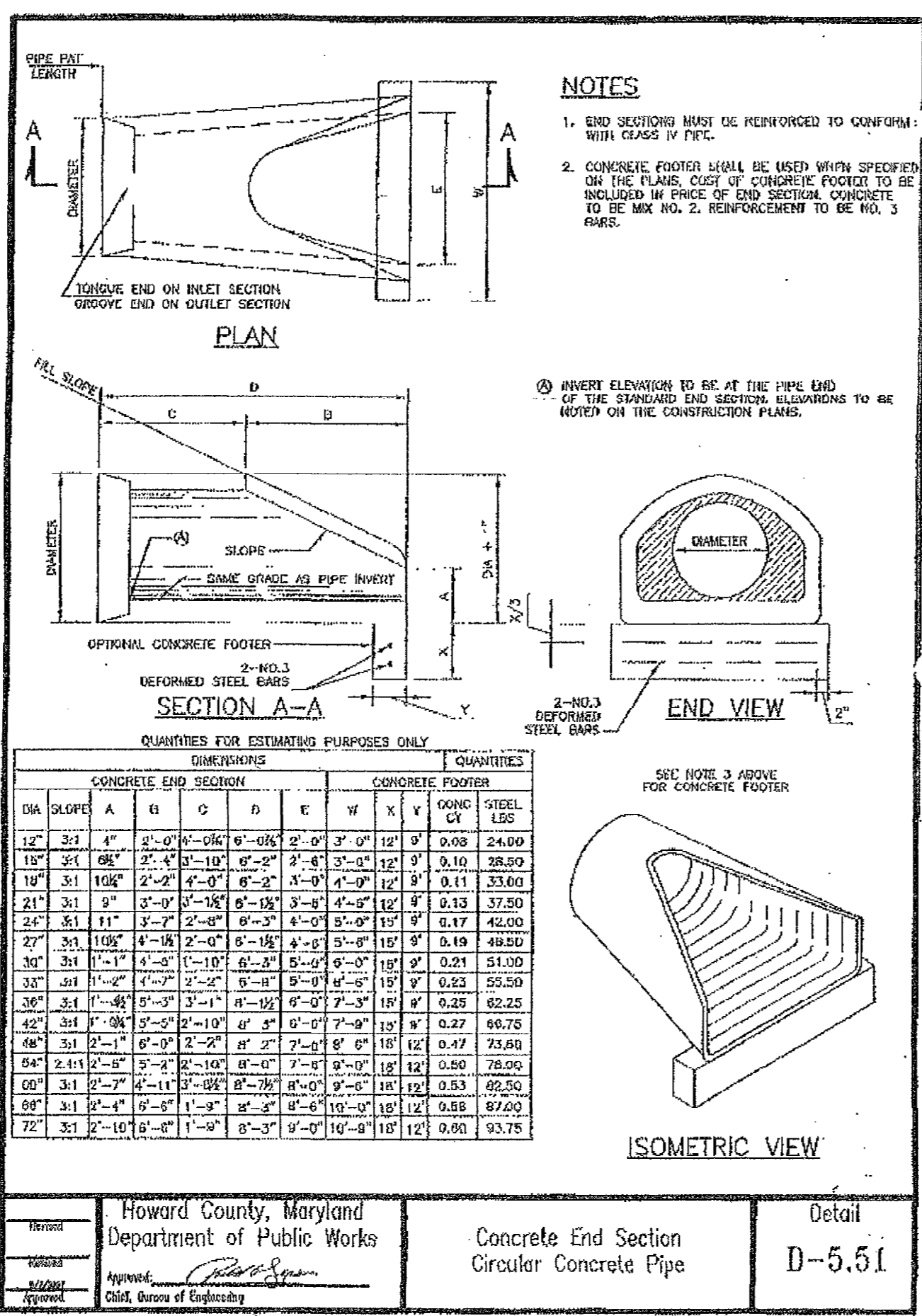
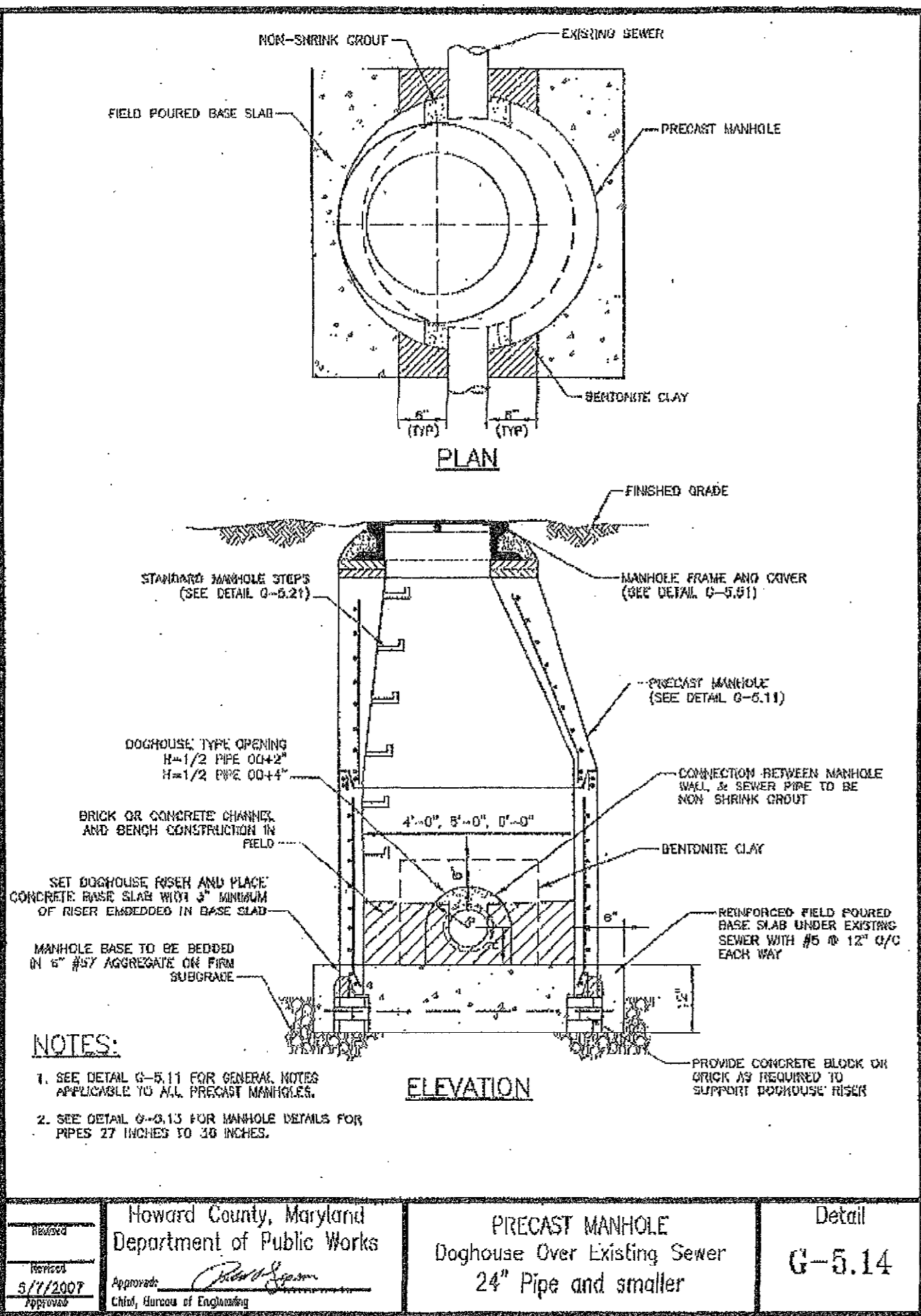
NO.	TYPE	WIDTH/DIAM.	INV. OUT	TOP ELEV. AT CENTERLINE	STD. DETAIL*	COORDINATE NORTHING/EASTING
I1A	'S' INLET	2'-7 1/2"	535.50	539.50	D-4.22	N 602,274.02 E 1,335,770.17
I2A	'S' INLET	2'-7 1/2"	535.20	539.50	D-4.22	N 602,274.38 E 1,335,788.90
I3A	'S' INLET	2'-7 1/2"	531.50	535.00	D-4.22	N 602,127.81 E 1,335,965.37
I4A	'S' INLET	2'-7 1/2"	531.50	535.50	D-4.22	N 602,101.40 E 1,335,750.19
M1A	PRECAST STD MANHOLE	4.0'	528.54	531.95	G5.12	N 602,026.10 E 1,335,774.66
M2A	PRECAST STD MANHOLE	5.0'	529.44	536.00	G5.12	N 602,093.86 E 1,335,734.69
M3A	PRECAST STD MANHOLE	4.0'	535.20	539.50	G5.14	N 602,275.94 E 1,335,705.81
S1A	CONCRETE END SECTION	18"	528.10		D-5.51	N 601,991.25 (AT END) E 1,335,786.89

### PIPE SCHEDULE

FROM	TO	SIZE	TYPE	LENGTH
I1A	I2A	15"	RCP CL IV	16.1 LF
I2A	M2A	15"	RCP CL IV	17.9 LF
M2A	M1A	18"	RCP CL IV	6.4 LF
M1A	S1A	18"	RCP CL III	2.9 LF
I3A	M2A	15"	RCP CL III	1.1 LF
I4A	M2A	15"	RCP CL III	27.7 LF
MICROBIORETENTION #1	M3A	4"	SOLID PVC	7 LF
MICROBIORETENTION #1	---	4"	PERF. PVC	113 LF
MICROBIORETENTION #2	---	4"	PERF. PVC	88 LF
MICROBIORETENTION #2	OUTFALL	4"	SOLID PVC	260.7 LF
MICROBIORETENTION #3	---	4"	PERF. PVC	147 LF
MICROBIORETENTION #3	OUTFALL	4"	SOLID PVC	55.2 LF
MICROBIORETENTION #4	---	4"	PERF. PVC	155 LF
MICROBIORETENTION #4	OUTFALL	4"	SOLID PVC	200 LF
BIOSWALE #1	---	4"	PERF. PVC	61 LF
BIOSWALE #1	OUTFALL	4"	SOLID PVC	21 LF
BIOSWALE #2	---	4"	PERF. PVC	62 LF
BIOSWALE #2	OUTFALL	4"	SOLID PVC	46 LF
BIOSWALE #3	---	4"	PERF. PVC	35.5 LF
BIOSWALE #3	OUTFALL	4"	SOLID PVC	55.7 LF
BIOSWALE #4	---	4"	PERF. PVC	81 LF
BIOSWALE #4	OUTFALL	4"	SOLID PVC	139 LF
BIOSWALE #5	---	4"	PERF. PVC	84 LF
BIOSWALE #5	OUTFALL	4"	SOLID PVC	89 LF
BIOSWALE #6	---	4"	PERF. PVC	84 LF
BIOSWALE #6	OUTFALL	4"	SOLID PVC	135 LF
BIOSWALE #7	---	4"	PERF. PVC	108 LF
BIOSWALE #7	OUTFALL	4"	SOLID PVC	45 LF

### PIPE SUMMARY

DIA. (IN.)	TYPE	TOTAL LENGTH
4"	SOLID PVC	1053.6'
4"	PERFORATED PVC	1080.5'
15"	RCP CL. III	208.7'
15"	RCP CL. IV	188.1'
18"	RCP CL. IV	64'



\* HOWARD COUNTY STD. DETAIL

COORDINATES AND TOP ELEVATIONS RECORDED TO SURFACE CENTER OF ACCESS MANHOLE OR GRATE WHICH MAY BE OFFSET FROM UNDERLYING CENTERLINE STRUCTURE

### AS-BUILT

DRAWN	ISSUE DATE	ALPHA RIDGE PARK (PARTIAL) PLAZA AND DRAINAGE IMPROVEMENTS
EWS	5/23/2017	
FIELD	FIELD THRU	HOWARD COUNTY, MD
JM	5/18/2017	
SCALE	SHEET	SURVEY PROJECT No.
n/a	6 OF 6	2016-073 (WF)

### AS-BUILT SHEET INDEX

SHEET 1 - SITE PLAN, PLAZA AND NORTH END DRAINAGE

SHEET 2 - SOUTH END DRAINAGE

SHEET 3 - PLAZA DETAIL

SHEET 4 - PROFILES

SHEET 5 - PROFILES

SHEET 6 - STRUCTURE SCHEDULE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 Bendix Road ■ Columbia, Maryland 21045  
 Bureau of Engineering, Survey Division

Office: (410) 313-2417  
 Fax: (410) 313-6106  
 www.howardcountymd.gov

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
*John R. B. J. J.* 1/15/13  
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS  
*Bailey for Maurea Robinson* 2/12/2013  
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John M. J.* 2/13/13  
 DIRECTOR OF PUBLIC WORKS DATE

*Thomas J. R. J.* 2/15/13  
 CHIEF-BUREAU OF ENGINEERING DATE

*Steve Slawson* 2/14/13  
 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John J.* 2/22/13  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*Keith J.* 2/25/13  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*John J.* 2/27/13  
 DIRECTOR DATE

OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELERME  
 VOICE 410-313-4699  
 FAX 410-313-4646

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5306  
 FAX 410-313-6144

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. 33310, Expiration Date: 07/02/2014

**GPI GREENMAN-PEDERSEN, INC.**  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION MANAGERS & INSPECTORS  
 10071 CALLEFORD ROAD, MANHOLE JUNCTION, MD 20712  
 WASH. DC 200 470-2772 BALT., MD 410 880-3055  
 FAX (301) 490-2849 www.gpi.net

DES: R.H.  
 DRN: A.W.W.  
 CHK: M.S.Z.  
 DATE: May, 2012

BY	NO	REVISION	DATE

### Storm Drain Details

REVISED SITE DEVELOPMENT PLAN  
**ALPHA RIDGE PARK ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID #20,21, PARCELS 23 & 54

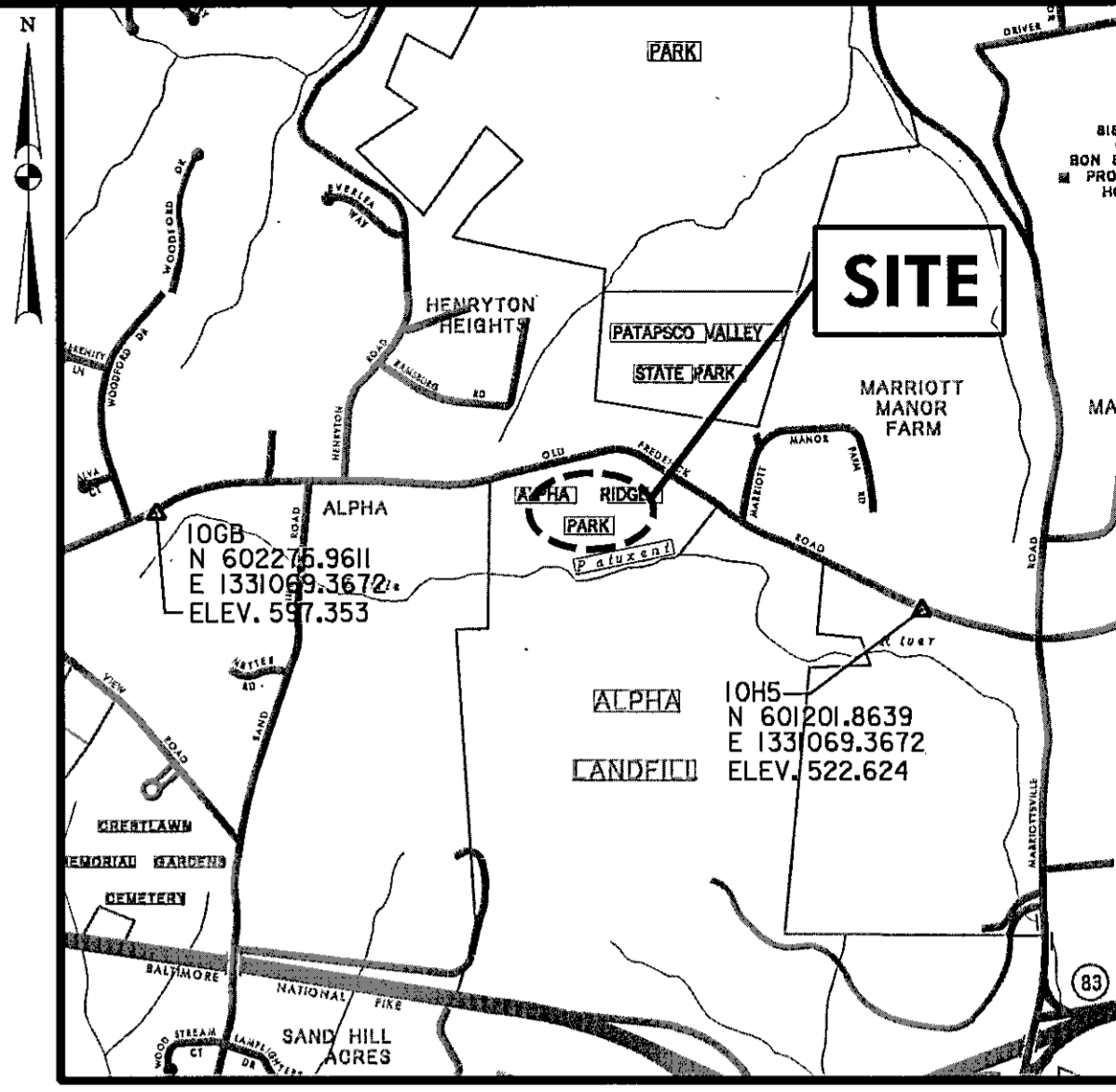
SCALE: AS SHOWN  
 SHEET 20 OF 38

**SEQUENCE OF CONSTRUCTION**

- 0 DAYS 1. NOTIFY HOWARD COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION AND SCHEDULE A PRE-CONSTRUCTION WALK-THROUGH OF THE SITE. INSTALL EROSION CONTROL MATTING THROUGHOUT SITE AS DIRECTED BY INSPECTOR.
- 2 DAYS 2. INSTALL SEDIMENT CONTROLS AS SHOWN ON THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. IMMEDIATELY STABILIZE ALL AREAS DISTURBED BY STORM DRAIN INSTALLATION. ALL TREE CLEARING SHALL BE MINIMIZED.
- 15 DAYS 3. BEGIN INSTALLATION OF STORM DRAIN. CONSTRUCTION SHALL PROCEED FROM DOWNSTREAM TO UPSTREAM. PROTECT FROM RUNOFF UNTIL ALL TRIBUTARY AREAS ARE STABILIZED. INSTALL EROSION CONTROL MATTING AS DIRECTED BY INSPECTOR.
- 5 DAYS 4. REMOVE AND RUBBLIZE BITUMINOUS PAVEMENT ACCORDING TO DEMOLITION PLAN. RUBBLIZED BITUMINOUS PAVEMENT MUST BE REMOVED FROM THE SITE UNLESS DIRECTED OTHERWISE.
- 5 DAYS 5. CONSTRUCT SEPTIC DRAINAGE FIELD, DISTRIBUTION BOX AND SEPTIC TANK.
- 10 DAYS 6. ROUGH GRADE PARKING LOT AND EXCAVATE FOR BUILDING FOUNDATIONS. SPOIL EXCESS EXCAVATED MATERIAL IN THE DESIGNATED LOCATIONS.
- 10 DAYS 7. PROOF ROLL SUBGRADE AND REPAIR AS NECESSARY. PLACE GRADED AGGREGATE BASE.
- 15 DAYS 8. CONSTRUCT PLAZA AREA. COORDINATE WITH CONSTRUCTION OF OBSERVATORY BUILDING.
- 20 DAYS 9. CONSTRUCT STORMWATER MANAGEMENT PRACTICES ONCE ALL TRIBUTARY AREAS ARE STABILIZED.
- 2 DAYS 10. PLACE TOPSOIL, SOLID SODDING, OR EROSION CONTROL MATTING IN ANY REMAINING DISTURBED AREAS. EROSION CONTROL MATTING TO BE INSTALLED AS DIRECTED BY INSPECTOR.
- 7 DAYS 11. INSTALL NEW BITUMINOUS PAVEMENT.
- 4 DAYS 12. ONCE ALL DISTURBED AREAS ARE STABILIZED AND WITH APPROVAL BY THE SEDIMENT AND EROSION CONTROL INSPECTOR, SEDIMENT CONTROL DEVICES MAY BE REMOVED.

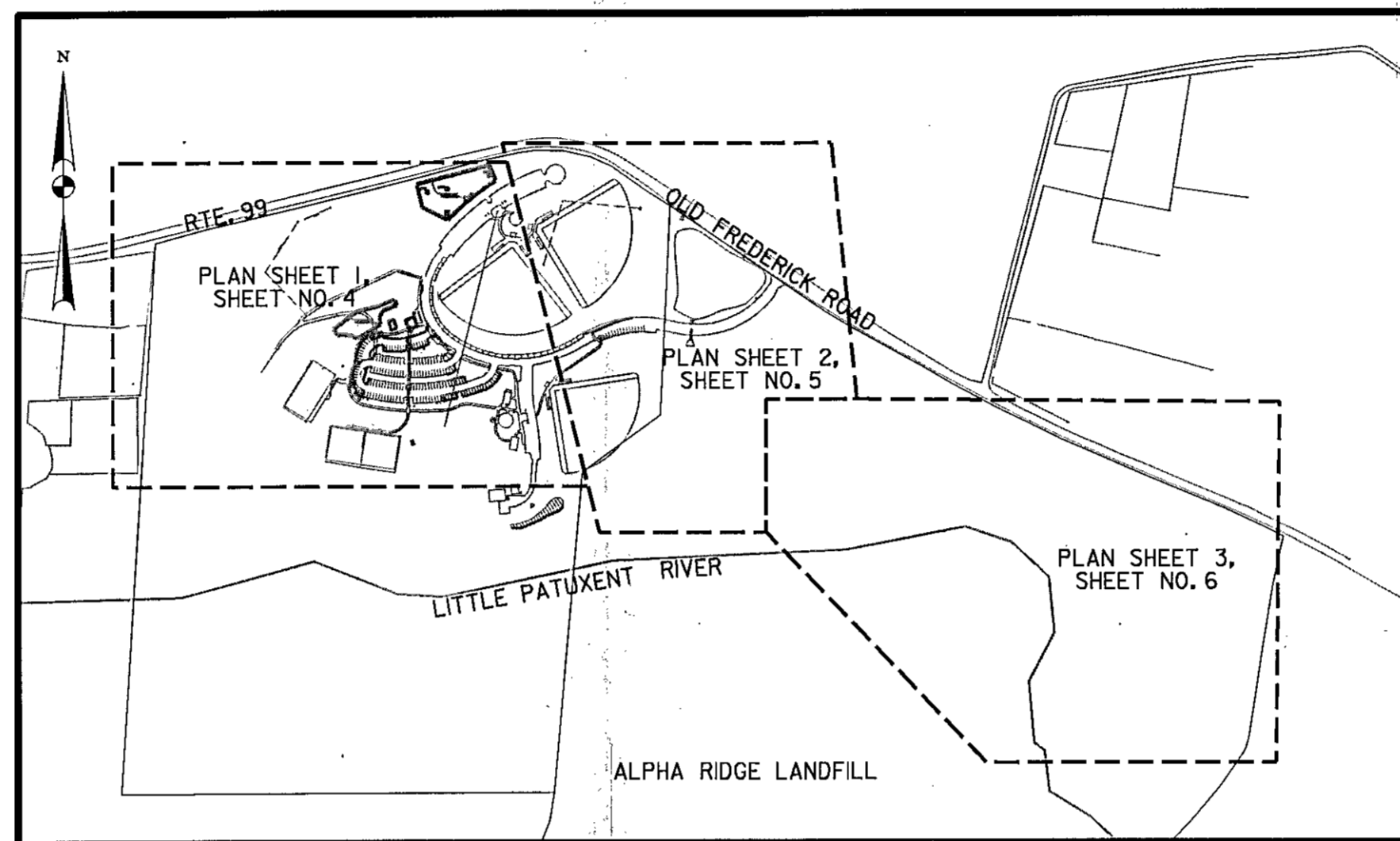
# ALPHA RIDGE PARK

HOWARD COUNTY, MARYLAND  
DEPARTMENT OF PUBLIC WORKS  
CAPITAL PROJECT NO.: N-3964  
SITE DEVELOPMENT PLAN 90-18



**VICINITY MAP**

SCALE: 1" = 2000'  
ADC MAP 4694, GRID C9, D9, E9  
C10, D10, E10



**LOCATION MAP**

SCALE: 1" = 500'

**GENERAL NOTES:**

1. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM THE BEST AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE UTILITIES BY DIGGING TEST PITS AT ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION. IF CLEARANCES ARE LESS THAN SPECIFIED ON THIS PLAN OR LESS THAN 12 INCHES WHEN NOT SPECIFIED, CONTACT THE ENGINEER AND THE OWNER OF OTHER INVOLVED UTILITY.
2. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:  
MISS UTILITY 1-800-257-7777.  
CONSTRUCTION INSPECTION DIVISION, HOWARD COUNTY (410) 313-1880,  
BALTIMORE GAS & ELECTRIC COMPANY - UNDERGROUND ELECTRIC,  
DISTRIBUTION CUSTOMER SERVICE (410) 685-0123,  
VERIZON (410) 224-9285,  
AMERICAN TELEPHONE & TELEGRAPH CABLE LOCATION DIVISION (410) 393-3553,  
BUREAU OF UTILITIES, HOWARD COUNTY (410) 313-2040
3. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY WITH MAXIMUM ONE FOOT CONTOUR INTERVALS PREPARED BY HOWARD COUNTY DATED APRIL, 2009.
4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 10GB AND 10H5 WERE USED FOR THIS PROJECT.
5. ALL PLAN DIMENSIONS ARE TO EDGE OF PAVING UNLESS OTHERWISE NOTED.
6. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (1/2 GAUGE)-3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
7. AVOID DAMAGE TO TREES ON THE SITE TO MAXIMUM EXTENT. OTHER TREES WITHIN LIMITS OF CONSTRUCTION SHALL NOT BE DESTROYED WITHOUT APPROVAL OF THE ENGINEER. TREES WITHIN LOD SHALL BE PROTECTED USING TREE PROTECTIVE FENCING.
8. ALL GRADING SHALL BE INSIDE THE L.O.D. SHOWN INCLUDING SIDE SLOPES AND STABILIZATION ONLY. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED AS FOLLOWS:  
A. SEVEN (7) CALENDAR DAYS FOR THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1).  
B. FOURTEEN (14) CALENDAR DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
9. FOR DETAILS NOT SHOWN ON THESE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD CO. DESIGN MANUAL, VOL. IV STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOL. IV ON THE JOB.
10. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
11. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE PLACED PRIOR TO THE PLACEMENT OF ANY ASPHALT.
12. WATER IS PUBLIC, CONTRACT NO. 44-3480. SEWER IS PRIVATE.
13. STORMWATER MANAGEMENT CONSISTS OF MICROBIORETENTION M-6, BIOSWALES M-8, GRASS SWALES M-8, AND TWO DRY PONDS, AND IS PUBLIC AND MAINTAINED BY HOWARD COUNTY.
14. THE FLOODPLAIN IS BASED ON FEMA PANEL 2400440010B EFFECTIVE DATE 12/4/1986.
15. THE WETLAND DELINEATION WAS BASED ON NATIONAL WETLAND INVENTORY AND VERIFIED BY HOWARD COUNTY THAT THERE ARE NO WETLANDS OR WETLAND BUFFERS WITHIN THE LIMIT OF DISTURBANCE.
16. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
17. THE PARK WILL BE OPEN TO THE PUBLIC DURING CONSTRUCTION. THE CONTRACTOR SHALL PROTECT THE PUBLIC FROM THE WORK WITH ORANGE CONSTRUCTION FENCE AND SIGNS. TWO WAY TRAFFIC SHALL BE MAINTAINED ON THE PARK ROAD AT ALL TIMES. WHEN THE PARK IS IN USE, THE CONTRACTOR SHALL COORDINATE WITH THE DEPARTMENT OF RECREATION AND PARKS, AND MAINTAIN ACCESS TO ALL PARK FACILITIES.
18. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS, AND 100 YEAR FLOODPLAIN.
19. THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE FOREST CONSERVATION OBLIGATION FOR PARCELS 23 & 54 HAS BEEN ADDRESSED UNDER SDP-97-128.
20. FINAL PATH LOCATIONS WILL BE IDENTIFIED ON SITE BY RECREATION AND PARKS PRIOR TO CONSTRUCTION. THE PATH LOCATION MUST NOT ENCRoACH WITHIN FLOODPLAIN, WETLANDS, STREAMS, AND THEIR BUFFERS. NATURAL SURFACE PATHS MAY ENCRoACH WITHIN THE FOREST CONSERVATION EASEMENTS.
21. THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 02/02/04 COMPREHENSIVE ZONING PLAN AND THE "COMP LIFE" ZONING AMENDMENTS EFFECTIVE 7/28/2006.
22. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL BY PROVIDING 4 SHADE TREES AND 11 ORNAMENTAL TREES TO MEET THE PARKING LOT INTERNAL LANDSCAPING REQUIREMENT.

**INDEX**

Sheet No.	Title	Sheet No.	Title
1	Existing Sheet	26	Storm Drain Areas, Data, Details and Structure Schedule
2	Existing Conditions Site Plan	27	Storm Drain Profiles
3	Site Demolition Plan	28	Road Profile
4	Site Grading, Erosion and Sediment Control Plan Sheet One	29	Road Profile
5	Site Grading, Erosion and Sediment Control Plan Sheet Two	30	Road Profile
6	Site Grading, Erosion and Sediment Control Plan Sheet Three	31	Stormwater Management Pond #1 Plan
7	Detailed Parking Lot Plan & SWM Plan	32	Stormwater Management Pond #1 Profiles
8	Plaza Plan	33	Stormwater Management Pond #3 Plan
9	Water Main Profile	34	Stormwater Management Pond #3 Profiles and Details
10	Site Construction Details	35	Stormwater Management Ponds 1 & 3 Construction Specification Details
11	Stormwater Management & Storm Drain Profiles Sheet One	36	Sediment Control Details
12	Stormwater Management & Storm Drain Profiles Sheet Two	37	Road Sections & Details
13	Stormwater Management Plan & Profiles Sheet One	38	Site Details
14	Stormwater Management Plan & Profiles Sheet Two		
15	Stormwater Management Plan & Profiles Sheet Three		
16	Stormwater Management and Storm Drainage Area Map Sheet One		
17	Stormwater Management and Storm Drainage Area Map Sheet Two		
18	Stormwater Management Details & Notes		
19	Soil Boring Logs		
20	Storm Drain Details and Drainage Schedules		
21	Erosion and Sediment Control Details Sheet One		
22	Erosion and Sediment Control Details Sheet Two		
23	Erosion and Sediment Control Notes		
24	Site & SWM Landscaping Plan		
25	Stormwater Management Landscape Plan		

**SITE ANALYSIS DATA CHART**

TOTAL PROPERTY AREA: 72.4 AC.  
AREA OF PLAN SUBMISSION: 4.72 AC.  
LIMIT OF DISTURBED AREA: 4.72 AC.  
PRESENT ZONING DESIGNATION: RC-DEO  
PROPOSED USES: ATHLETIC FIELD, PICNIC AREAS, ROLLER HOCKEY  
FLOOR SPACE: RESTROOM FACILITY: 915 SF, OBSERVATORY: 577 SF  
PARKING REQUIREMENTS (PER HOWARD COUNTY RECREATION AND PARKS):  
EXISTING: 214 SPACES (195 17' HC ACCESSIBLE)  
NEW ADDITIONAL: 68 SPACES (62 SPACES, 6 HC ACCESSIBLE)  
TOTAL PROPOSED: = 313 SPACES, 14 HC ACCESSIBLE (9 HC CHANGED TO 9.5' X 18' SPACE)  
APPLICABLE DPZ FILE NUMBER(S): SDP 90-18  
ECP 12-02  
SDP-97-128(FIC)

AREA OF WETLANDS: 15.05 AC. **RED-LINED REVISIONS PREPARED BY:**  
AREA OF WETLAND BUFFERS: 6.13 AC. **LEON A. PODOLAK & ASSOCIATES, LLC**  
AREA OF 100 YR FLOODPLAIN: 18.83 AC. **147 E. MAIN ST. P.O. BOX 266**  
AREA OF STEEP SLOPES >15%: 20.9 AC. **WESTMINSTER, MARYLAND 21157**  
AREA OF STEEP SLOPES >25%: 3.4 AC. **PHONE: 410-876-1226**  
FORESTED AREA: 75.2 AC.  
GREEN OPEN AREA: 52.4 AC.

- LEGEND**
- EX. CONTOURS --- 400 ---
  - EX. TREES [Symbol]
  - EX. UTILITY POLE [Symbol]
  - EX. FIRE HYDRANT [Symbol]
  - EX. SANITARY MAIN --- SAN ---
  - EX. STORM DRAIN PIPE [Symbol]
  - EX. STORM DRAIN STRUCTURE [Symbol]
  - EX. WATER MAIN [Symbol]
  - PROPOSED CONTOURS --- 400 ---
  - PROPOSED STORM DRAIN PIPE [Symbol]
  - PROPOSED STORM DRAIN STRUCTURE [Symbol]
  - PROPOSED ASPHALT SURFACE [Symbol]
  - PROPOSED WOOD CHIP TRAIL [Symbol]
  - STORMWATER MANAGEMENT DEVICE [Symbol]
  - EXISTING TREE LINE [Symbol]
  - PROPERTY LINE [Symbol]
  - 75' BUILDING SETBACK LINE [Symbol]
  - PARKING SPACES [Symbol]
  - ROW LINE [Symbol]
  - EX. 2' CONTOURS --- 400 ---
  - STREAM CENTER LINE [Symbol]
  - 75' STREAM BUFFER [Symbol]
  - WETLAND [Symbol]
  - WETLAND BUFFER [Symbol]
  - FLOODPLAIN [Symbol]
  - FOREST CONSERVATION AREA [Symbol]
  - STEEP SLOPES 15-25% [Symbol]
  - STEEP SLOPES >25% [Symbol]
  - SILT FENCE --- SF ---
  - SUPER SILT FENCE --- SSF ---
  - LIMIT OF DISTURBANCE --- LOD ---
  - AT GRADE INLET PROTECTION [Symbol]
  - HYDROLOGIC CLASSIFICATION G6(B)

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
*Janet Westwood acting as* 1/30/2013  
DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS  
*3rd Year for Maria Rossman* 2/12/2013  
COUNTY HEALTH OFFICER DATE  
HOWARD COUNTY HEALTH DEPARTMENT 100

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Janet Westwood* 2/15/13  
DIRECTOR OF PUBLIC WORKS DATE

*Monica E. Butler* 2/15/13  
CHIEF-BUREAU OF ENGINEERING DATE

*Steve Savar* 2/14/13  
CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John Williams* 2/22/13  
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*Kate Schaefer* 2/25/13  
CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*Mark D. Coughlin* 2/25/13  
DIRECTOR DATE

PARCEL #	STREET ADDRESS
23	11685 OLD FREDERICK ROAD/MD 99 MARRIOTTVILLE, MD 21014
54	11685 OLD FREDERICK ROAD/MD 99 MARRIOTTVILLE, MD 21014

PERMIT INFORMATION CHART

WATER CODE:	SEWER CODE:	BUILDING	STREET ADDRESS
PUBLIC	PUBLIC	N/A	N/A

PROJECT NAME: ALPHA RIDGE PARK SECTION/AREA: N/A PARCEL: 23/54

L/F	GRID#	ZONING	TAX MAP	ELEC. DIST.	CENSUS TRACT
847/606	20-21	RC-DEO	10	3	6030



OWNER:  
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELEERME  
VOICE 410-313-4689  
FAX 410-313-4646

DEVELOPER:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5806  
FAX 410-313-6144



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. 19916, Expiration Date: 01/14/2015.



DES: R.H.	
DRN: A.W.W.	
CHK: M.S.Z.	
DATE: Jan., 2013	
BY: NO	REVISION
	ADD 3,000 GALLON TANK AND INPE COMMENTS 8-27-14
	REV SEPTIC SYSTEM DESIGN SPECIFICATIONS 7-18-14

**Title Sheet**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54  
AS SHOWN  
SHEET 1 OF 38



200 100 0 200 400FT  
SCALE: 1"= 200'

SOILS CHART

MAP SYMBOL AND SOIL NAME	HYDROLOGIC GROUP	Kf	EROSION HAZARD RATING
BaA - Belle silt loam, 0 to 3 percent slopes	D	.37	SLIGHT
GbA - Gladstone loam, 0 to 3 percent slopes	D	.24	SLIGHT
GbB - Gladstone loam, 3 to 8 percent slopes	B	.24	MODERATE
GbC - Gladstone loam, 8 to 15 percent slopes	B	.24	MODERATE
GgB - Glenelg loam, 3 to 8 percent slopes	B	.28	MODERATE
GmB - Glenville silt loam, 3 to 8 percent slopes	C	.28	MODERATE
Ha - Hatboro-Codorus silt loams, 0 to 3 percent slopes	D	.37	SLIGHT
Md - Manor loam, 15 to 25 percent slopes, very rocky	B	.28	SEVERE
UbF - Udorthents, Refuse, 0 to 65 percent slopes	B	N/A	NOT RATED

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
*Kawit Welch* acting as 1/30/2013  
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS  
*B. Wilson for Maureen Rossman* 2/12/2013  
 COUNTY HEALTH OFFICER DATE  
 HOWARD COUNTY HEALTH DEPARTMENT 190

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Jan. M. Clark* 2/15/13  
 DIRECTOR OF PUBLIC WORKS DATE

*Thomas S. Butler* 2/15/13  
 CHIEF-BUREAU OF ENGINEERING DATE

*Steve Shaner* 2/14/13  
 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John P. ...* 2/22/13  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*Kurt Delwood* 2/25/13  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

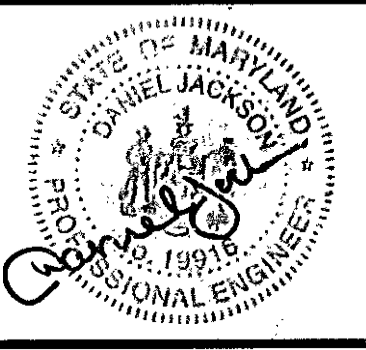
*David A. ...* 2/25/13  
 DIRECTOR DATE

OWNER:  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

DEVELOPER:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5806  
 FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
 10977 CLEVELAND ROAD, ANNAPOLIS JUNCTION, MD 20778  
 WASH. (301) 470-2712 BALT. (410) 880-3055  
 FAX: (301) 490-2549 www.gpinet.com

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. 19916, Expiration Date: 01/14/2015.

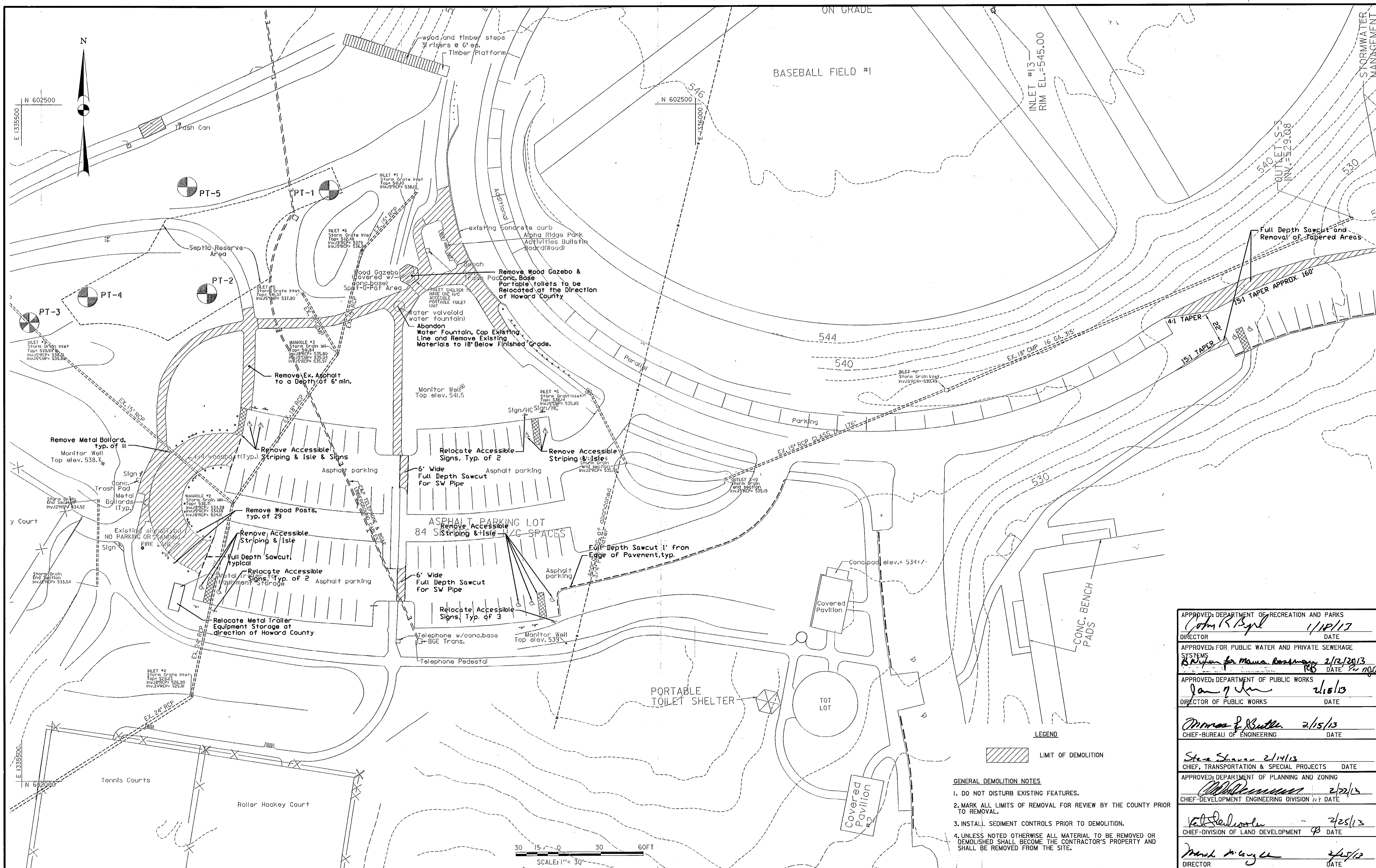


DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: Jan., 2013	BY	NO	REVISION	DATE	

Existing Conditions  
 Site Plan

REVISED SITE DEVELOPMENT PLAN  
 ALPHA RIDGE PARK  
 ADDITIONS DESIGN  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID#20,21, PARCELS 23 & 54

AS SHOWN  
 SHEET 2 OF 38



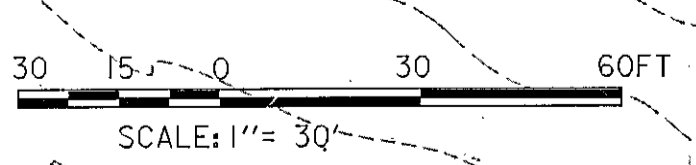
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>Cathy R. Byrd</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>B. Nye for Maria Rosemary</i> 2/12/2013 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Jan J. ...</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas P. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaver</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING SYSTEMS <i>...</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>...</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>Mark ...</i> 2/25/13 DIRECTOR DATE

**LEGEND**

LIMIT OF DEMOLITION

**GENERAL DEMOLITION NOTES**

- DO NOT DISTURB EXISTING FEATURES.
- MARK ALL LIMITS OF REMOVAL FOR REVIEW BY THE COUNTY PRIOR TO REMOVAL.
- INSTALL SEDIMENT CONTROLS PRIOR TO DEMOLITION.
- UNLESS NOTED OTHERWISE ALL MATERIAL TO BE REMOVED OR DEMOLISHED SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE SITE.



**OWNER:** HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

**DEVELOPER:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5306  
FAX 410-313-6144

**GPI GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION SUPERVISORS & INSPECTORS  
10977 CLEVER ROAD, ANNAPOLIS JUNCTION, MD 20778  
BALT. (410) 890-3055  
FAX (301) 490-2649  
www.gpi.net

**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. 3331 (Expiration Date: 7-2-2014)



DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: May, 2012	BY	NO	REVISION	DATE	

**Site Demolition Plan**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

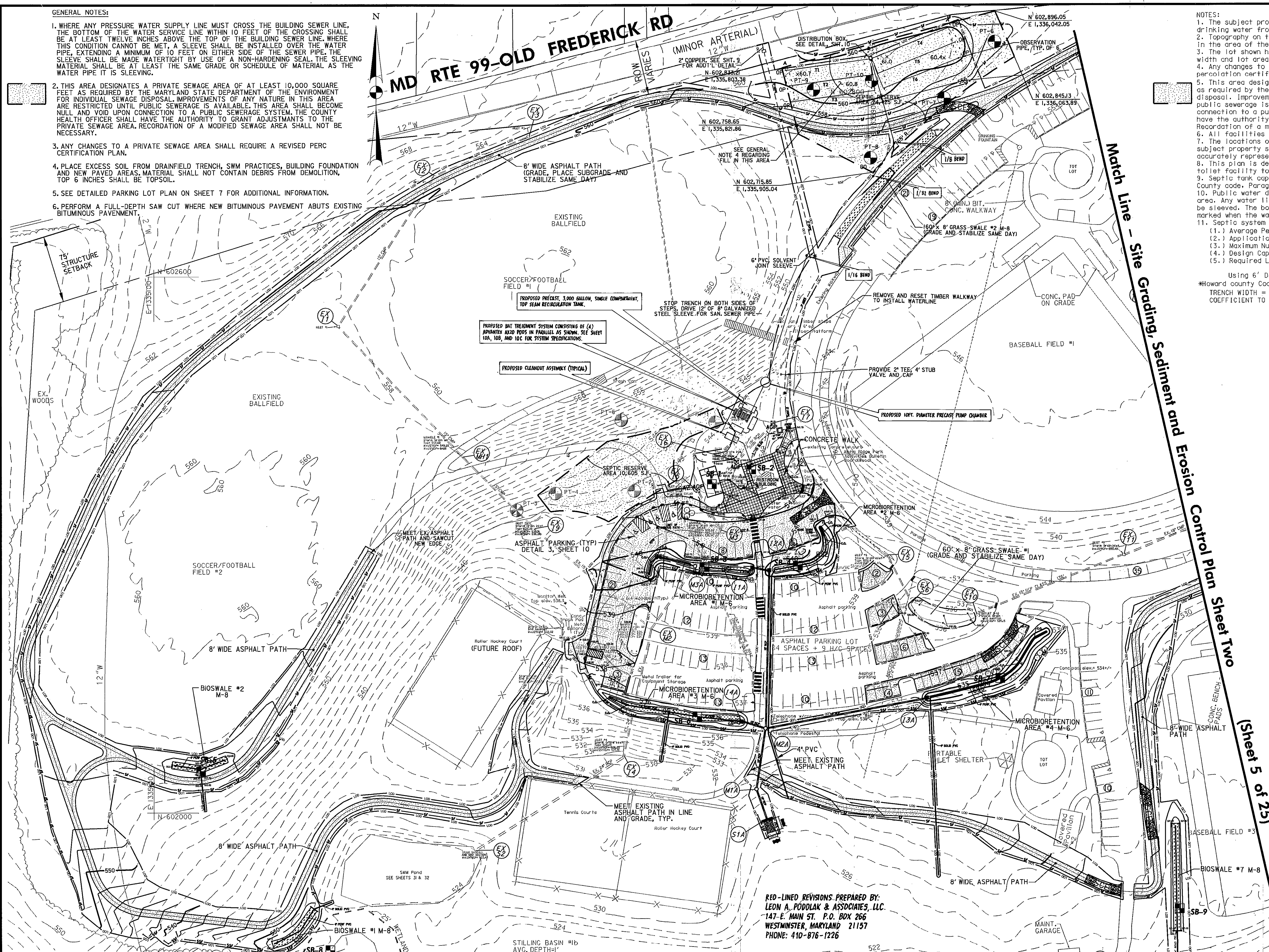
SCALE: AS SHOWN  
SHEET 3 OF 38  
SDP 90-18

**GENERAL NOTES:**

- WHERE ANY PRESSURE WATER SUPPLY LINE MUST CROSS THE BUILDING SEWER LINE, THE BOTTOM OF THE WATER SERVICE LINE WITHIN 10 FEET OF THE CROSSING SHALL BE AT LEAST TWELVE INCHES ABOVE THE TOP OF THE BUILDING SEWER LINE. WHERE THIS CONDITION CANNOT BE MET, A SLEEVE SHALL BE INSTALLED OVER THE WATER PIPE, EXTENDING A MINIMUM OF 10 FEET ON EITHER SIDE OF THE SEWER PIPE. THE SLEEVE SHALL BE MADE WATERTIGHT BY USE OF A NON-HARDENING SEAL. THE SLEEVING MATERIAL SHALL BE AT LEAST THE SAME GRADE OR SCHEDULE OF MATERIAL AS THE WATER PIPE IT IS SLEEVING.
- THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.
- ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERC CERTIFICATION PLAN.
- PLACE EXCESS SOIL FROM DRAINFIELD TRENCH, SWM PRACTICES, BUILDING FOUNDATION AND NEW PAVED AREAS. MATERIAL SHALL NOT CONTAIN DEBRIS FROM DEMOLITION, TOP 6 INCHES SHALL BE TOPSOIL.
- SEE DETAILED PARKING LOT PLAN ON SHEET 7 FOR ADDITIONAL INFORMATION.
- PERFORM A FULL-DEPTH SAW CUT WHERE NEW BITUMINOUS PAVEMENT ABUTS EXISTING BITUMINOUS PAVEMENT.

**NOTES:**

- The subject property & surrounding properties all obtain drinking water from a public source.
- Topography on this plot is field run by Howard County DPW in the area of the proposed Septic Easement.
- The lot shown hereon complies with the minimum ownership width and lot area as required by the Md. Dept. of the Environment.
- Any changes to a private sewage easement shall require a revised percolation certification.
- This area designates a private sewage area of at least 10,000 s.f. as required by the Md. State Dept. of Environment for individual sewage disposal. Improvements of any nature in this area are restricted until public sewerage is available. This area shall become null and void upon connection to a public sewerage system. The county health officer shall have the authority to grant adjustments to the private sewage area. Recordation of a modified sewage area shall not be necessary.
- All facilities will remain as shown on this plan.
- The locations of all known wells, typically monitoring wells, in the subject property shown, and within 100 feet of the property line, are accurately represented.
- This plan is developed in support of a proposal to construct a toilet facility to serve park users.
- Septic tank capacity will be determined in accordance with Howard County code, Paragraph 3.810(B)(1).
- Public water distribution lines may not cross the septic reserve area. Any water line within 10 feet of the septic reserve area must be sleeved. The boundary of the septic reserve area must be clearly marked when the water line is installed.
- Septic system design calculations:  
 (1.) Average Percolation Rate: 7 Min.  
 (2.) Application Rate (2-15 Min.) = 0.8 GPD/SF  
 (3.) Maximum Number of Daily Users= 1440  
 (4.) Design Capacity = 3 GPD/Park User X 1440 = 4320 GPD  
 (5.) Required Length of Trench =  $4320 \times 0.31 / 0.8 \text{ GPD/SF (3 Ft. Wide)} = 558 \text{ Ft.}$   
 Using 6' Deep Trench Below Pipe: 31% of Trench Length Req.  
 \*Howard county Code, 3.807(E)(2)  
 TRENCH WIDTH = 3', EFFECTIVE SIDEWALL = 6',  
 COEFFICIENT TO REDUCE LENGTH = 0.31%



BY THE ENGINEER:  
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*John P. Podlak* 2-14-13  
 SIGNATURE OF ENGINEER DATE

BY THE DEVELOPER:  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*John P. Podlak* AUGUST 22, 2012  
 SIGNATURE OF DEVELOPER DATE

THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*John P. Podlak* 2/14/13  
 HOWARD S.C.D. DATE

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
*John P. Podlak* 1/18/13  
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS  
*Maureen Roseman* 2/12/2013  
 COUNTY HEALTH OFFICER DATE  
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John P. Podlak* 2/15/13  
 DIRECTOR OF PUBLIC WORKS DATE

*Maureen Roseman* 2/15/13  
 CHIEF-BUREAU OF ENGINEERING DATE

*Steve Sharan* 2/14/13  
 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John P. Podlak* 2/22/13  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*Keith Redwood* 2/25/13  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*Maureen Roseman* 2/25/13  
 DIRECTOR DATE

- REVISIONS:  
 1) DEPICTED SEWAGE TREATMENT SYSTEM  
 2) REVISED PUMPING SYSTEM  
 3) DEPICTED HANDICAP PARKING STRIPING



50 25 0 50 100 FT  
 SCALE: 1" = 50'

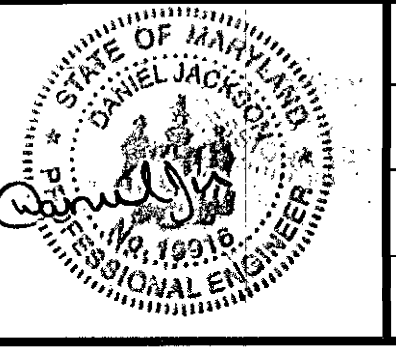
RED-LINED REVISIONS PREPARED BY:  
 LEON A. PODLAK & ASSOCIATES, LLC  
 147-E MAIN ST. P.O. BOX 266  
 WESTMINSTER, MARYLAND 21157  
 PHONE: 410-876-1226

OWNER:  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

DEVELOPER:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5806  
 FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION DESIGNERS & INSPECTORS  
 10977 GILFORD ROAD, ANNAPOLIS, MD 20701  
 BALTIMORE OFFICE: 410-292-2772 FAX: 410-292-2772  
 WASHINGTON OFFICE: 202-462-3005 FAX: 202-462-3005  
 www.gpi.net

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. 19916, Expiration Date: 01/14/2015).



DES: R.H.  
 DRN: A.W.W.  
 CHK: M.S.Z.  
 DATE: Jan., 2013  
 BY: NO

NO	REVISION	DATE
1	ADD 3000 GALLON TANK AND SEE COMMENTS	8-27-14
2	REVISE SEPTIC SYSTEM DESIGN SPECIFICATIONS	7-18-14
3	Removed waterline bands	6/07/12
4	Reconfigured parking area to add additional spaces, added bathroom facility, paved walking trail, walkways for ADA compliance, and storm water management BMP's.	2/24/12

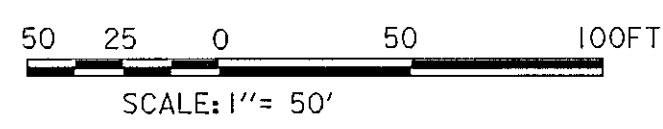
**Site Grading, Erosion and Sediment Control Plan Sheet One**

REVISIED SITE DEVELOPMENT PLAN  
**ALPHA RIDGE PARK ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID#20,21, PARCELS 23 & 54  
 AS SHOWN  
 SHEET 4 OF 38  
 SDP 90-18

NOTE: FINAL PATH LOCATIONS WILL BE IDENTIFIED ON SITE BY PARKS AND RECREATION PRIOR TO CONSTRUCTION.

Match Line - Site Grading, Sediment and Erosion Control Plan Sheet One (Sheet 4 of 38)

Match Line - Site Grading, Sediment and Erosion Control Plan Sheet Three (Sheet 6 of 15)



**OWNER:**  
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELEME  
VOICE 410-313-4689  
FAX 410-313-4646

**DEVELOPER:**  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5306  
FAX 410-313-6144

**GPI GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION MANAGERS & SURVEYORS  
10977 GULFORD ROAD, ANNAPOLIS, MARYLAND, 20703  
WASH. (301) 470-2172 BALT. (410) 880-3055  
FAX (301) 490-2649 www.gpiinc.com

**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. 33310, Expiration Date: 07/02/2014.



DES: R.H.				
DRN: A.W.W.				
CHK: M.S.Z.	A.W.W.	I	Added paved trail, storm water management BMP's and wood chip path.	2/24/12
DATE: May, 2012	BY	NO	REVISION	DATE

**Site Grading, Sediment and Erosion control Plan Sheet Two**

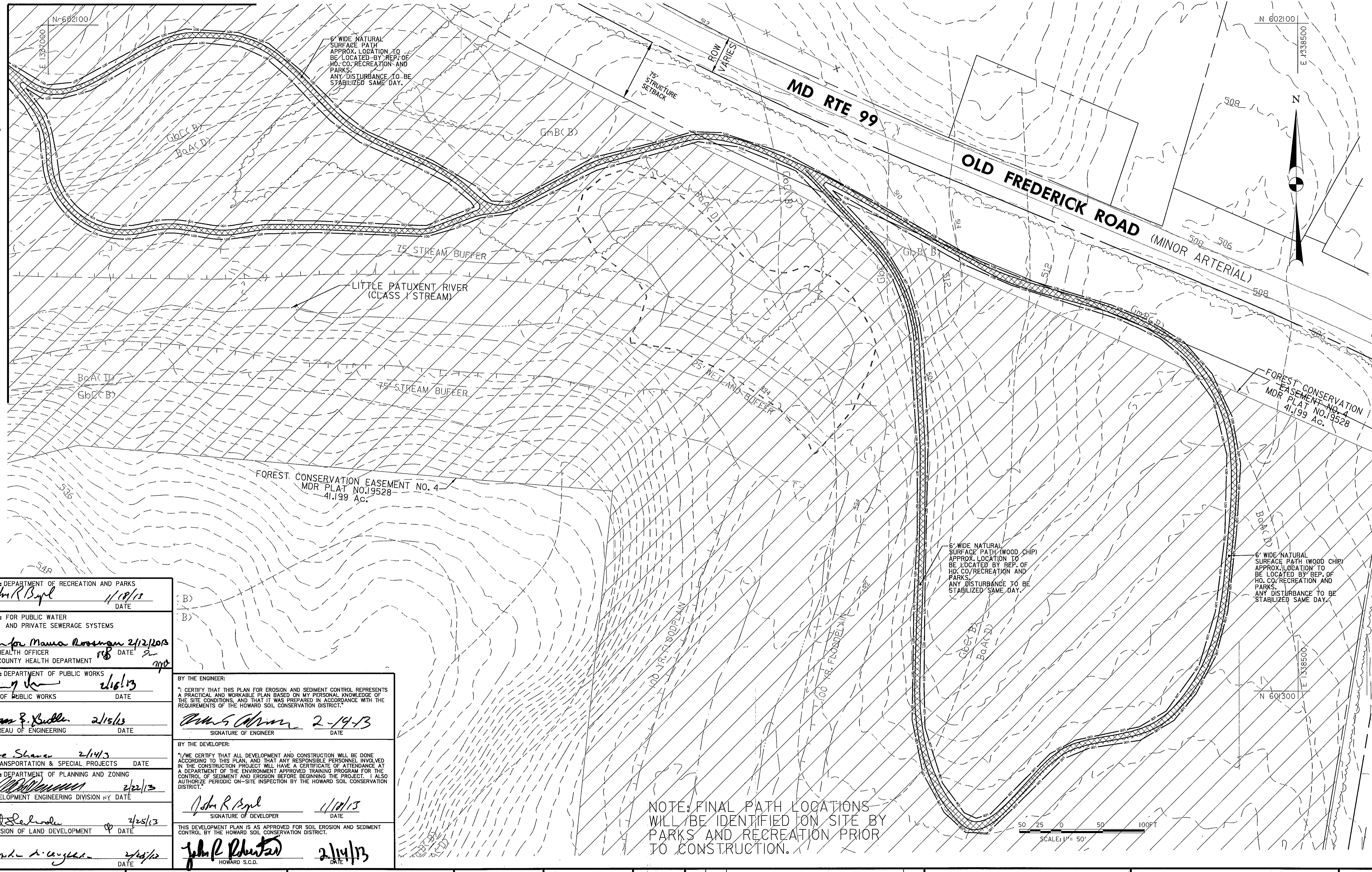
**REVISED SITE DEVELOPMENT PLAN ALPHA RIDGE PARK ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54

SCALE: AS SHOWN  
SHEET 5 OF 38

BY THE ENGINEER: I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. <i>Robert S. Anderson</i> 6-5-12 SIGNATURE OF ENGINEER DATE	
BY THE DEVELOPER: I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. <i>John R. Spill</i> 1/18/13 SIGNATURE OF DEVELOPER DATE	
THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. <i>John R. Spill</i> 2/14/13 HOWARD S.C.D. DATE	
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spill</i> 1/18/13 DIRECTOR DATE	
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>John P. Deane</i> 2/12/2013 DATE	
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>John P. Deane</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE	
<i>Thomas S. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE	
<i>Steve Shaw</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>John P. Deane</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE	
<i>Keith Schelhorn</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE	
<i>Mark A. Wynn</i> 2/15/12 DIRECTOR DATE	

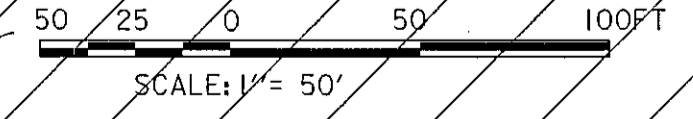


Match Line - Site Grading, Sediment and Erosion Control Plan Sheet Two (Sheet 5 of 25)



APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spyl</i> 1/18/13 DIRECTOR DATE	BY THE ENGINEER: "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."  BY THE DEVELOPER: "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."  THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Barbara Manna Rossman</i> 2/12/13 COUNTY HEALTH OFFICER DATE HOWARD COUNTY HEALTH DEPARTMENT	
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>John G. ...</i> 2/16/13 DIRECTOR OF PUBLIC WORKS DATE	
<i>Thomas R. ...</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE	
<i>Steve ...</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>...</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION NY DATE	BY THE ENGINEER: <i>...</i> 2-19-13 SIGNATURE OF ENGINEER DATE
<i>...</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE	BY THE DEVELOPER: <i>John R. Spyl</i> 1/18/13 SIGNATURE OF DEVELOPER DATE
<i>...</i> 2/24/13 DIRECTOR DATE	<i>John R. Spyl</i> 1/18/13 SIGNATURE OF DEVELOPER DATE

NOTE: FINAL PATH LOCATIONS WILL BE IDENTIFIED ON SITE BY PARKS AND RECREATION PRIOR TO CONSTRUCTION.

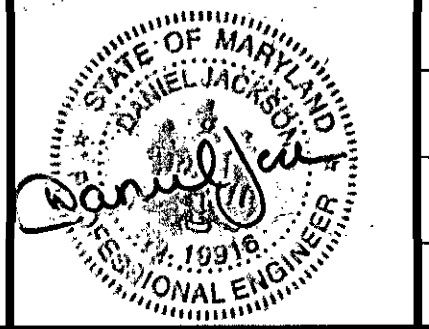


OWNER:  
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

DEVELOPER:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5806  
FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION MANAGERS & INSPECTORS  
10717 GLEBE ROAD, ANNEAPOLIS JUNCTION, MD 20714  
WASH. DC: 410-271-2712 BALT., MD: 410-880-3055  
FAX: 410-490-2649 www.gpi.net

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. 1996, Expiration Date: 01/14/2015."

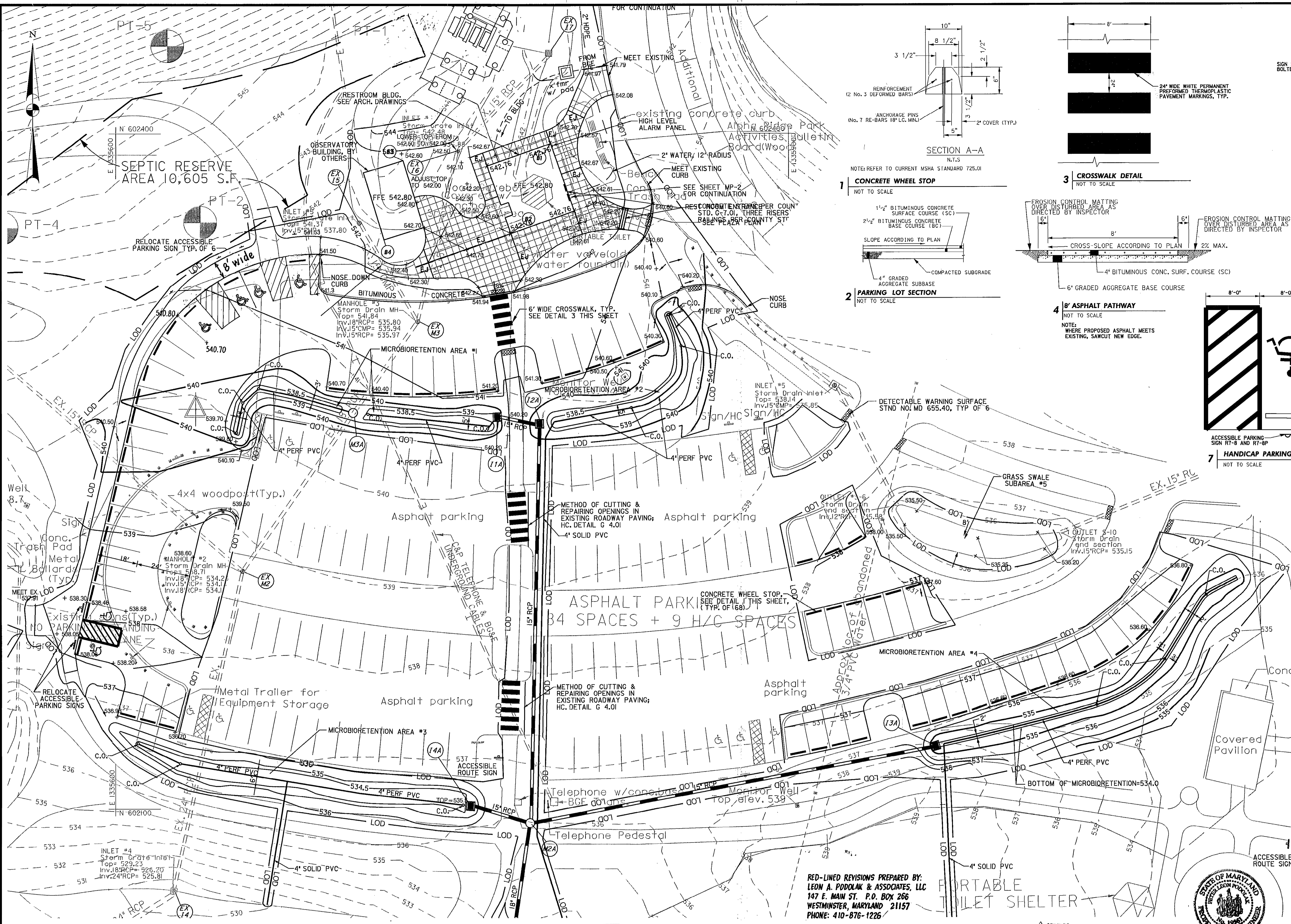


DES: R.H.			
DRN: A.W.W.			
CHK: M.S.Z.			
DATE: Jan., 2013	A.W.W.	I	Added wood chip path
	BY	NO	REVISION
			DATE

**Site Grading, Erosion and Sediment Control Plan Sheet Three**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

AS SHOWN  
SHEET 6 OF 38



RED-LINED REVISIONS PREPARED BY:  
**LEON A. PODOLOK & ASSOCIATES, LLC**  
 147 E. MAIN ST. P.O. BOX 266  
 WESTMINSTER, MARYLAND 21157  
 PHONE: 410-876-1226

POINT #	DESCRIPTION	NORTHING	EASTING
B1	BUILDING CORNER	602395.84	1335793.77
B2	BUILDING CORNER	603355.69	1335776.10
B3	BUILDING CORNER	602388.17	1335728.06
B4	BUILDING CORNER	602352.84	1335719.60

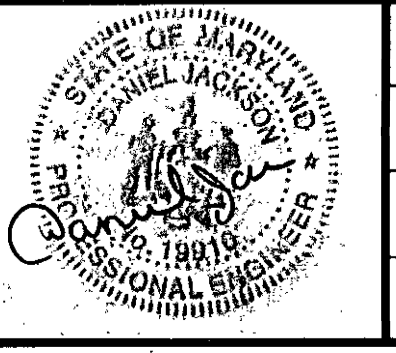
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>Tom R. Boyd</i> 1/10/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>W. Wilson for Maura Rosman</i> 2/12/2013 COUNTY HEALTH OFFICER DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Samuel</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas P. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaner</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>William</i> 2/21/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>Kevin</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>David</i> 2/25/13 DIRECTOR DATE

OWNER:  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

DEVELOPER:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5806  
 FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION DESIGNERS & INSPECTORS  
 10977 GILFORD ROAD, ANNAPOLIS JUNCTION, MD 20701  
 WASH. D.C. 410-2772 FAX: (410) 860-3055  
 FAX: (410) 490-2649 www.gpi.net

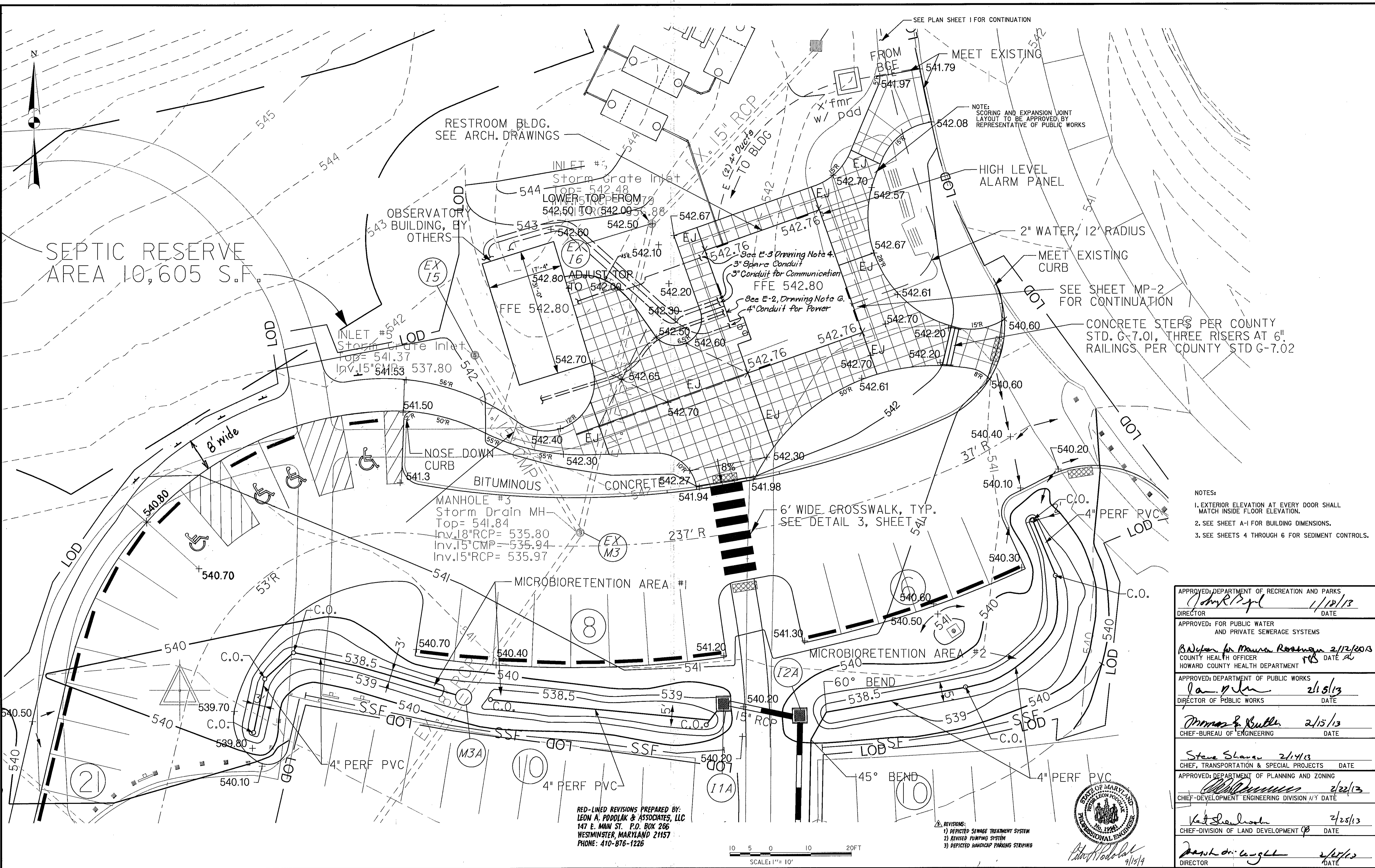
Professional Certification:  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 19916, Expiration Date: 01/14/2015.



DES: R.H.			
DRN: A.W.W.			
CHK: M.S.Z.			
DATE: Jan., 2013	BY: NO	REVISION:	DATE:
		ADD 3,000 GALLON TANK and MORE COMMENTS	8-27-14
		BIT SEPTIC SYSTEM DESIGN SPECIFICATIONS	7-18-14

**Detailed Parking Lot Plan & SWM Plan**

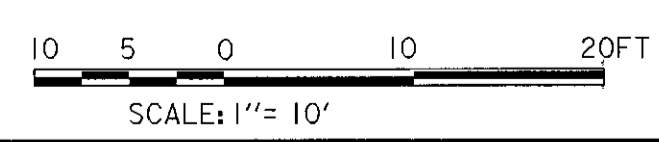
**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID#20,21, PARCELS 23 & 54  
 AS SHOWN  
 SHEET 7 OF 38  
 SDP 90-18



- NOTES:
1. EXTERIOR ELEVATION AT EVERY DOOR SHALL MATCH INSIDE FLOOR ELEVATION.
  2. SEE SHEET A-1 FOR BUILDING DIMENSIONS.
  3. SEE SHEETS 4 THROUGH 6 FOR SEDIMENT CONTROLS.

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spill</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>B. N. [Signature]</i> 2/12/2013 COUNTY HEALTH OFFICER DATE HOWARD COUNTY HEALTH DEPARTMENT
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>[Signature]</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaver</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>[Signature]</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>[Signature]</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>[Signature]</i> 2/27/13 DIRECTOR DATE

RED-LINED REVISIONS PREPARED BY:  
LEON A. PODOLAK & ASSOCIATES, LLC  
147 E. MAIN ST. P.O. BOX 266  
WESTMINSTER, MARYLAND 21157  
PHONE: 410-876-1226



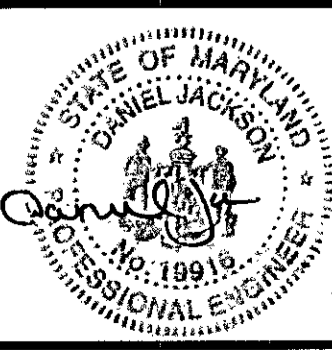
- REVISIONS:
- 1) DEPICTED SEWAGE TREATMENT SYSTEM
  - 2) REVISED PUMPING SYSTEM
  - 3) DEPICTED HANDICAP PARKING STRIPING



OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5806 FAX 410-313-6144
---	---



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. 19918, Expiration Date: 01/14/2015.

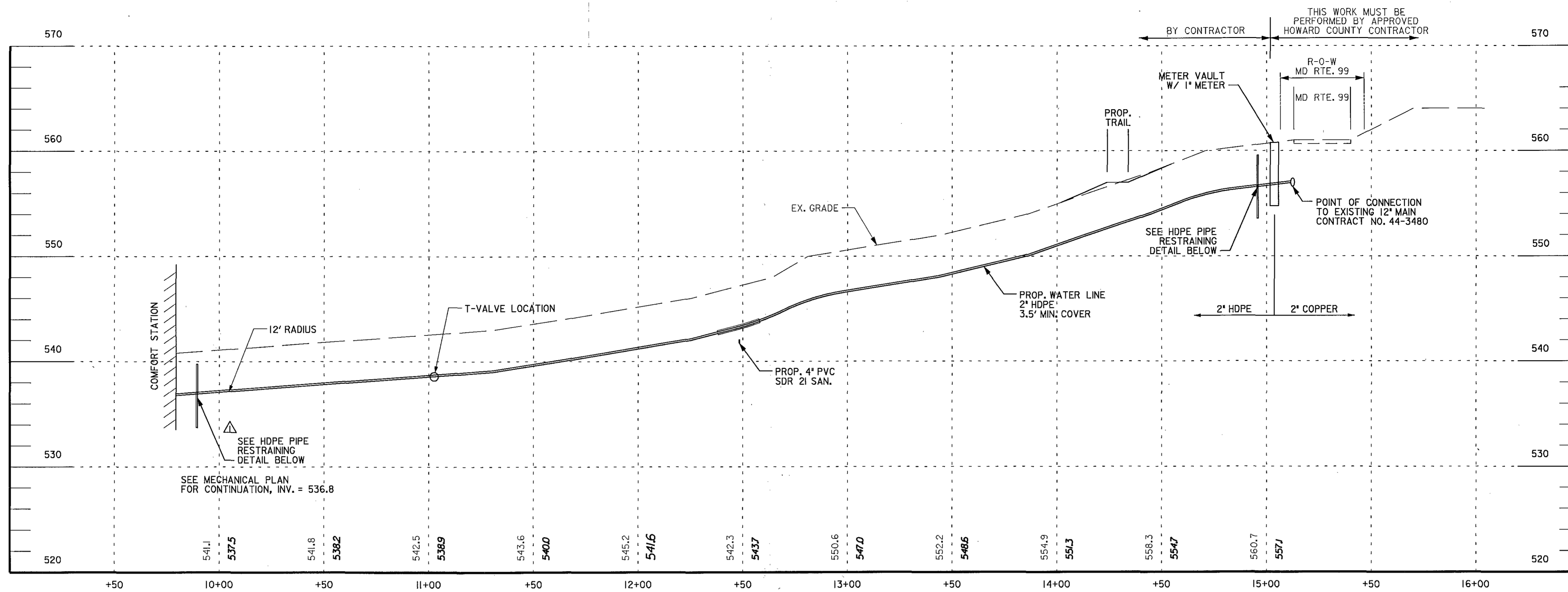


DES: R.H.	DRN: A.W.W.	CHK: M.S.Z.	DATE: Jan., 2013	BY NO	REVISION	DATE
					ADD 3000 GALLON TANK and MORE COMMENTS.	8-27-14
					REVISE SEPTIC SYSTEM SPECIFICATIONS	7-18-14

Plaza Plan

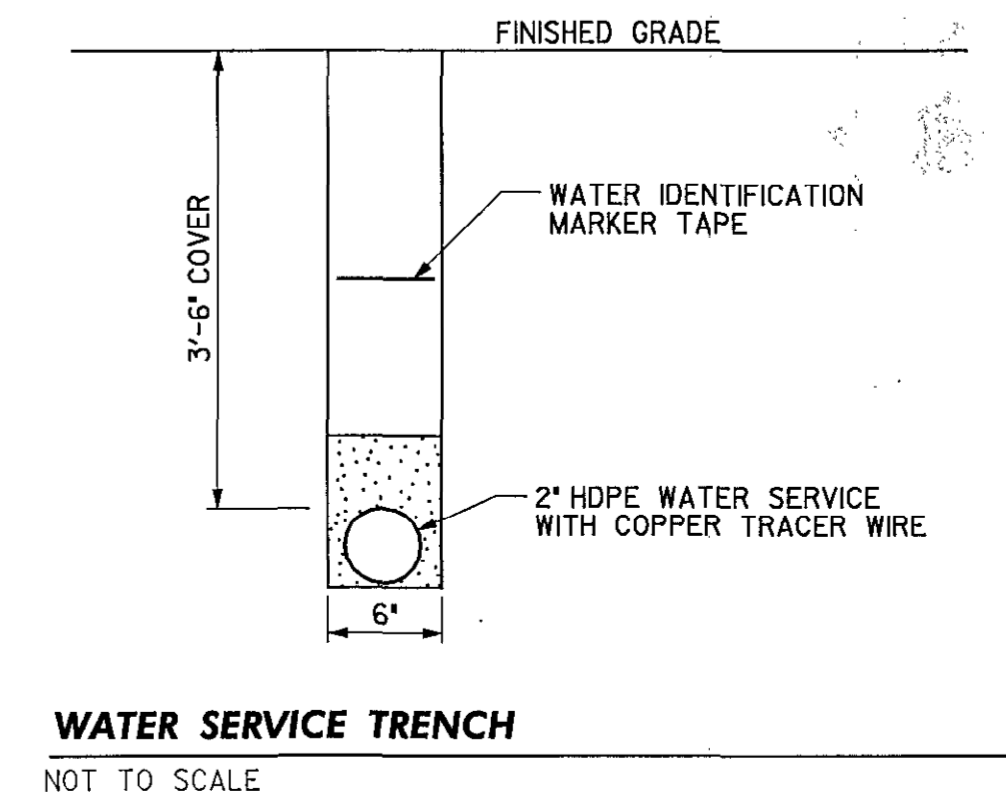
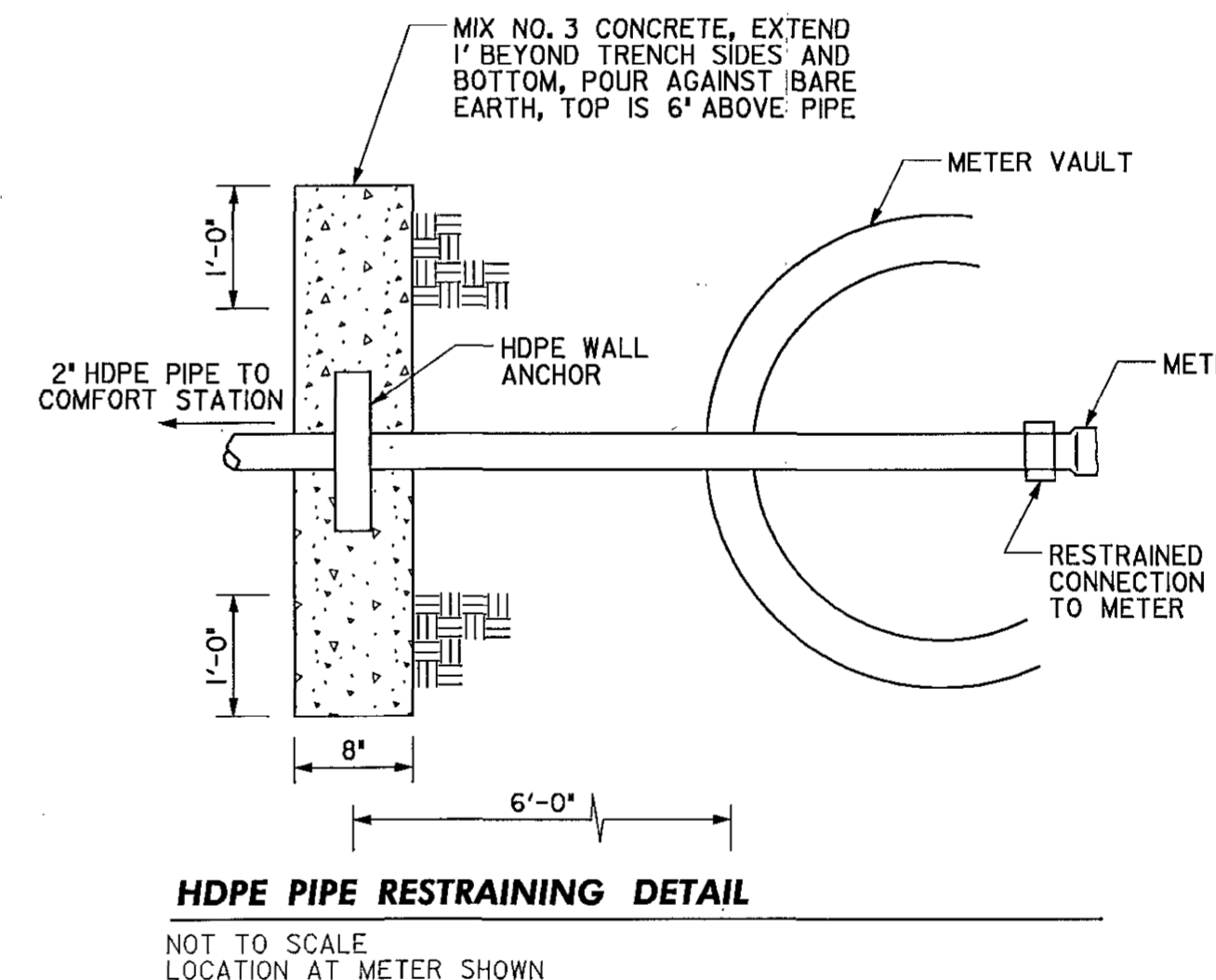
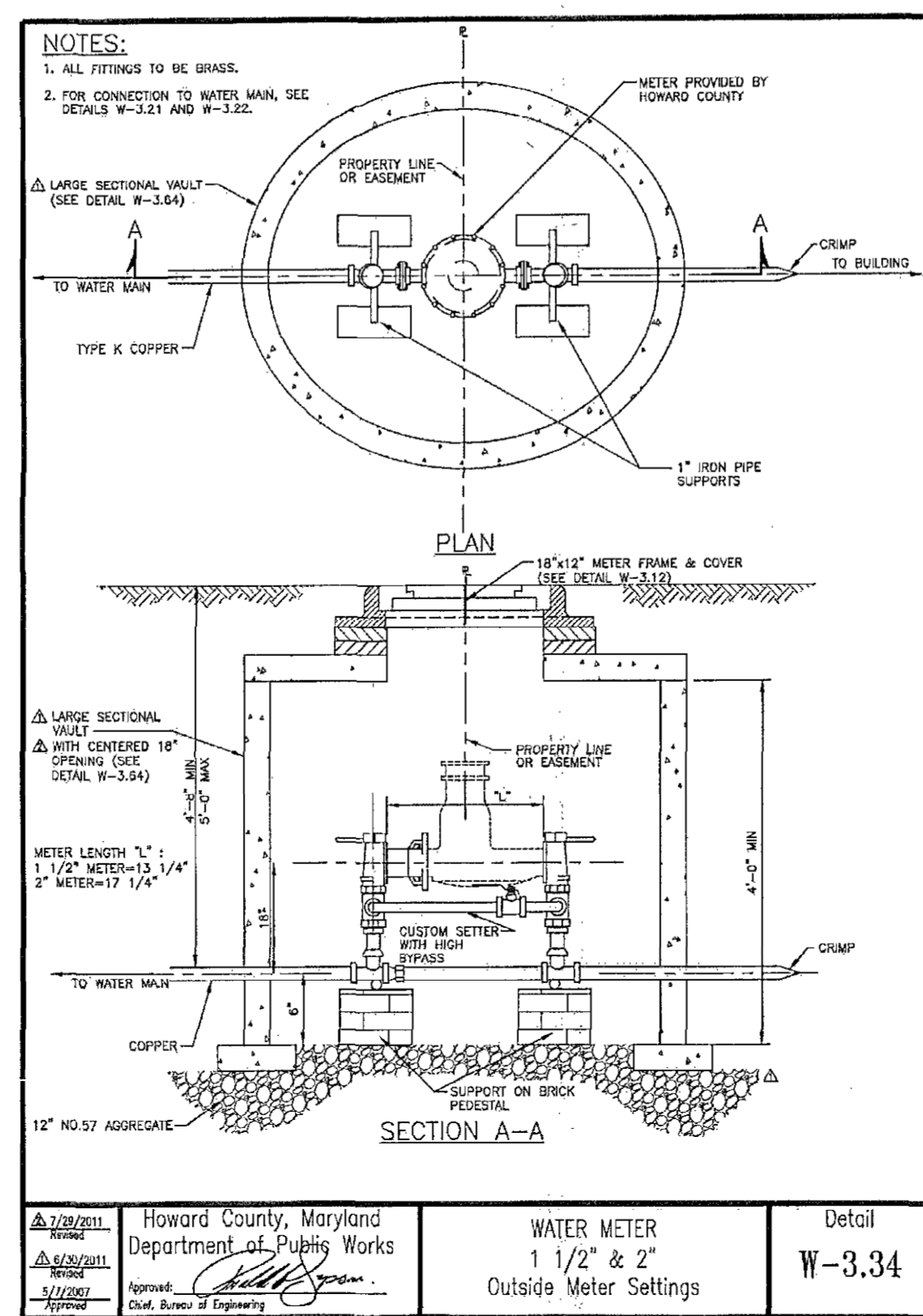
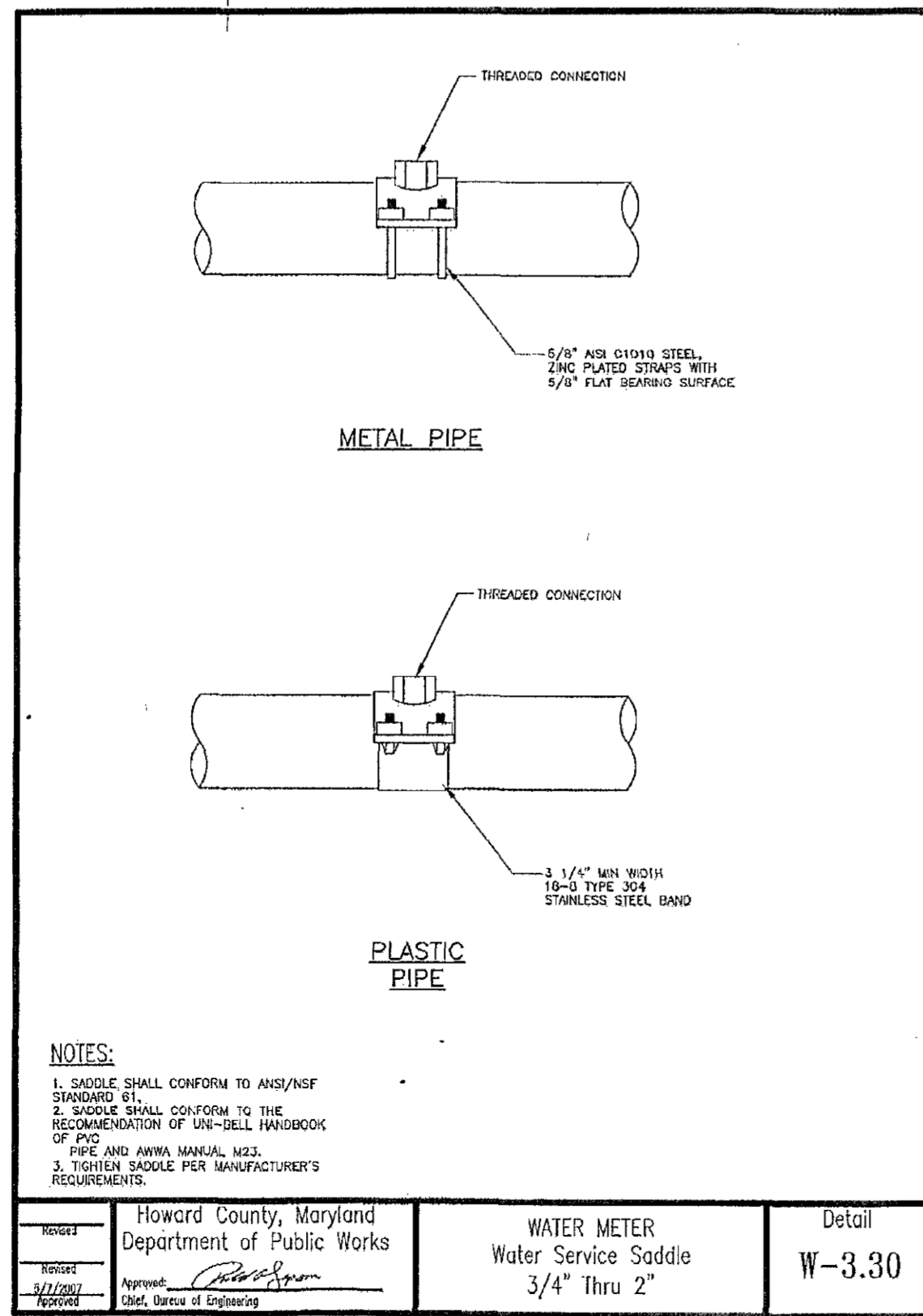
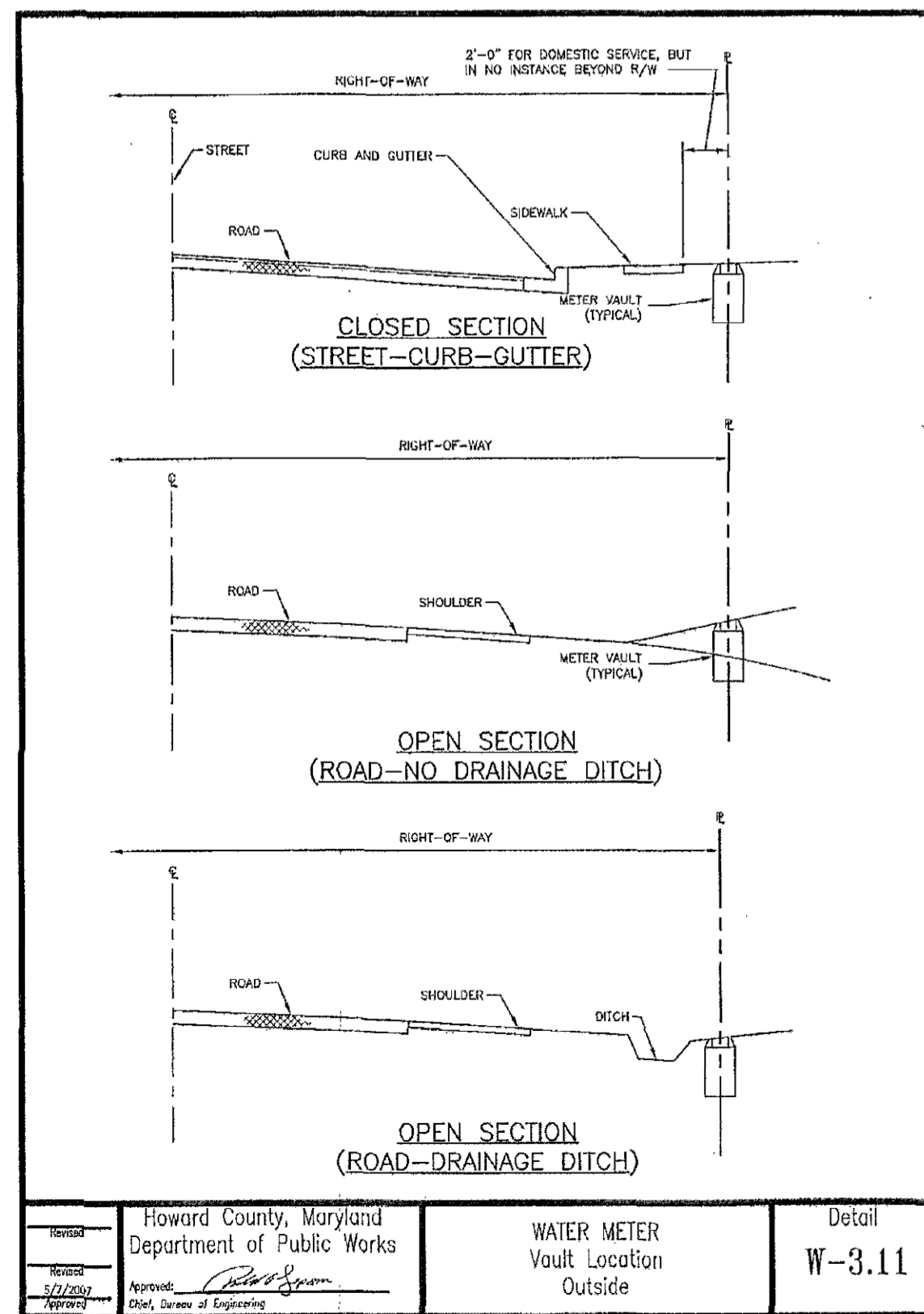
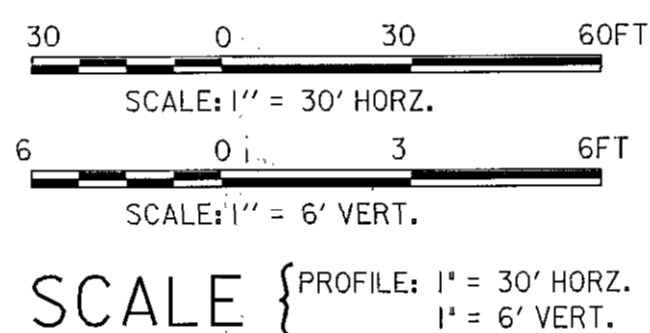
REVISED SITE DEVELOPMENT PLAN  
ALPHA RIDGE PARK  
ADDITIONS DESIGN  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

AS SHOWN  
SHEET 8 OF 38



**GENERAL NOTE:**

1. WHERE ANY PRESSURE WATER SUPPLY LINE MUST CROSS THE BUILDING SEWER LINE, THE BOTTOM OF THE WATER SERVICE LINE WITHIN 10 FEET OF THE CROSSING SHALL BE AT LEAST TWELVE INCHES ABOVE THE TOP OF THE BUILDING SEWER LINE. WHERE THIS CONDITION CANNOT BE MET, A SLEEVE SHALL BE INSTALLED OVER THE WATER PIPE, EXTENDING A MINIMUM OF 10 FEET ON EITHER SIDE OF THE SEWER PIPE. THE SLEEVE SHALL BE MADE WATERTIGHT BY USE OF A NON-HARDENING SEAL. THE SLEEVING MATERIAL SHALL BE AT LEAST THE SAME GRADE OR SCHEDULE OF MATERIAL AS THE WATER PIPE IT IS SLEEVING.



APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Sydnor</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>B. Duffin for Maura Roseman</i> 2/12/2013 COUNTY HEALTH OFFICER DATE HOWARD COUNTY HEALTH DEPARTMENT
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Janet</i> 2/16/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas J. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaver</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>William</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION & Y DATE
<i>Keith</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>Paul</i> 2/25/13 DIRECTOR DATE

<b>OWNER:</b> HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	<b>DEVELOPER:</b> HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5806 FAX 410-313-6144
--	--

**GPI GREENMAN-PEDERSEN, INC.**  
REGISTERED PROFESSIONAL ENGINEERS & ARCHITECTS  
10917 GULFORD ROAD, ANNAPOLIS, MD 20714  
BALT. (410) 890-3055  
FAX (410) 490-2649 www.gpi.net

**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. 1996, Expiration Date: 01/14/2015.

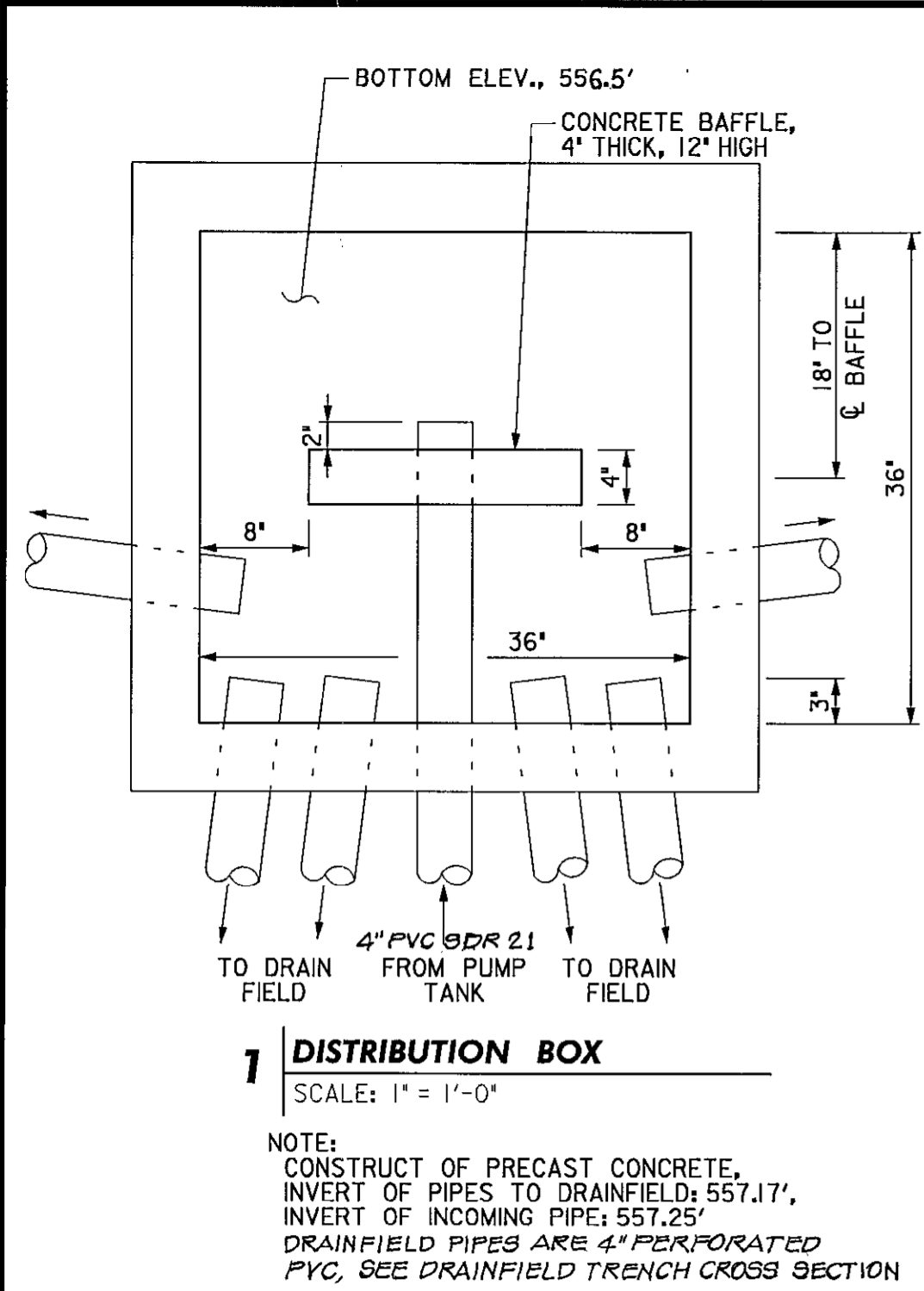


DES: R.H.	6/07/12
DRN: A.W.W.	
CHK: M.S.Z.	
DATE: Nov., 2012	
BY NO	REVISION
	DATE

**Water Main Profile**

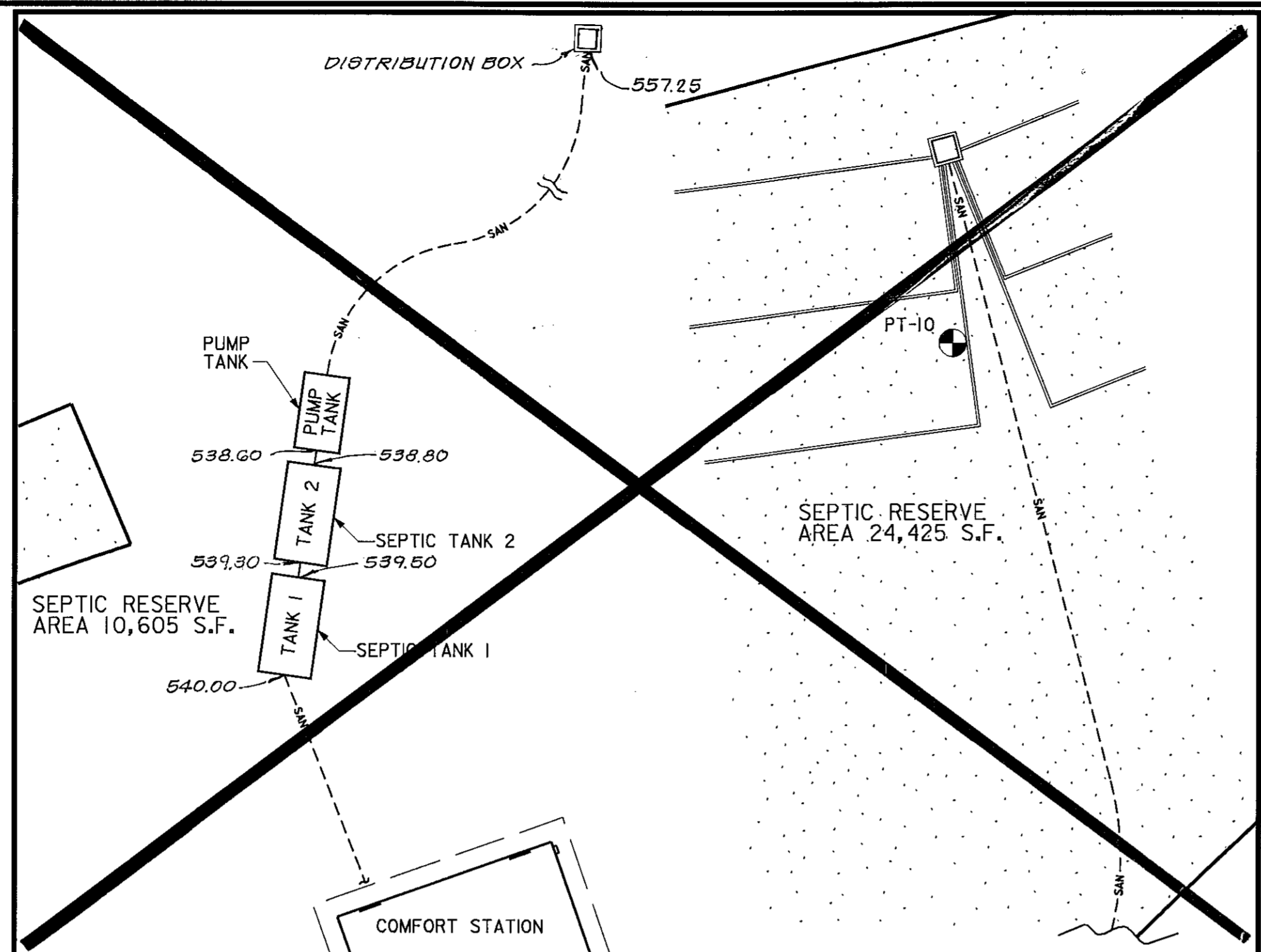
**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

AS SHOWN  
SHEET 9 OF 38



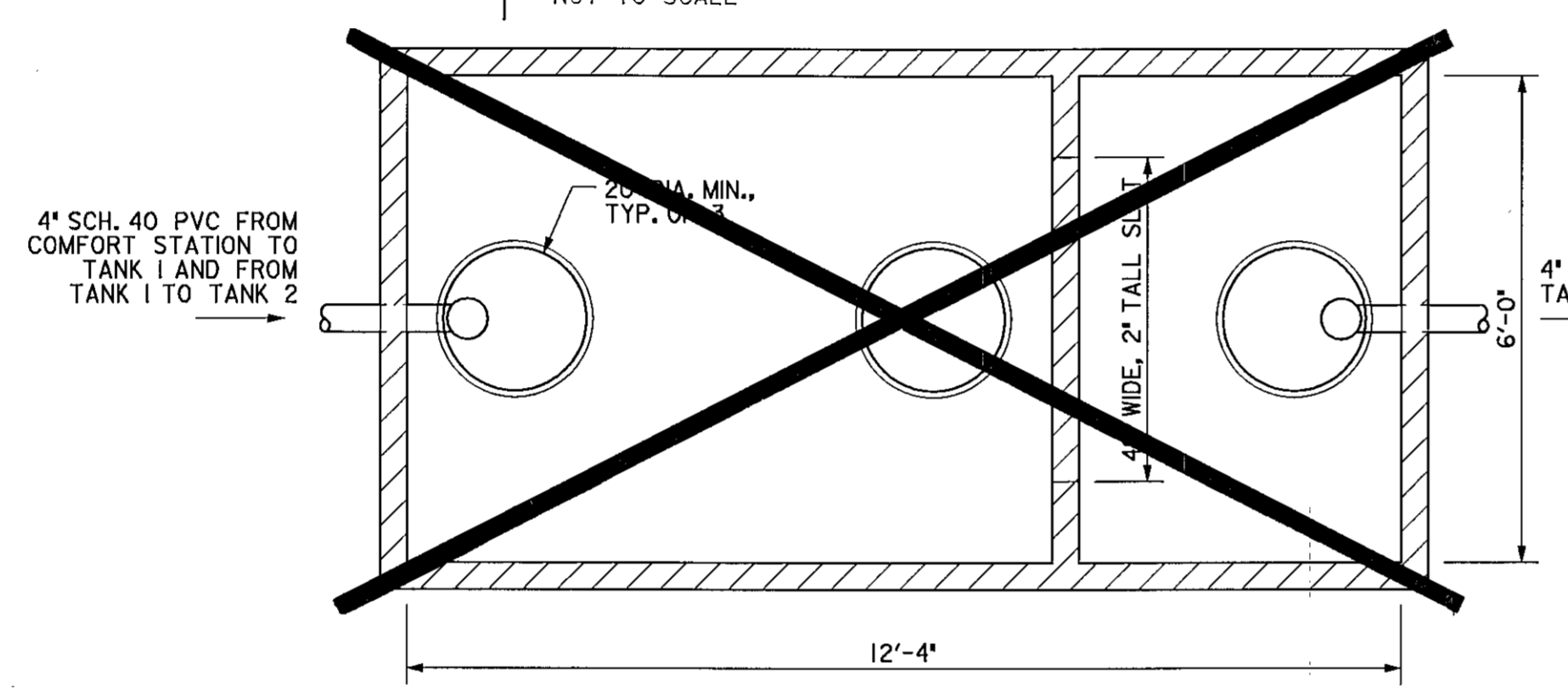
**1 DISTRIBUTION BOX**  
SCALE: 1" = 1'-0"

NOTE:  
CONSTRUCT OF PRECAST CONCRETE,  
INVERT OF PIPES TO DRAINFIELD: 557.17',  
INVERT OF INCOMING PIPE: 557.25',  
DRAINFIELD PIPES ARE 4" PERFORATED  
PVC, SEE DRAINFIELD TRENCH CROSS SECTION

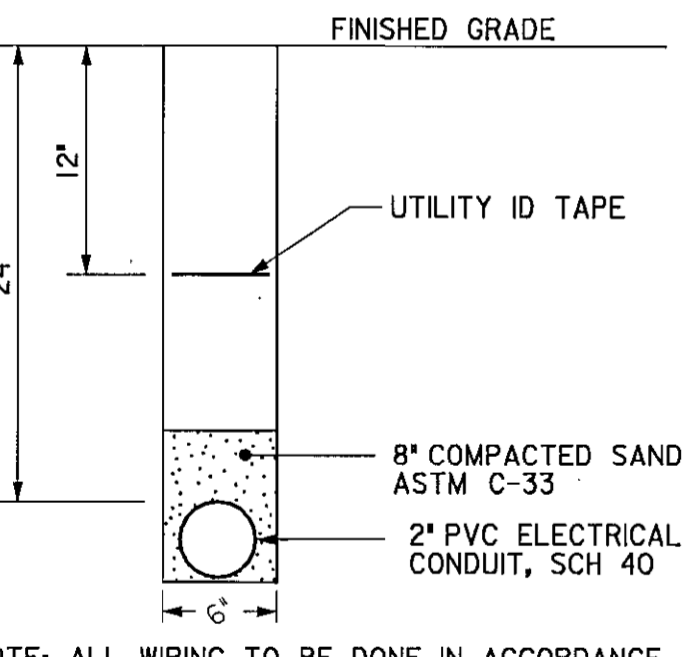


**2 PRIVATE SEWER SYSTEM SCHEMATIC PLAN**  
NOT TO SCALE

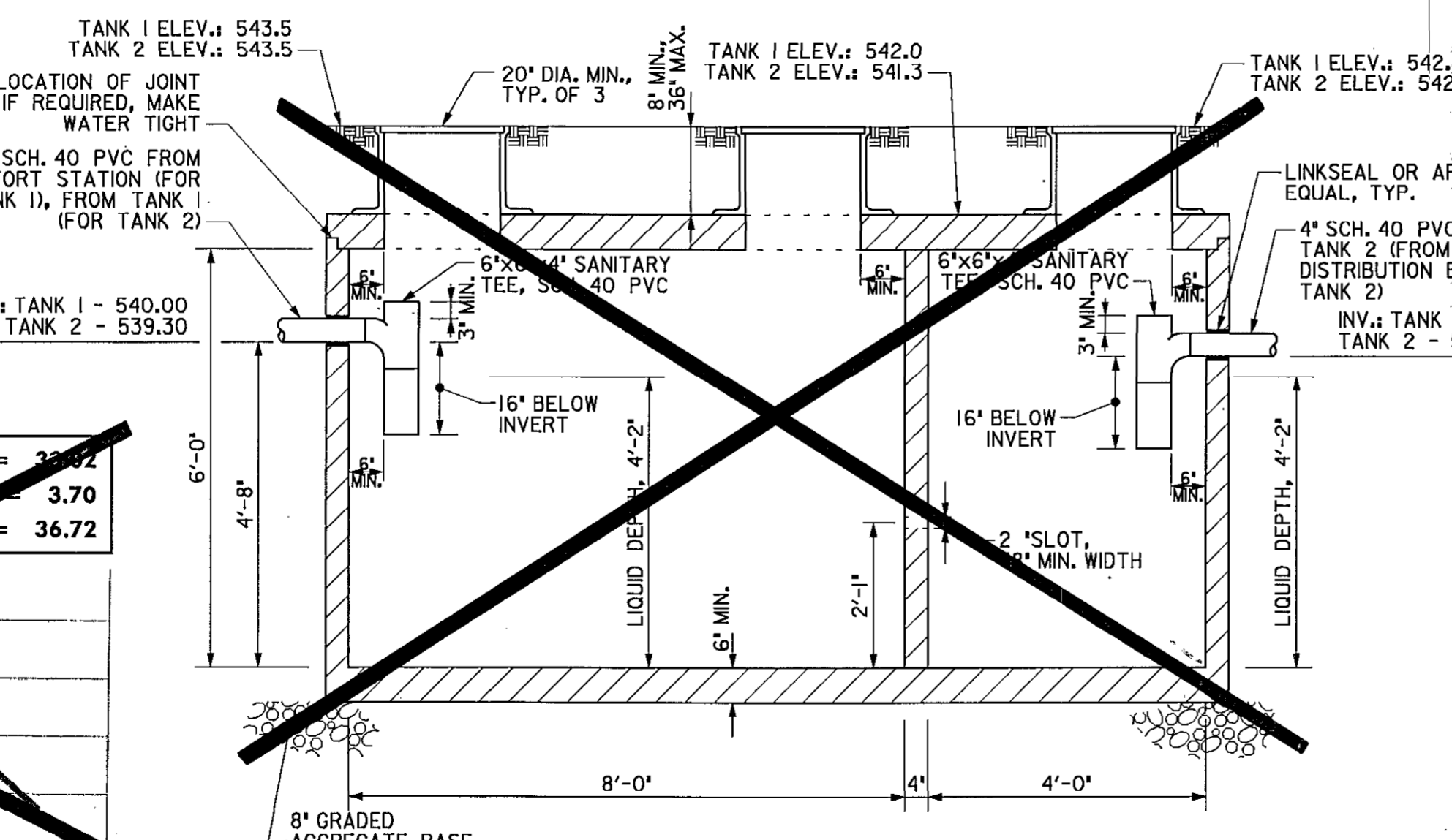
TRENCH	A COORDINATES	B COORDINATES
T1	N 602830.48 E 1335809.03	N 602842.86 E 1335901.22
T2	N 602812.74 E 1335812.19	N 602825.13 E 1335904.45
T3	N 602794.99 E 1335815.24	N 602807.37 E 1335907.42
T4	N 602878.46 E 1335991.25	N 602843.83 E 1335904.32
T5	N 602861.47 E 1335997.24	N 602826.81 E 1335910.84
T6	N 602844.52 E 1336003.32	N 602809.89 E 1335917.01



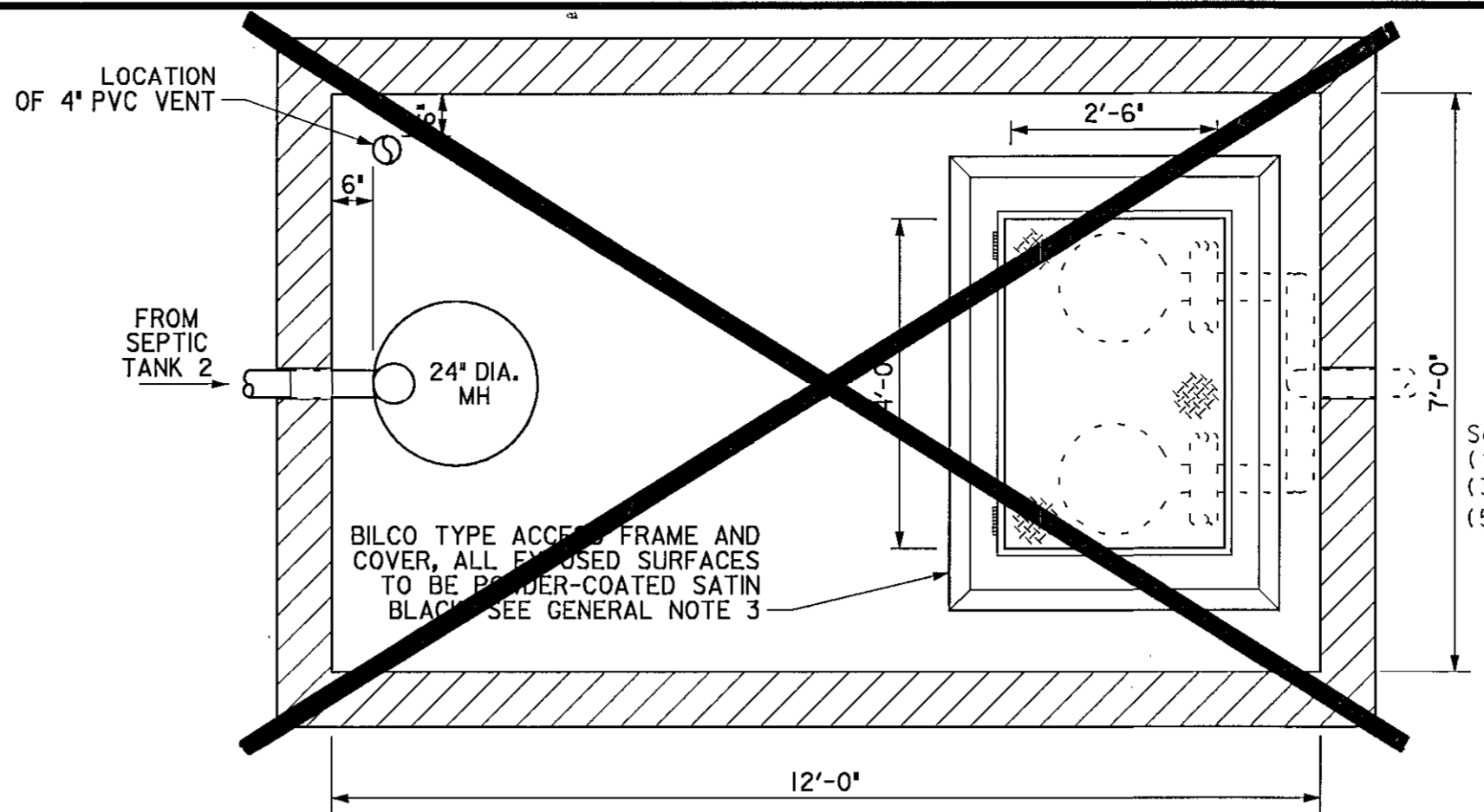
**4 REINFORCED PRECAST CONCRETE SEPTIC TANK, 2 COMPARTMENT, PLAN VIEW, TWO REQUIRED**  
SCALE: 1/2" = 1'-0"



**3 ELECTRIC CONDUIT TRENCH**  
NOT TO SCALE

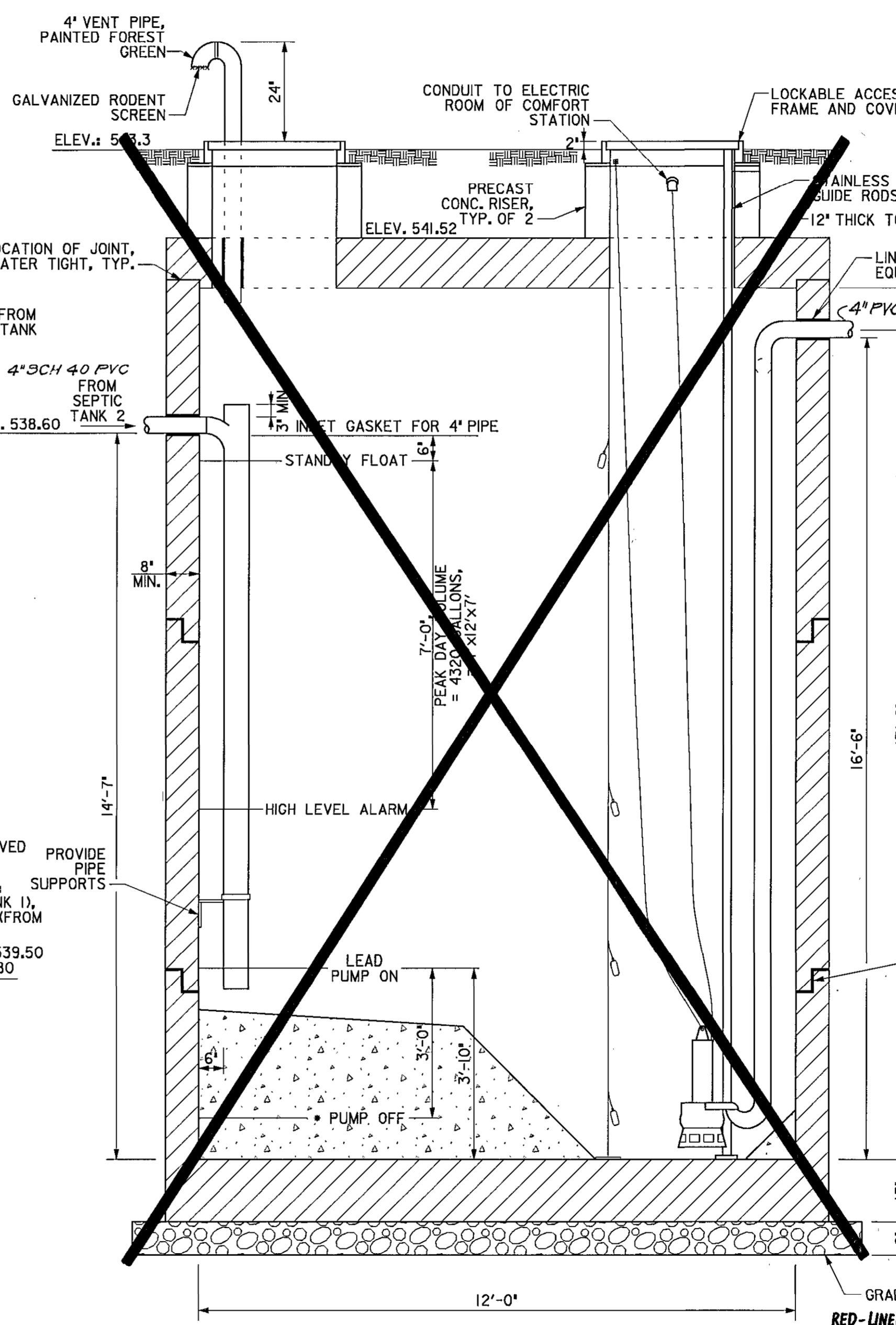


**5 REINFORCED PRECAST CONCRETE SEPTIC TANK, 2 COMPARTMENT, CROSS-SECTION, TWO REQUIRED**  
SCALE: 1/2" = 1'-0"

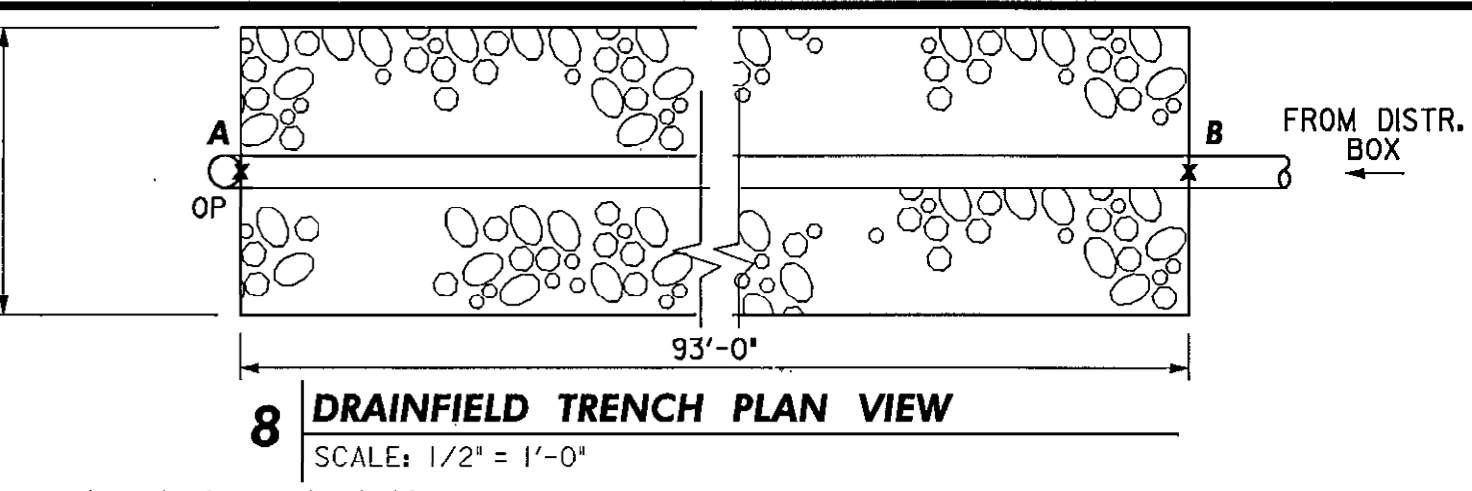


**6 SEPTIC PUMP TANK, 1 COMPARTMENT, PLAN VIEW**  
SCALE: 1/2" = 1'-0"

GENERAL NOTES:  
1. SET 'PUMP OFF' FLOAT BASED ON PUMP MANUFACTURER'S RECOMMENDATION.  
2. SEE PLAZA PLAN FOR HIGH LEVEL ALARM LOCATION.  
3. COORDINATE ACTUAL SIZE AND LOCATION OF HATCH WITH PUMP COMPONENTS.  
4. PROVIDE 4 FT. OF COVER OVER PIPE FROM THE PUMP TANK TO THE DISTRIBUTION BOX.  
5. PROVIDE A MINIMUM OF 12" CLEARANCE BETWEEN BOTTOM OF THE WATER SERVICE AND TOP OF BUILDING SEWER LINE.

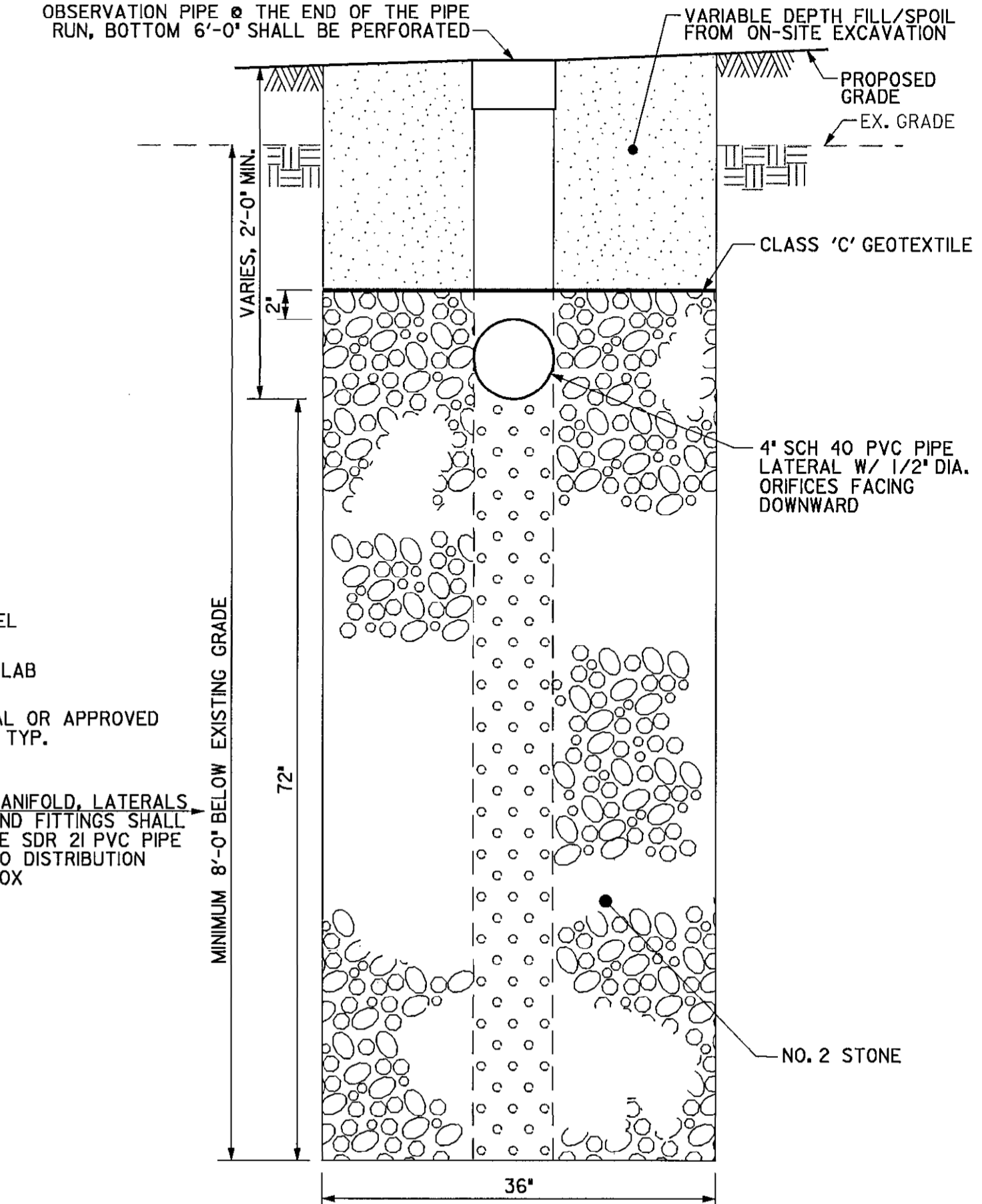


**7 SEPTIC PUMP TANK, 1 COMPARTMENT, CROSS SECTION**  
SCALE: 1/2" = 1'-0"



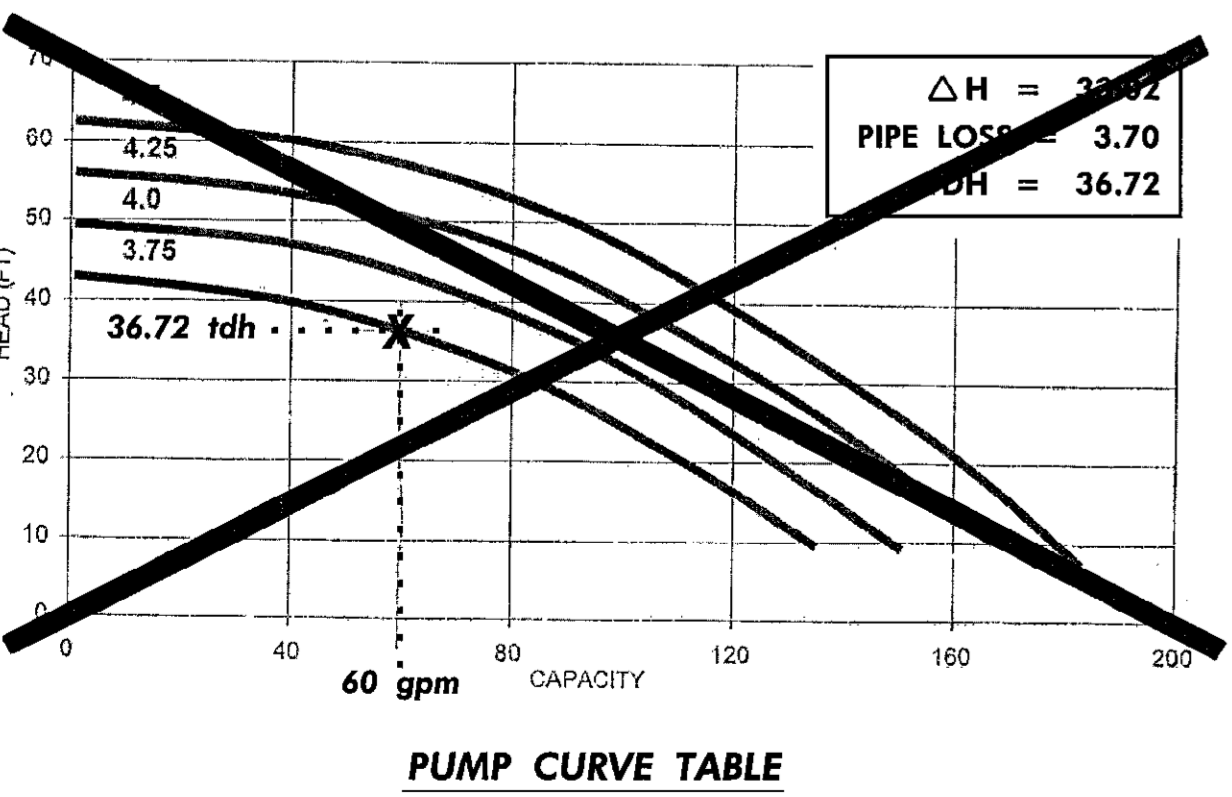
**8 DRAINFIELD TRENCH PLAN VIEW**  
SCALE: 1/2" = 1'-0"

Septic system design calculations:  
(1.) Average Percolation Rate: 7 Min. (2.) Application Rate (2-15 Min.)=0.8 GPD/SF  
(3.) Maximum Number of Daily Users= 1440 (4.) Design Capacity=3 GPD/Park User X 1440=4320 GPD  
(5.) Required Length of Trench = 4320 X 0.31 = 1340 Ft.  
0.8 GPD/SF (3 Ft. Wide) = 558 Ft.  
Using 6' Deep Trench Below Pipe: 31% of Trench Length Req.  
\*Howard county Code, 3.807(E)(2) TRENCH WIDTH = 3', EFFECTIVE SIDEWALL = 6', COEFFICIENT TO REDUCE LENGTH = 0.31%



**9 DRAINFIELD TRENCH X-SECTION DETAIL**  
NOT TO SCALE

NOTE: CONSTRUCT TRENCHES AT 18'-0" O.C., SEE SITE PLAN FOR LOCATION.



**PUMP CURVE TABLE**

**NOTE: WATERTIGHT TEST IS REQUIRED.**

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Byrd</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Bryan for Maria Rossignol</i> 2/12/2013 COUNTY HEALTH OFFICER DATE HOWARD COUNTY HEALTH DEPARTMENT
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Janice</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Morgan E. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Sharan</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>Chad</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION BY DATE
<i>Keith</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>Mark</i> 4/20/12 DIRECTOR DATE

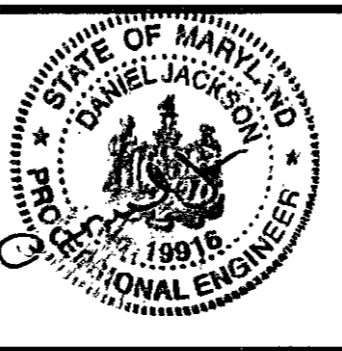


GRADED AGGREGATE BASE  
RED-LINED REVISIONS PREPARED BY:  
LEON A. POPOLAK & ASSOCIATES, LLC  
147 E. MAIN ST. P.O. BOX 266  
WESTMINSTER, MARYLAND 21157  
PHONE: 410-876-1226

OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 3250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5806 FAX 410-313-6144
---	---

**GPI GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION MANAGERS & INSPECTORS  
10977 GULFORD ROAD, ANNAPOLIS JUNCTION, MD, 20701  
WASH. (301) 470-2772 BALT. (410) 890-3055  
FAX (301) 490-2649 www.gpiinc.com

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. 1996, Expiration Date: 07/14/2015.



DES: R.H.	DRN: W.K.T.	CHK: M.S.Z.	DATE: Nov., 2012
ADD 3,000 GALLON TANK AND PIPE COMMENTS 8-27-14			
REVISE SEPTIC SYSTEM DESIGN SPECIFICATIONS 7-18-14			
BY: NO	REVISION	DATE	

NOTE: SEE SHEET 10A, 10B, AND 10C FOR BAT SYSTEM SPECIFICATIONS.

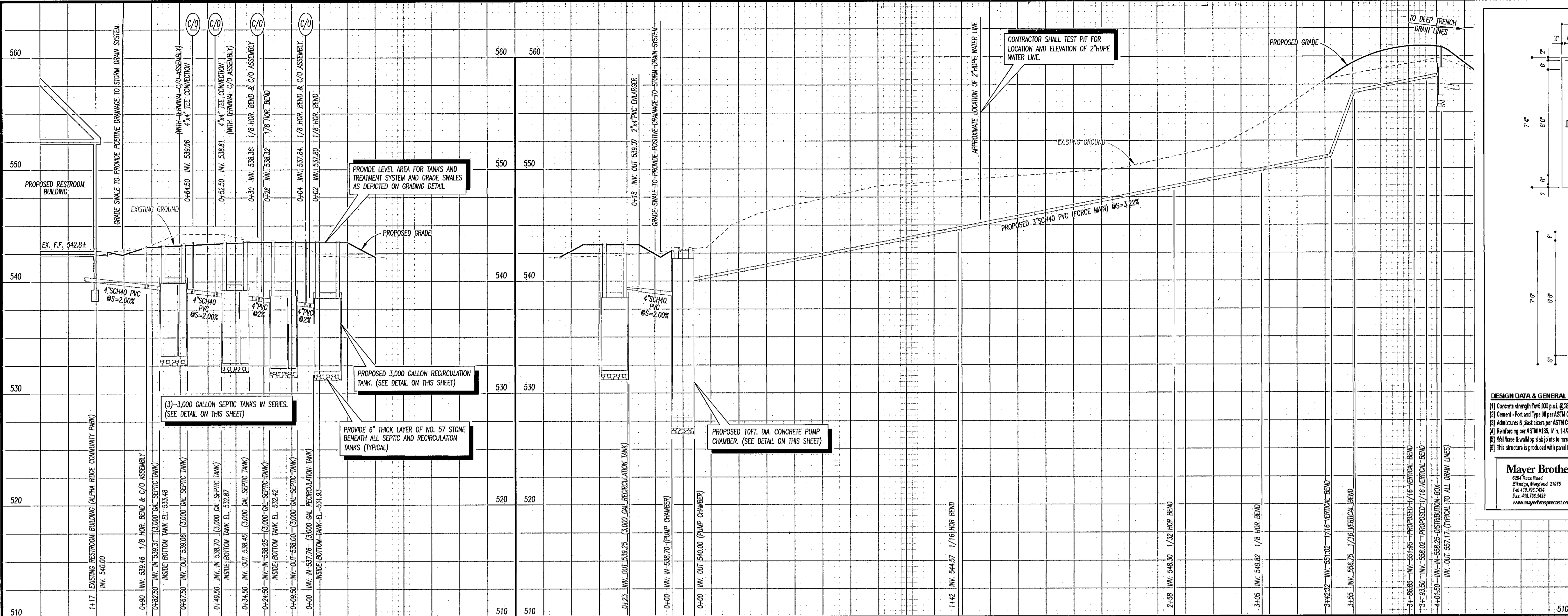
**Site Construction Details**

**REVISED SITE DEVELOPMENT PLAN ALPHA RIDGE PARK ADDITIONS DESIGN**

3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54

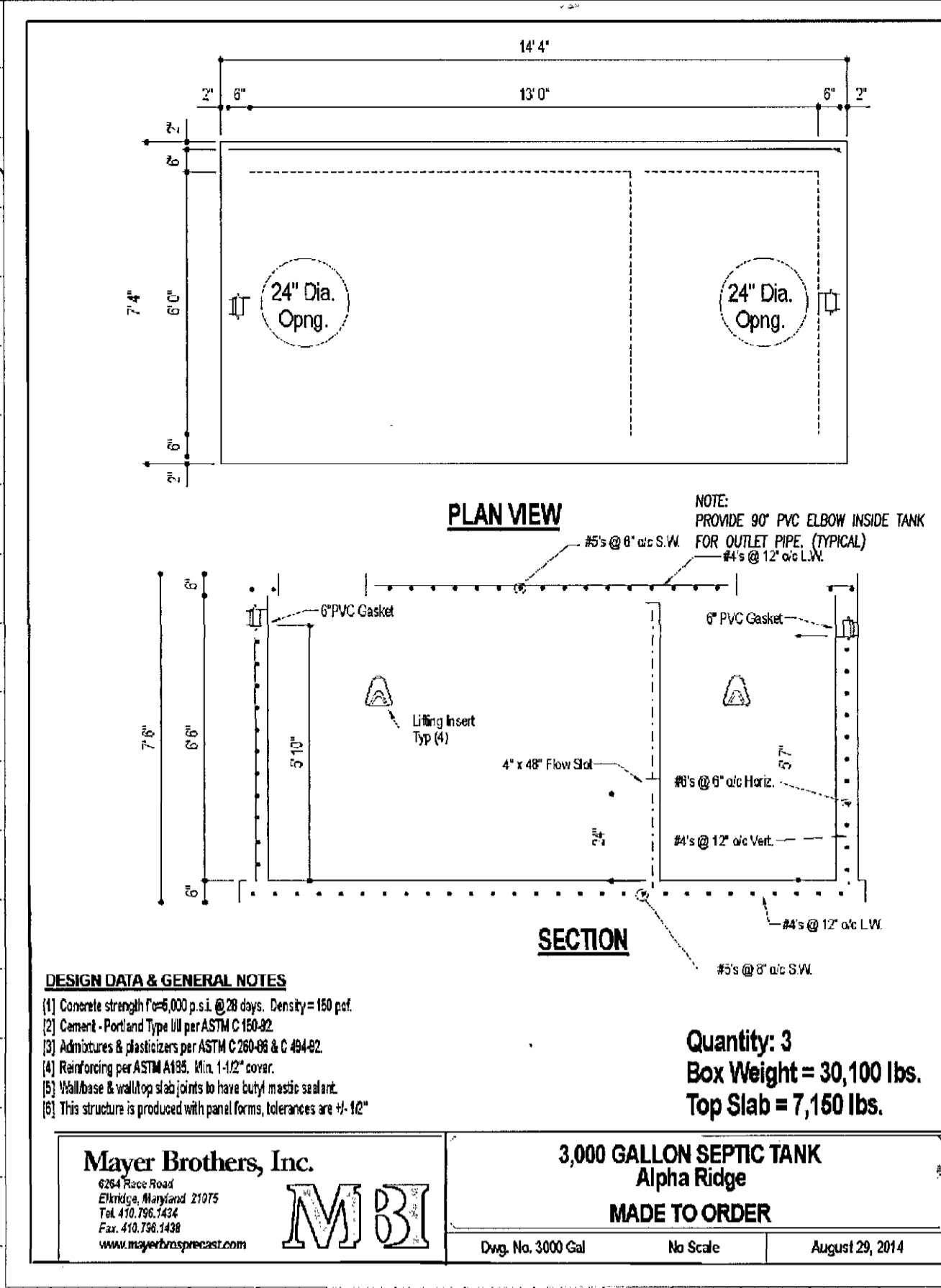
AS SHOWN SHEET 10 OF 38





**(BAT) TREATMENT SYSTEM AND PUMP SYSTEM PROFILE (FOR BATHROOM BUILDING)**

SCALE: HORIZONTAL: 1"=30'  
VERTICAL: 1"=5'



**DESIGN DATA & GENERAL NOTES**

- Concrete strength (F<sub>ck</sub>)=4000 p.s.i. @ 28 days. Density=150 pcf.
- Concrete - Portland Type III per ASTM C 150-02.
- Reinforcing steel per ASTM A 615, Min. 1/2" cover.
- Wallboard & walling systems to have water resistant.
- This structure is produced with panel forms, tolerances are ±1/8"

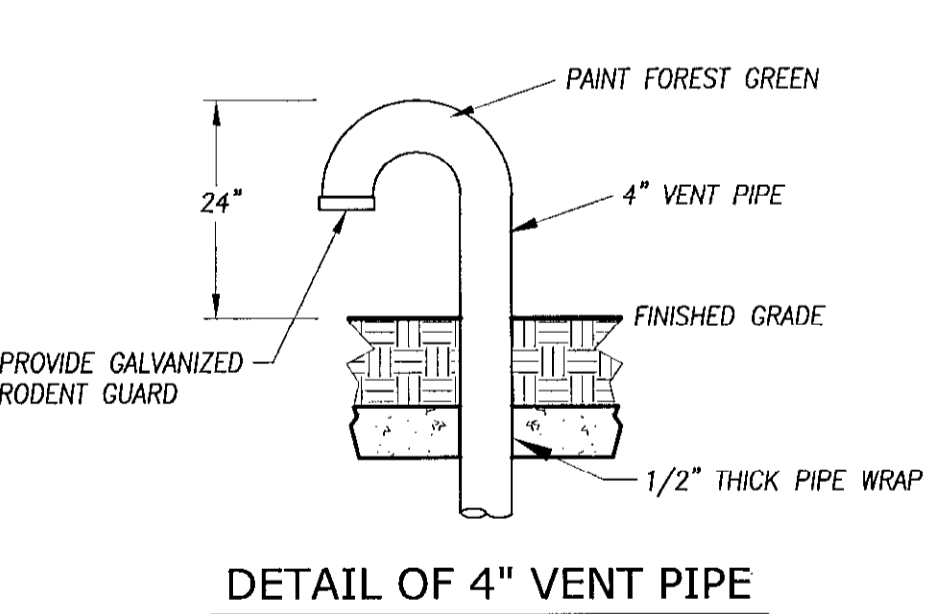
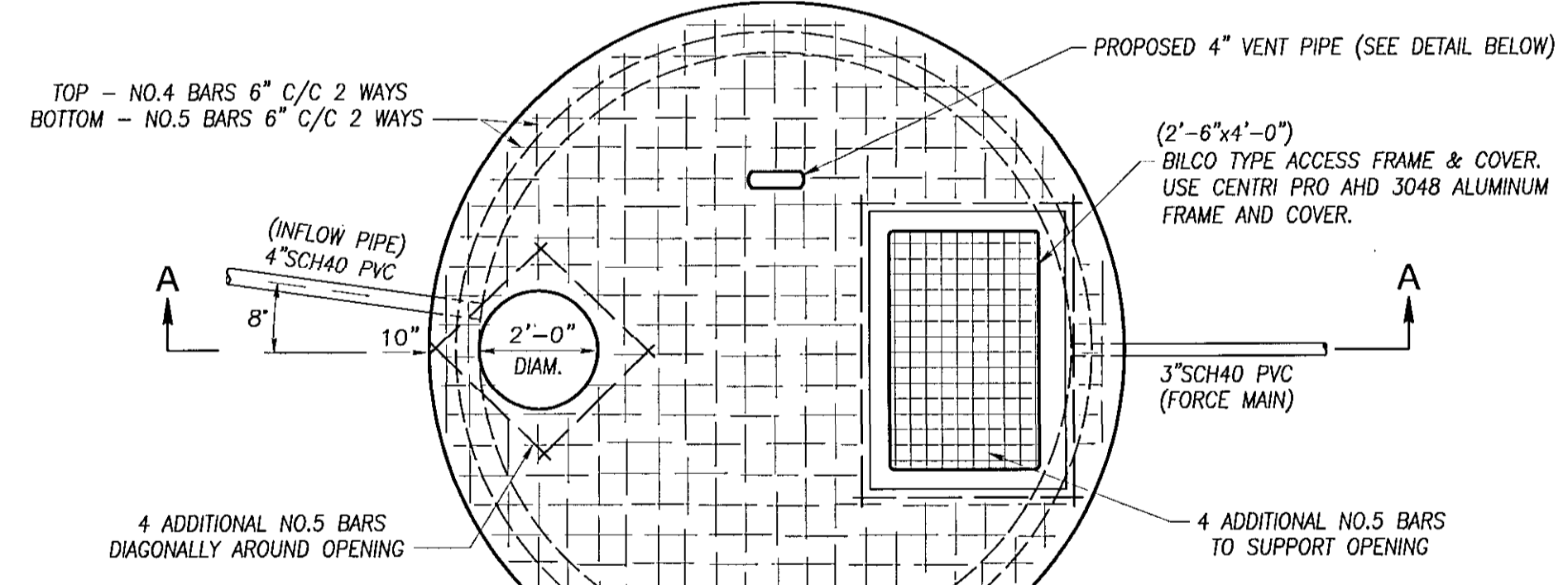
**Quantity: 3  
Box Weight = 30,100 lbs.  
Top Slab = 7,160 lbs.**

**Mayer Brothers, Inc.**  
4254 Bruce Road  
Elkridge, Maryland 21075  
Tel: 410.786.4444  
Fax: 410.786.4438  
www.mayerbrothers.com

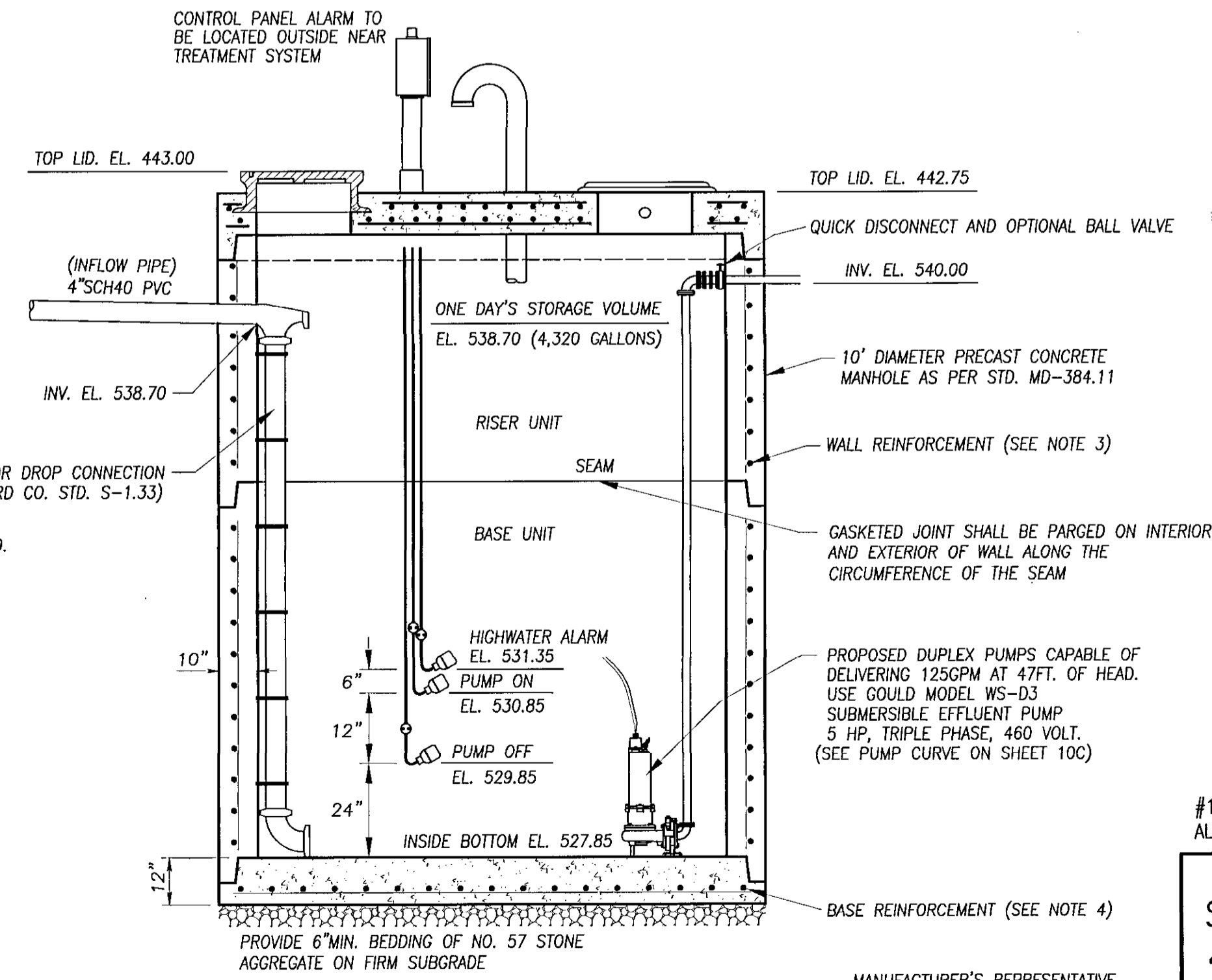
**3,000 GALLON SEPTIC TANK  
Alpha Ridge  
MADE TO ORDER**

Dwg. No. 3000 Gal No Scale August 29, 2014

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>Johns Pope</i> 9/24/14 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Rayhan for Manan Roshan</i> 10/22/2014 COUNTY HEALTH OFFICER DATE HOWARD COUNTY HEALTH DEPARTMENT
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Jan</i> 9/24/14 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas &amp; Butler</i> 9/23/14 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Sharav</i> 9/23/14 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>Chad</i> 10-30-14 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>Keith</i> 10-31-14 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>Mark</i> 10/31/14 DIRECTOR DATE

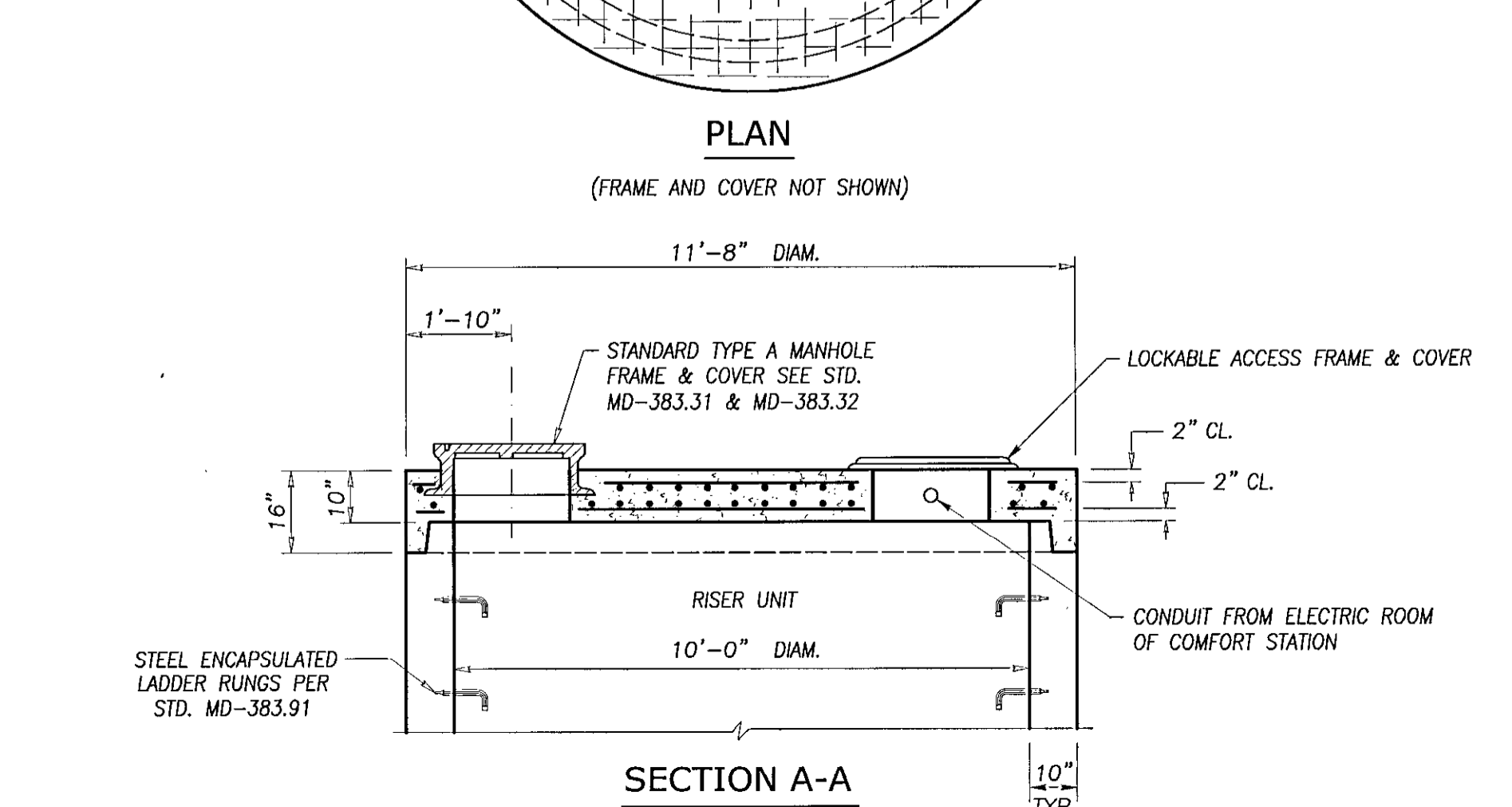


- NOTES**
- PUMP STATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
  - CONCRETE SHALL BE MIX NO.6 (4500 PSI).
  - WALL REINFORCEMENT FOR BASE UNIT AND RISER UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.30 IN.<sup>2</sup>/FT FOR THE 120" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL MEET ASTM A 185 AND A 82. REINFORCEMENT BARS SHALL MEET ASTM A 615, GRADE 60.
  - BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.39 IN.<sup>2</sup>/FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINTED PER THE MANUFACTURER'S DESIGN.
  - THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING (WHERE APPLICABLE) MORTAR, RUBBER O-RING GASKETS MEETING ASTM C 361 & C 443 OR FLEXIBLE PLASTIC GASKETS MEETING AASHTO M 198 TYPE B.
  - LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAXIMUM C/C. RUNG TYPES SHALL BE IN ACCORDANCE WITH STANDARDS MD 383.91 OR MD 383.92. LADDER RUNGS SHALL BE INCIDENTAL TO THE COST OF THE MANHOLE.
  - WHEN THE DISTANCE BETWEEN MULTIPLE OPENINGS IN THE BASE UNIT OR ANY RISER UNIT IS LESS THAN 6" ADDITIONAL NO.3 BARS ARE REQUIRED AROUND OPENINGS.
  - LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.



**PRECAST 120" DIAMETER PUMP CHAMBER**

MANUFACTURER'S REPRESENTATIVE FOR PUMP HARDWARE  
**JOHN ELGERT  
GEIGER PUMP & EQUIPMENT, INC.  
(410) 682-2660**

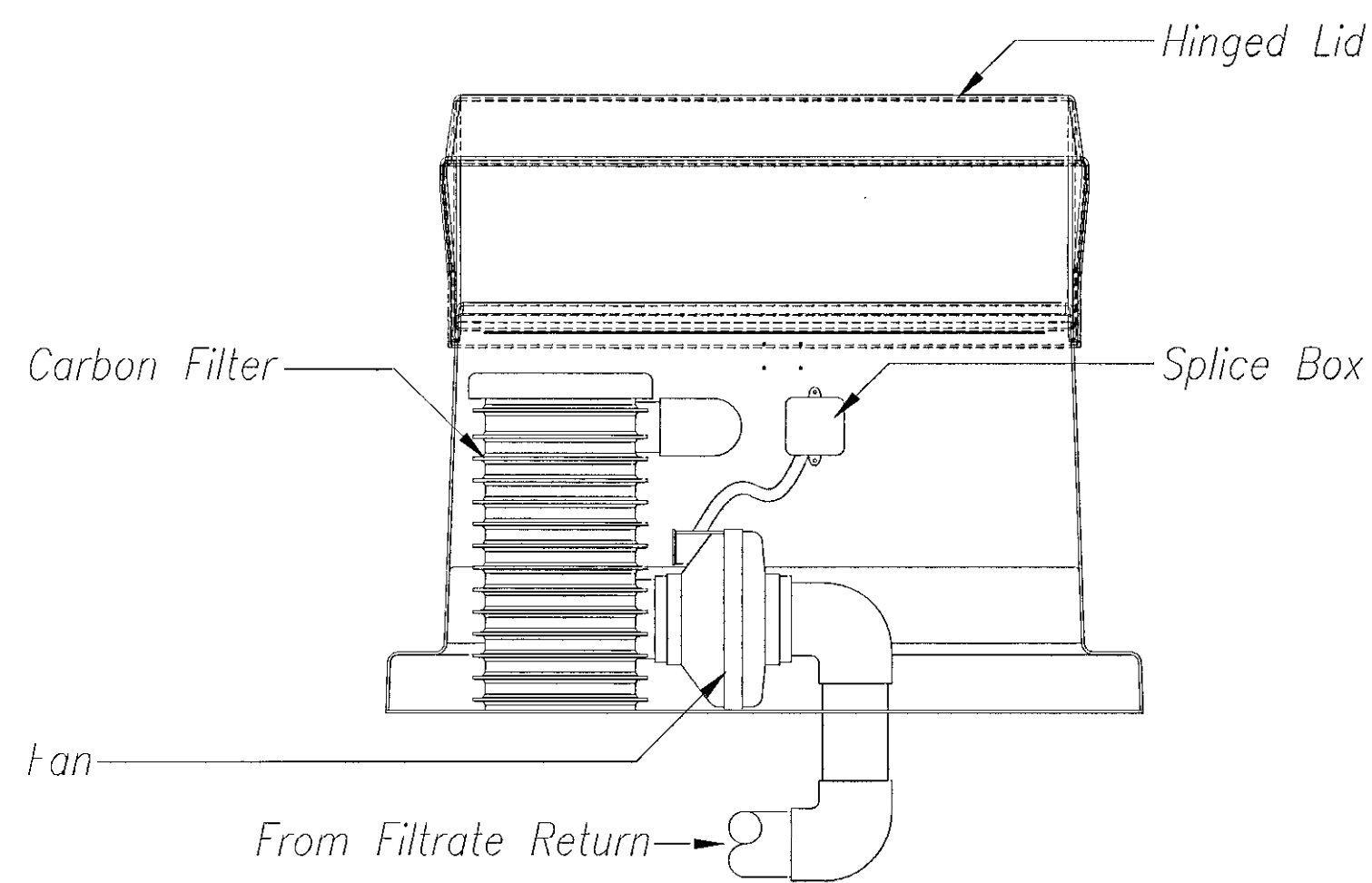


**BAT TREATMENT SYSTEM PROFILE & SPECIFICATIONS**

#11685 OLD FREDERICK ROAD (MD RTE 99) TAX MAP: 10 GRID: 20 PARCEL: 23 TAX ACCT. NO.: 03-292622  
ALPHA RIDGE COMMUNITY PARK TAX MAP: 10 GRID: 21 PARCEL: 54 TAX ACCT. NO.: 03-304795

<b>LEON A. PODOLAK and ASSOCIATES, L.L.C.</b>			
<b>SHEET 10B OF 38</b>		<b>SURVEYING and CIVIL ENGINEERING</b> 147 East Main St. (P.O. Box 266) Westminster, Maryland 21157 (410) 848-2229 - (410) 876-1226	Date: 8-27-2014 Revision: ADD 3,000 GALLON TANK MFC COMMENTS
PROJECT NAME: ALPHA RIDGE PARK SECTION/AREA: N/A PARCEL: 23/54		WATER CODE: PUBLIC SEWER CODE: PUBLIC BUILDING: N/A STREET ADDRESS: N/A PROJECT NAME: ALPHA RIDGE PARK SECTION/AREA: N/A PARCEL: 23/54 L/F: 847/606 GRID#: 20-21 ZONING: RC-DEO TAX MAP: 10 ELEC. DIST.: 3 CENSUS TRACT: 6030	
I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, license no. 15524, expiration date: 3-3-2016.		Date: July 18, 2014 Scale: AS SHOWN Drawing No.	

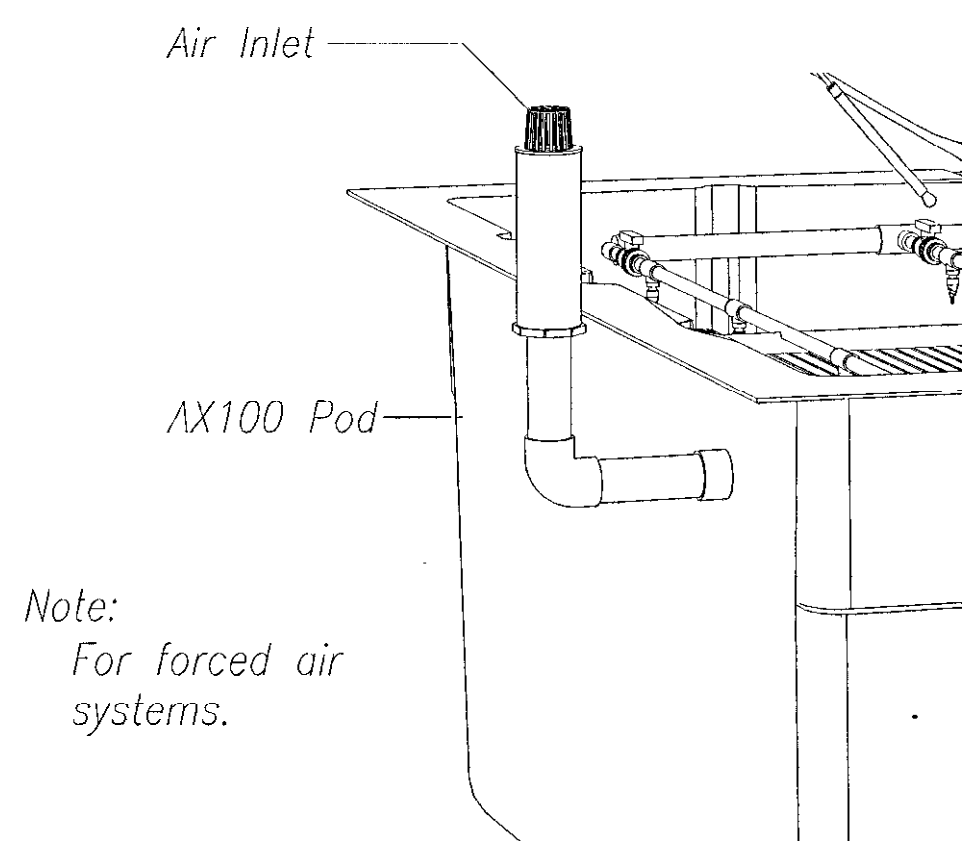
SDP-90-018



**Fan Assembly**

Scale: 1" = 1'-0"

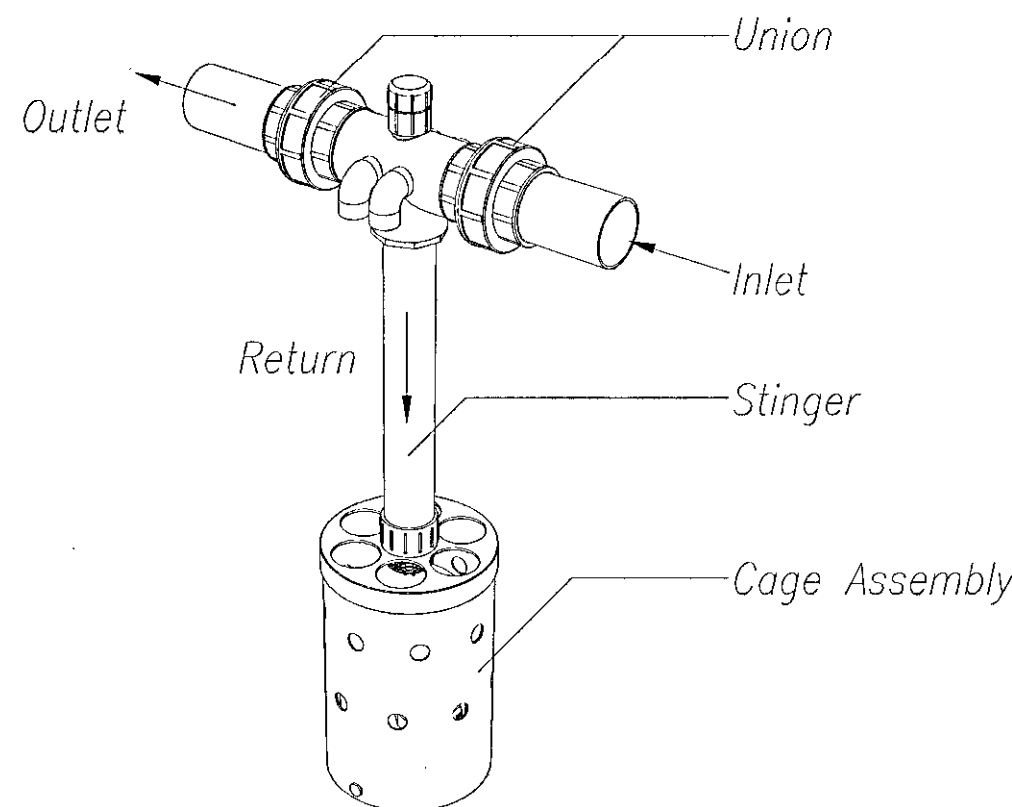
**\* OPTIONAL \***



**Individual Air Inlet Option**

Scale: NTS

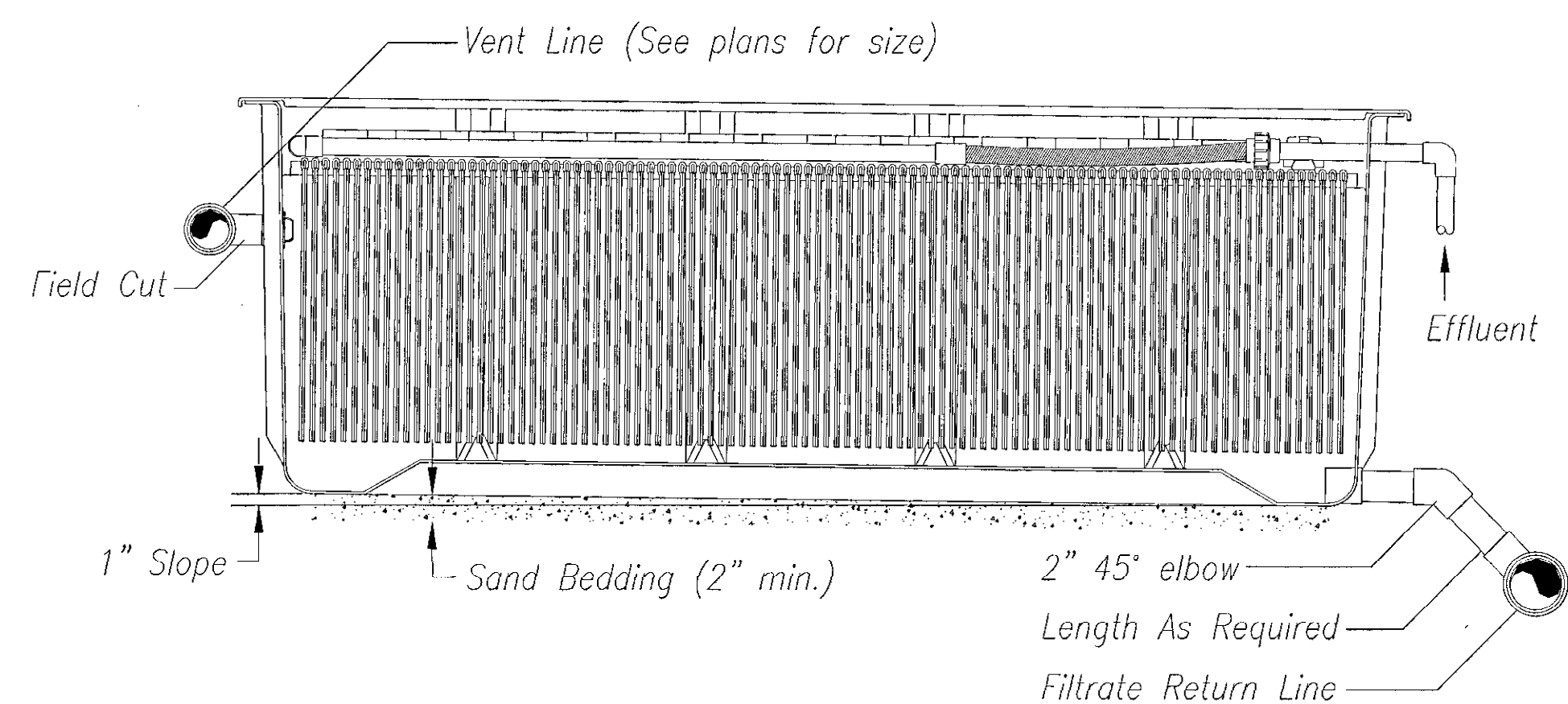
Note:  
For forced air systems.



**Recirculating Splitter Valve Detail**

Scale: NTS

**\* OPTIONAL \***



**AX20 Pod Detail**

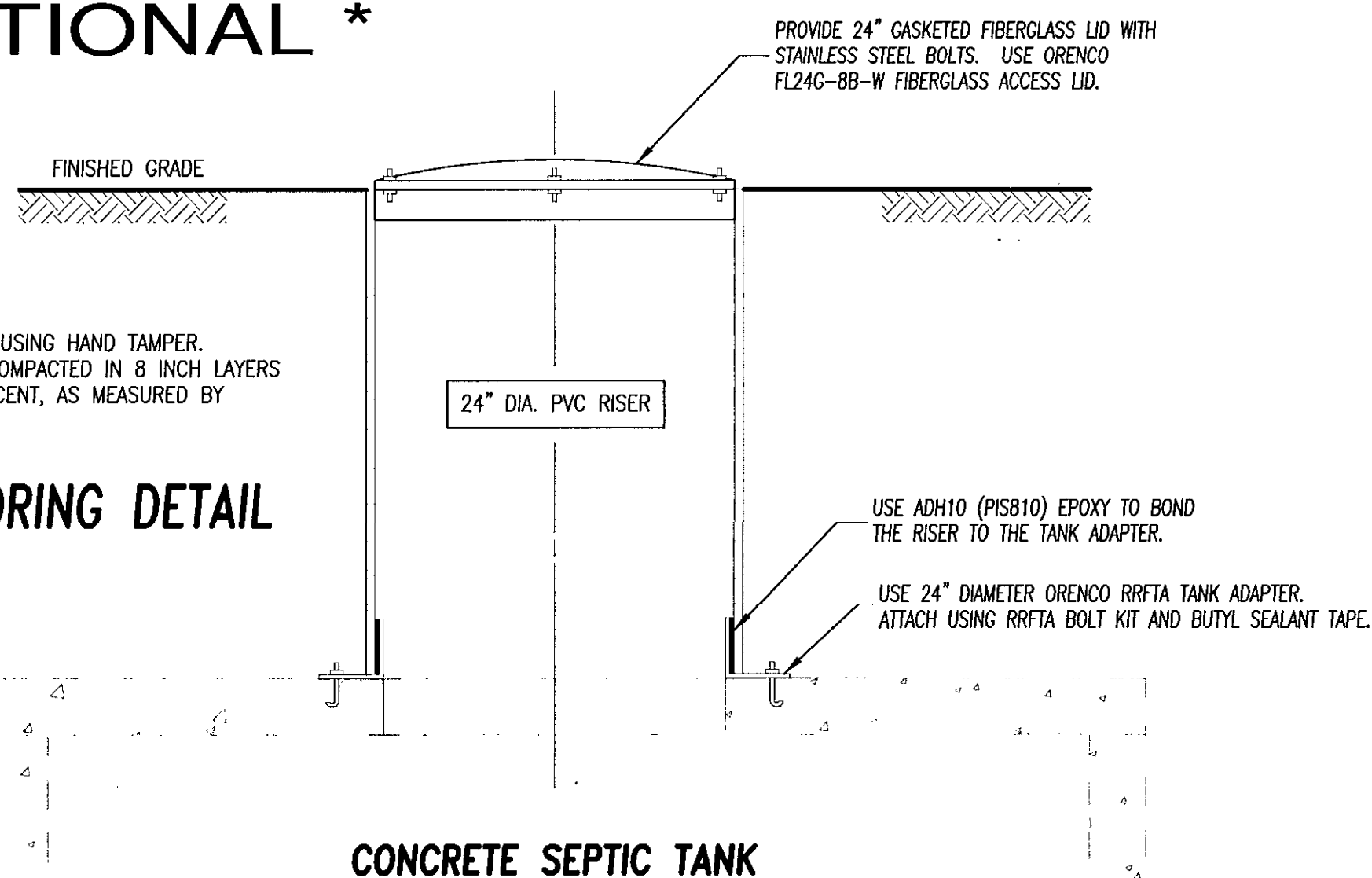
Scale: 1" = 1'-0"

**CONSTRUCTION NOTE:**

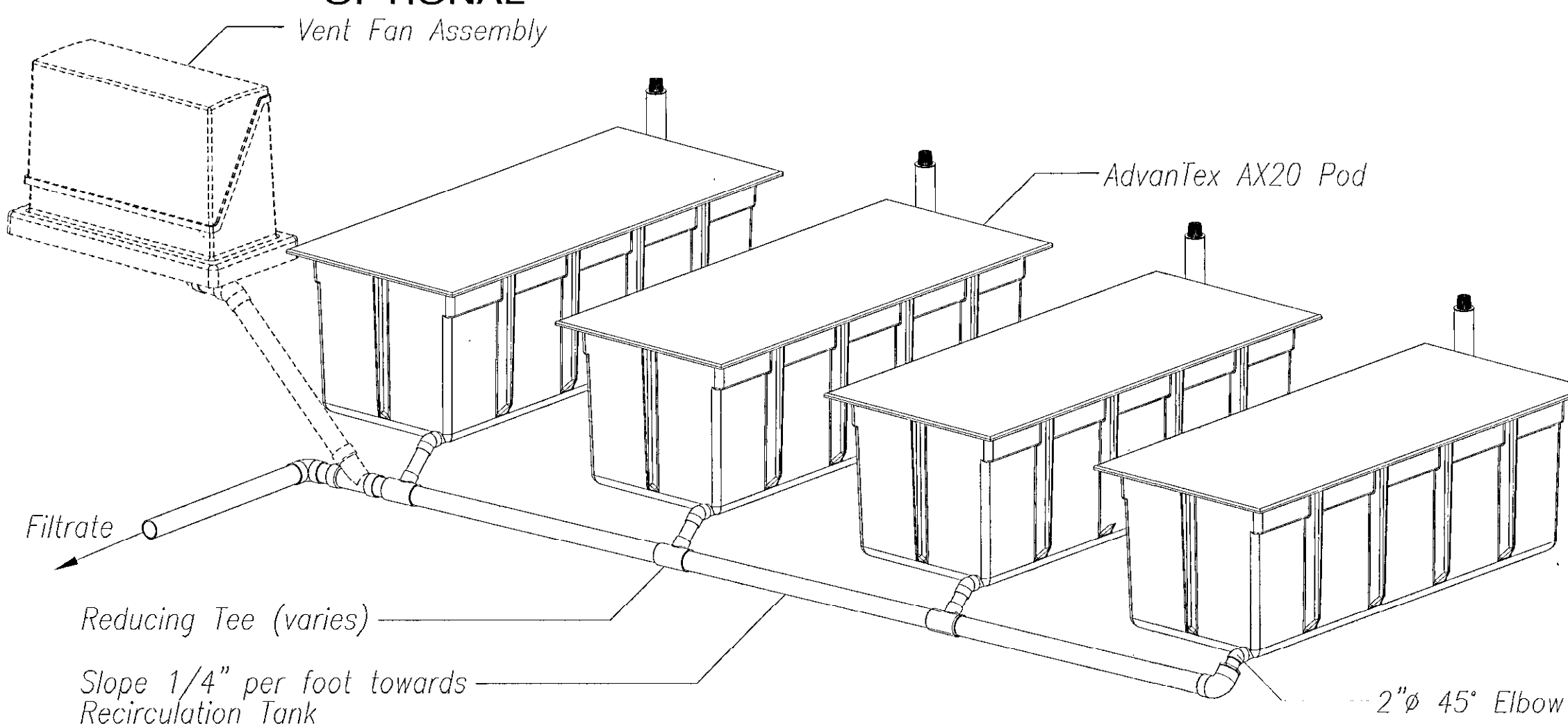
1. COMPACT AROUND TANK AND RISER USING HAND TAMPER. ALL BACKFILL MATERIAL SHALL BE COMPACTED IN 8 INCH LAYERS AND TO A DRY DENSITY OF 95 PERCENT, AS MEASURED BY ASHTO METHOD T-99.

**RISER TANK ANCHORING DETAIL**

NOT TO SCALE



**CONCRETE SEPTIC TANK**



**Filtrate Return Line ISO**

Scale: NTS

Model: WS-D3	Size:	60Hz	RPM: 1750	Stages: 1
--------------	-------	------	-----------	-----------

Model: WS-D3	Size:	60Hz	RPM: 1750	Stages: 1
--------------	-------	------	-----------	-----------

Job/Inq. No.:	Purchaser: GEIGER PUMP & EQUIP XXX	Service:
End User:	Issued by: John Elgart	Date: 07/17/2014
Item/Equip. No.: A	Quotation No.: JE14-07-17 01	Rev: 0
Order No.:	Certified By:	

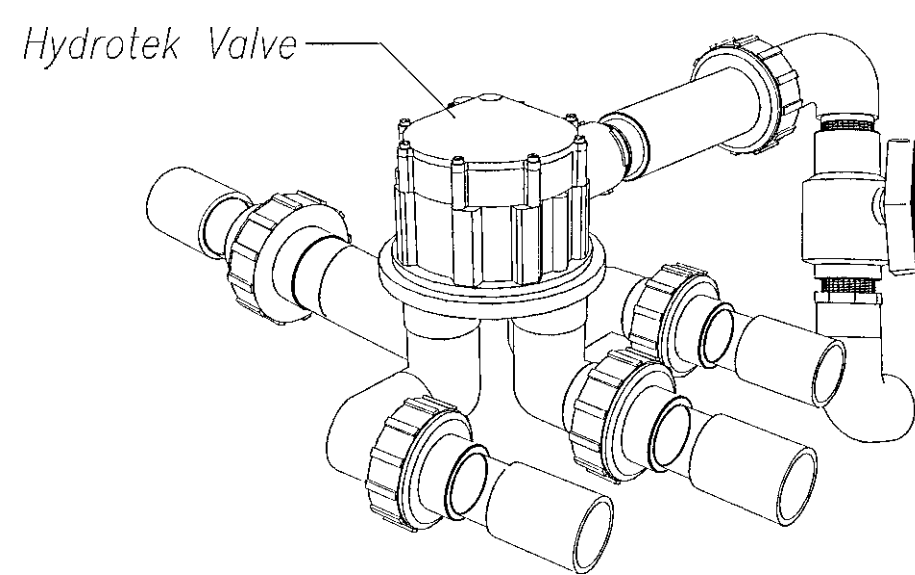
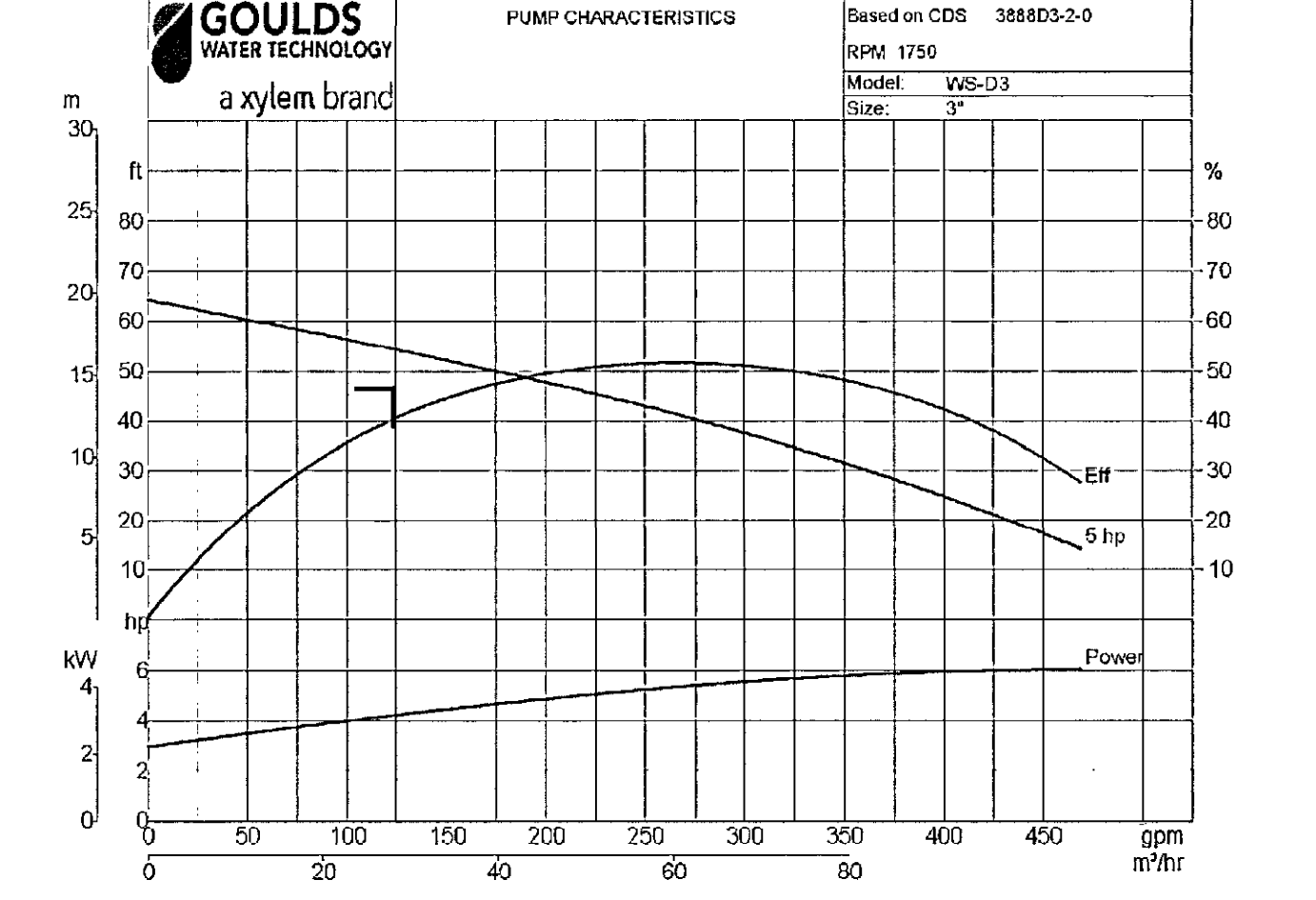
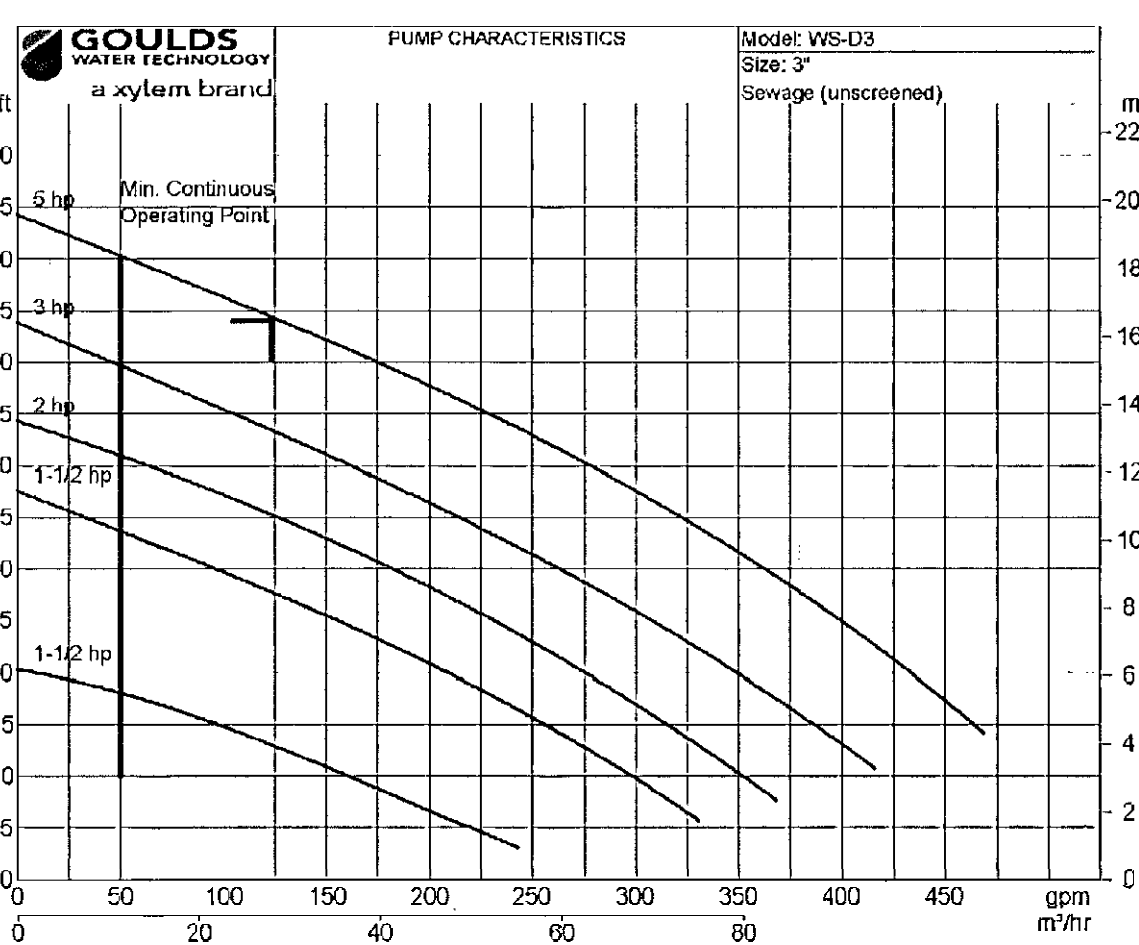
Operating Conditions		Pump Performance	
Temp:	70.0 deg F	Published Efficiency:	40.0 %
Design Flow:	125.0 gpm	Rated Pump Efficiency:	40.0 %
Design TDH:	47.0 ft	Rated Total Power:	4.23 hp
Actual Flow:	125.0 gpm	Non-Overloading Power:	6.0 hp
Actual TDH:	54.3 ft	Imp. Dia. First 1 Stg(s):	8,000 in
NPSHa:		NPSHr:	
Solid size:		Shut off Head:	64.3 ft
Liquid:		Vapor Press:	
S.G./Visc.:	1.000/1,000 cp	Max. Solids Size:	2,500 in

Notes: 1. Power and efficiency losses are not reflected on the curve below.

Job/Inq. No.:	Purchaser: GEIGER PUMP & EQUIP XXX	Service:
End User:	Issued by: John Elgart	Date: 07/17/2014
Item/Equip. No.: A	Quotation No.: JE14-07-17 01	Rev: 0
Order No.:	Certified By:	

Operating Conditions		Pump Performance	
Temp:	70.0 deg F	Published Efficiency:	40.0 %
Design Flow:	125.0 gpm	Rated Pump Efficiency:	40.0 %
Design TDH:	47.0 ft	Rated Total Power:	4.23 hp
Actual Flow:	125.0 gpm	Non-Overloading Power:	6.0 hp
Actual TDH:	54.3 ft	Imp. Dia. First 1 Stg(s):	8,000 in
NPSHa:		NPSHr:	
Solid size:		Shut off Head:	64.3 ft
Liquid:		Vapor Press:	
S.G./Visc.:	1.000/1,000 cp	Max. Solids Size:	2,500 in

Notes:



**Automatic Distributing Valve Detail**

Scale: NTS

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John K. Royal</i> 9/24/14 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Brandon for Maria Roseman</i> 10/22/2014 COUNTY HEALTH OFFICER DATE HOWARD COUNTY HEALTH DEPARTMENT
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>John A. ...</i> 9/23/14 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas P. Butler</i> 9/23/14 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaven</i> 9/23/14 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>Paul ...</i> 10-30-14 CHIEF-DEVELOPMENT ENGINEERING DIVISION 4 DATE
<i>Ket ...</i> 10-31-14 CHIEF-DIVISION OF LAND DEVELOPMENT 90 DATE
<i>Made ...</i> 10/30/14 DIRECTOR DATE
ADDRESS CHART
PARCEL # STREET ADDRESS
23 11685 OLD FREDERICK ROAD/MD 99 MARRIOTTVILLE, MD 2104
54 11685 OLD FREDERICK ROAD/MD 99 MARRIOTTVILLE, MD 2104
PERMIT INFORMATION CHART
WATER CODE: PUBLIC SEWER CODE: PUBLIC BUILDING N/A STREET ADDRESS N/A
PROJECT NAME: ALPHA RIDGE PARK SECTION/AREA N/A PARCEL 23/54
L/F 847/606 GRID# 20-21 ZONING RC-DEO TAX MAP 10 ELEC. DIST. 3 CENSUS TRACT 6030

**BAT TREATMENT SYSTEM SPECIFICATIONS**

#11685 OLD FREDERICK ROAD (MD RTE 99) TAX MAP: 10 GRID: 20 PARCEL: 23 TAX ACCT. NO.: 03-292622  
ALPHA RIDGE COMMUNITY PARK TAX MAP: 10 GRID: 21 PARCEL: 54 TAX ACCT. NO.: 03-304795

SHEET <b>10C</b> OF <b>38</b>	<b>LEON A. PODOLAK and ASSOCIATES, L.L.C.</b>		Date 8-27-2014 Revision ADD 3/200 SHALLOW TANK SEE COMMENTS
	SURVEYING and CIVIL ENGINEERING 147 East Main St. (P.O. Box 266) Westminster, Maryland 21157 (410) 848-2229 - (410) 876-1226		
I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, license no. 15661, expiration date: 3-3-2016.		Date: July 18, 2014 Scale: AS SHOWN Drawing No.	





# Orengo®

7/18/2014

Peter Podolak  
Leon A. Podolak & Associates, LLC

Subject: Design Review of Alpha Ridge Park

Peter,

Orengo Systems, Inc. ("Orengo") staff takes the opportunity to review commercial AdvanTex® treatment systems to ensure the designs are compliant with the most current version of Orengo's Design Criteria. Some values in this review that were not provided by the designer have been approximated.

### Design Criteria

The applicable design criteria for this system is document NDA-ATX-1, titled *AdvanTex® Design Criteria Commercial Treatment Systems* rev 1.4 published March of 2014. The link to the design criteria is shown below.

<http://sfdocs.orengo.com/2014/7/nda-atx-1.pdf>

### Design Basis and System Description

Maximum day design flow (Q<sub>M</sub>): 4000 gal/day  
Assumed average day flow (Q<sub>A</sub>): 2000 gal/day

Proposed primary treatment: septic tanks  
Proposed secondary treatment: (4) AdvanTex AX20s  
Proposed discharge method: Land Application

Similar Site primary tank effluent BOD<sub>5</sub>: 160 mg/L  
Similar Site primary tank effluent TSS: 220 mg/L

Expected Effluent quality to drainfield  
BOD<sub>5</sub>: 10 mg/L  
TSS: 10 mg/L  
TN: 50% Reduction

### Primary Treatment

Proposed Septic Tank volume: 6000 gallons

Orengo recommended Septic Tank volume: 12,000

### Secondary Treatment

Proposed recirculation tank volume: 3000

Orengo required recirculation volume (0.75 \* Q<sub>M</sub> or 1 \* Q<sub>A</sub>): 3000 gallons

Does value meet Orengo's Design Criteria? **YES**

*Changing the Way the World Does Wastewater®*

Orengo Systems®, Incorporated • 814 Airway Avenue, Sutherlin, Oregon 97479 • 800-348-9843 • 541-459-4449 • [www.orengo.com](http://www.orengo.com)

### AdvanTex Hydraulic Loading Rate

4000 gpd Q<sub>M</sub>  
2000 gpd Q<sub>A</sub>  
80 ft<sup>2</sup> textile media

4000 gpd / 80 ft<sup>2</sup> = 50 gpd / ft<sup>2</sup>  
Orengo Q<sub>M</sub> maximum hydraulic loading rate: 50 gpd / ft<sup>2</sup>  
Does value meet Orengo Design Criteria? **YES**

2000 gpd / 40 ft<sup>2</sup> = 25 gpd / ft<sup>2</sup>  
Orengo Q<sub>A</sub> maximum hydraulic loading rate: 25 gpd / ft<sup>2</sup>  
Does value meet Orengo Design Criteria? **YES**

### AdvanTex Organic Loading Rate

4000 gpd Q<sub>M</sub>  
2000 gpd Q<sub>A</sub>  
400 ft<sup>3</sup> textile media  
160 mg/L BOD<sub>5</sub>

4000 gpd \* 160 mg/L BOD<sub>5</sub> \* 8.34x10<sup>-6</sup> / 400 ft<sup>3</sup> = 0.067 lb. BOD<sub>5</sub>/ft<sup>3</sup>\*day  
Orengo maximum organic loading rate: 0.08 lb. BOD<sub>5</sub>/ft<sup>3</sup>\*day  
Does value meet Orengo Design Criteria? **YES**

2000 gpd \* 160 mg/L BOD<sub>5</sub> \* 8.34x10<sup>-6</sup> / 400 ft<sup>3</sup> = 0.033 lb. BOD<sub>5</sub>/ft<sup>3</sup>\*day  
Orengo maximum organic loading rate: 0.04 lb. BOD<sub>5</sub>/ft<sup>3</sup>\*day  
Does value meet Orengo Design Criteria? **YES**

**\*Orengo Design Criteria States that a properly operated and loaded 'standard AdvanTex layout' has the ability to reduce TN by up to 60%**

### Conclusions

The proposed layout of the Alpha Ridge Park wastewater treatment system has been reviewed and is compliant with the most current version of the system's applicable design criteria and loading rates published by Orengo. Assumed values in this review should be validated.

Once the treatment plant is placed into operation, the influent flows and constituent concentrations to the facility should be monitored, and if they exceed those listed in the design or this letter, measures should be taken to reduce the flow or constituent concentration to those listed or add capacity to match the incoming flow and waste constituents.

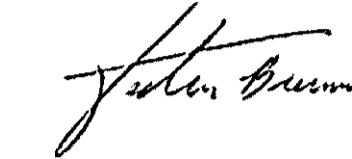
The septic tank capacity is lower than Orengo recommended septic tank volume. If the septic tank capacity proves to be inadequate, Orengo's recommends installing primary tanks to equal 3 days hydraulic retention time of the measured flow (Q<sub>M</sub>).

It is important to note that even though the AdvanTex Treatment System has the capability to meet or exceed the required treatment parameters, Orengo cannot guarantee that a particular system will be operated or maintained in a manner to promote healthy and continuous treatment. Please also note that disposing of toxics or chemicals into the AdvanTex Treatment System is strictly prohibited. Examples of toxins include salt-type water softener brine discharge, restaurant

degreasers, cleansers, wax strippers for linoleum, carpet shampoo, waste products, or any others that may inhibit a healthy biologic population.

If you have any questions about this review process, findings, or conclusions, please feel free to call or e-mail me.

Sincerely,



Jesten Brenner, E.I.T.  
Engineering, Eastern U.S.  
Orengo Systems, Inc.  
814 Airway Avenue  
Sutherlin, OR 97479  
P: (800) 348-9843 ext. 358  
[jbrenner@orengo.com](mailto:jbrenner@orengo.com)

APPROVED: DEPARTMENT OF RECREATION AND PARKS			
<i>John R. Sygel</i>	9/24/14		
DIRECTOR	DATE		
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS			
<i>Whipon for Mauna Rossman</i>	10/22/2014		
COUNTY HEALTH OFFICER	DATE		
APPROVED: DEPARTMENT OF PUBLIC WORKS			
<i>John R. Sygel</i>	9/24/14		
DIRECTOR OF PUBLIC WORKS	DATE		
<i>Thomas B. Butler</i>	9/23/14		
CHIEF-BUREAU OF ENGINEERING	DATE		
<i>Steve Shaver</i>	9/23/14		
CHIEF, TRANSPORTATION & SPECIAL PROJECTS	DATE		
APPROVED: DEPARTMENT OF PLANNING AND ZONING			
<i>Paul Edmunt</i>	10-30-14		
CHIEF-DEVELOPMENT ENGINEERING DIVISION	DATE		
<i>Val Shelden</i>	10-31-14		
CHIEF-DIVISION OF LAND DEVELOPMENT	DATE		
<i>Martha K. Taylor</i>	10/31/14		
DIRECTOR	DATE		
ADDRESS CHART			
PARCEL #	STREET ADDRESS		
23	11685 OLD FREDERICK ROAD/MD 99 MARRIOTTVILLE, MD 21104		
54	11685 OLD FREDERICK ROAD/MD 99 MARRIOTTVILLE, MD 21104		
PERMIT INFORMATION CHART			
WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING CODE: N/A	STREET ADDRESS: N/A
PROJECT NAME: ALPHA RIDGE PARK	SECTION/AREA: N/A	PARCEL: 23/54	
L/F: 847/606	GRID: 20-21	ZONING: RC-DEO	TAX MAP: 10 ELEC. DIST.: 3 CENSUS TRACT: 6030

GIVEN A DESIGN FLOWRATE OF APPROXIMATELY 2000 GALLONS PER DAY, AVERAGE DAILY FLOW, THE SEWAGE TREATMENT SYSTEM HAS SUFFICIENT SEDIMENTATION TANKAGE TO ACCOMMODATE A SUSTAINED OPERATIONAL FLOWRATE OF 3000 GALLONS PER DAY. BASED ON RECOMMENDATIONS FROM ORENGO AND BASED ON DISCUSSIONS WITH MADE, IT WAS DETERMINED THAT THIS DESIGN SHOULD BE ADEQUATE. SHOULD MONITORING REVEAL HIGHER OPERATIONAL FLOW-RATES, ADDITIONAL SEPTIC TANKAGE MAY BE REQUIRED.

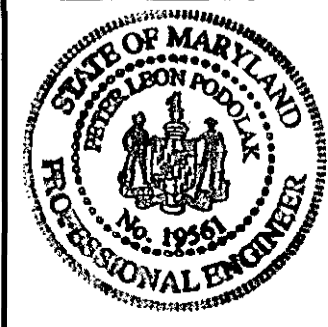
*Peter L. Podolak*  
10/21/14  
RE LICENSE NO. 19561  
EXP. DATE 3-3-16



Engineer	
This is to certify that I have designed the sewage treatment and pumping system as depicted on this (revised) Site Development Plan. I have reviewed the details and specifications provided to me by Orengo, the manufacturer of the AdvanTex AX20 treatment units, and based on their representations, as outlined hereon, I hereby certify the treatment system, depicted hereon, shall meet or exceed the target goal of 50 percent nitrogen removal.	
Signed: <i>Peter L. Podolak</i>	Date: 8-27-2014
License No.: 19561	Expiration Date: 3-3-2016

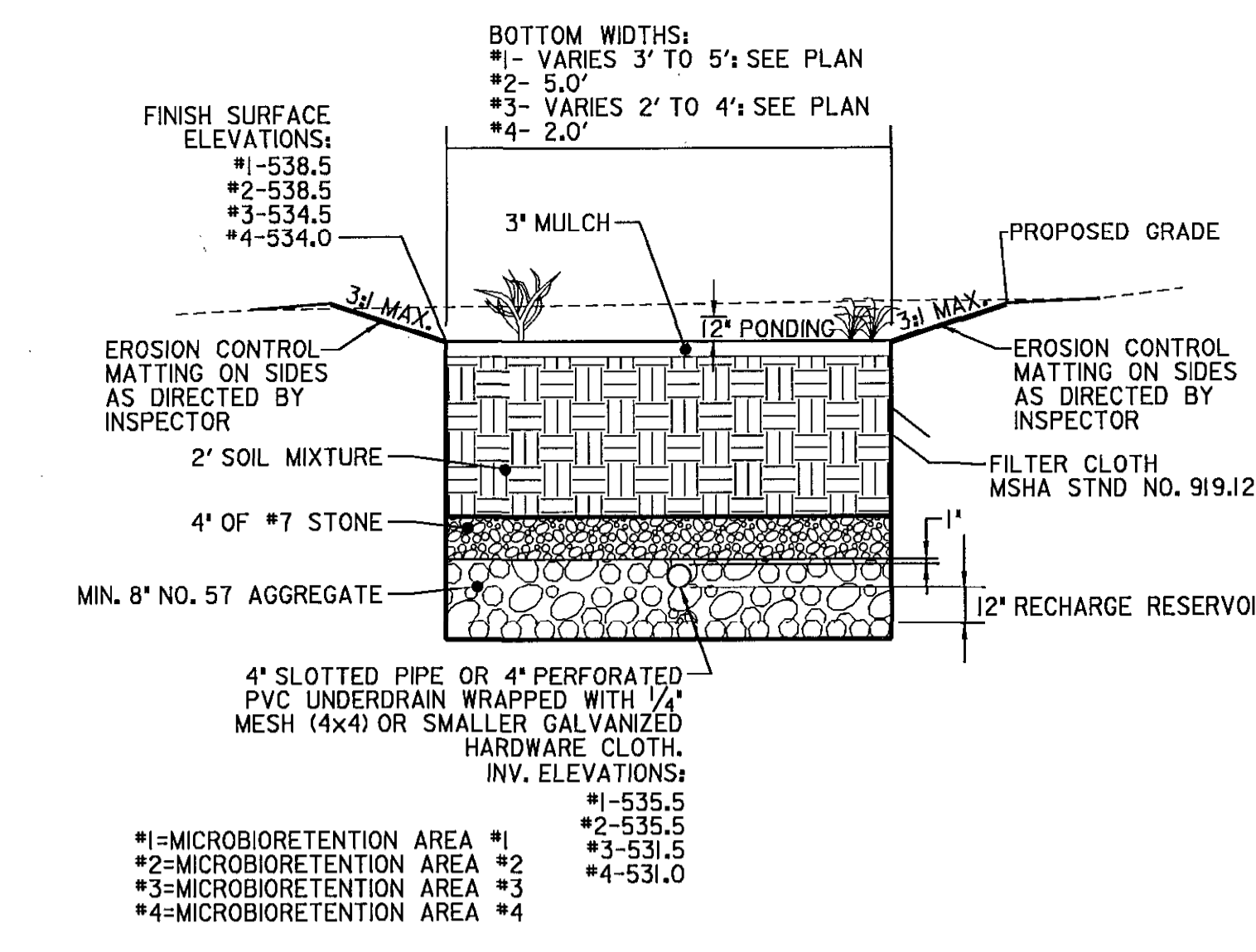
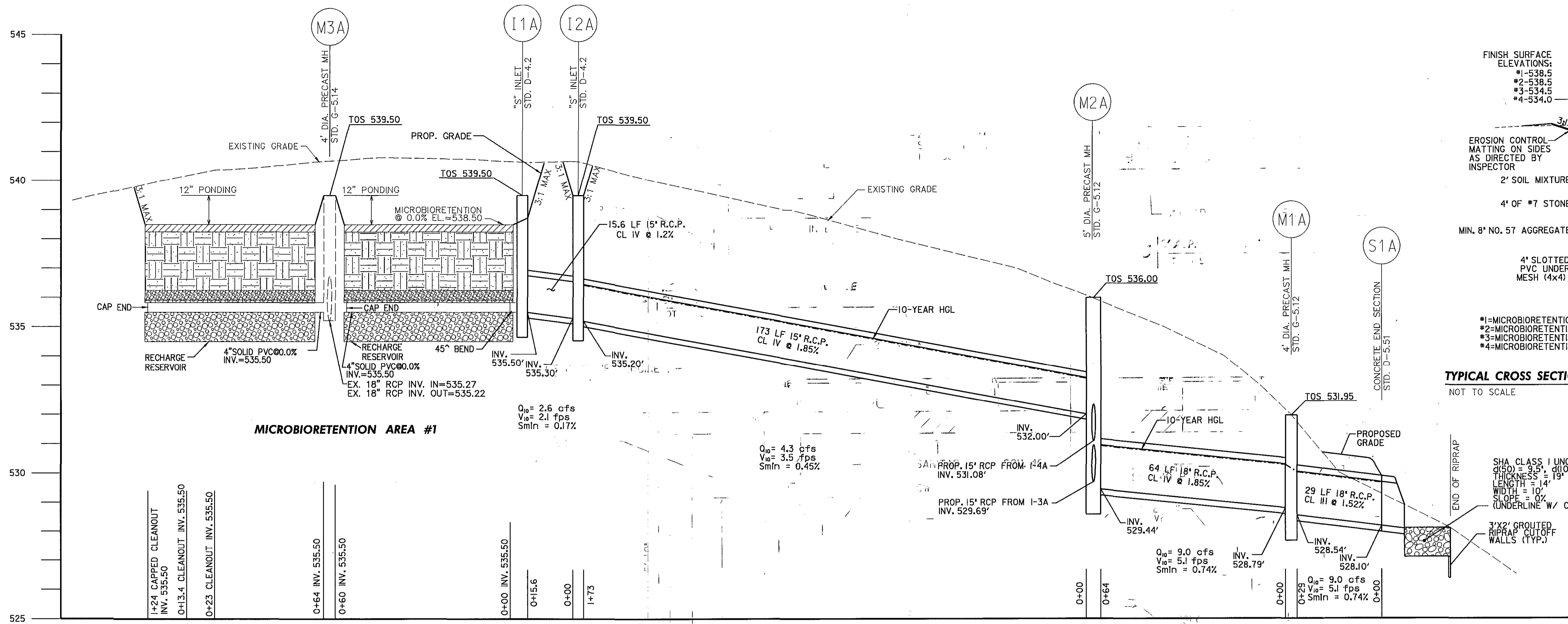
## BAT TREATMENT SYSTEM MANUFACTURER'S DESIGN REVIEW and ENGINEER'S DESIGN CERTIFICATION

#11685 OLD FREDERICK ROAD (MD RTE 99) TAX MAP: 10 GRID: 20 PARCEL: 23 TAX ACCT. NO.: 03-292622  
ALPHA RIDGE COMMUNITY PARK TAX MAP: 10 GRID: 21 PARCEL: 54 TAX ACCT. NO.: 03-304795

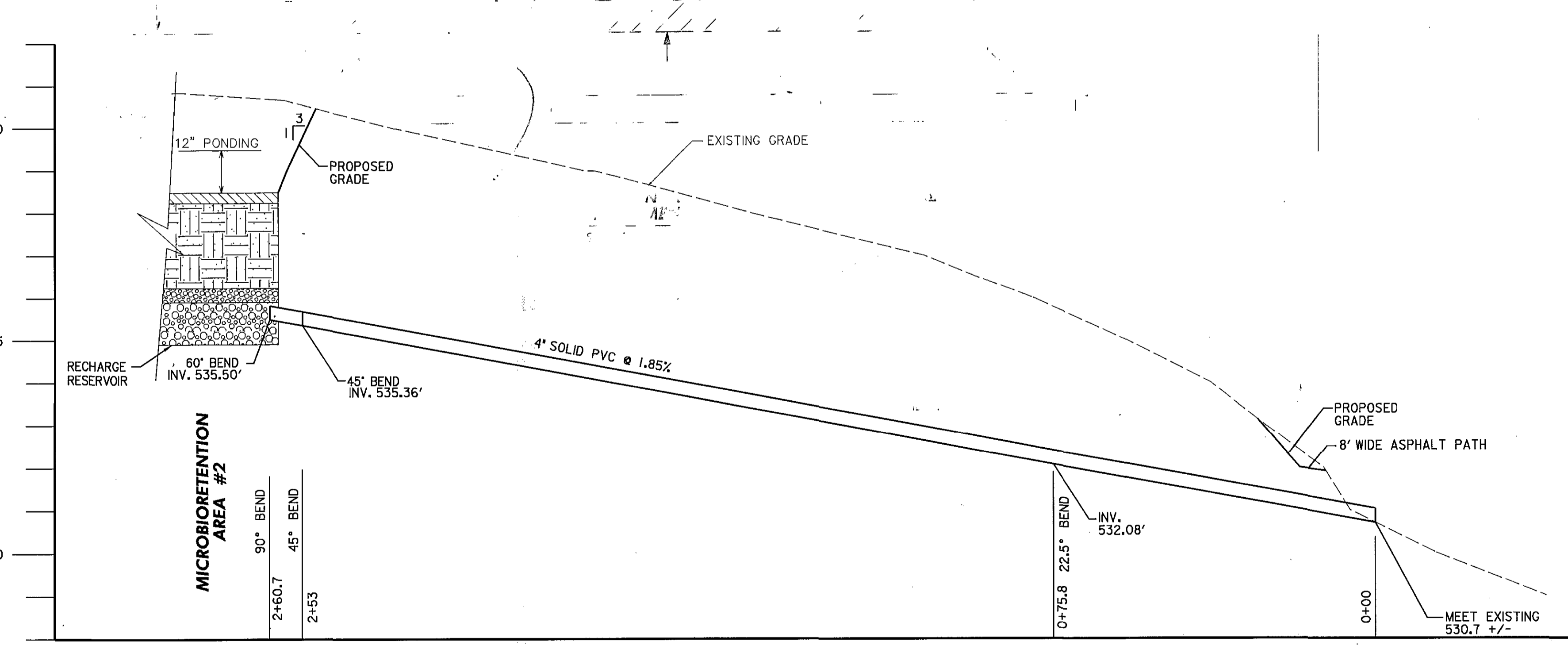
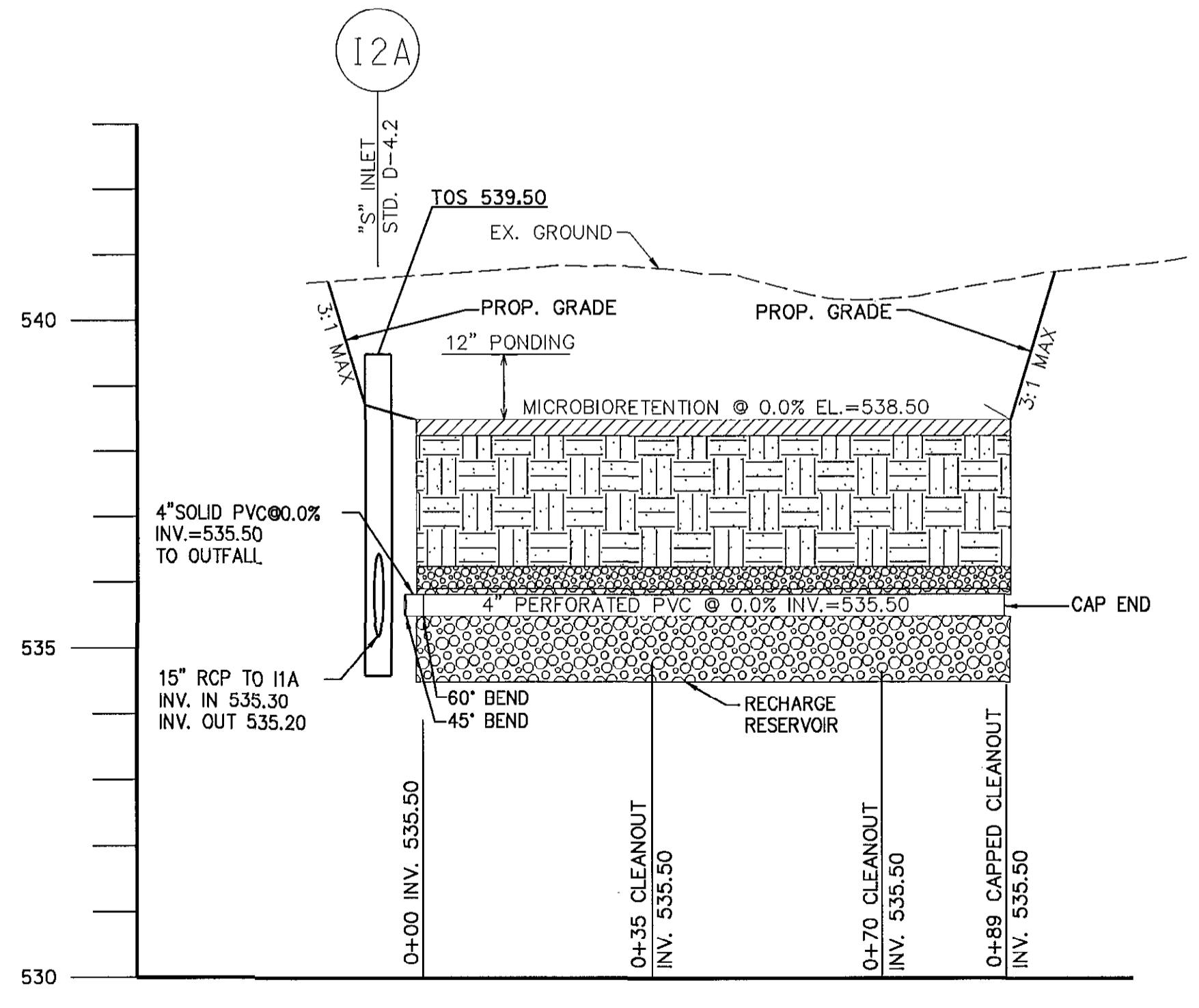
SHEET 10D OF 38		LEON A. PODOLAK and ASSOCIATES, L.L.C.	
		SURVEYING and CIVIL ENGINEERING 147 East Main St. (P.O. Box 266) Westminster, Maryland 21157 (410) 848-2229 - (410) 876-1226	
Date: 9/15/14 Peter L. Podolak, P.E.		Date: July 18, 2014 Scale: AS SHOWN Drawing No.	



SDP-90-018



**CROSSSECTION THROUGH MICROBIORETENTION AREA #1 AND PROFILE I-1A TO S-1A**  
SCALE H: 1" = 20' V: 1" = 2'



**CROSSSECTION THROUGH MICROBIORETENTION AREA #2**  
SCALE H: 1" = 20' V: 1" = 2'

**4" PVC MICROBIORETENTION AREA #2 TO OUTFALL**  
SCALE H: 1" = 20' V: 1" = 2'

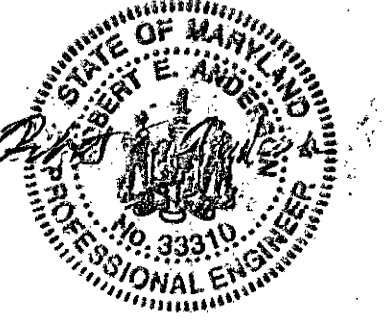
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>Robert Boyd</i> 1/10/13	DATE
DIRECTOR	
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Salman for Manassas Roadway</i> 2/12	DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>James J. Butler</i> 2/15/13	DATE
DIRECTOR OF PUBLIC WORKS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>Steve Slava</i> 2/14/13	DATE
CHIEF, TRANSPORTATION & SPECIAL PROJECTS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>William J. Butler</i> 2/21/13	DATE
CHIEF-DEVELOPMENT ENGINEERING DIVISION	
APPROVED: DEPARTMENT OF LAND DEVELOPMENT <i>Keith Shadwin</i> 2/25/13	DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	
APPROVED: DIRECTOR <i>Mark D. Wyle</i> 2/28/13	DATE
DIRECTOR	

OWNER:  
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

DEVELOPER:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5306  
FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10777 GILFORD ROAD, ANNAPOLIS JUNCTION, MD 20710  
WASH. (301) 470-2772 BALT. (410) 880-3055  
FAX: (301) 490-2649 www.gpi.net

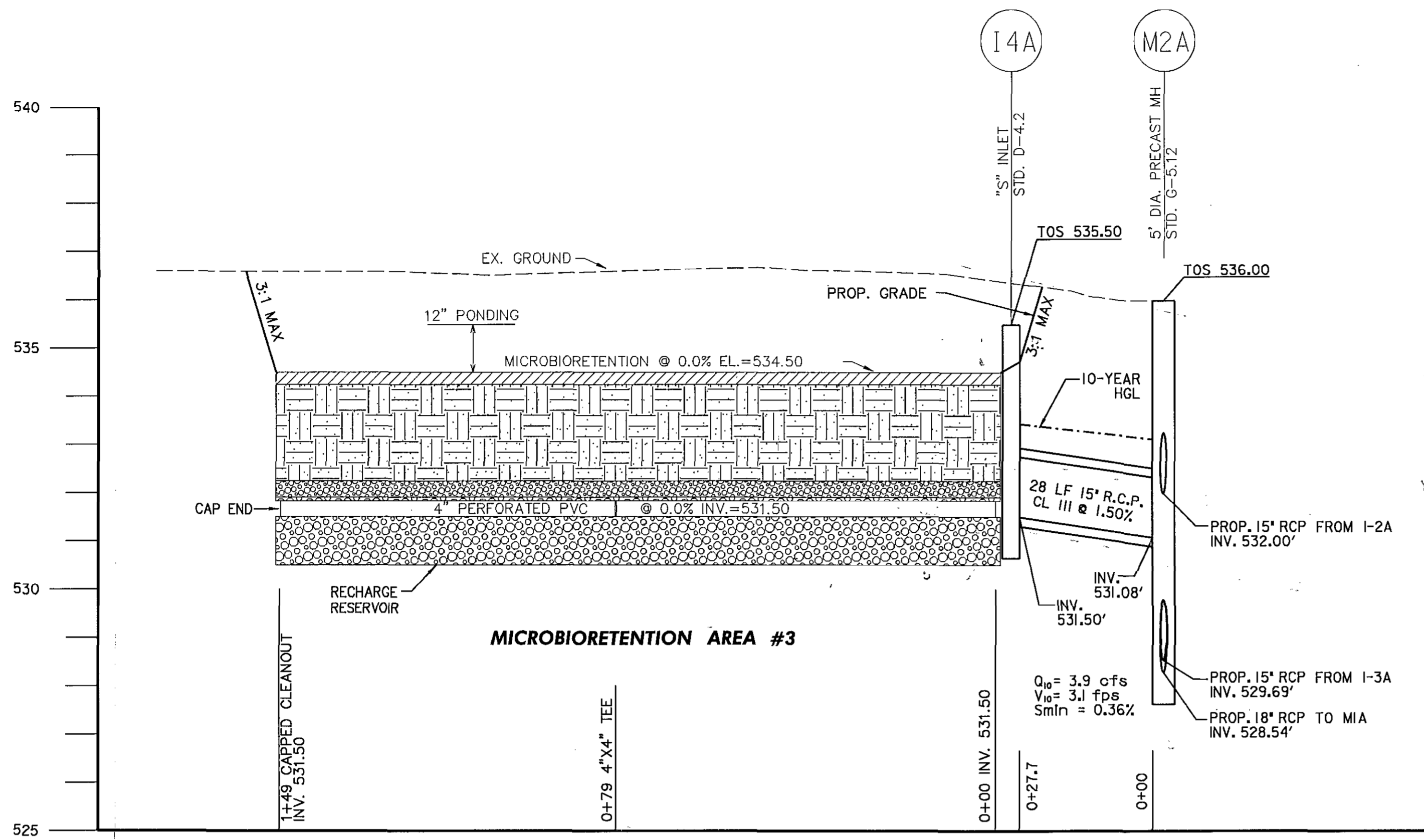
Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 33310, Expiration Date: 07/02/2014.



DES: R.H.	
DRN: A.W.W.	
CHK: M.S.Z.	
DATE: May, 2012	
BY: NO	REVISION
	DATE

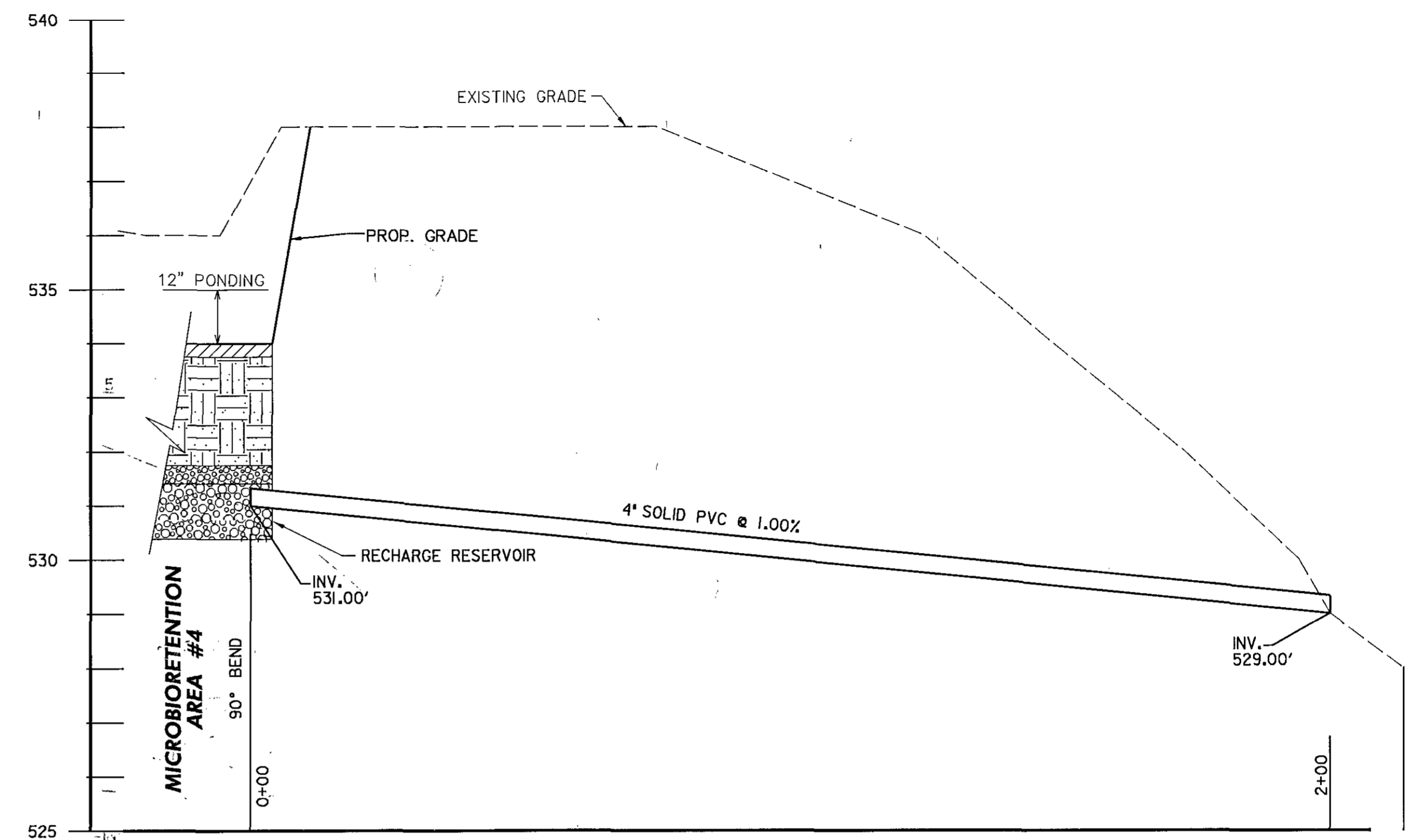
**Stormwater Management and Storm Drain Profiles**

**REVISED SITE DEVELOPMENT PLAN ALPHA RIDGE PARK ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54

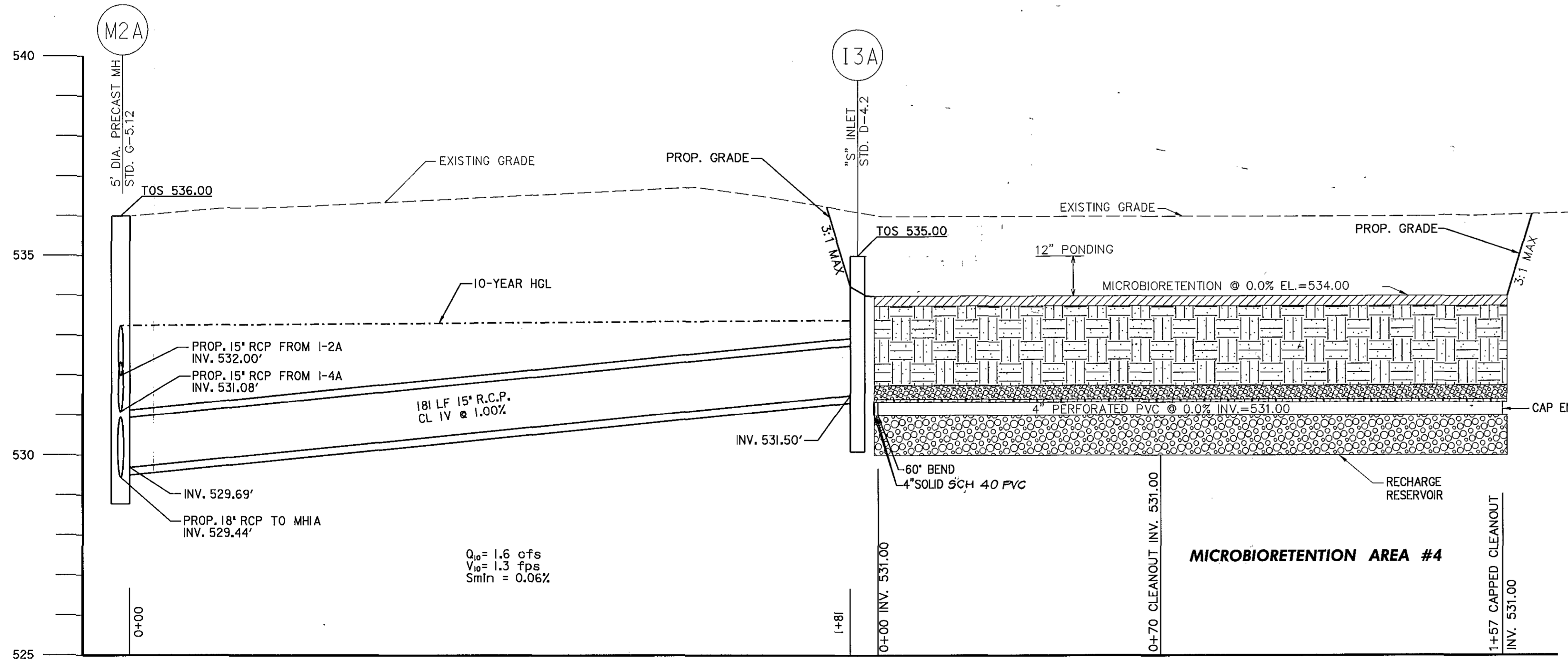


CROSSECTION THROUGH MICROBIORETENTION AREA #3 AND PROFILE I4A TO M2A

SCALE: H: 1" = 20' V: 1" = 2'

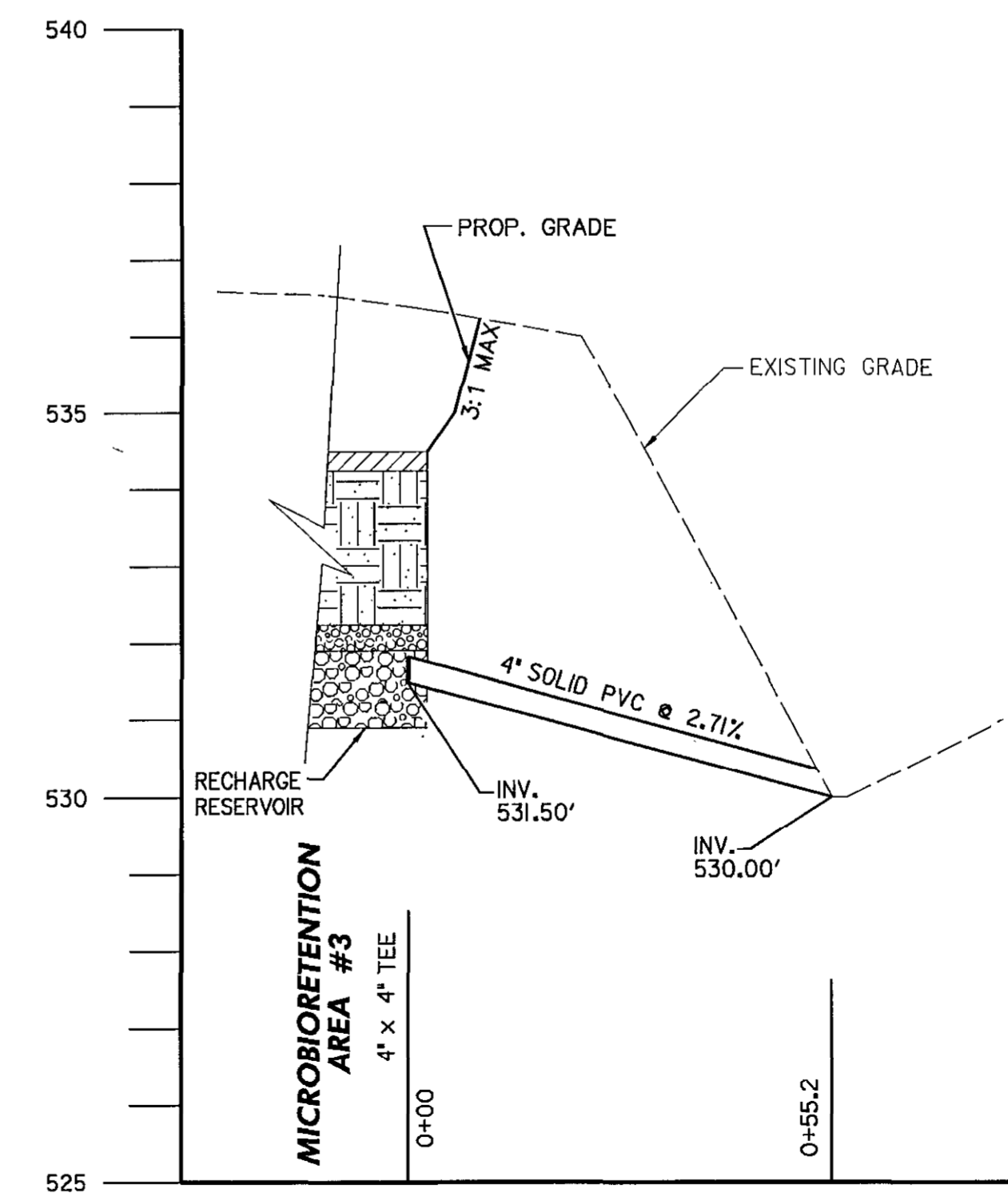


4" PVC PIPE FROM MICROBIORETENTION AREA #4



PROFILE M2A TO I3A AND CROSSECTION THROUGH MICROBIORETENTION AREA #4

SCALE: H: 1" = 20' V: 1" = 2'



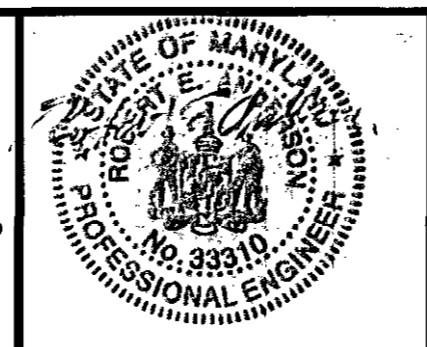
4" PVC PIPE FROM MICROBIORETENTION AREA #3

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. B. [Signature]</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>[Signature]</i> 2/12/2013 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas E. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaw</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>[Signature]</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>[Signature]</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>[Signature]</i> 2/25/13 DIRECTOR DATE

OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5306 FAX 410-313-6144
---	---



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. 33310, Expiration Date: 07/02/2014

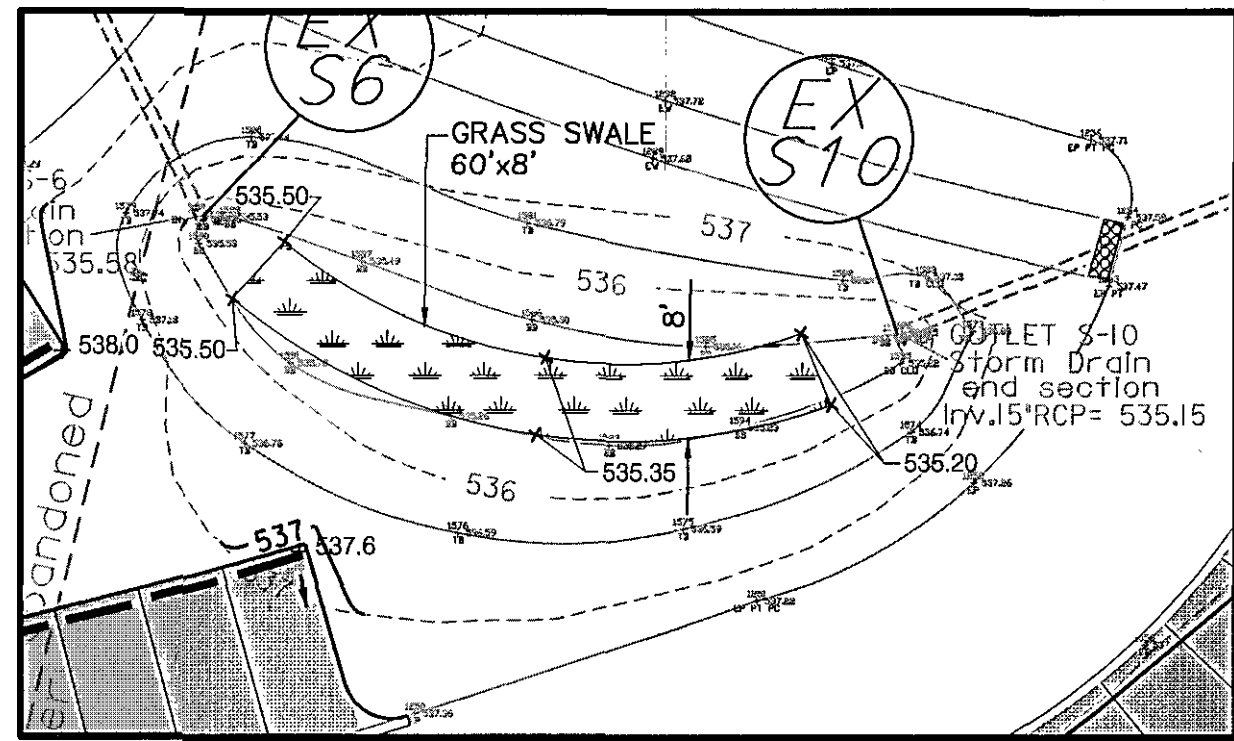


DES: R.H.	
DRN: A.W.W.	
CHK: M.S.Z.	
DATE: May, 2012	
BY NO REVISION DATE	

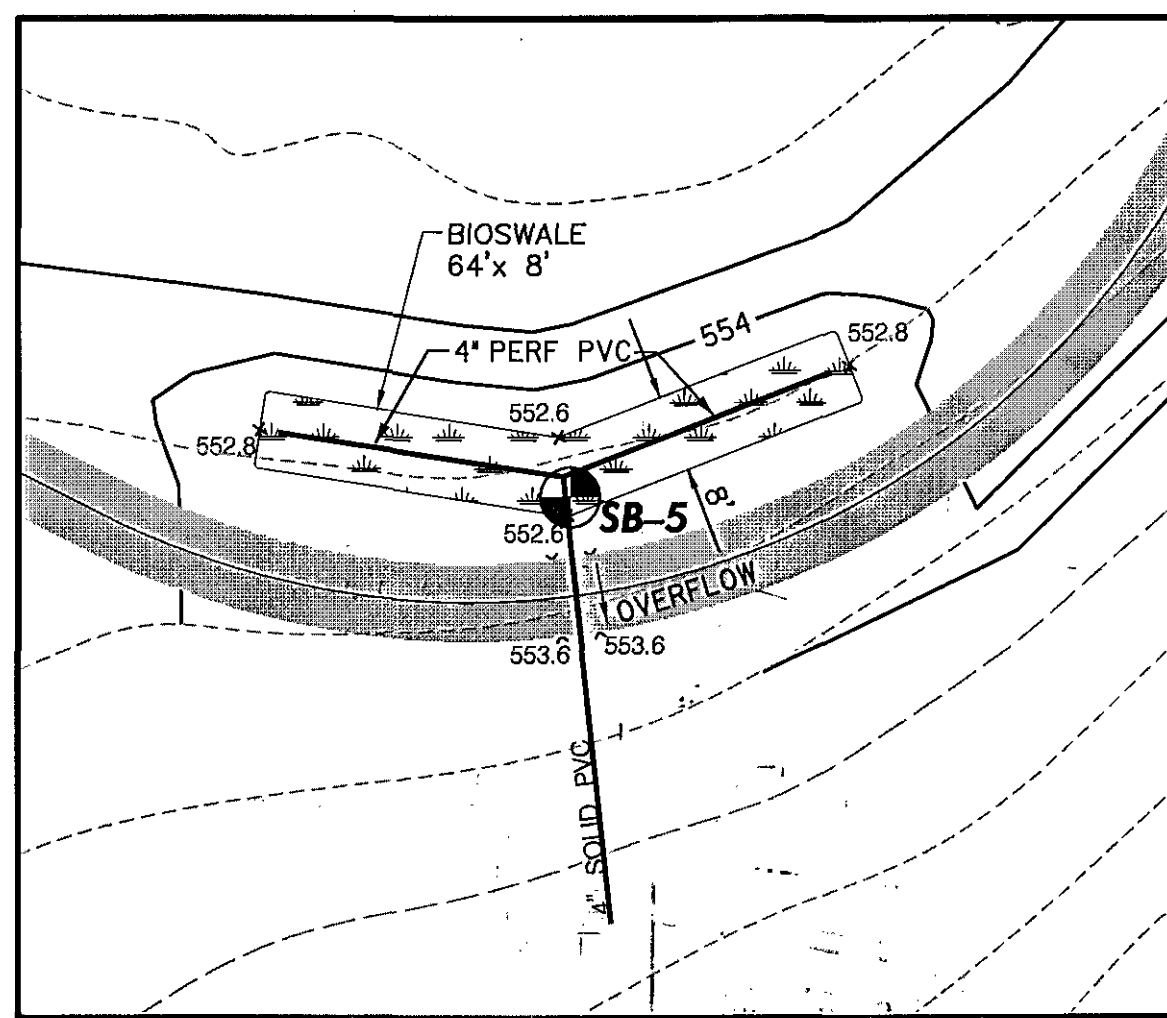
Stormwater Management and Storm Drain Profiles

REVISED SITE DEVELOPMENT PLAN  
ALPHA RIDGE PARK  
ADDITIONS DESIGN  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

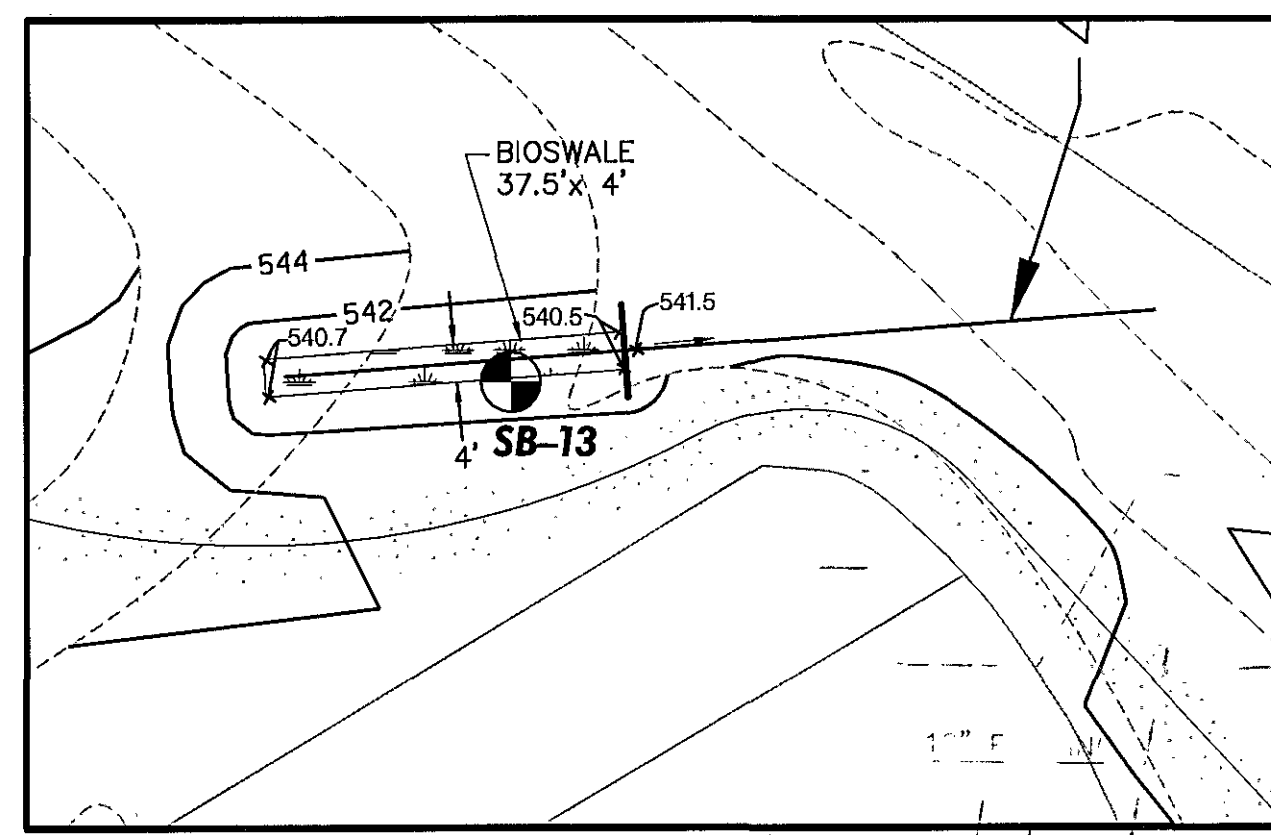
SCALE: AS SHOWN  
SHEET 12 OF 31



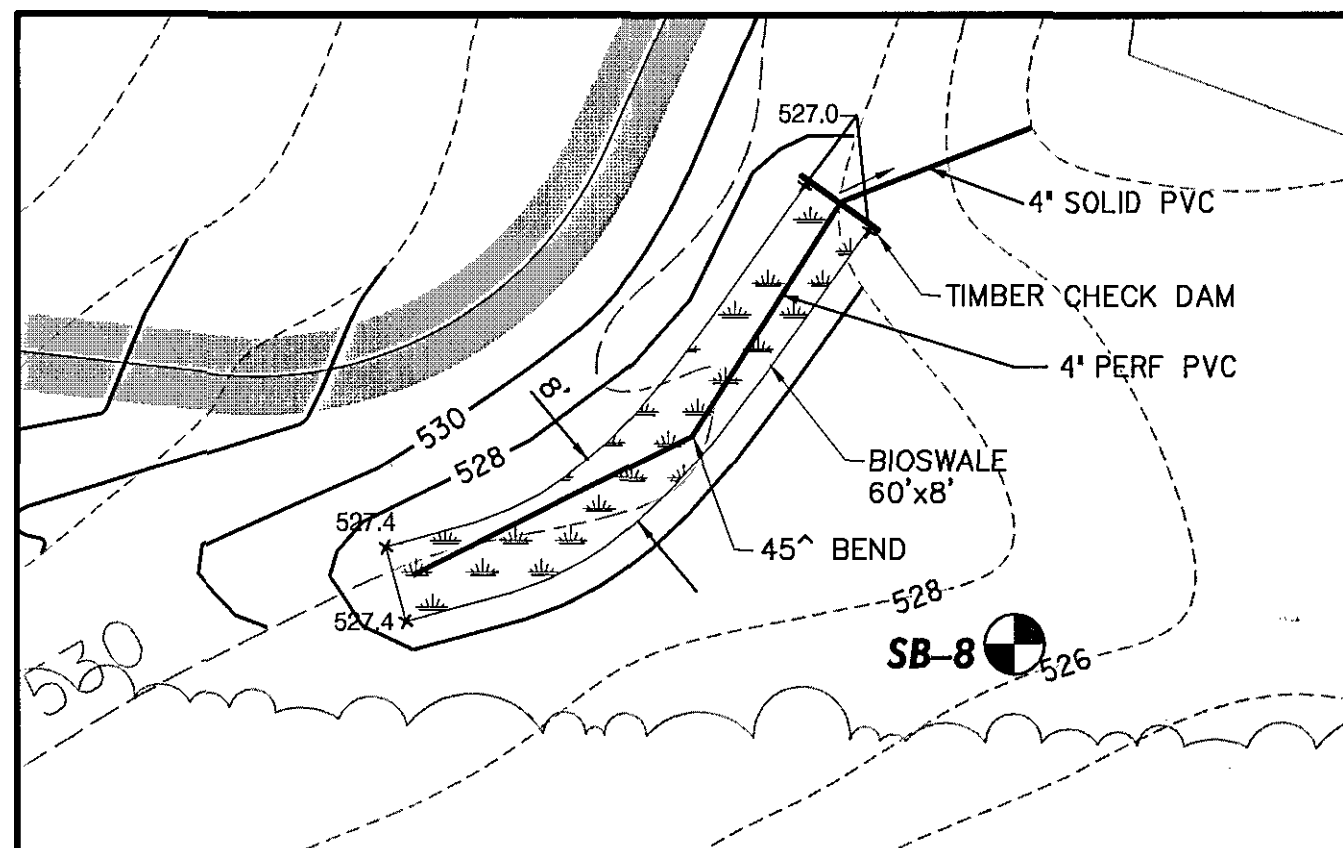
**PLAN VIEW**  
**GRASS SWALE#1 SUB AREA #5**  
SCALE 1" = 20'



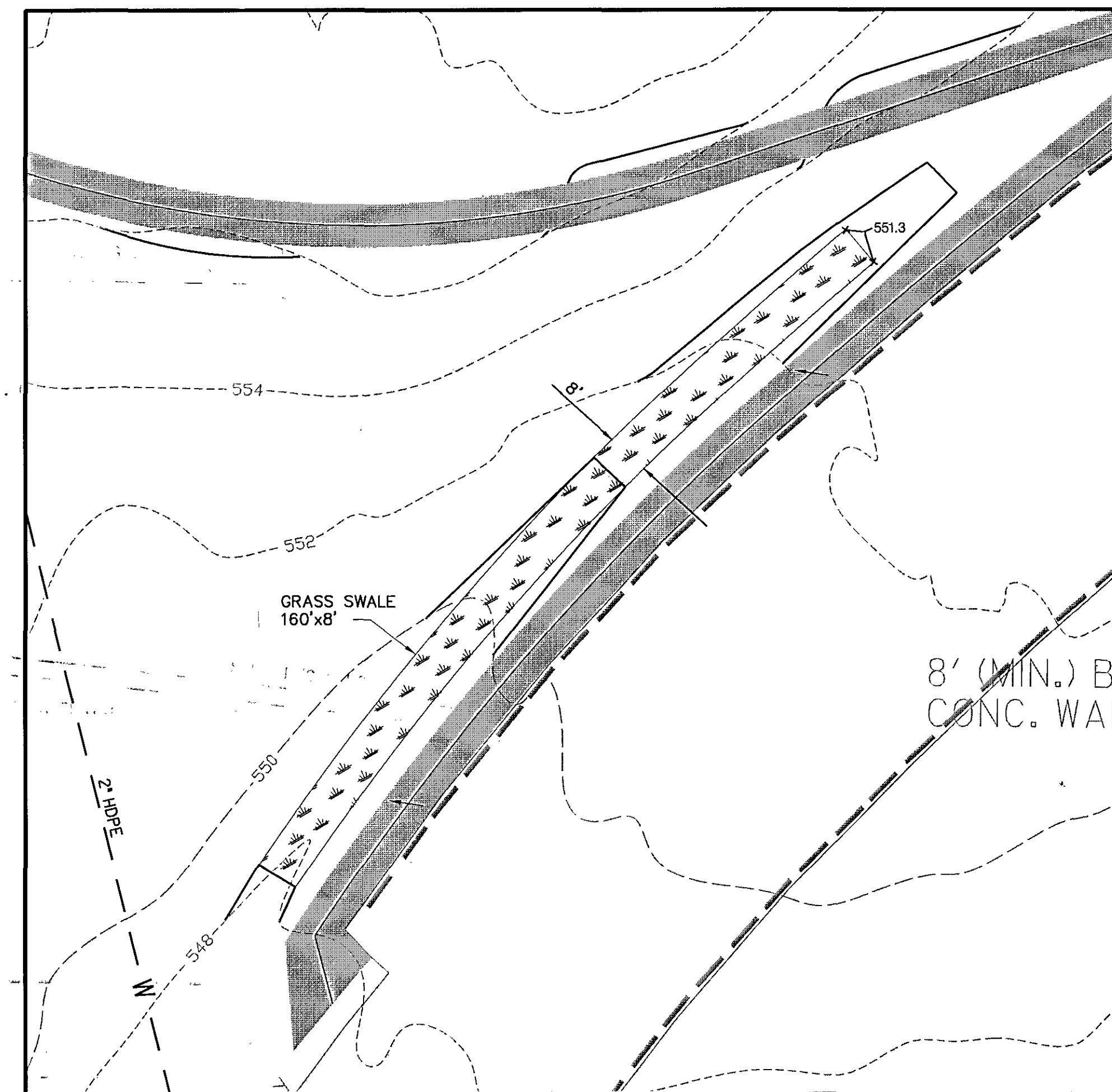
**PLAN VIEW**  
**BIOSWALE#2 SUB AREA #7**  
SCALE 1" = 20'



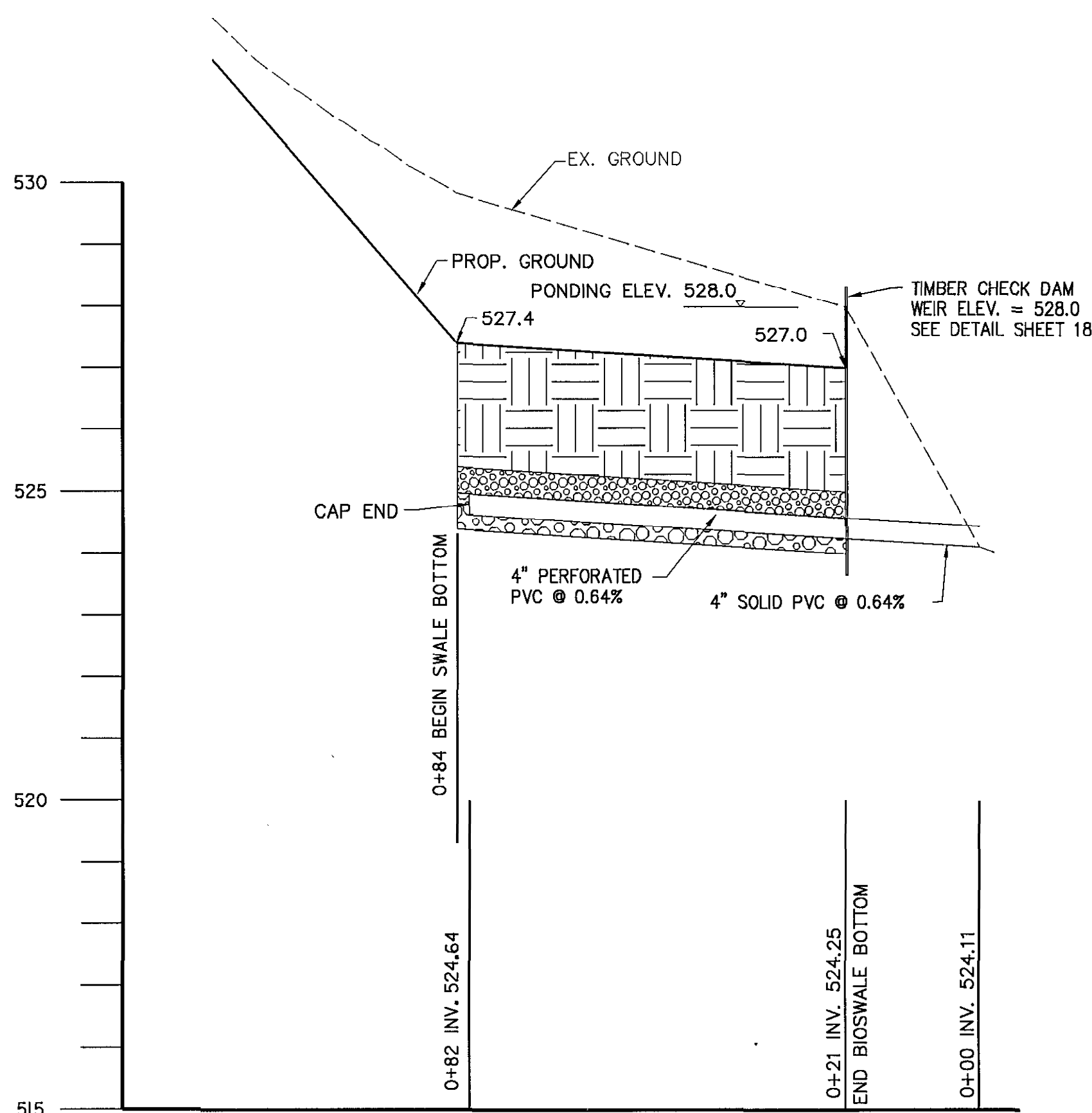
**PLAN VIEW**  
**BIOSWALE#3 SUB AREA #9**  
SCALE 1" = 20'



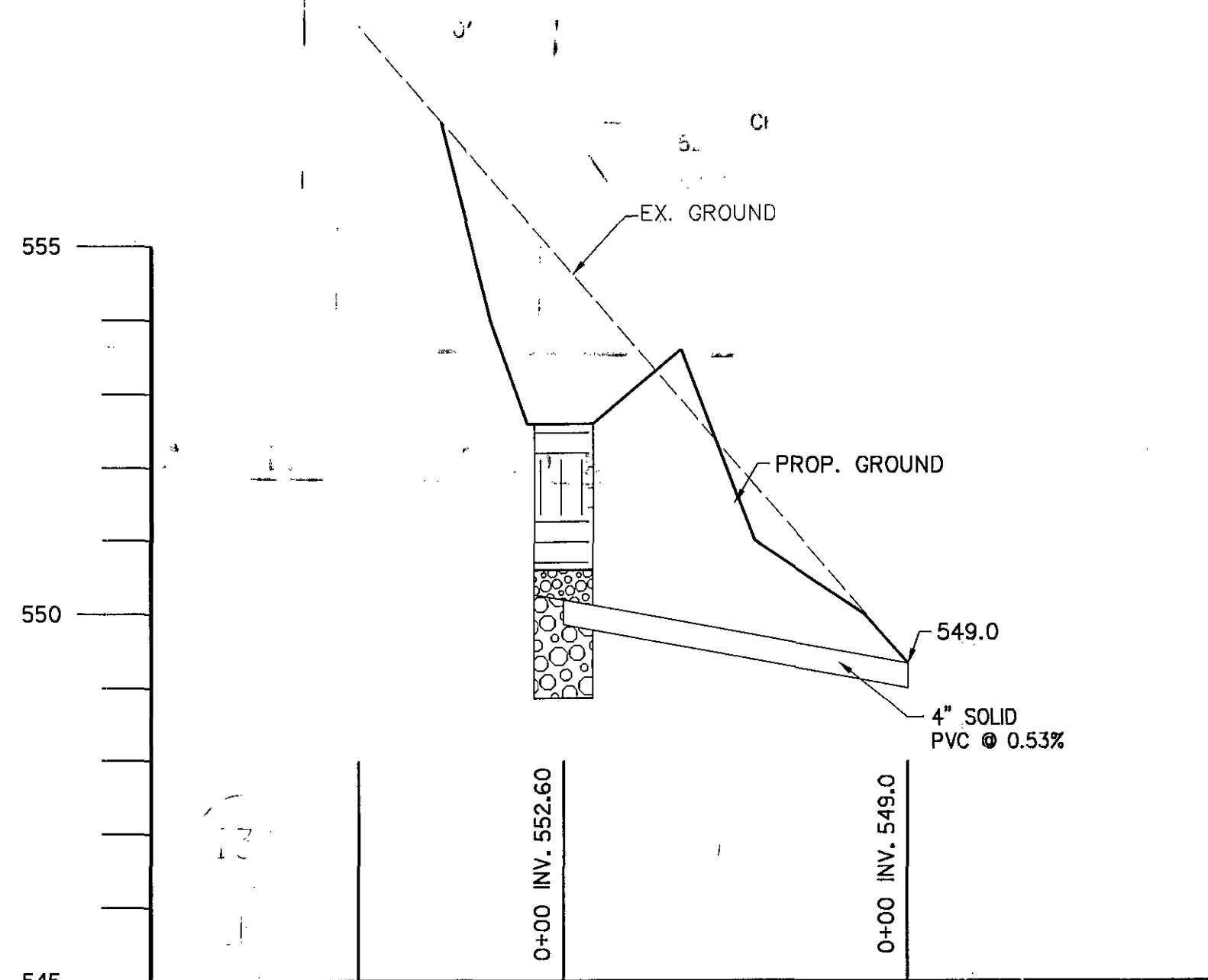
**PLAN VIEW**  
**BIOSWALE#1 SUB AREA #6**  
SCALE 1" = 20'



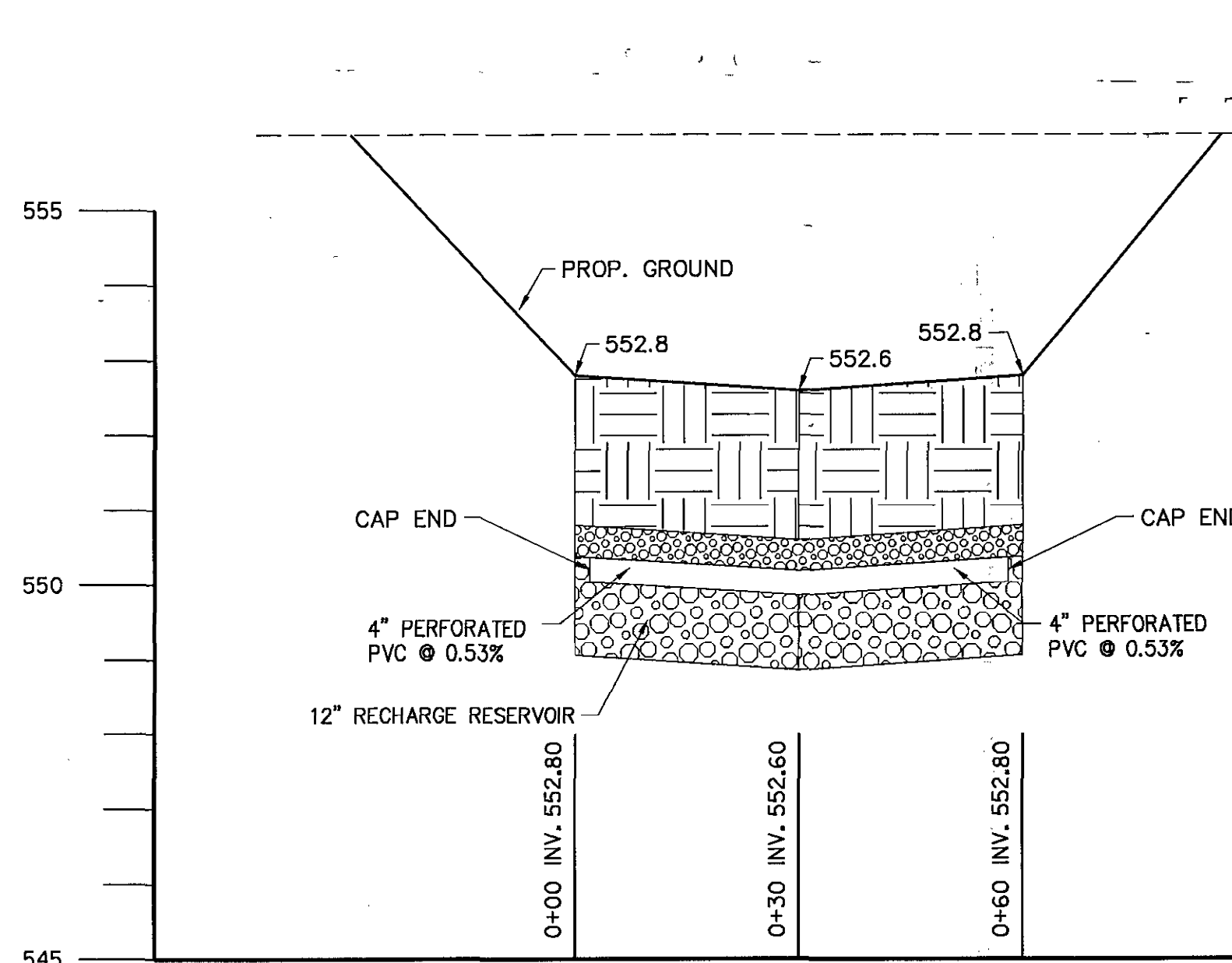
**PLAN VIEW**  
**GRASS SWALE#2 SUB AREA #8**  
SCALE 1" = 20'



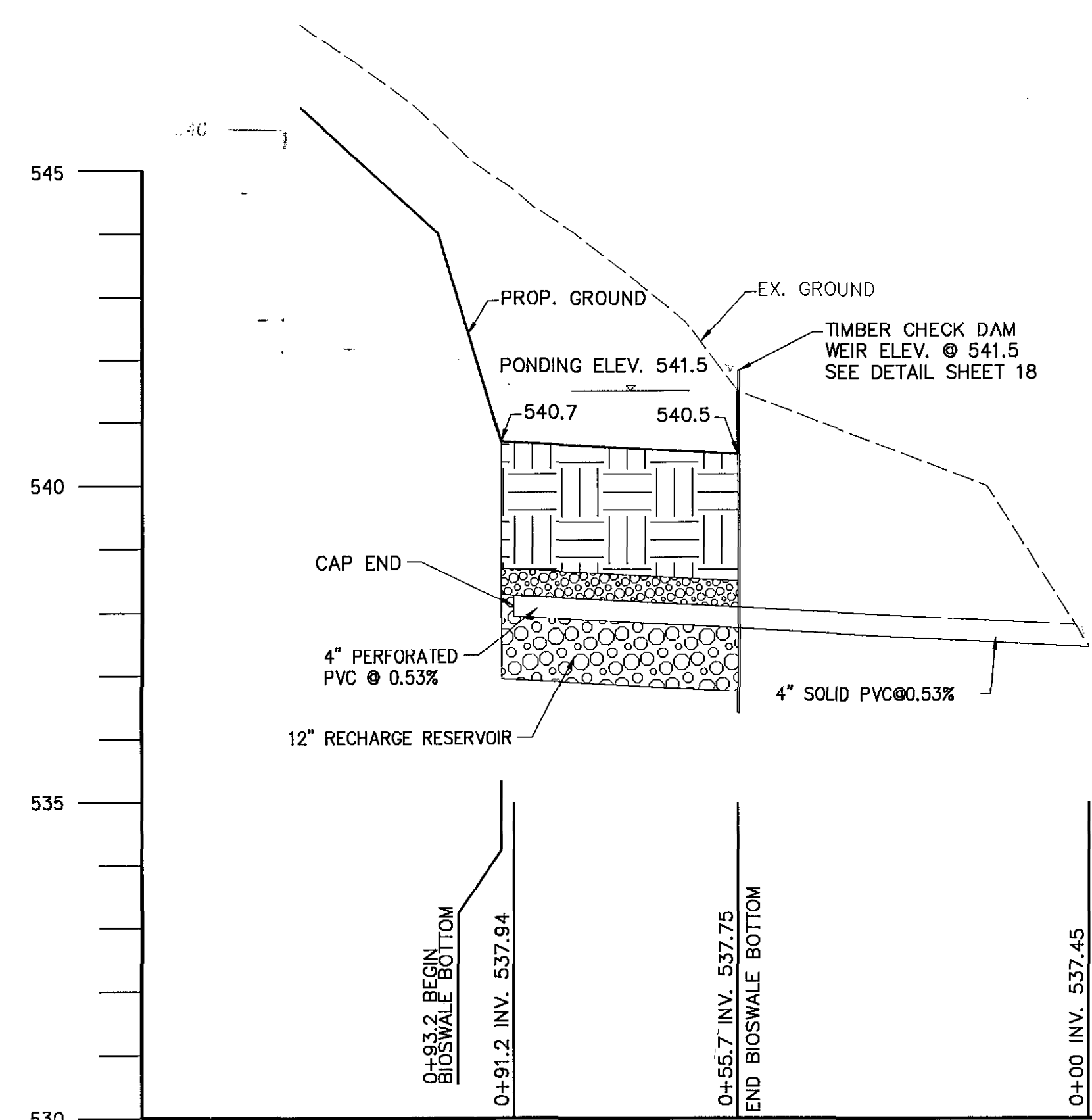
**BIOSWALE#1 SUB AREA #6**  
SCALE H: 1" = 20' V: 1" = 2'



**BIOSWALE#2 SUB AREA #7**  
SCALE H: 1" = 20' V: 1" = 2'



**BIOSWALE#2 SUB AREA #7**  
SCALE H: 1" = 20' V: 1" = 2'



**BIOSWALE#3 SUB AREA #9**  
SCALE H: 1" = 20' V: 1" = 2'

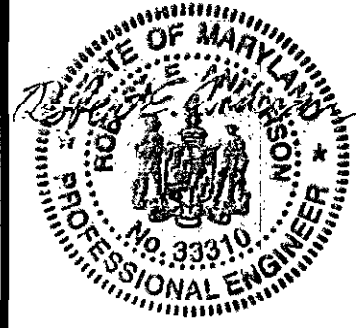
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Boyd</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Barbara Ann Morrow</i> 2/12/13 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Janet</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Mona R. Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaver</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>Chris</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>Ket</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>Marie</i> 2/25/13 DIRECTOR DATE

**OWNER:**  
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

**DEVELOPER:**  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5306  
FAX 410-313-6144

**GPI GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GULFSTREAM ROAD, ANNAPOLIS JUNCTION, MD 20701  
WASH. DC: 410-217-2172 BALTIMORE: 410-880-3025  
FAX: 410-490-2649 www.gpinet.com

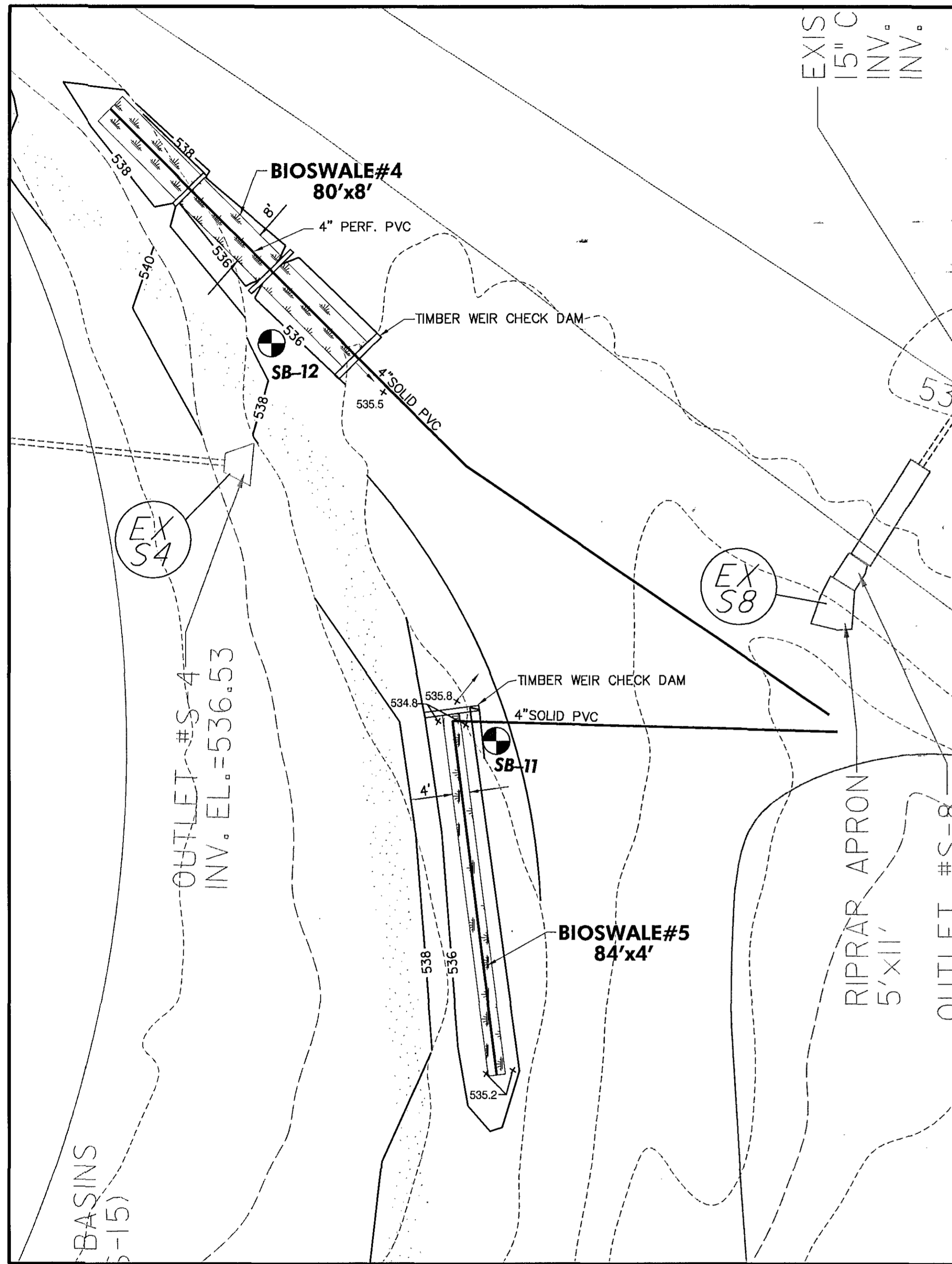
**Professional Certification:**  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland License No. 33310, Expiration Date: 07/02/2014



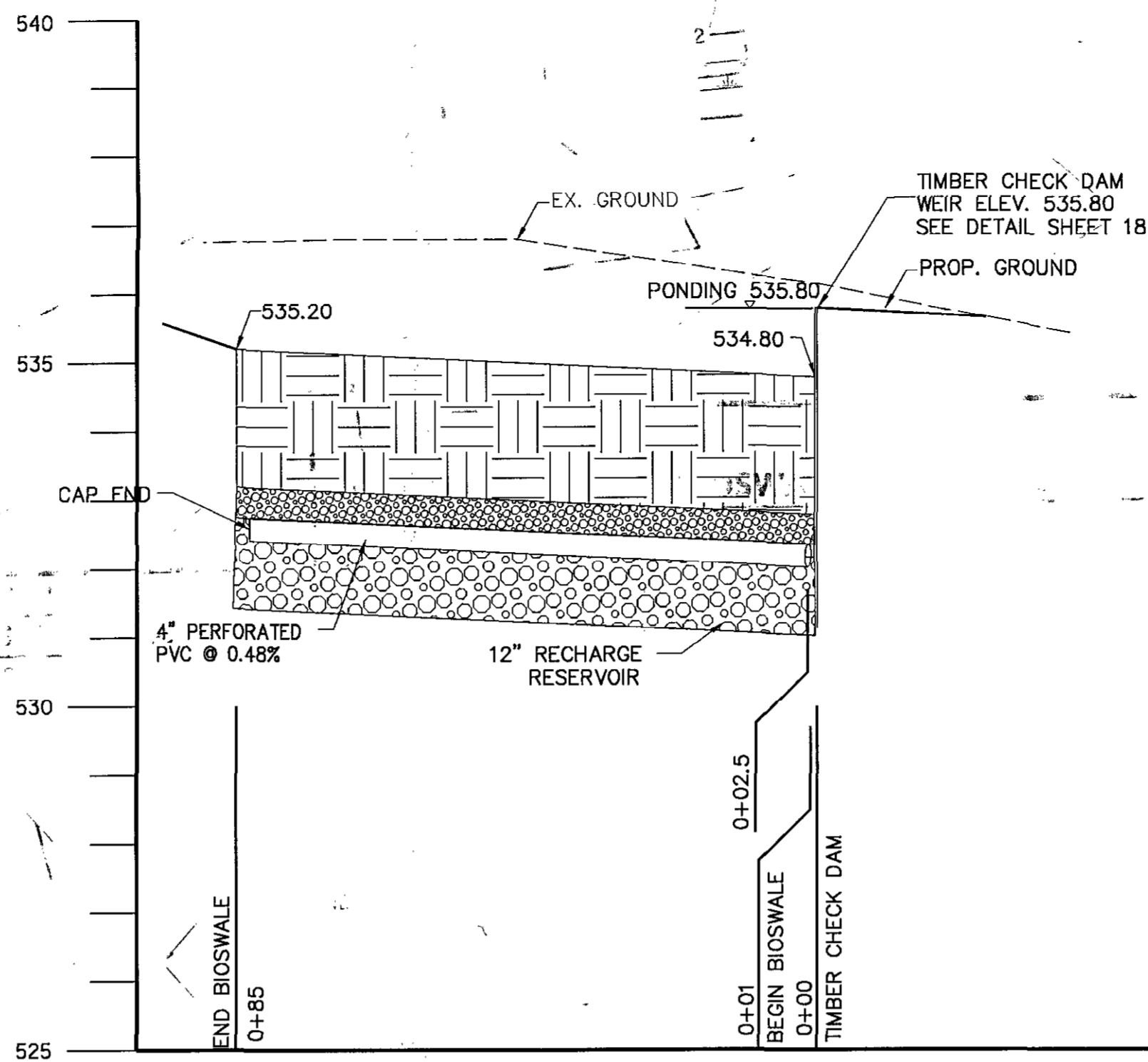
DES: R.H.			
DRN: A.W.W.			
CHK: M.S.Z.			
DATE: May, 2012	BY	NO	REVISION
			DATE

**Stormwater Management Plan and Profiles**

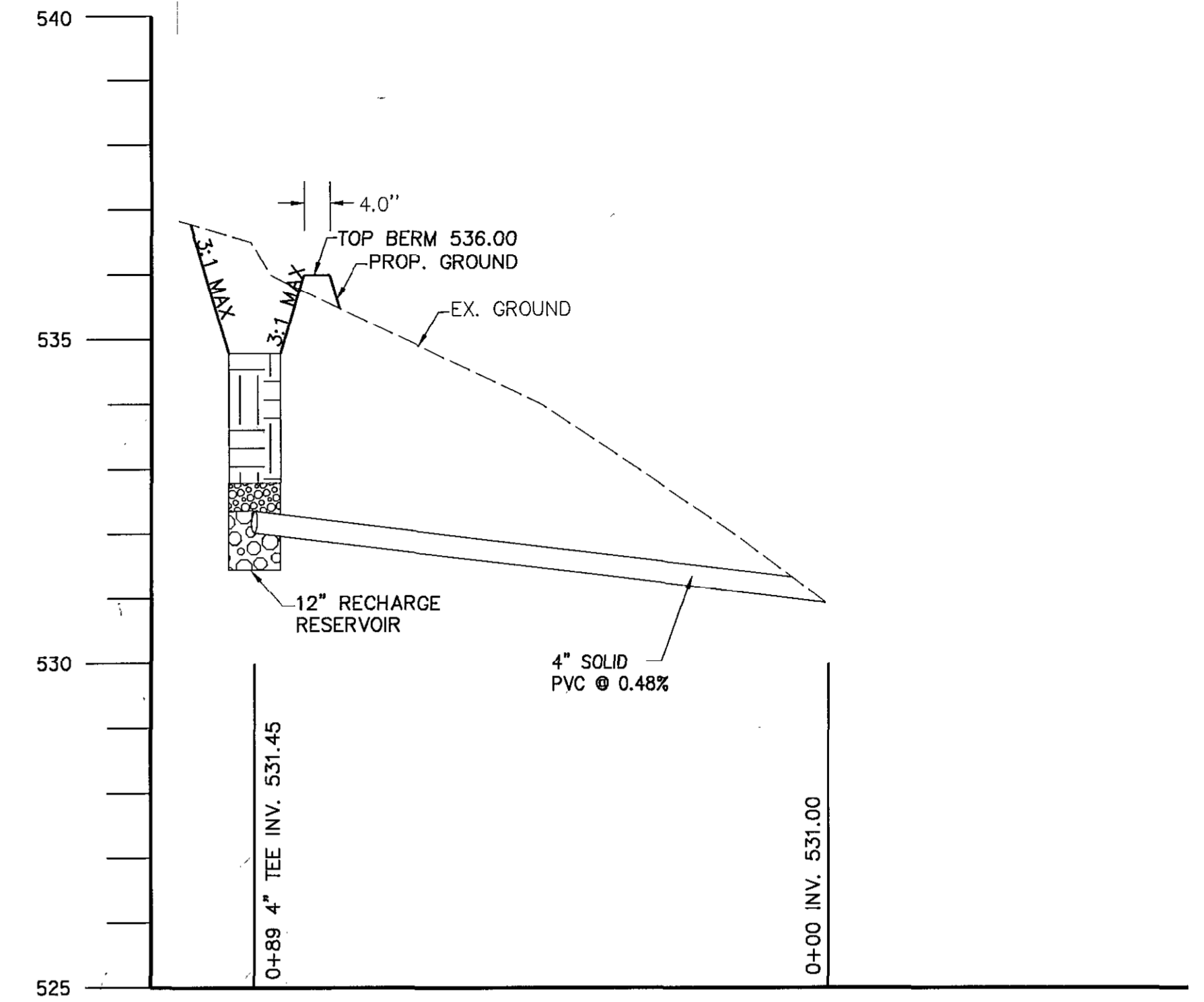
**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54



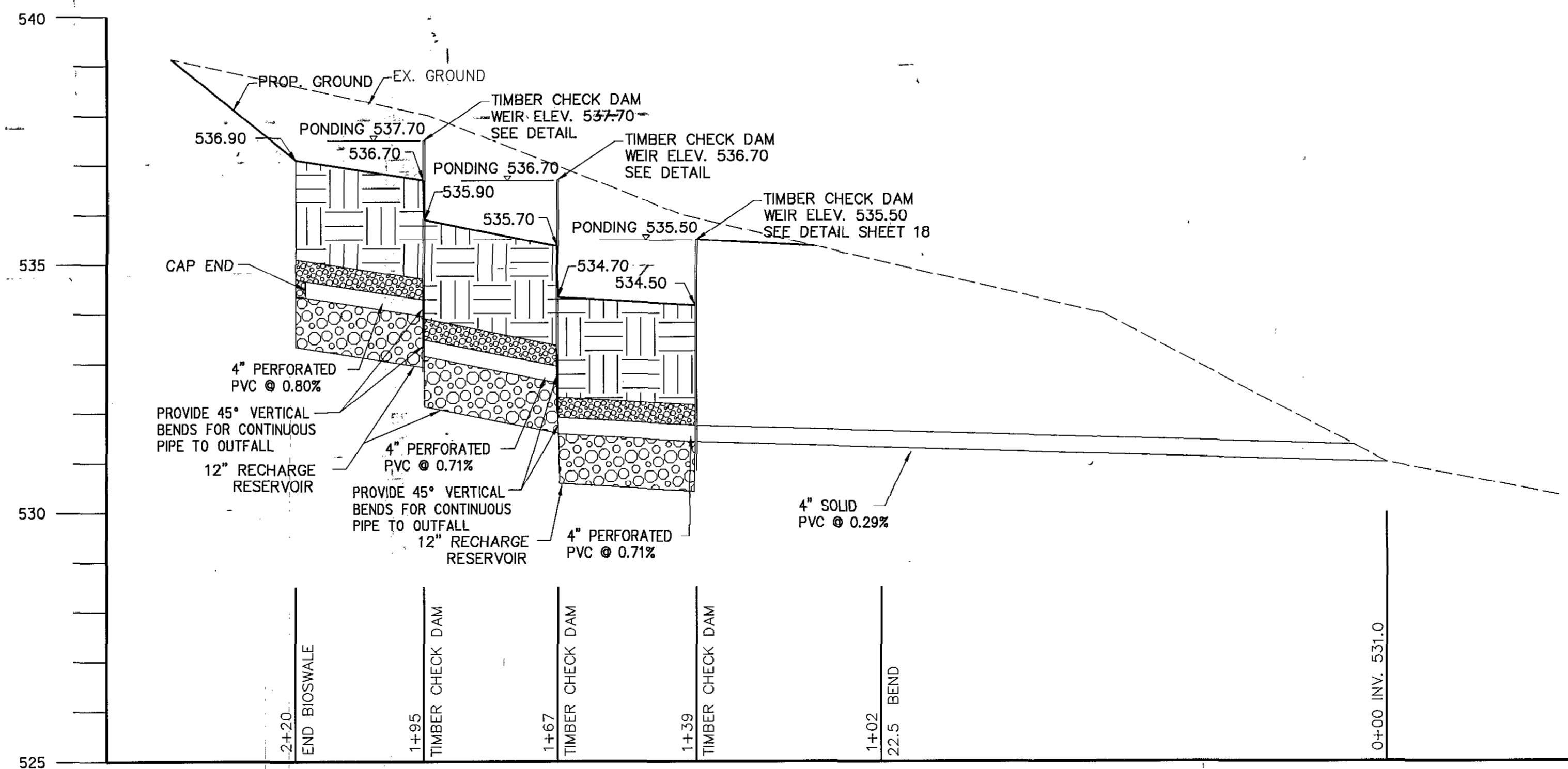
**PLAN VIEW**  
**BIOSWALE#4 & #5 SUB AREA #10 & #11**  
 SCALE: 1" = 20'



**BIOSWALE#5 SUB AREA #11**  
 SCALE: H: 1" = 20' V: 1" = 2'



**PROFILE BIOSWALE#5 SUB AREA #11 TO OUTFALL**  
 SCALE: H: 1" = 20' V: 1" = 2'



**BIOSWALE#4 SUB AREA #10**  
 SCALE: H: 1" = 20' V: 1" = 2'

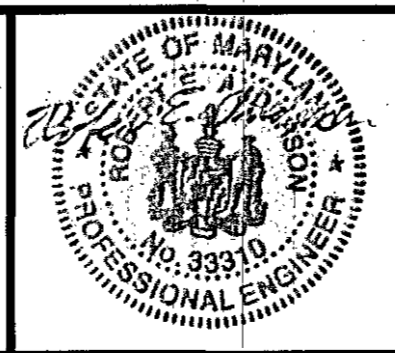
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spill</i> 1/18/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Pauline for Maura Rosinger</i> 2/12/2013 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Jan P. [Signature]</i> 2/15/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Momas &amp; Butler</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve Shaver</i> 2/14/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>[Signature]</i> 2/21/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>[Signature]</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>[Signature]</i> 2/25/12 DIRECTOR DATE

OWNER:  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAUL DELERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

DEVELOPER:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5306  
 FAX 410-313-6144



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. 33310, Expiration Date: 07/02/2014.

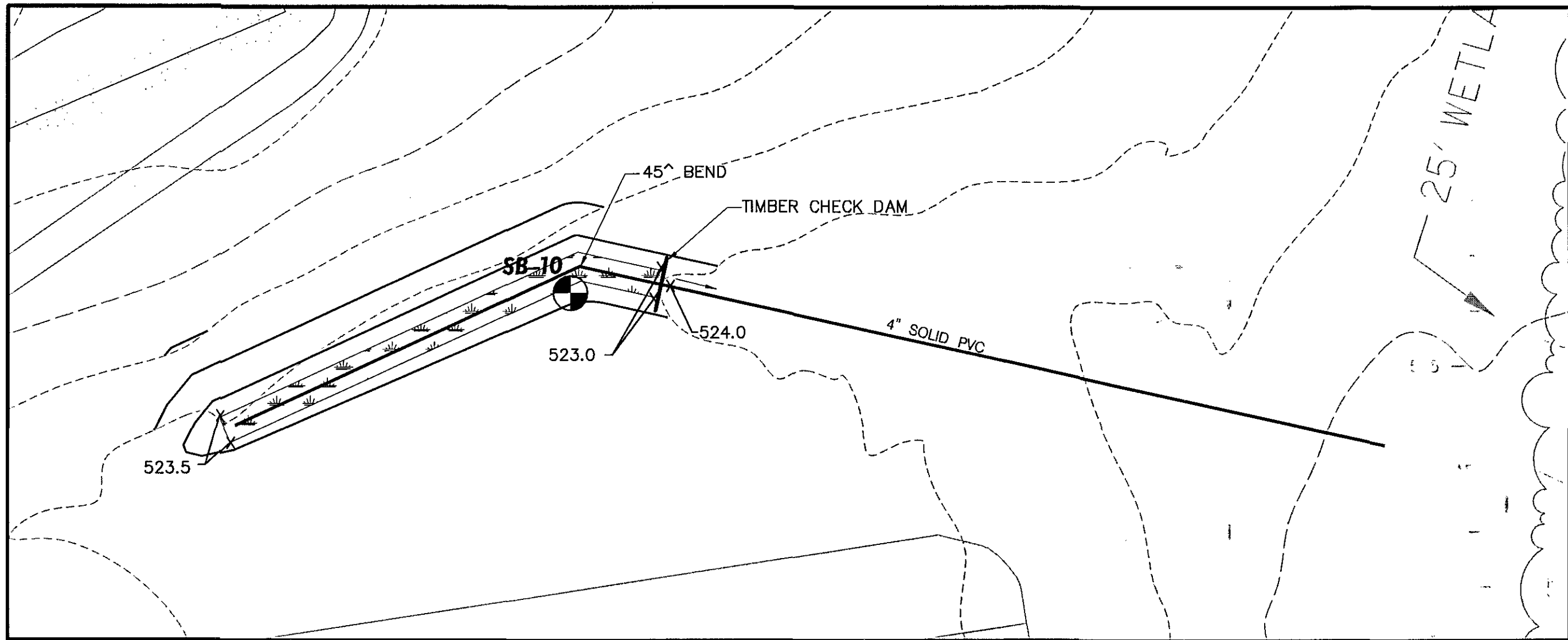


DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: May, 2012	BY: NO	NO	REVISION	DATE	

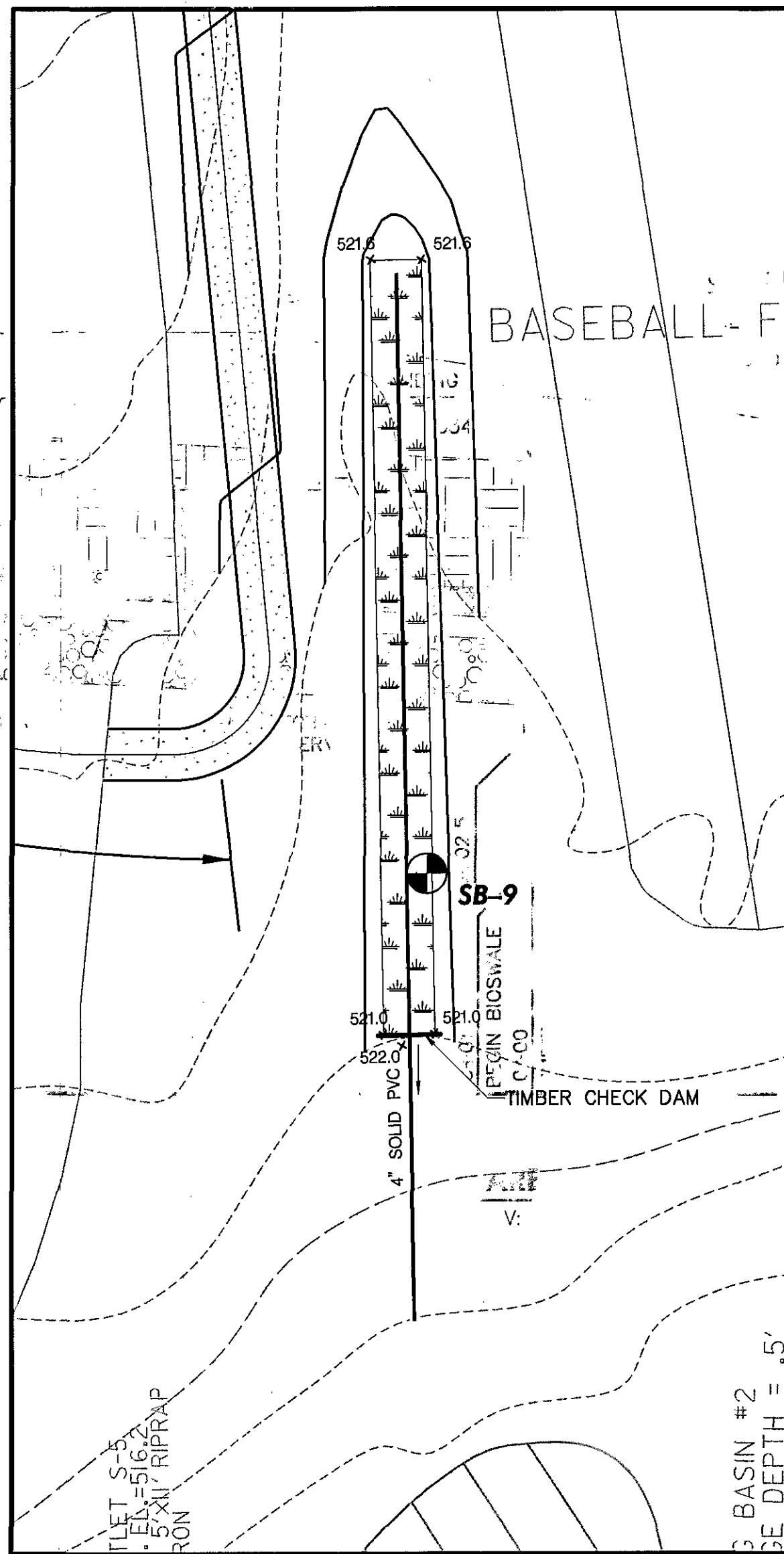
**Stormwater Management Plan and Profiles**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10  
 GRID#20,21, PARCELS 23 & 54

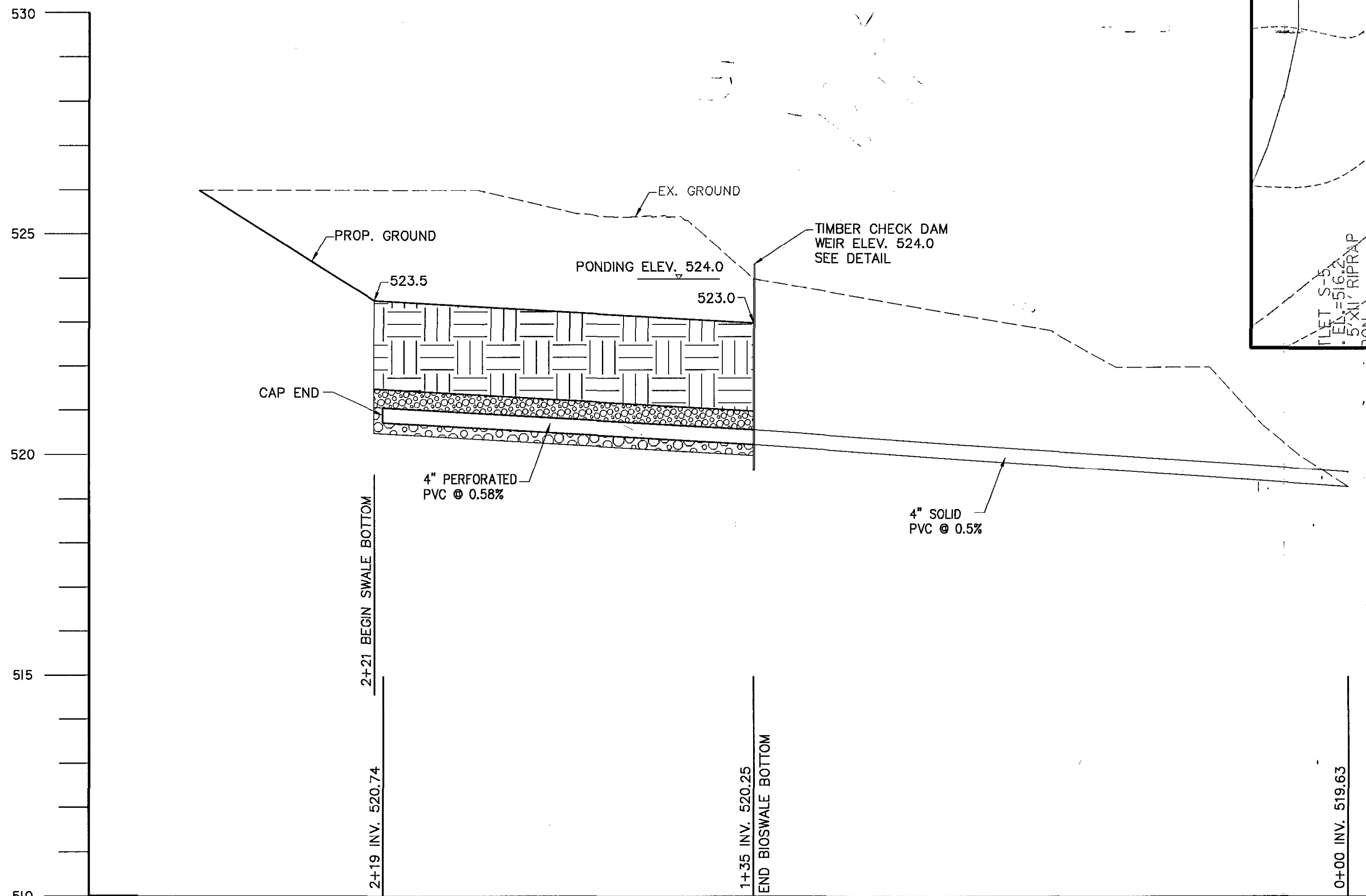
SCALE: AS SHOWN  
 SHEET 14 OF 31  
 SDP 90-18



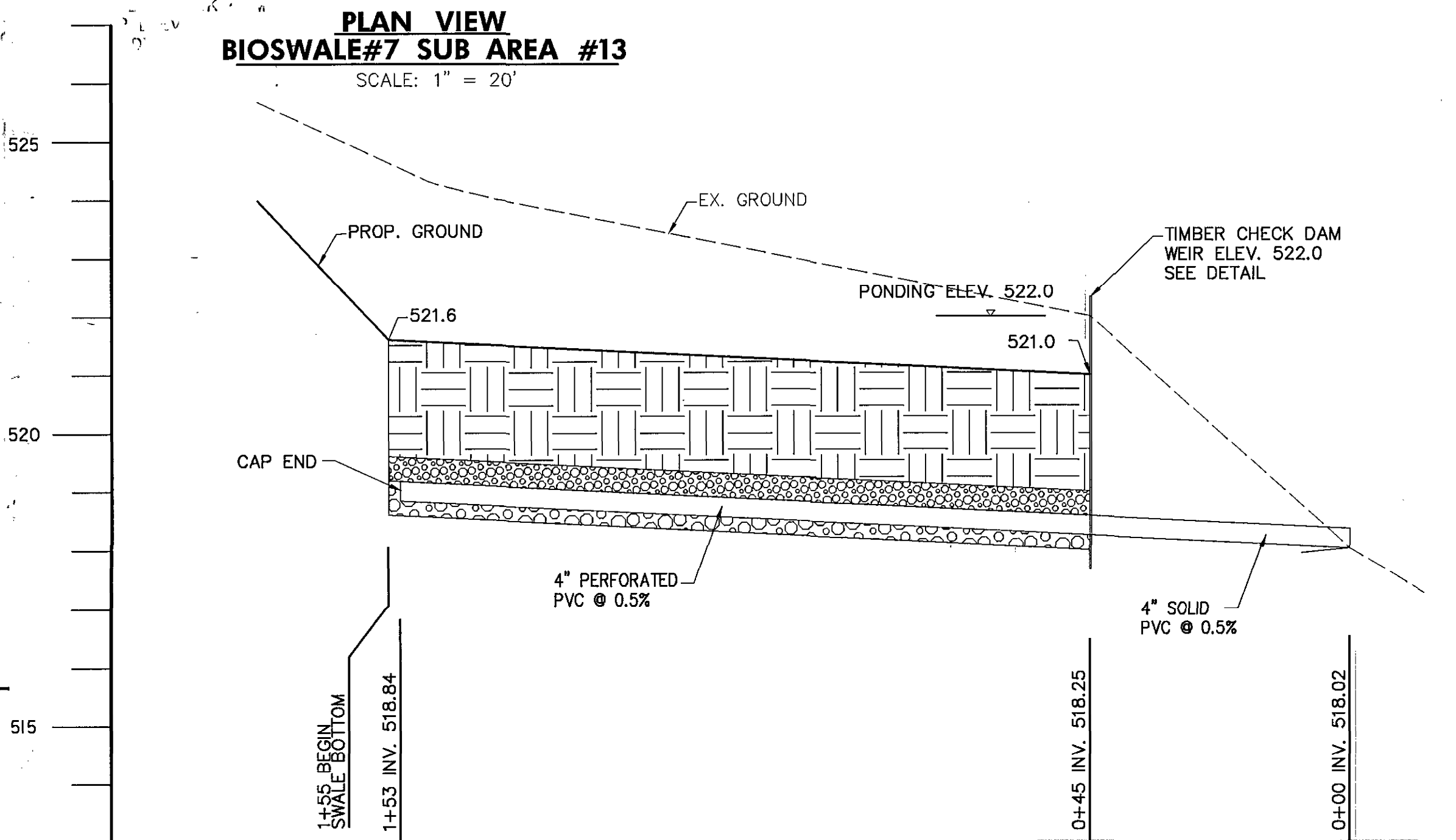
**BIOSWALE#6 SUB AREA #12**  
SCALE: 1" = 20'



**PLAN VIEW BIOSWALE#7 SUB AREA #13**  
SCALE: 1" = 20'



**BIOSWALE#6 SUB AREA #12**  
SCALE: H: 1" = 20' V: 1" = 2'



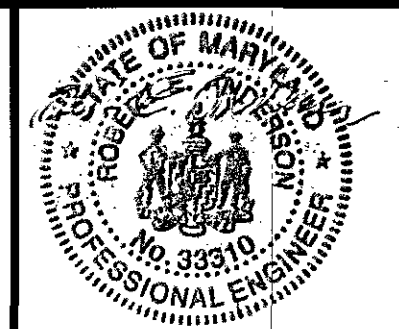
**BIOSWALE#7 SUB AREA #13**  
SCALE: H: 1" = 20' V: 1" = 2'

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. [Signature]</i>	1/10/13
DIRECTOR	DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Bryan for Meera Rosamun</i>	2/12/2013
DIRECTOR	DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Jan [Signature]</i>	2/15/13
DIRECTOR OF PUBLIC WORKS	DATE
<i>Thomas E. [Signature]</i>	2/15/13
CHIEF-BUREAU OF ENGINEERING	DATE
<i>Steve [Signature]</i>	2/14/13
CHIEF, TRANSPORTATION & SPECIAL PROJECTS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>[Signature]</i>	2/22/13
CHIEF-DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Kent [Signature]</i>	2/25/13
CHIEF-DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	2/27/13
DIRECTOR	DATE

<b>OWNER:</b> HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	<b>DEVELOPER:</b> HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 3250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5306 FAX 410-313-6144
--	--

**GPI GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GUILFORD ROAD, ANNAPOLIS JUNCTION, MD 20710  
WASH. (301) 410-2172 BALT. (410) 880-3055  
FAX: (301) 490-2649 www.gpinet.com

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. 3330. Expiration Date: 01/02/2014.

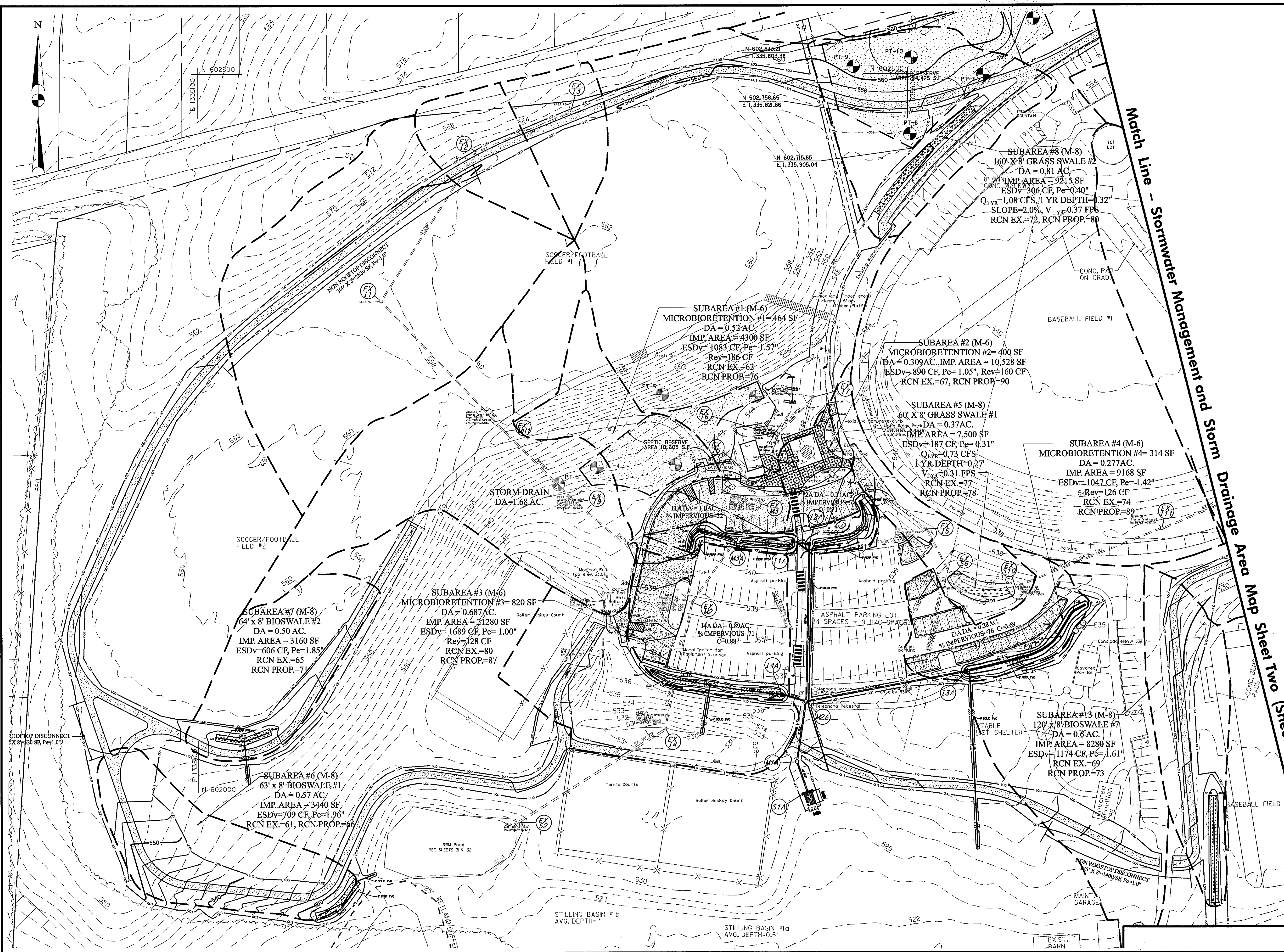


DES: R.H.			
DRN: A.W.W.			
CHK: M.S.Z.			
DATE: May, 2012	BY	NO	REVISION
			DATE

**Stormwater Management Plan and Profiles**

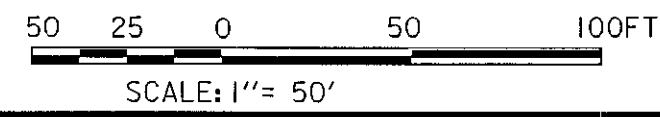
**REVISED SITE DEVELOPMENT PLAN ALPHA RIDGE PARK ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54

SCALE: AS SHOWN  
SHEET 15 OF 38



APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spill</i>	1/12/13
DIRECTOR	DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>R. Wilson for Maura Roseman</i>	2/12/2013
COUNTY HEALTH OFFICER HOWARD COUNTY HEALTH DEPARTMENT	DATE 12/13
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>John J. La...</i>	2/16/13
DIRECTOR OF PUBLIC WORKS	DATE
<i>Thomas E. Butler</i>	2/15/13
CHIEF-BUREAU OF ENGINEERING	DATE
<i>Steve Shauer</i>	2/14/13
CHIEF, TRANSPORTATION & SPECIAL PROJECTS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>John J. La...</i>	2/22/13
CHIEF-DEVELOPMENT ENGINEERING DIVISION BY DATE	
<i>West Shadlow</i>	2/25/13
CHIEF-DIVISION OF LAND DEVELOPMENT	DATE
<i>Mark P. Coyle</i>	2/15/13
DIRECTOR	DATE

Match Line - Stormwater Management and Storm Drainage Area Map Sheet Two (Sheet 17 of 38)



OWNER:  
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

DEVELOPER:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5806  
FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20710  
MAIL: (301) 470-2772 BALT. (410) 895-3055  
FAX: (301) 490-2649 www.gpi.net

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. 15916, Expiration Date: 01/14/2015.



DES: R.H.	
DRN: A.W.W.	
CHK: M.S.Z.	
DATE: Nov., 2012	
BY NO	REVISION
	DATE

**Stormwater Management and Storm Drainage Area Map Sheet One**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

AS SHOWN  
SHEET 16 OF 38

**ESDv Rev, REQUIREMENTS FOR SITE:**

The proposed limit of disturbance is 4.72 acres = site.  
 ESDv is based on the limit of disturbance, soil types and areas of impervious.  
 Determine proposed imperviousness(%) within limit of disturbance:  
 Proposed Trail within LOD = 43,628 SF  
 Proposed parking within LOD = 18,600 SF  
 Proposed buildings within LOD = 1,370 SF  
 Total Proposed Impervious inside LOD = 63,598 SF = 1.46 Acres  
 %Impervious = 1.46/4.72 = 30.9%  
 Rv = .05 + .009 x 30.9 = 0.33  
 Soils within the limit of disturbance are 96% "B" soils and 4% "D" soils.  
 From Table 5.3, Pe to reflect "woods in good condition" = 1.79" for 1=30.9% RCN woods = 55.88 Use RCN=56  
 ESD rainfall target for site = Pe = 1.80 inch (from lookup tables chapter 5)  
 ESDv required = Pe x Rv x DA/12 = 1.79 x 0.33 x 4.72 x 43560/12 = **10,083 CF**

**Rev Required:**

For 96% B soil and 4% D Soil,  
 S=soil recharge factor = 0.26 x .96 + .07 x .04 = 0.2524  
 Rev = DA x S x Rv/12 = 4.72 x .2524 x 0.33/12 = **1427CF**

**Cpv Required:**

In accordance with 5.19 of chapter 5 of MDE SWM manual, Cpv shall be based on the reduced RCN for the site. By providing ESDv to the MEP for the site provides Cpv by reducing the RCN to 56 for "woods in good condition". ESDv to the MEP is provided for the site.

6. ESDv, Rev Summary Table

SUBAREA#	DA (AC)	Imp. (SF)	SWM DEVICE	AREA (AF)	ESDv(CF)	Pe(N)	Rev (CF)	RCN EX	RCN PROP
1	0.52	9300	M-6 MICROBIORETENTION#1	464	1083	1.37	186	62	76
2	0.309	10,528	M-6 MICROBIORETENTION#2	400	890	1.05	160	67	90
3	0.687	21,280	M-6 MICROBIORETENTION#3	820	1689	1.00	328	80	87
4	0.277	9168	M-6 MICROBIORETENTION#4	314	1047	1.42	136	74	89
5	0.37	7500	M-8 GRASS SWALE#1	480	187	0.30	0	77	78
6	0.57	3440	M-8 BIOSWALE#1	504	709	1.96	0	61	66
7	0.50	3160	M-8 BIOSWALE#2	512	606	1.85	205	65	71
8	0.81	9215	M-8 GRASS SWALE#2	1280	306	0.40	0	72	80
9	0.17	2020	M-8 BIOSWALE#3	150	303	1.66	60	65	71
10	0.70	4850	M-8 BIOSWALE#4	640	1030	2.1	256	66	77
11	0.38	1040	M-8 BIOSWALE#5	336	382	2.7	134	64	66
12	0.49	4670	M-8 BIOSWALE#6	430	645	1.47	0	65	69
13	0.60	8280	M-8 BIOSWALE#7	960	1174	1.61	0	69	73
		5680	N-2 NON-ROOFTOP DISCONNECT		450	1.0			
TOTAL	6.383	102,465*			10,501**		1455		

\*102,465SF = 2.35 AC treated is greater than the impervious area within LOD = 1.46 acres.  
 \*\*In accordance with MDE 5.19 "Cpv shall be based on the runoff from the 1-year 24 hour storm calculated using the reduced RCN (see table 5.3). If the reduced RCN for a drainage area reflects "woods in good condition", then Cpv has been satisfied for that drainage area. Site meets ESDv to MEP and Cpv by meeting a reduced RCN of 56.

**Rev**

Recharge is provided by storage in 12" gravel trench below underdrain in microbioretention areas, and bioswales 1, 2, 3, 4, 5 = 1455cf > 1427cf required..

**HOWARD COUNTY "C" FACTOR COMPUTATIONS**

Alpha Ridge Park Modifications DPZ NO.: 90-18 DATE: Jan-12

Sub Area	Area (ft <sup>2</sup> )	Area (ac)	Imp. Area (ft <sup>2</sup> )	Perv. Area (ft <sup>2</sup> )	C <sub>imp</sub>	C <sub>perv</sub> **	"C"
11A	43660	1.00	9583	33977	0.86	0.16	0.31
12A	13460	0.31	10528	2932	0.86	0.16	0.71
13A	12066	0.28	9168	2898	0.86	0.16	0.69
14A	29925	0.69	21280	8645	0.86	0.16	0.66

\*C=0.86 for 2-6% slopes  
 \*\*C=0.16 for avg. slopes 2-6%

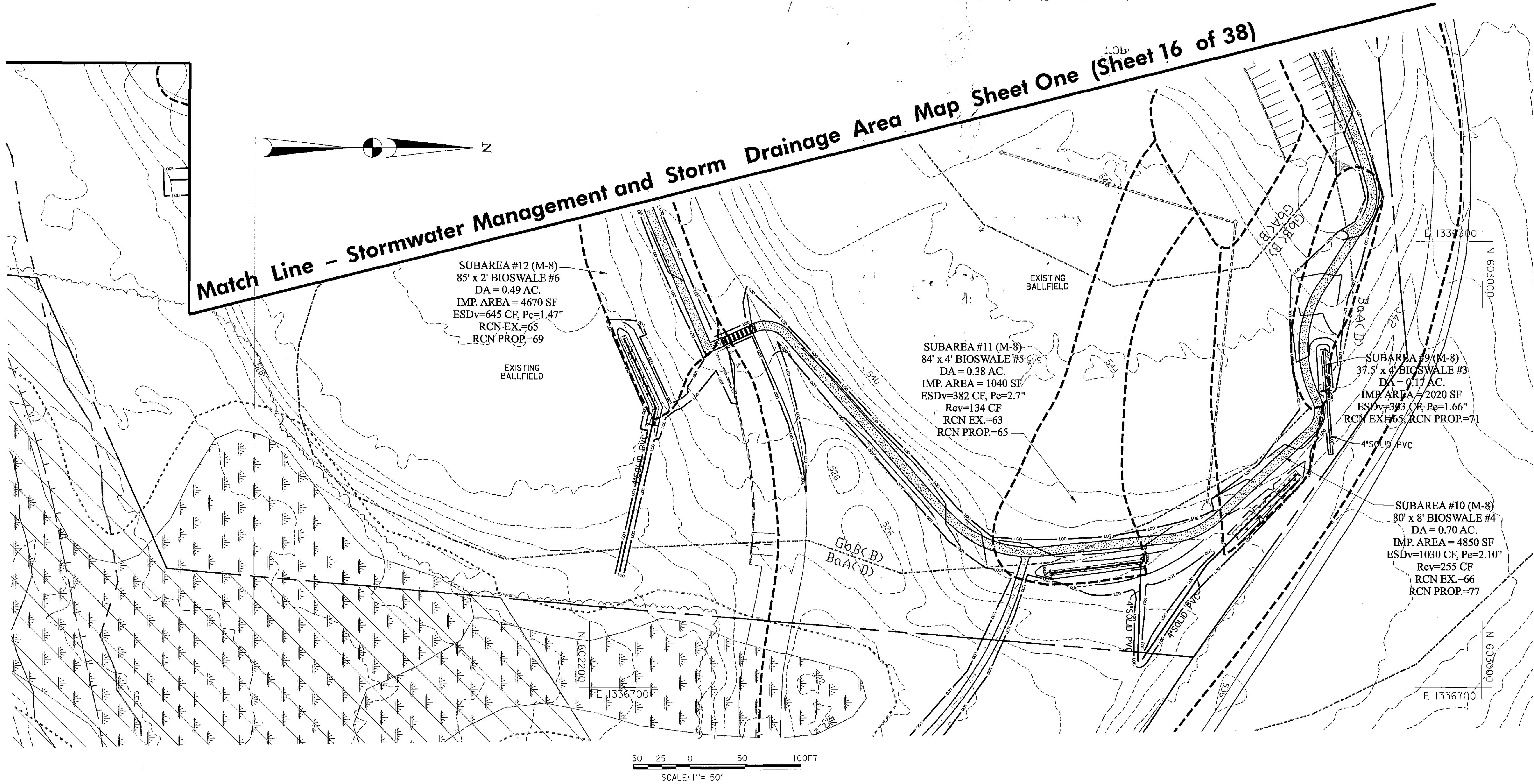
**SWM Summary for Site DA=4.72 Acres**

	Rev (CF)	WQv(CF)	CPv (CF)	Q10 (CFS)	Q100 (CFS)
Required	1,427	5,627	10,083	10.32	20.67
Provided	1,455	5,627	10,501*	17.14**	29.24**

\*In accordance with MDE 5.19 "Cpv shall be based on the runoff from the 1-year 24 hour storm calculated using the reduced RCN (see table 5.3). If the reduced RCN for a drainage area reflects "woods in good condition", then Cpv has been satisfied for that drainage area. Site meets ESDv to MEP required of 10,083CF and Cpv by meeting a reduced RCN of 56.

\*\* Site has direct discharge to Patuxent river and stream does not require 10 year and 100 year peak management.

Rev for site is met by recharge reservoirs in microbioretention and bioswales. WQv, and CPv are met for site by Microbioretention, Bioswales, grass swales, and non-rooftop disconnect.



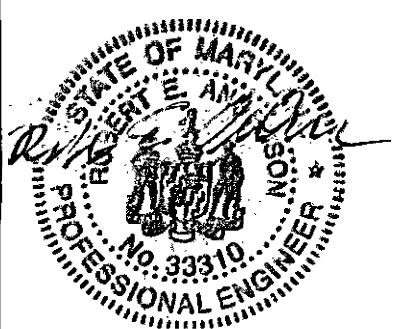
APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Spill</i> DIRECTOR	1/18/15 DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Barbara M. Roseman</i> DATE	2/12/2013 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>Janet Lee</i> DIRECTOR OF PUBLIC WORKS	2/5/13 DATE
<i>Thomas F. Butler</i> CHIEF-BUREAU OF ENGINEERING	2/15/13 DATE
<i>Steve Shanahan</i> CHIEF, TRANSPORTATION & SPECIAL PROJECTS	2/14/13 DATE
<i>Michael J. ...</i> CHIEF-DEVELOPMENT ENGINEERING DIVISION	2/22/13 DATE
<i>Kevin ...</i> CHIEF-DIVISION OF LAND DEVELOPMENT	2/25/13 DATE
<i>Michael ...</i> DIRECTOR	2/25/13 DATE

OWNER:  
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
 7120 OAKLAND MILLS ROAD  
 COLUMBIA, MD 21046  
 ATTN: MR. RAIL DELERME  
 VOICE 410-313-4689  
 FAX 410-313-4646

DEVELOPER:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 9250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 ATTN: MR. MARSHALL DAVIDSON  
 VOICE 410-313-5306  
 FAX 410-313-6144

**GPI** GREENMAN-PEDERSEN, INC.  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
 10917 GILFORD ROAD, ANNAPOLIS, MARYLAND 21403  
 WASH. (301) 470-2712 BALT. (410) 860-3055  
 FAX (301) 490-2649 www.gpi.net

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. 3330, Expiration Date: 07/02/2014.



DES: R.H.			
DRN: A.W.W.			
CHK: M.S.Z.			
DATE: May, 2012			
BY	NO	REVISION	DATE

**Stormwater Management and Storm Drainage Area Map Sheet Two**

**REVISED SITE DEVELOPMENT PLAN ALPHA RIDGE PARK ADDITIONS DESIGN**  
 3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54

SCALE: AS SHOWN  
 SHEET 17 OF 38



AS-BUILT DATA FOR BIOSWALES (M-8)														
*TO BE COMPLETED BY THE CERTIFYING ENGINEER														
FEATURE	SUBAREA 6 BIOSWALE #1		SUBAREA 7 BIOSWALE #2		SUBAREA 9 BIOSWALE #3		SUBAREA 10 BIOSWALE #4		SUBAREA 11 BIOSWALE #5		SUBAREA 12 BIOSWALE #6		SUBAREA 13 BIOSWALE #7	
	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT
BOTTOM WIDTH (FT)	8		8		4		8		8		5		8	
TOTAL LENGTH (FT)	63		64		37.5		80		84		86		120	
ESDV PROVIDED (CU. FT)	709		606		303		1030		382		645		1174	
PE PROVIDED (INCH)	1.96		1.85		1.66		2.1		2.7		1.47		1.61	
SIDE SLOPE RATIOS	3:1		3:1		3:1		3:1		3:1		3:1		3:1	
SWALE LONGITUDINAL SLOPE	0.64%		0.625%		0.53%		0.58%		0.48%		0.58%		0.5%	
BOTTOM ELEVATION OF BIOSWALE	527.4 - 527.0		552.6 - 552.8		540.7 - 540.5		536.9 - 534.5		535.2 - 534.8		523.5 - 523		521.6 - 521.0	
OVERFLOW WEIR ELEVATION	528		553.4		541.5		537.7 - 535.5		535.8		524		522.0	
UNDERDRAIN PIPE DIAMETER	4		4		4		4		4		4		4	
THICKNESS OF FILTER MEDIA (INCH)	24		24		24		24		24		24		24	
UNDERDRAIN PIPE ELEVATION	524.65 - 524.25		550.05 - 549.85		537.94 - 537.75		534.15 - 531.75		532.45 - 532.05		520.75 - 520.25		520.75 - 520.25	
STONE UNDERNEATH THE PIPE (INCH)	4		12		12		12		12		4		4	

AS-BUILT DATA FOR MICRO BIORETENTION (M-6)								
*TO BE COMPLETED BY THE CERTIFYING ENGINEER								
FEATURE	SUBAREA 1 MICROBIORETENTION #1		SUBAREA 2 MICROBIORETENTION #2		SUBAREA 3 MICROBIORETENTION #3		SUBAREA 4 MICROBIORETENTION #4	
	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT	DESIGN	*AS-BUILT
BOTTOM WIDTH (FT)	4		4.5		5.5		2	
TOTAL LENGTH (FT)	116		89		149		157	
ESDV PROVIDED (CU. FT)	1083		890		1689		1047	
PE PROVIDED (INCH)	1.37		1.05		1.0		1.421	
SIDE SLOPE RATIOS	3:1		3:1		3:1		3:1	
LONGITUDINAL SLOPE	0.0%		0.0%		0.0%		0.0%	
BOTTOM ELEVATION	538.5		538.5		534.5		534.0	
OVERFLOW WEIR ELEVATION	539.5		539.5		535.5		535.0	
UNDERDRAIN PIPE DIAMETER	4		4		4		4	
THICKNESS OF FILTER MEDIA (INCH)	24		24		24		24	
UNDERDRAIN PIPE ELEVATION	535.5		535.5		531.5		531	
STONE UNDERNEATH THE PIPE (INCH)	12		12		12		12	

**Maintenance Schedule for Bioswales (M-8)**

ACTIVITY	FREQUENCY
Trash Removal	Quarterly or more frequently, if needed
Invasive Plant Control	Monthly during growing season (May-Oct)
Watering	During dry weather to establish vegetation
Mulching	Semiannually
Pruning	As needed, Determined by quarterly inspection
Reinforcement Planting	As needed, Determined by quarterly inspection
Removal of Sediment	Yearly
Repair Side Slopes & bottom	As needed

**Required Maintenance for Non-Rooftop Disconnect (N-2)**

AREAS RECEIVING NON-ROOFTOP DISCONNECT SHALL BE PROTECTED FROM COMPACTION. STORMWATER MANAGEMENT SEQUENCE OF CONSTRUCTION 1. TO MINIMIZE DISTURBANCE AND COMPACTION, CONSTRUCTION VEHICLES AND EQUIPMENT SHOULD AVOID AREAS RECEIVING DISCONNECTED RUNOFF. SHOULD AREAS RECEIVING DISCONNECTED RUNOFF BECOME COMPACTED, SCARIFYING THE SURFACE OR ROTOTILLING THE SOIL TO A DEPTH OF FOUR TO SIX INCHES SHALL BE PERFORMED TO ENSURE PERMEABILITY. ADDITIONALLY, AMENDMENTS MAY BE NEEDED FOR TIGHT, CLAYEY SOILS.

**Required Maintenance for Bioswales (M-8)**

Regular mowing may be needed to reduce competition from weeds. When the filtering capacity of the filter diminishes substantially (e.g., when water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. The removed sediments should be disposed in an acceptable manner (e.g., landfill). Silt/sediment should be removed from the filter bed when the accumulation exceeds one inch.

**Material Specifications for Bioswales, Microbioretention**

Material	Specification	Size	Notes
PLANTINGS	SEED MIX (SEE SPECIFICATION)	N/A	SEE SPECIFICATION
PLANTING SOIL (2' DEEP)	25% Virginia Wild Rye 25% Deer Tongue, 1/2 Tloga 20% Fox Sedge 10% Creeping Bentgrass 15% Autumn Bentgrass 15% Tickgrass	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
MULCH	SHREDDED HARDWOOD	N/A	3' MIN.
BRIDGING LAYER	WASHED STONE	#7 stone	4"
UNDERDRAIN GRAVEL	NO. 57 STONE	N/A	SEE DETAIL FOR DEPTH
UNDERDRAIN PIPING	F758, TYPE PS 28 OR ASSHTO M-278	4" PERF. SCHEDULE 40 PVC OR SDR35	3/4" PERF. AT 6' O.C., 4 HOLES PER ROW, MIN. OF 3" GRAVEL OVER PIPES.

**Stormwater Management Sequence of Construction**

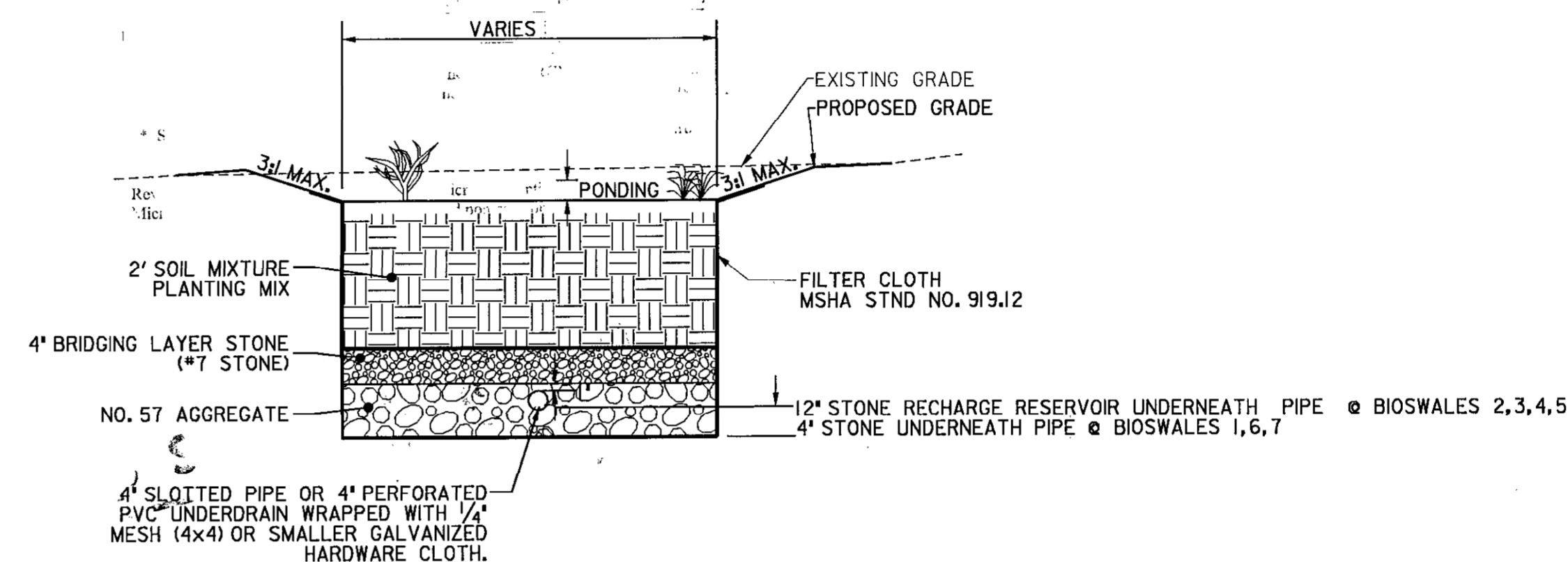
1. NOTIFY INSPECTOR AND ENGINEER 48-HOURS PRIOR TO CONSTRUCTION OF BIOSWALES AND SCHEDULE AN ON-SITE PRE-CONSTRUCTION MEETING. INSPECTION IS REQUIRED DURING PLACEMENT OF BACKFILL AND UNDERDRAINS, AND UPON FINAL GRADING AND PERMANENT STABILIZATION.
2. ENGINEER TO BEGIN PREPARATION OF AS-BUILT PLANS.
3. STAKE OUT BIOSWALES AREA.
4. CONSTRUCT CLOSED STORM DRAIN SYSTEM FROM DOWNSTREAM TO UPSTREAM AND PROVIDE FINAL STABILIZATION OF DISTURBED AREAS. ALL AREA WITHIN THE DRAINAGE TO THE BIOSWALES SHALL BE PERMANENTLY STABILIZED.
5. EXCAVATE FOR THE CONSTRUCTION OF BIOSWALES, CONSTRUCT UNDER DRAIN PIPE TO OUTLET, BACKFILL BIOSWALE AREA AS PER DETAILS, PROVIDE FINAL STABILIZATION FOR ALL DISTURBED AREAS.
6. ENGINEER TO PROVIDE FINAL AS-BUILT PLANS.

**Required Maintenance for Grass Swales (M-8)**

ALL WORK TO BE PERFORMED BY THE OWNER - HOWARD COUNTY, DEPARTMENT OF RECREATION AND PARKS. GRASS SWALES SHOULD BE MOWED AS REQUIRED DURING THE GROWING SEASON TO MAINTAIN GRASS HEIGHTS IN THE 4 TO 6 INCH RANGE. SEDIMENT BUILD-UP WITHIN THE BOTTOM OF THE GRASS SWALE SHALL BE REMOVED WHEN 25% OF THE ORIGINAL WQV HAS BEEN EXCEEDED.

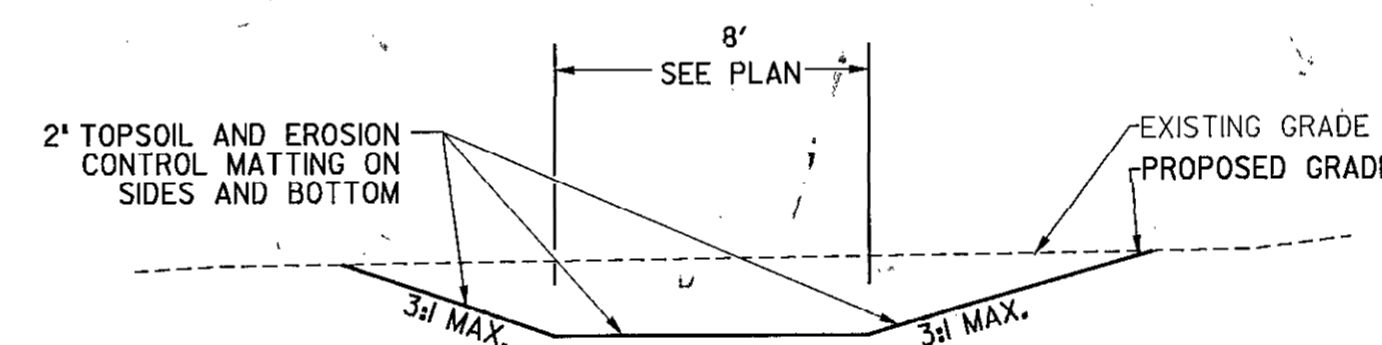
**Required Maintenance for Microbioretention (M-6)**

- MICRO-BIORETENTION MAINTENANCE CRITERIA:
1. THE TOP FEW INCHES OF FILTER MEDIA SHOULD BE REMOVED AND REPLACED WHEN WATER PONDS FOR MORE THAN 48 HOURS. SILTS AND SEDIMENT SHOULD BE REMOVED FROM THE SURFACE OF THE FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH.
  2. WHERE PRACTICES ARE USED TO TREAT AREAS WITH HIGHER CONCENTRATIONS OF HEAVY METALS (E.G. PARKING LOTS, ROADS), MULCH SHOULD BE REPLACED ANNUALLY. OTHERWISE, THE TOP TWO TO THREE INCHES SHOULD BE REPLACED AS NECESSARY.
  3. OCCASIONAL PRUNING AND REPLACEMENT OF DEAD VEGETATION OF DEAD VEGETATION IS NECESSARY. IF SPECIFIC PLANTS ARE NOT SURVIVING, MORE APPROPRIATE SPECIES SHOULD BE USED. WATERING MAY BE REQUIRED DURING PROLONGED DRY PERIODS.



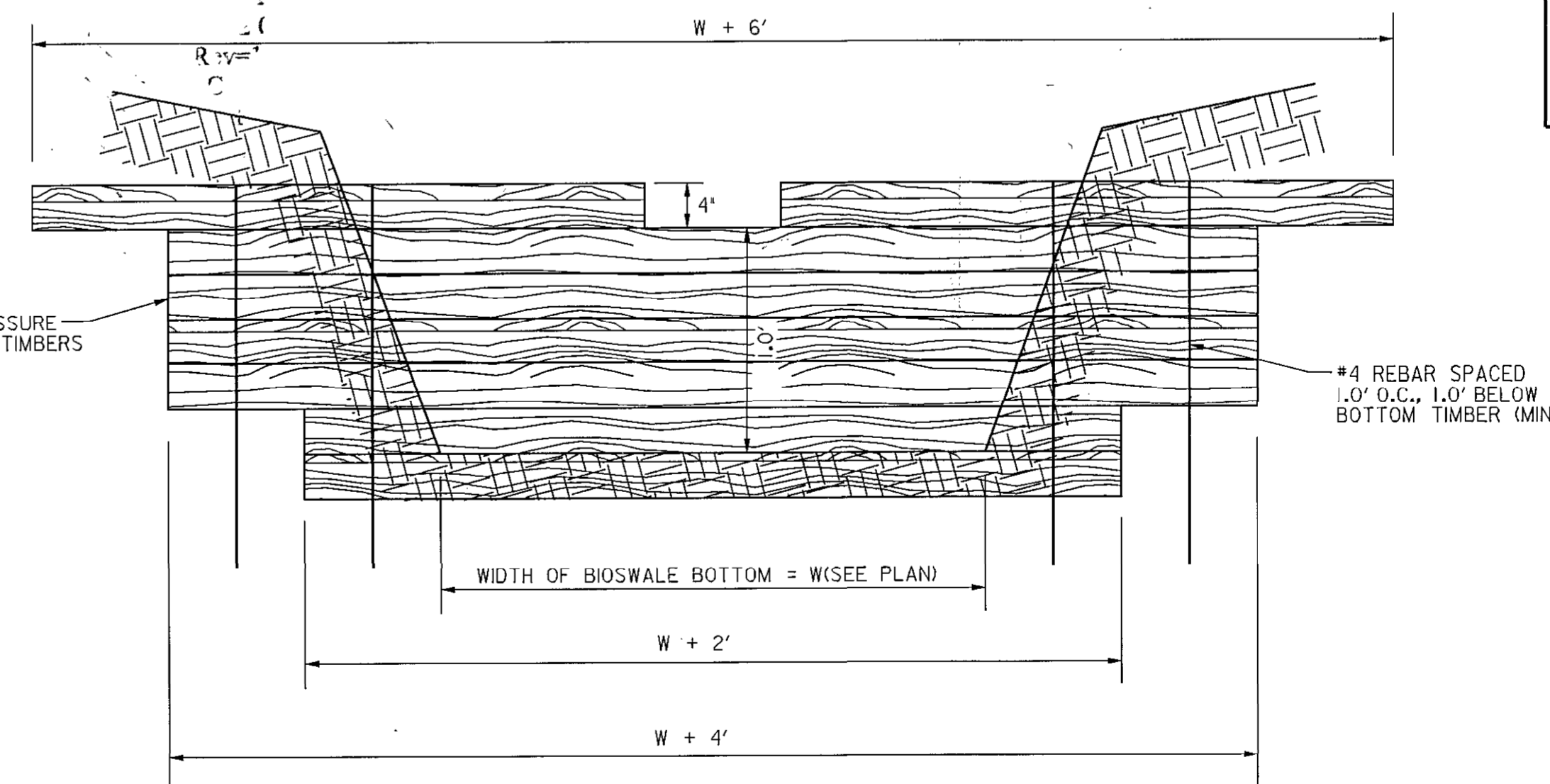
TYPICAL SECTION AT BIOSWALES

NOT TO SCALE



TYPICAL SECTION AT GRASS SWALE

NOT TO SCALE



TYPICAL BIOSWALE SECTION WITH TIMBER CHECK DAMS

SCALE: 1" = 1'-0"

THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D.	DATE
APPROVED: DEPARTMENT OF RECREATION AND PARKS	1/18/13
DIRECTOR	DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS	2/12/2013
DIRECTOR	DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS	2/15/13
DIRECTOR OF PUBLIC WORKS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	2/22/13
CHIEF-DEVELOPMENT ENGINEERING DIVISION	DATE
APPROVED: DEPARTMENT OF LAND DEVELOPMENT	2/25/13
CHIEF-DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE

OWNER:	DEVELOPER:
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OKLAND MILS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5306 FAX 410-313-6144



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. 33310. Expiration Date: 07/02/2014



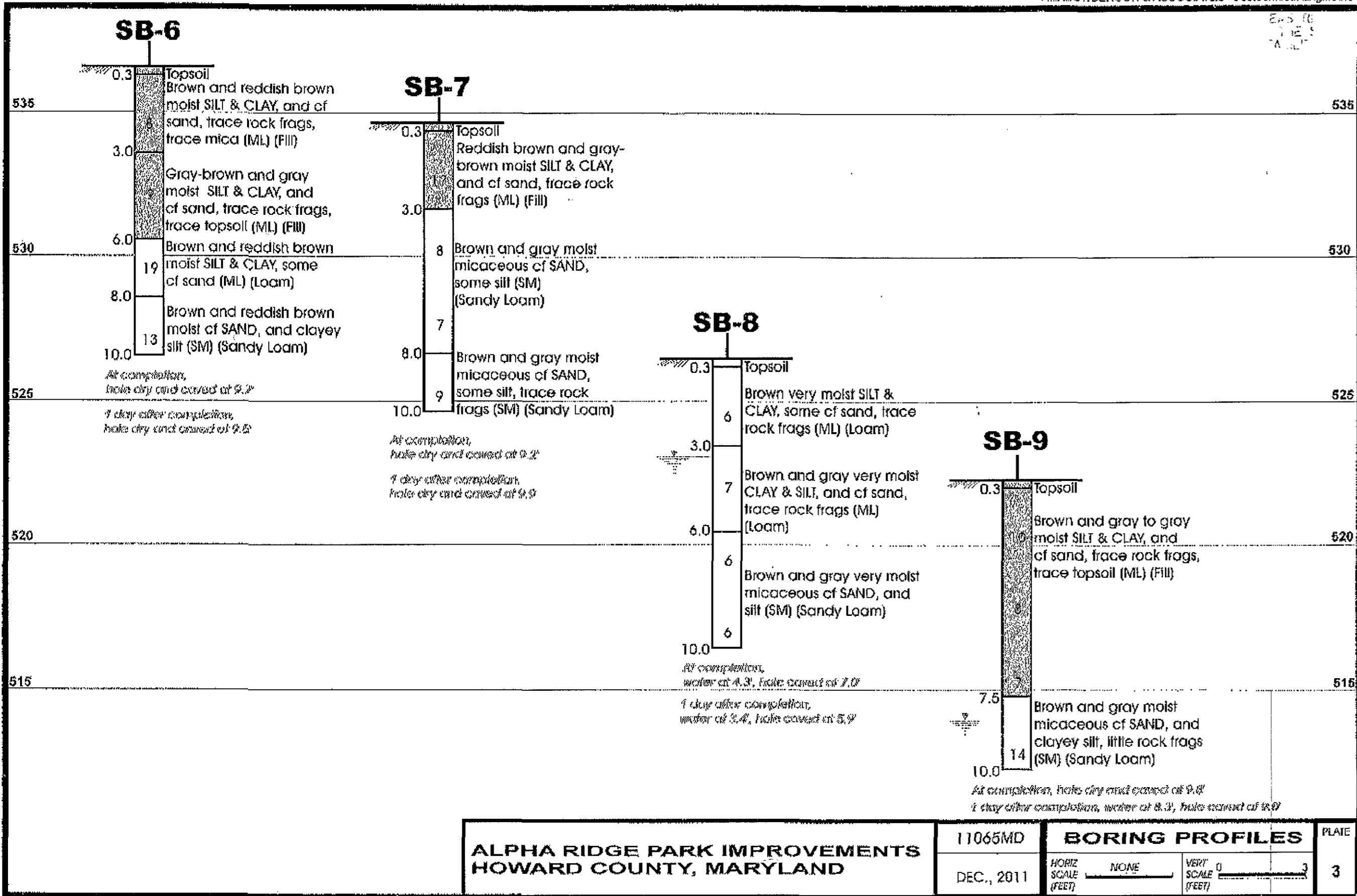
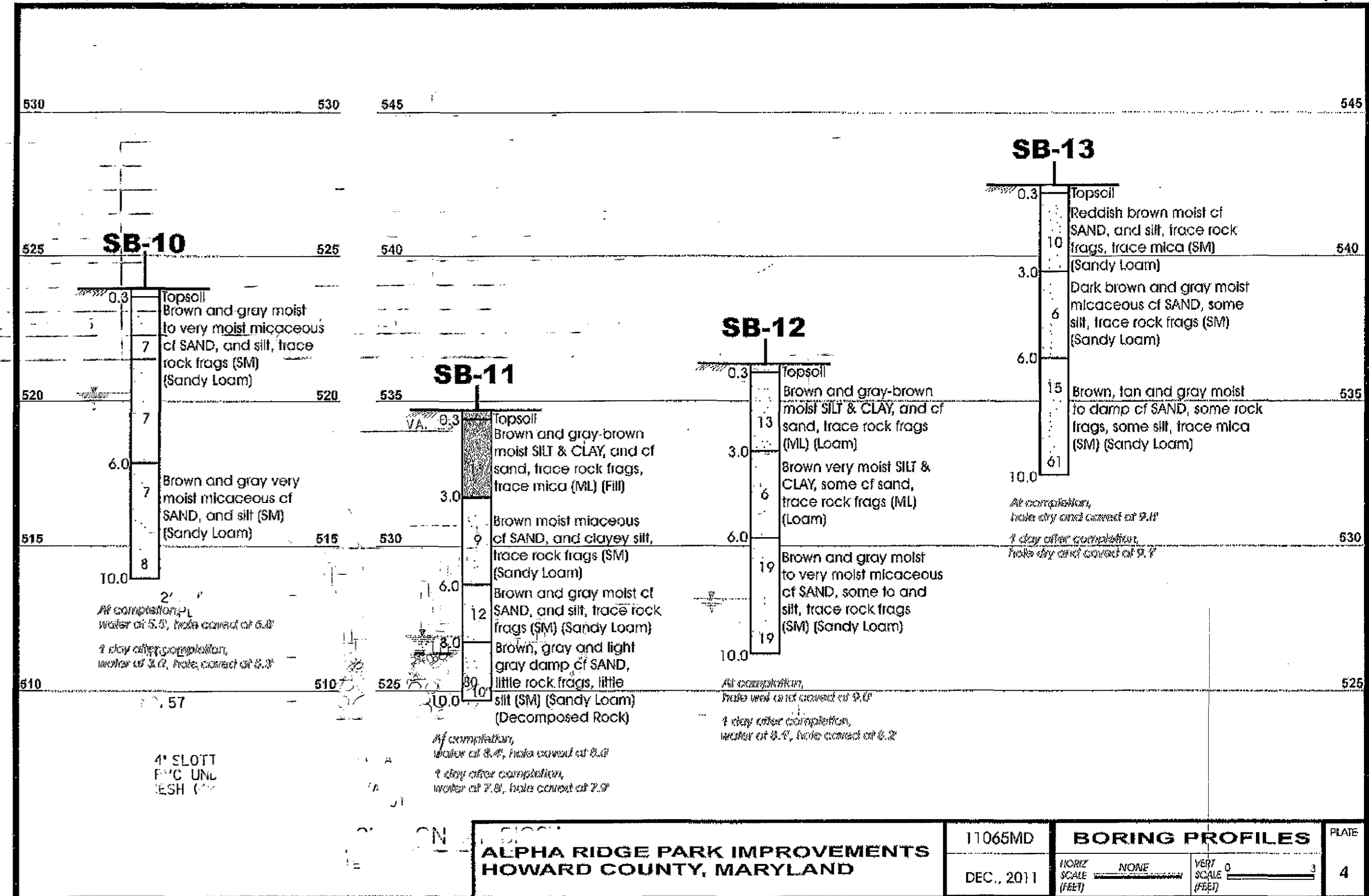
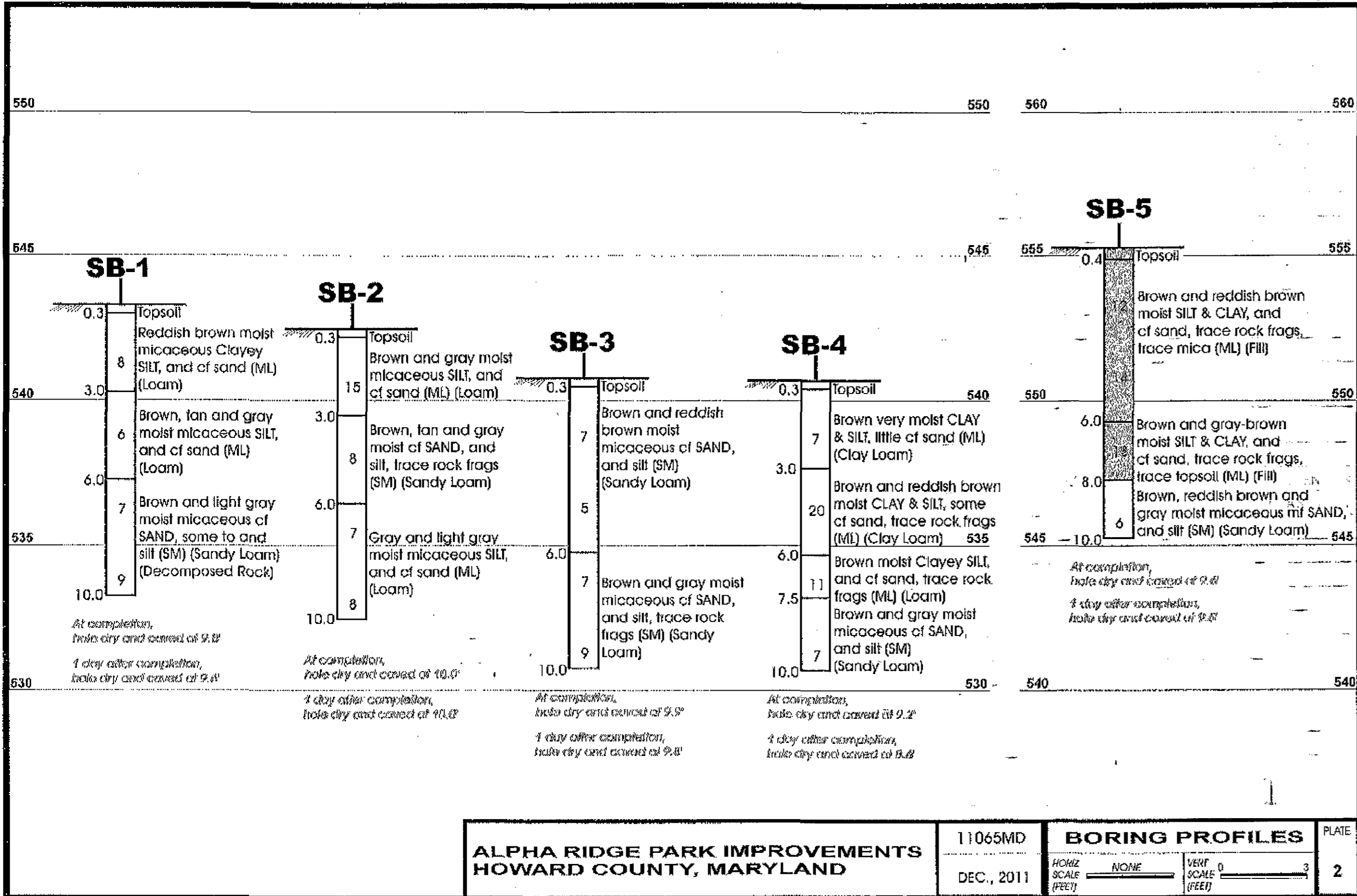
DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: May, 2012	BY: NO	REVISION:	DATE:		

**Stormwater Management Details and Notes**

REVISION	DATE

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

SCALE: AS SHOWN  
SHEET 18 OF 38  
SDP 90-18



APPROVED: DEPARTMENT OF RECREATION AND PARKS  
 Director: *John R. Boyd*

APPROVED: FOR PUBLIC WATER AND SEWER SYSTEMS  
 Director: *Salman for Maura A.*

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Director: *Jan M. ...*

Chief-Bureau of Engineering: *Mona E. Butler*

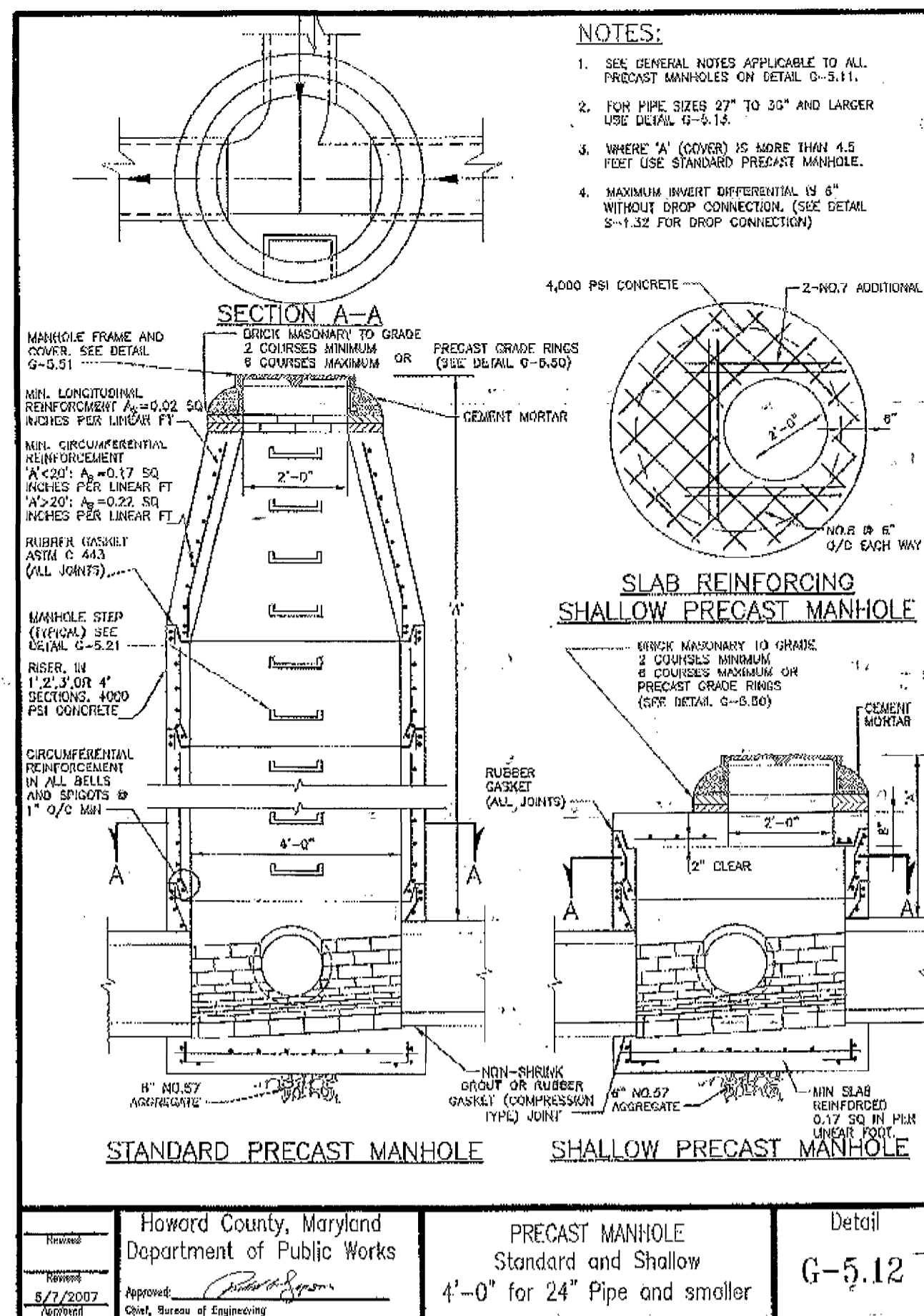
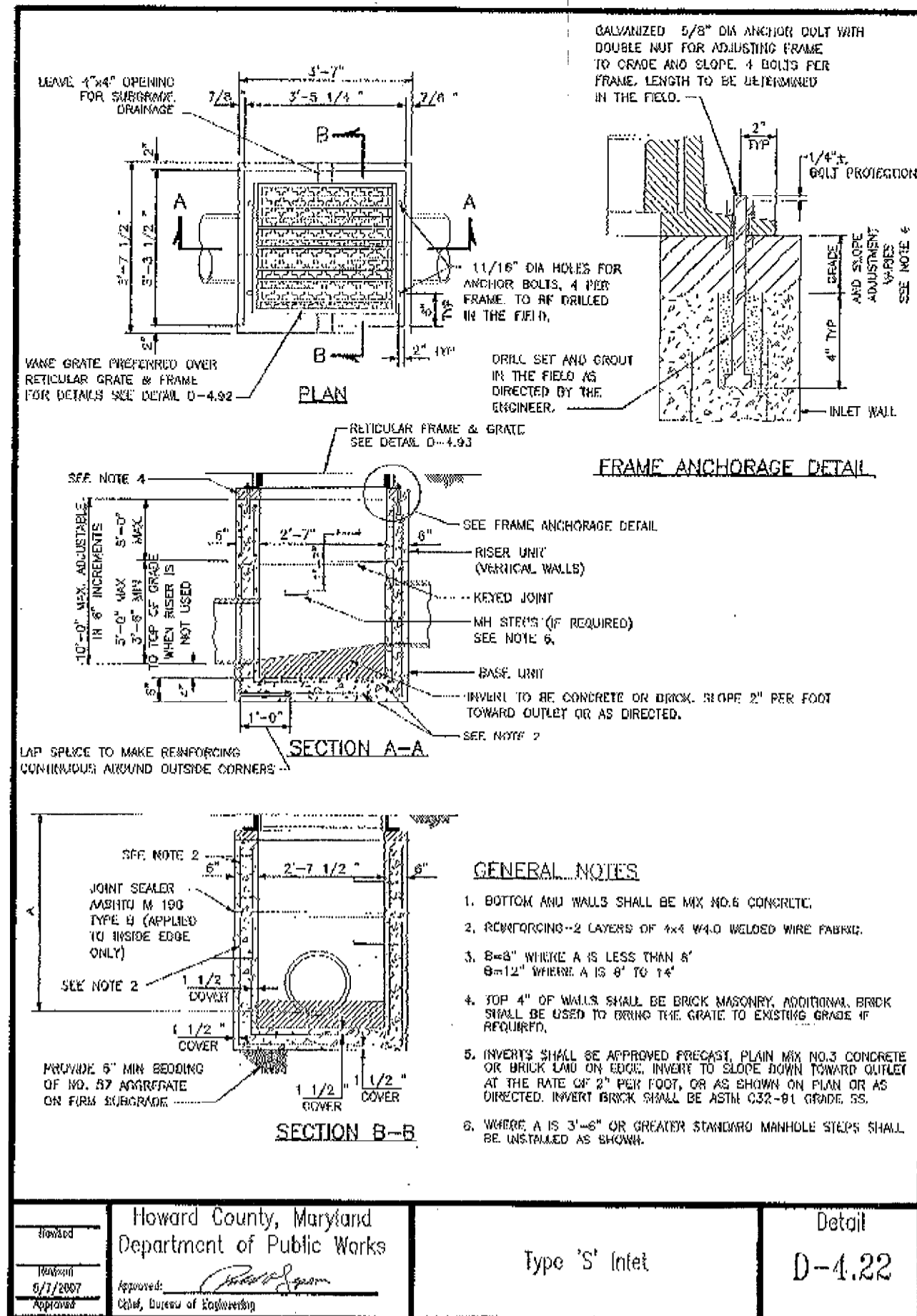
Chief, Transportation & Special Services: *Steve Shaver*

APPROVED: DEPARTMENT OF PLANNING AND DEVELOPMENT  
 Chief-Development Engineering: *...*

Chief-Division of Land Development: *...*

Director: *Frank D. ...*

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-4689 FAX 410-313-4646	<b>GPI</b> GREENMAN-PEDERSEN, INC. ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS 10577 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20710 WASH. (301) 470-2772 BALT. (410) 880-3055 FAX (301) 490-2649 www.gpi.net	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. 33310, Expiration Date: 07/02/2014	DES: R.H. DRN: A.W.W. CHK: M.S.Z. DATE: May, 2012	REVISION BY NO DATE	<b>Soil Boring Logs</b> REVISED SITE DEVELOPMENT <b>ALPHA RIDGE PARK IMPROVEMENTS</b> <b>ADDITIONS DESIGN</b> 3rd ELECTION DISTRICT, TAX GRID#20,21, PARCELS 23
---	---	--	--	------------------------	---



**STRUCTURE SCHEDULE**

NO.	TYPE	WIDTH/DIAM.	INV. OUT	TOP ELEV. AT CENTERLINE	STD. DETAIL*	COORDINATE NORTHING/EASTING
IIA	'S' INLET	2'-7 1/2'	535.50	539.50	D-4.22	N 602,274.02 E 1,335,770.17
I2A	'S' INLET	2'-7 1/2'	535.20	539.50	D-4.22	N 602,271.19 E 1,335,788.90
I3A	'S' INLET	2'-7 1/2'	531.50	535.00	D-4.22	N 602,127.81 E 1,335,965.52
I4A	'S' INLET	2'-7 1/2'	531.50	535.50	D-4.22	N 602,101.40 E 1,335,758.19
M1A	PRECAST STD MANHOLE	4.0'	528.54	531.95	G5.12	N 602,026.18 E 1,335,774.56
M2A	PRECAST STD MANHOLE	5.0'	529.44	536.00	G5.12	N 602,093.86 E 1,335,784.68
M3A	PRECAST STD MANHOLE	4.0'	535.20	539.50	G5.14	N 602,275.94 E 1,335,705.81
S1A	CONCRETE END SECTION	18"	528.10		D-5.51	N 601,991.25 (AT END) E 1,335,786.88

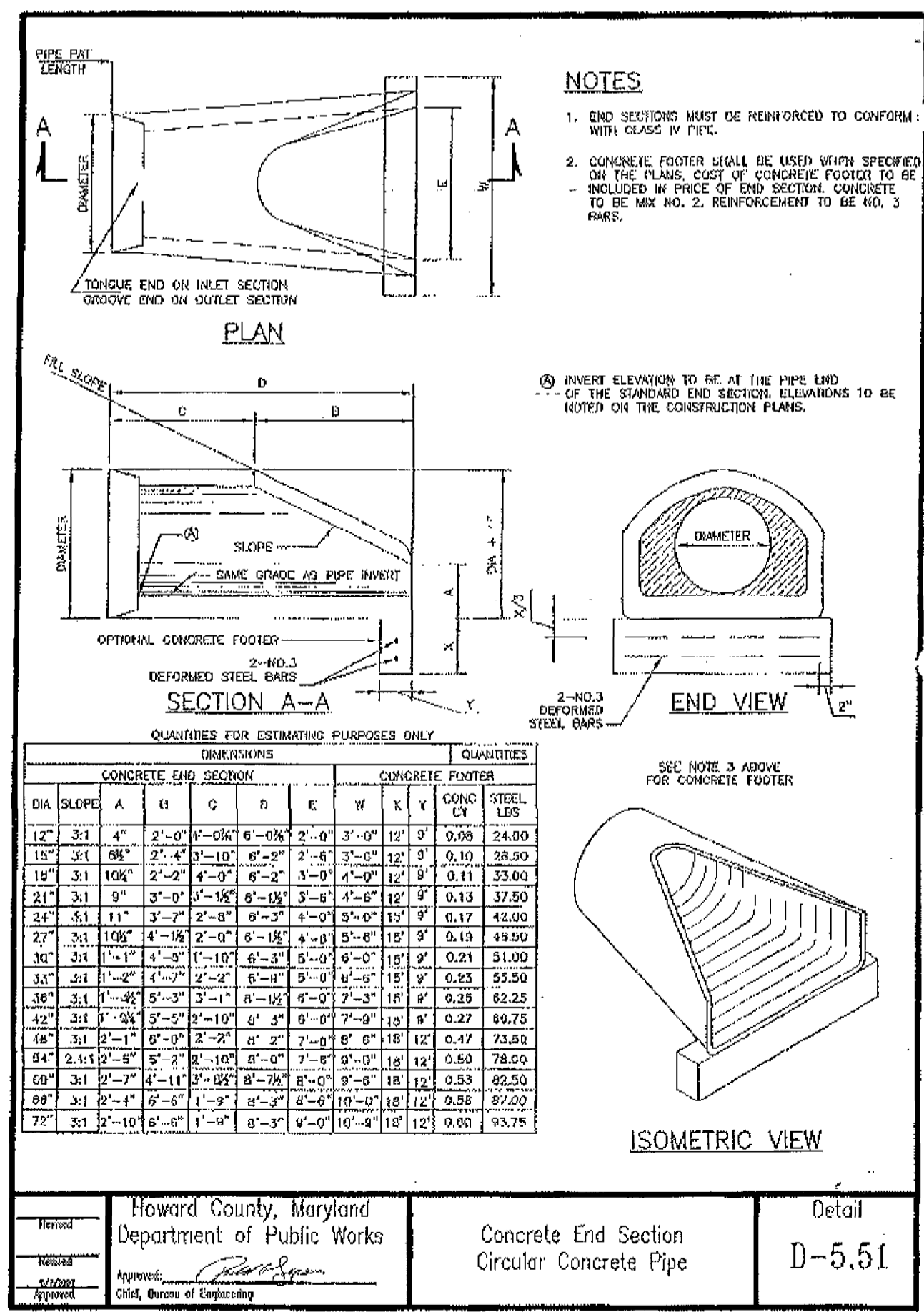
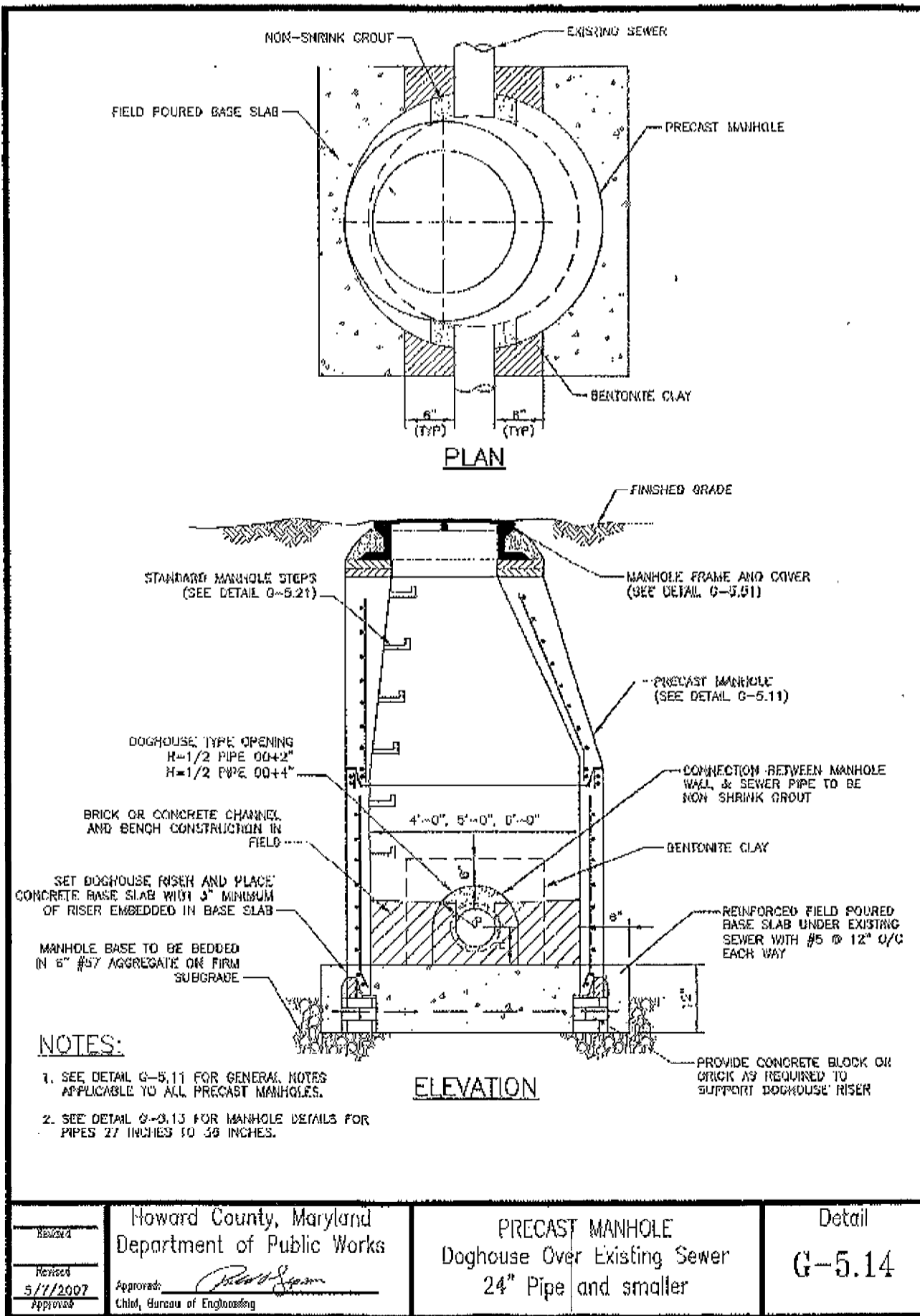
**PIPE SCHEDULE**

FROM	TO	SIZE	TYPE	LENGTH
I1A	I2A	15"	RCP CL IV	15.1 LF
I2A	M2A	15"	RCP CL IV	173 LF
M2A	M1A	18"	RCP CL IV	64 LF
M1A	S1A	18"	RCP CL III	29 LF
I3A	M2A	15"	RCP CL III	181 LF
I4A	M2A	15"	RCP CL III	27.7 LF
M2A	M3A	4"	SOLID PVC	7 LF
M3A	---	4"	PERF. PVC	113 LF
---	---	4"	PERF. PVC	88 LF
---	OUTFALL	4"	SOLID PVC	260.7 LF
---	---	4"	PERF. PVC	147 LF
---	OUTFALL	4"	SOLID PVC	55.2 LF
---	---	4"	PERF. PVC	155 LF
---	OUTFALL	4"	SOLID PVC	200 LF
---	---	4"	PERF. PVC	61 LF
---	OUTFALL	4"	SOLID PVC	21 LF
---	---	4"	PERF. PVC	62 LF
---	OUTFALL	4"	SOLID PVC	46 LF
---	---	4"	PERF. PVC	35.5 LF
---	OUTFALL	4"	SOLID PVC	55.7 LF
---	---	4"	PERF. PVC	81 LF
---	OUTFALL	4"	SOLID PVC	139 LF
---	---	4"	PERF. PVC	84 LF
---	OUTFALL	4"	SOLID PVC	89 LF
---	---	4"	PERF. PVC	84 LF
---	OUTFALL	4"	SOLID PVC	135 LF
---	---	4"	PERF. PVC	108 LF
---	OUTFALL	4"	SOLID PVC	45 LF

\* HOWARD COUNTY STD. DETAIL

**PIPE SUMMARY**

DIA. (IN.)	TYPE	TOTAL LENGTH
4"	SOLID PVC	1053.6'
4"	PERFORATED PVC	1080.5'
15"	RCP CL. III	208.7'
15"	RCP CL. IV	188.1'
18"	RCP CL. IV	64'



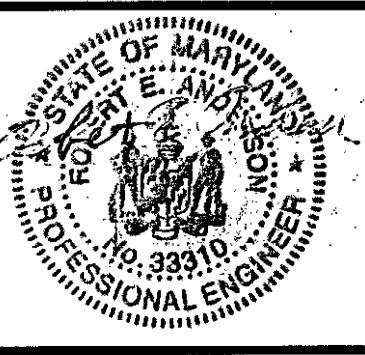
Howard County, Maryland Department of Public Works	PRECAST MANHOLE Doghouse Over Existing Sewer	Detail G-5.14
---	---	------------------

Howard County, Maryland Department of Public Works	Concrete End Section Circular Concrete Pipe	Detail D-5.51
---	--	------------------

APPROVED: DEPARTMENT OF RECREATION AND PARKS <i>John R. Boyd</i> 1/12/13 DIRECTOR DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS <i>Balfanz for Mauna Reservoir</i> 2/12/2013 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS <i>John M. ...</i> 2/13/13 DIRECTOR OF PUBLIC WORKS DATE
<i>Thomas ...</i> 2/15/13 CHIEF-BUREAU OF ENGINEERING DATE
<i>Steve ...</i> 2/15/13 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>...</i> 2/22/13 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE
<i>...</i> 2/25/13 CHIEF-DIVISION OF LAND DEVELOPMENT DATE
<i>...</i> 2/27/13 DIRECTOR DATE

OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 2950 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5306 FAX 410-313-6144
---	---

**GPI GREENMAN-PEERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION MANAGERS & INSPECTORS  
10977 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20710  
WASH. (301) 410-2772 BALT. (410) 880-3055  
FAX (301) 410-2649 www.gpi.com



DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: May, 2012	BY	NO	REVISION	DATE	

**Storm Drain Details**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK**  
**ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID\*20,21, PARCELS 23 & 54

**STANDARD EROSION AND SEDIMENT CONTROL NOTES**

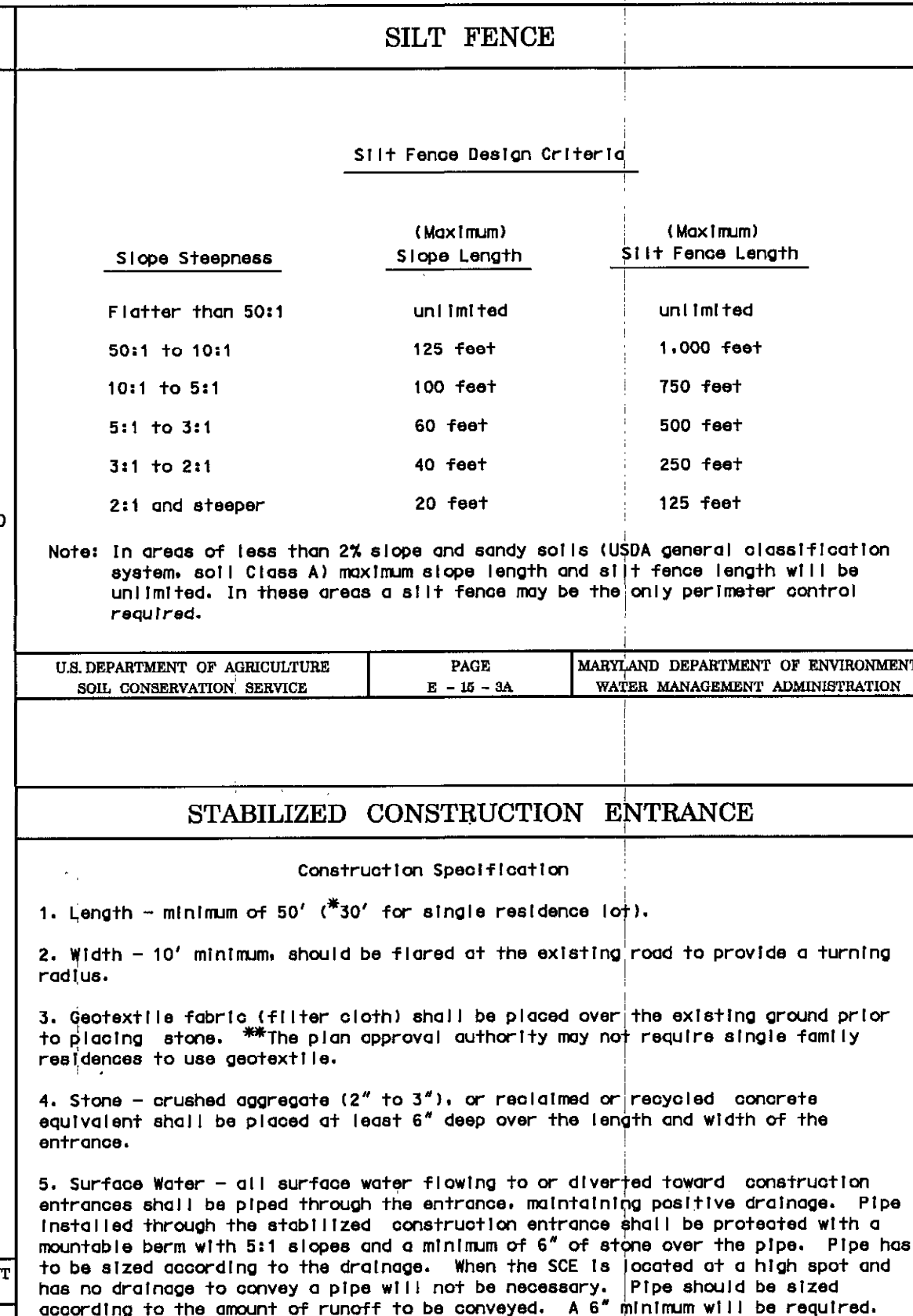
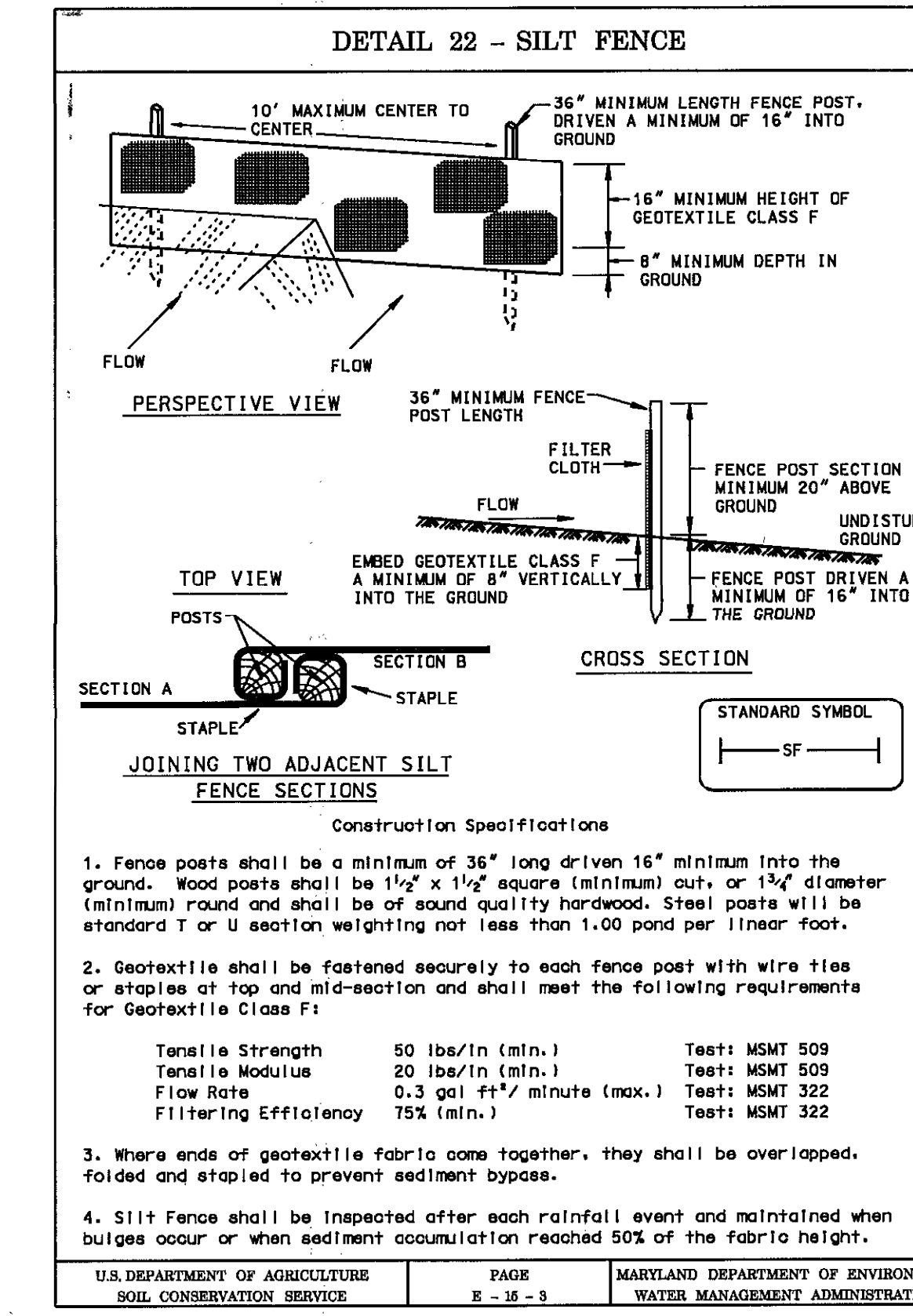
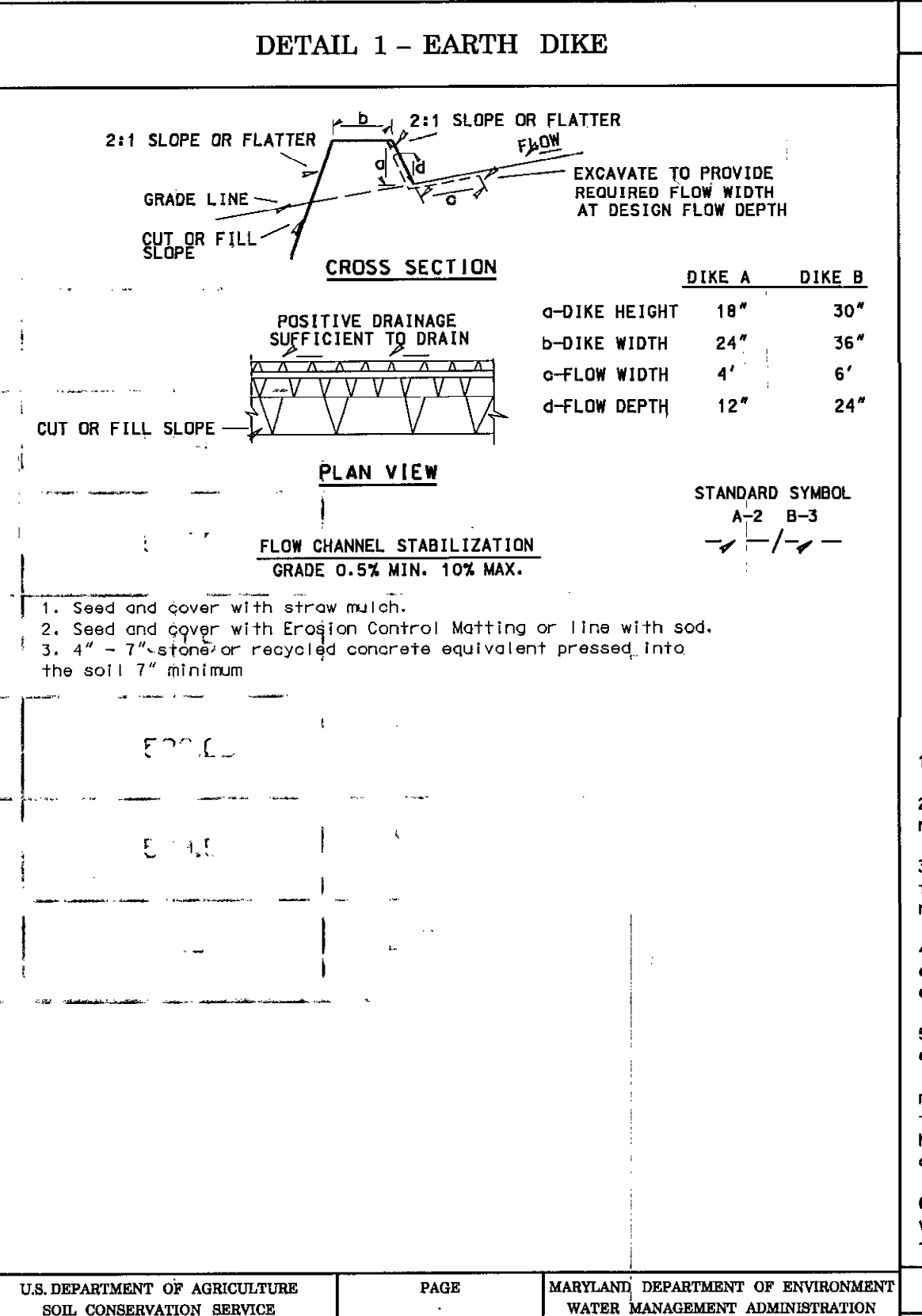
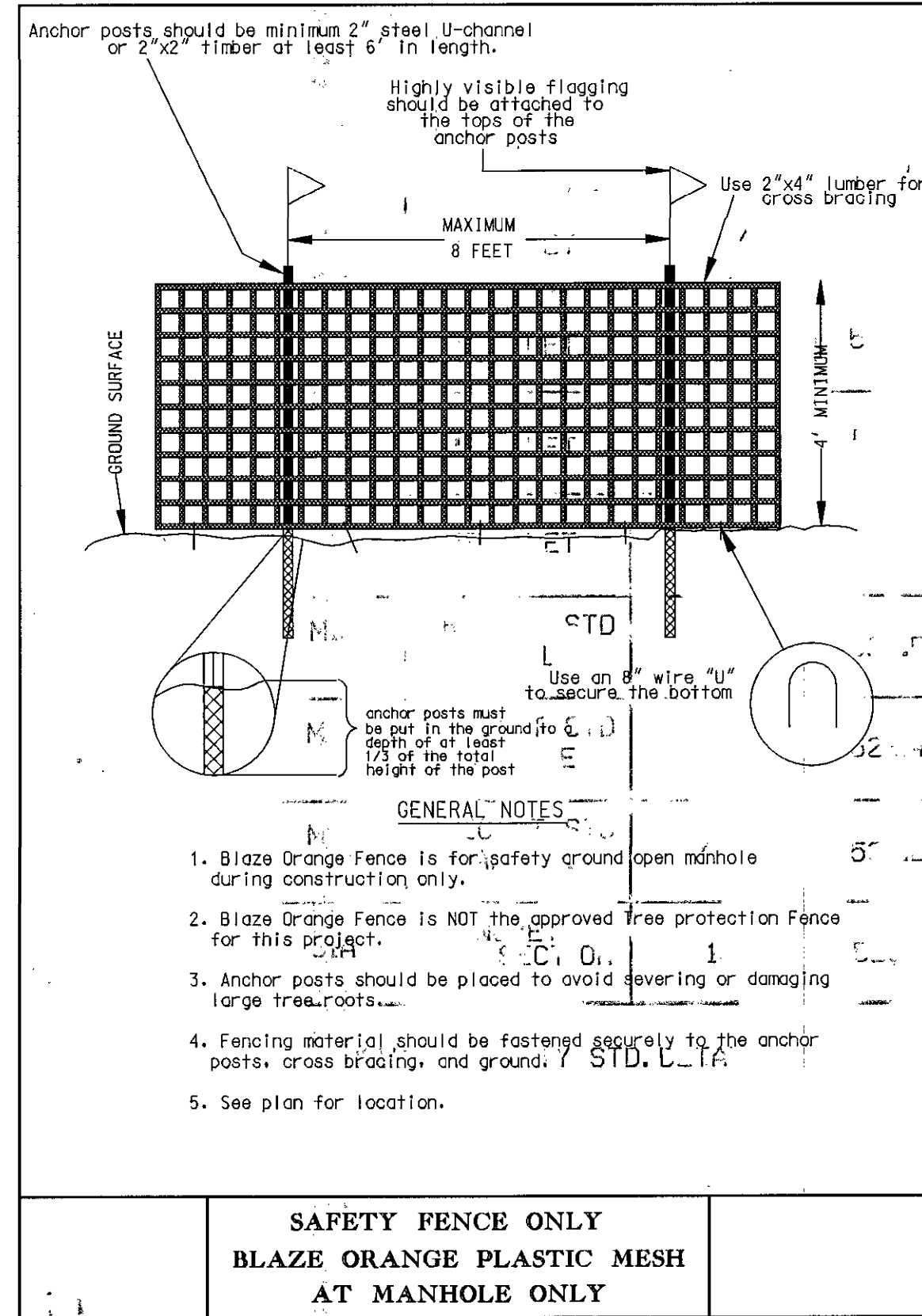
1 August 2008

- The permittee shall notify the Department of Permitting Services (DPS) forty-eight (48) hours before commencing any land disturbing activity and, unless waived by the Department, shall be required to hold a pre-construction meeting between them or their representative, their engineer and an authorized representative of the Department.
- The permittee must obtain inspection and approval by DPS at the following points:
  - At the required pre-construction meeting.
  - Following installation of sediment control measures and prior to any other land disturbing activity.
  - During the installation of a sediment basin or stormwater management structure at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction is mandatory.
  - Prior to removal or modification of any sediment control structure(s).
  - Prior to final acceptance.
- The permittee shall construct all erosion and sediment control measures per the approved plan and construction sequence, shall have them inspected and approved by the Department prior to beginning any other land disturbing activity, ensure that all runoff from disturbed areas is directed to the sediment control devices, and shall not remove any erosion or sediment control measure without prior permission from the Department.
- The permittee shall protect all points of construction ingress and egress to prevent the deposition of materials onto traversed public thoroughfares. All materials deposited onto public thoroughfares shall be removed immediately.
- The permittee shall inspect periodically and maintain continuously in effective operating condition, all erosion and sediment control measures until such times as they are removed with prior permission from the Department. The permittee is responsible for immediately repairing or replacing any sediment control measures which have been damaged or removed by the permittee or any other person.
- All sediment basins, trap embankments, perimeter dikes, and all disturbed slopes steeper or equal to 3:1 shall be stabilized with sod, seed, and anchored straw mulch, or other approved stabilization measures, within seven (7) calendar days of establishment. All areas disturbed outside of the perimeter sediment control system must be minimized and stabilized immediately. Maintenance must be performed as necessary to ensure continued stabilization.
- The permittee shall apply sod, seed, and anchored straw mulch, or other approved stabilization measures to all disturbed areas within fourteen (14) calendar days after stripping and grading activities have ceased on that area. Maintenance shall be performed as necessary to ensure continued stabilization. Active construction areas, such as borrow or stockpile areas, roadway improvements, and areas within fifty (50) feet of a building under construction may be exempt from this requirement, provided that erosion and sediment control measures are installed and maintained to protect those areas.
- Prior to removal of sediment control measures, the permittee shall stabilize all contributory disturbed areas with required soil amendments and topsoil, using sod or an approved permanent seed mixture and an approved anchored mulch. Wood fiber mulch may only be used in seeding season when the slope does not exceed 10% and grading has been done to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized within fourteen (14) calendar days of establishment. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, an approved temporary seed and straw anchored mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be completed prior to the following April 15.
- The site permit, work, materials, approved SC/SM plans, and test reports shall be available at the site for inspection by duly authorized officials of Montgomery County.
- Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing mechanical devices to lower the water down slope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time they must be removed and final grading done to promote sheet flow drainage. Mechanical devices must be provided at points of concentrated flow where erosion is likely to occur.
- Permanent swales or other points of concentrated water flow shall be stabilized within 7 calendar days of establishment with sod or seed with an approved erosion control matting or by other approved stabilization measures.
- Temporary sediment control devices shall be removed, with permission of the Department, within thirty (30) calendar days following establishment of permanent stabilization in all contributory drainage areas. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.
- No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lawn maintenance areas or on residential lots. A slope gradient of up to 2:1 will be permitted in non-maintenance areas provided that those areas are indicated on the erosion and sediment control plan with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetative stabilization.
- The permittee shall install a splashblock at the bottom of each downspout unless the downspout is connected by a drain line to an acceptable outlet.
- For finished grading, the permittee shall provide adequate gradients so as to prevent water from standing on the surface of laws more than twenty-four (24) hours after the end of a rainfall, except in designated drainage courses and swale flow areas, which may drain as long as forty-eight (48) hours after the end of a rainfall.
- Sediment traps or basins are not permitted within 20 feet of a building which is existing or under construction. No building may be constructed within 20 feet of a sediment trap or basin.
- All inlets in non-sump areas shall have asphalt berms installed at the time of base paving establishment.
- The sediment control inspector has the option of requiring additional sediment control measures, as deemed necessary.
- All trap elevations are relative to the outlet elevation, which must be on existing undisturbed ground.
- Vegetative stabilization shall be performed in accordance with the Standards and Specifications for Soil Erosion and Sediment Control.

- Temporary sediment traps shall be cleaned out and restored to the original dimensions when sediment has accumulated to the point of one-half (1/2) the wet volume of the trap or when required by the sediment control inspector.
- Sediment removed from traps shall be placed and stabilized in approved areas, but not within a floodplain.
- All sediment basins and traps must be surrounded with a welded wire safety fence. The fence must be at least 42 inches high, have posts spaced no farther apart than 8 feet, have mesh openings no greater than two inches in width and four inches in height, with a minimum of 14 gauge wire. Safety fence must be maintained in good condition at all times.
- No excavation in the areas of existing utilities is permitted unless their location has been determined. Call "Miss Utility" at 1-800-257-7777, 48 hours prior to the start of work.
- Off-site spoil or borrow areas must have prior approval by DPS.
- Sediment trap/basin dewatering for cleanout or repair may only be done with the DPS Inspector's permission. The Inspector must approve the dewatering method for each application. The following methods may be considered:
  - Pump discharge may be directed to another on-site sediment trap or basin, provided it is of sufficient volume and the pump intake is floated to prevent agitation or suction of deposited sediments; or
  - The pump intake may utilize a Removable Pumping Station and must discharge into an undisturbed area through a non-erosive outlet; or
  - The pump intake may be floated and discharge into a Dirt Bog (12 oz. non-woven fabric), or approved equivalent, located in an undisturbed buffer area.
- The permittee must notify the Department of all utility construction activities within the permitted limits of disturbance prior to the commencement of those activities.
- Topsoil must be applied to all pervious areas within the limits of disturbance prior to permanent stabilization in accordance with Howard County standards and specifications for topsoiling.

Remember: Dewatering operation and method must have prior approval by the DPS inspector.

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS ARE TO BE STOCKPILED OR STORED IN THE WETLAND OR BUFFER.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS TO SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS OR BUFFER.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS IN EXCESS OF NONTIDAL WETLANDS LOST UNDER THE ORIGINAL STRUCTURE OF FILL.
- RECTIFY ANY NONTIDAL WETLANDS TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP), OATS (UNIOLEA SP), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS OF NONTIDAL WETLANDS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT IMPORTANT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM AS FOLLOWS: CLASS I WATER-IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERT(S) SHALL BE CONSTRUCTED AND ANY RIP-RAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.



THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John B. Butler* 2/14/13  
HOWARD S.C.D. DATE

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
*John B. Butler* 1/12/13  
DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS  
*Balraj Prasad* 2/12/2013  
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John B. Butler* 2/15/13  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas E. Butler* 2/15/13  
CHIEF-BUREAU OF ENGINEERING DATE

*Steve Shaw* 2/14/13  
CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John B. Butler* 2/22/13  
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*Kevin D. Butler* 2/25/13  
CHIEF-DIVISION OF LAND DEVELOPMENT DATE

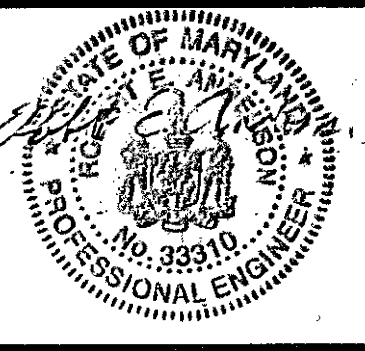
*Mark A. Wyle* 2/25/13  
DIRECTOR DATE

**OWNER:** HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MR. RAUL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

**DEVELOPER:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
9250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5306  
FAX 410-313-6144

**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. 33310, Expiration Date: 07/02/2014

**GPI GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
1977 CLEVELAND ROAD, ANNAPOLIS, JUNCTION, MD 20701  
MSL 0301 410-2712 FAX: 410-890-3055  
www.gpiinc.com

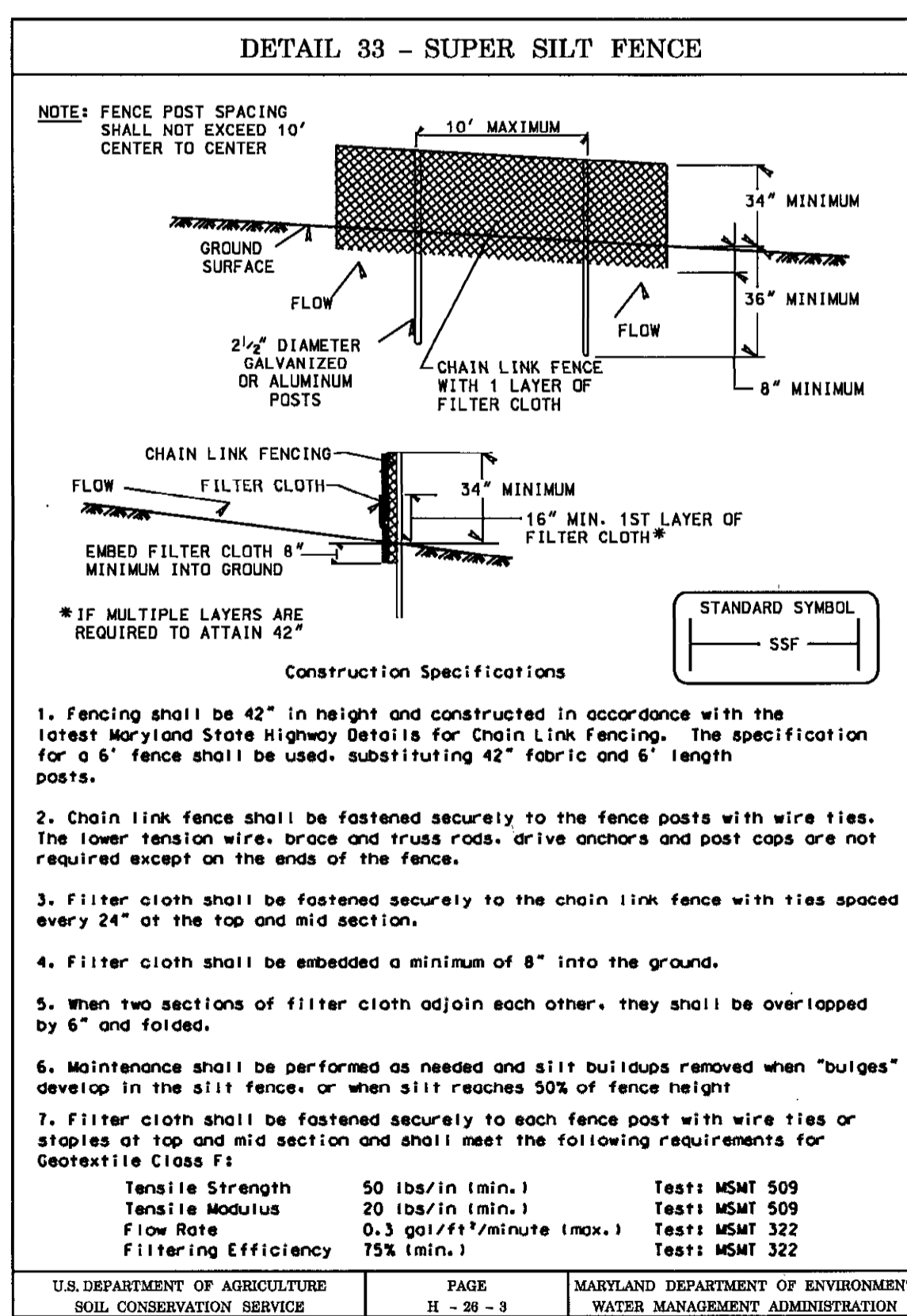
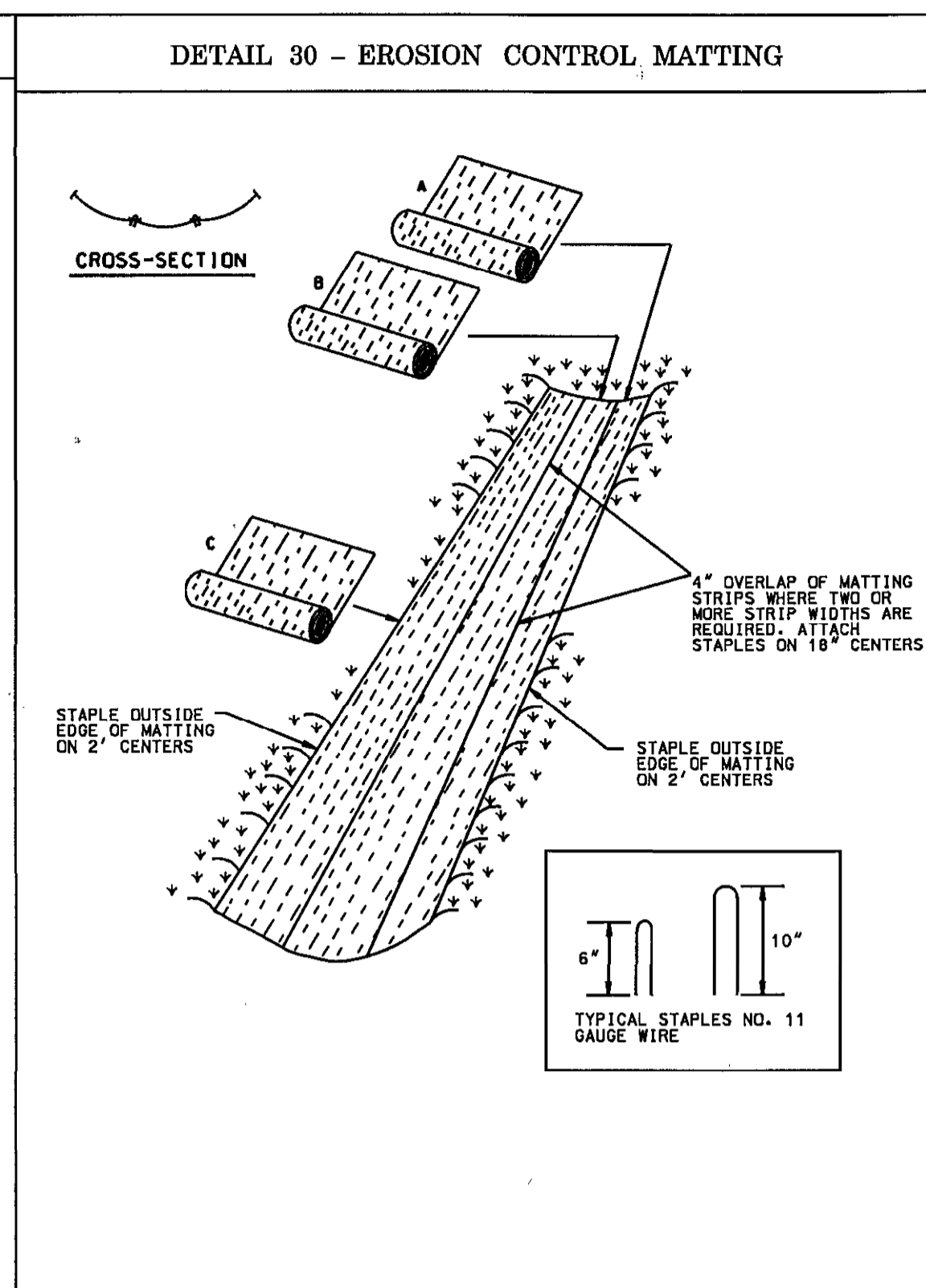
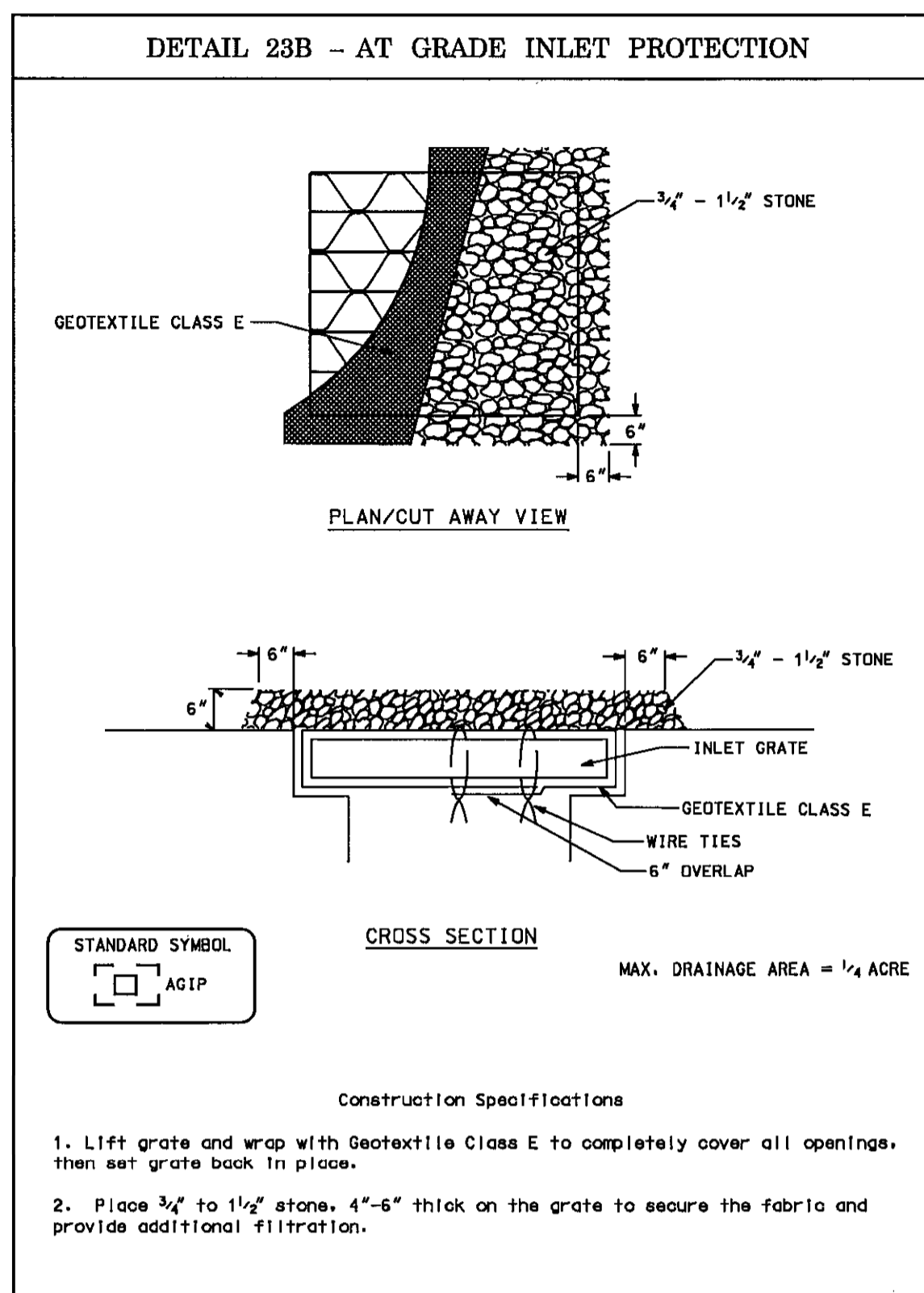


DES: R.H.	DRN: A.W.W.	CHK: M.S.Z.	DATE: May, 2012	BY: NO	REVISION: DATE
-----------	-------------	-------------	-----------------	--------	----------------

**Erosion and Sediment Control Details Sheet 1**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10  
GRID#20,21, PARCELS 23 & 54

SCALE: AS SHOWN  
SHEET 21 OF 38  
SDP 90-18



### SUPER SILT FENCE

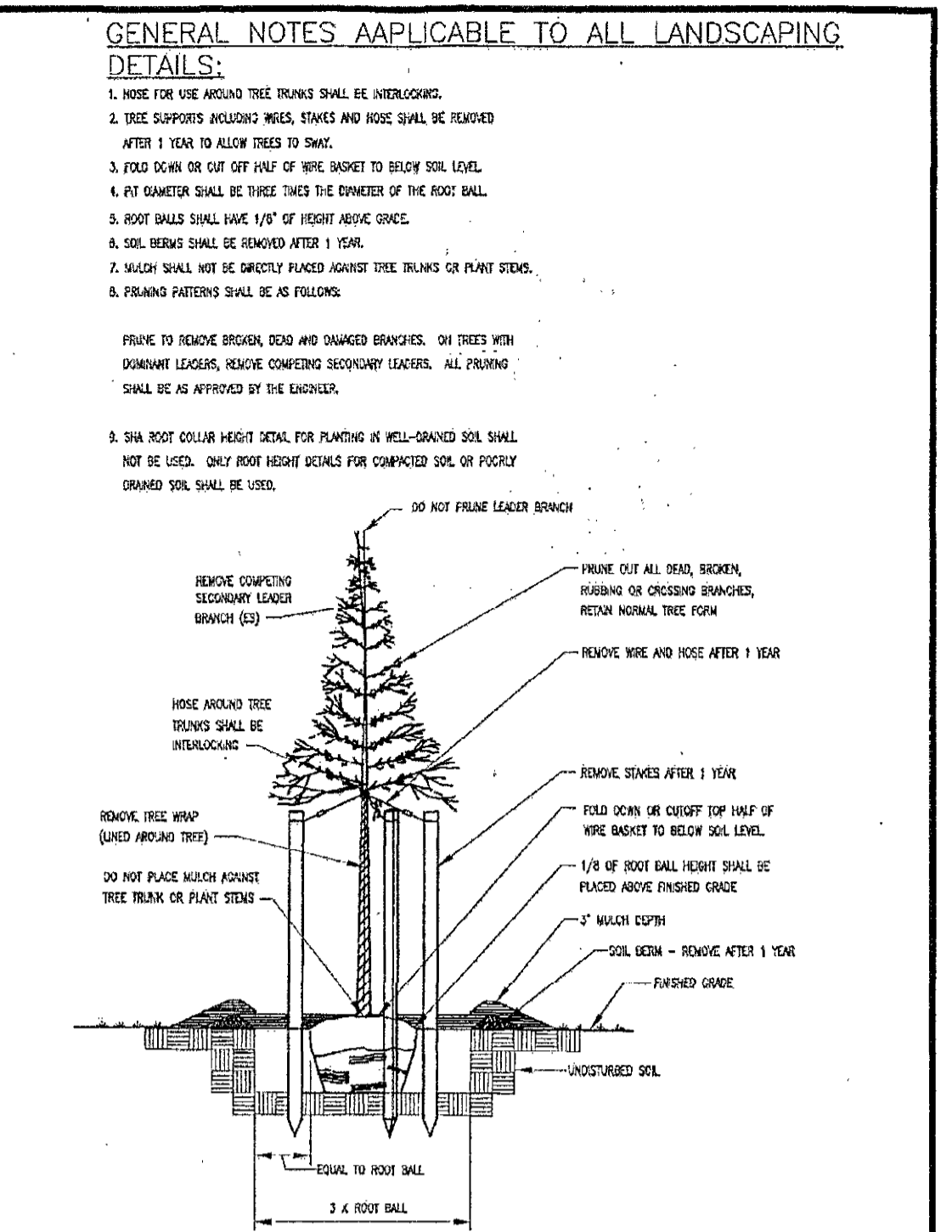
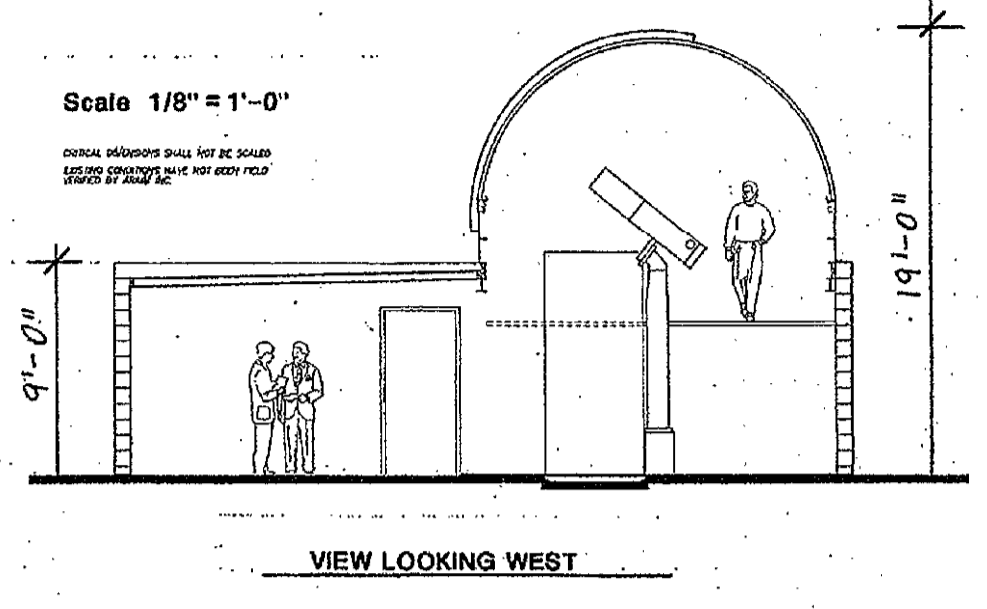
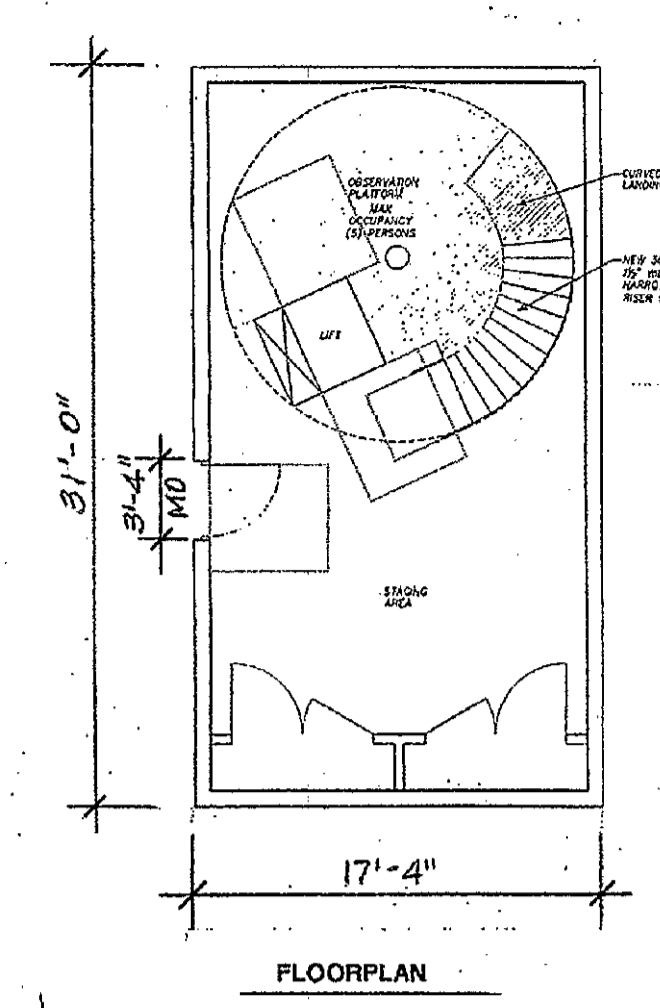
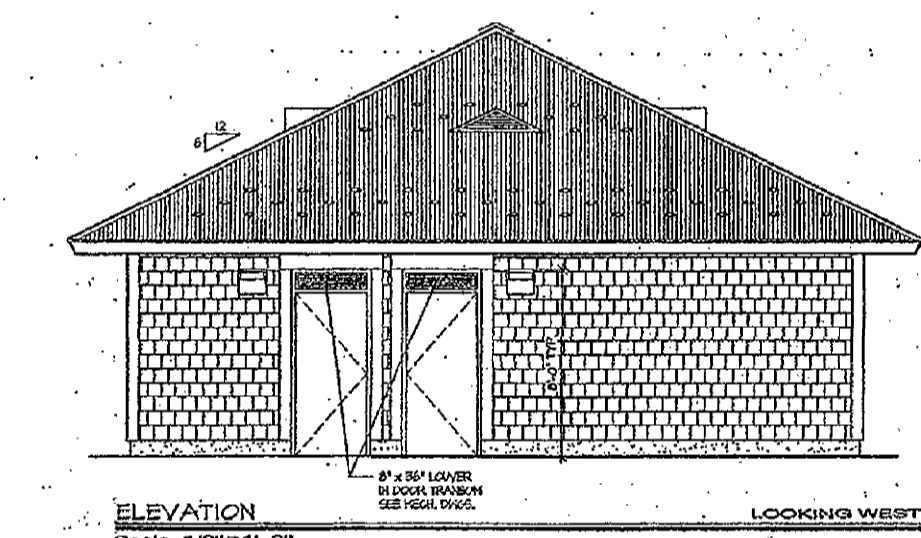
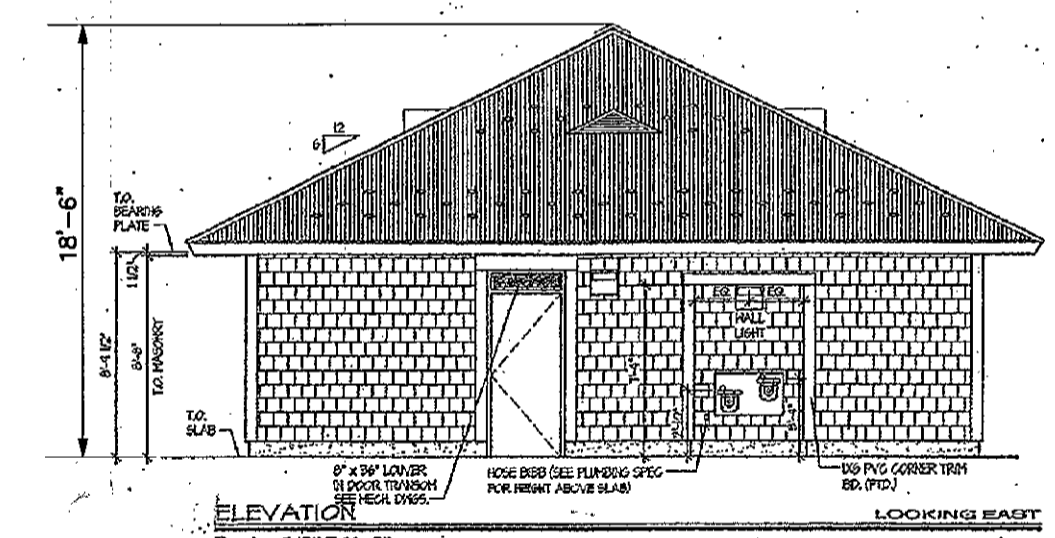
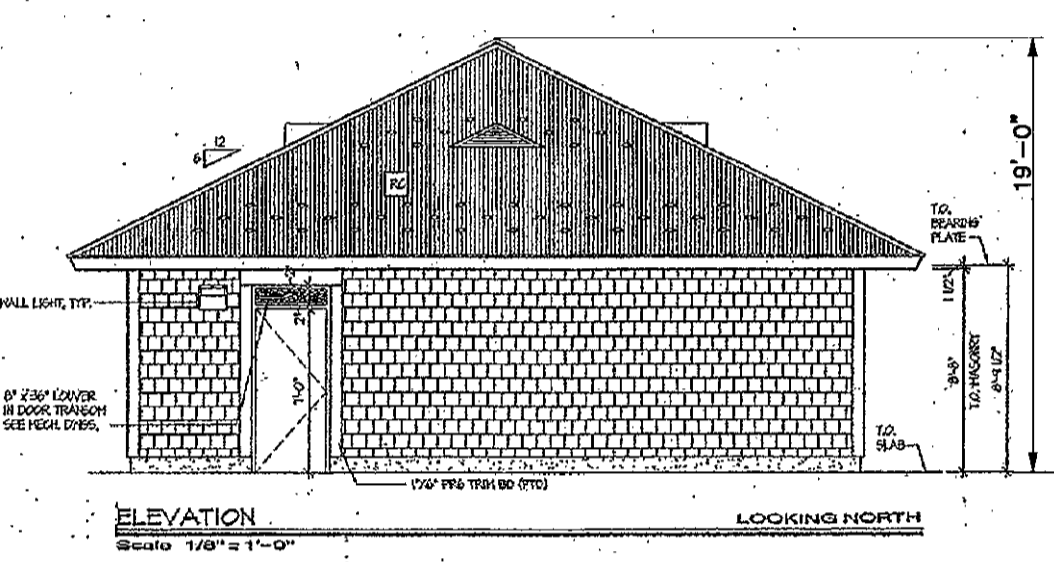
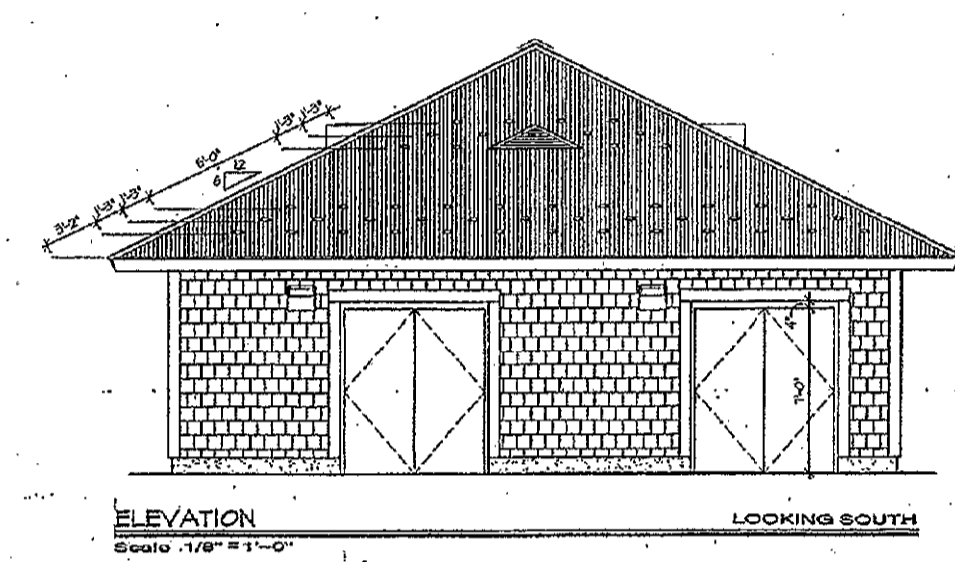
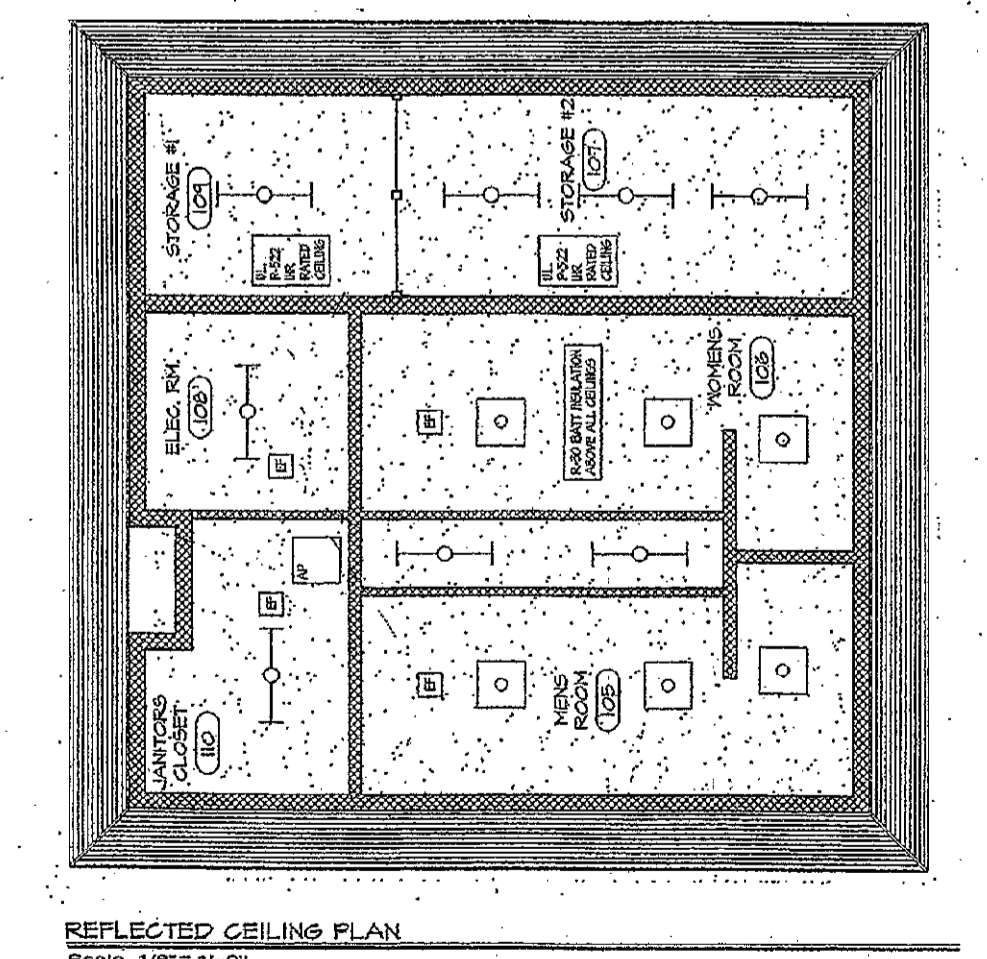
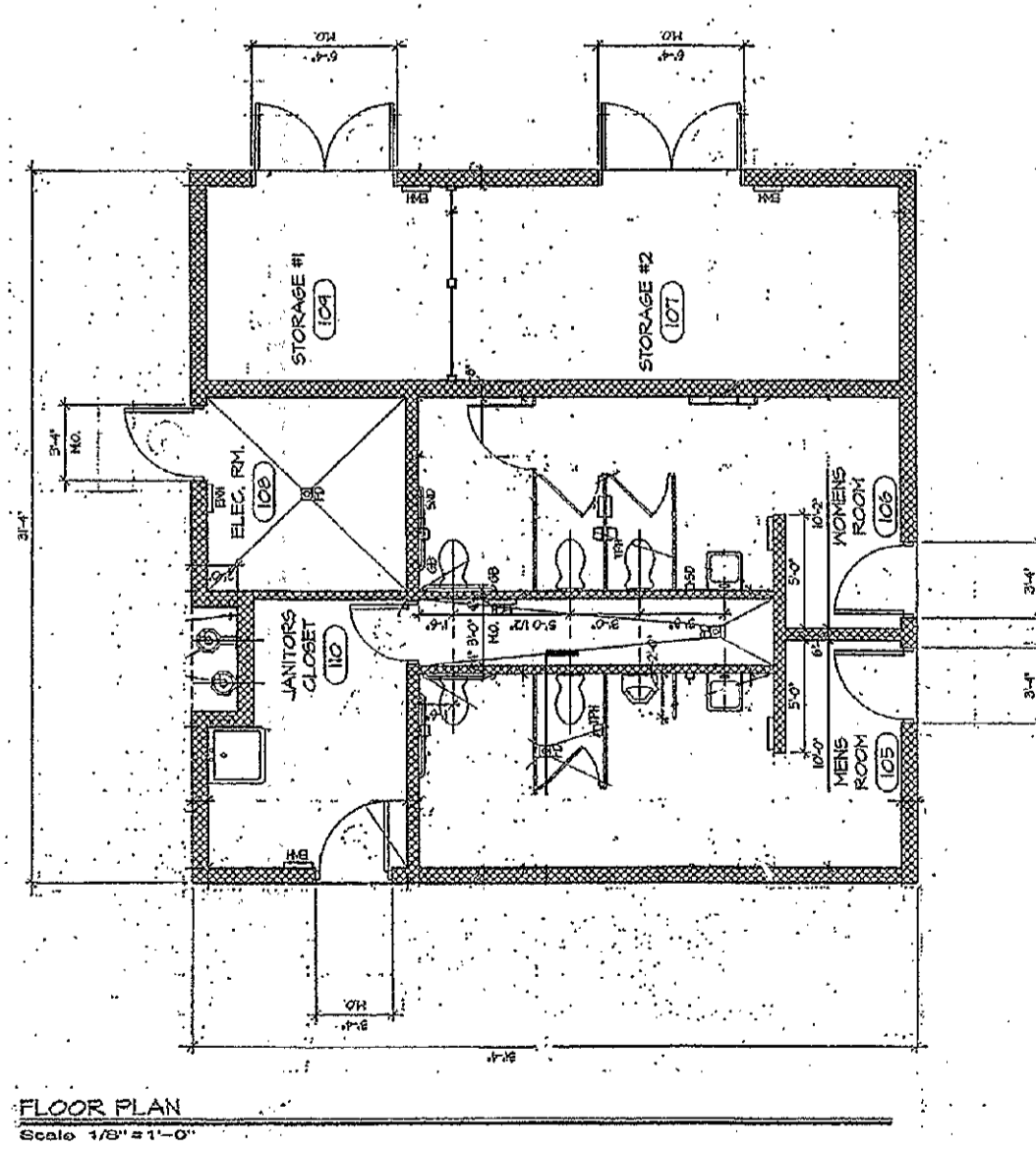
Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

### EROSION CONTROL MATTING

Construction Specifications

- Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
- Staple the 4" overlap in the channel center using an 18" spacing between staples.
- Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
- Staples shall be placed 2" apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
- Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", ship-lap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
- The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.



Project	Howard County, Maryland Department of Public Works	Detail	L-1.01
Sheet	Landscaping General Notes		
Scale	AS SHOWN		

**Note:**  
For illustration purposes; See architectural drawings for construction notes and details.

THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John R. Roberts* 2/14/13  
HOWARD S.C.D. DATE

*John R. Roberts* 1/15/13  
DIRECTOR DATE

APPROVED: DEPARTMENT OF RECREATION AND PARKS AND PRIVATE SEWERAGE SYSTEMS  
*John R. Roberts* 2/12/2013  
COUNTY HEALTH OFFICER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John R. Roberts* 2/15/13  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas R. Butler* 2/15/13  
CHIEF-BUREAU OF ENGINEERING DATE

*Steve Shuman* 2/14/13  
CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John R. Roberts* 2/22/13  
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*John R. Roberts* 2/25/13  
CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*John R. Roberts* 2/25/13  
DIRECTOR DATE

<b>OWNER:</b> HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	<b>DEVELOPER:</b> HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5806 FAX 410-313-6144
--	--

**GPI GREENMAN-PEDERSEN, INC.**  
10977 GULFORD ROAD, ANNAPOLIS JUNCTION, MD 20701  
WASH. (301) 470-2772 BALT. (410) 880-3095  
FAX (301) 490-2649 www.gpiinc.com

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. 1996, Expiration Date: 01/14/2015.

DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: Nov., 2012	BY	NO	REVISION	DATE	

**Erosion and Sediment Control Details Sheet Two**

<b>REVISED SITE DEVELOPMENT PLAN</b> <b>ALPHA RIDGE PARK</b> <b>ADDITIONS DESIGN</b> 3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54	AS SHOWN
	SHEET 22 OF 38

**TOPSOIL**

**DEFINITION**  
PURPOSE

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

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**

- I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHICH:
  - A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
  - B. 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.
  - C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
  - D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

- II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

**CONSTRUCTION AND MATERIAL SPECIFICATIONS**

- I. 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 SOIL SURVEY PUBLISHED BY THE USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

- II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
  - I. 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 APPROVAL 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" IN DIAMETER.

- II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMIUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

- III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (2000-4000 POUNDS 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.

- III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
  - I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

- IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
  - I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
    - A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
    - B. ORGANIC CONTENT OF TOPSOIL SHALL NOT BE LESS THAN 1.5 PERCENT BY WEIGHT.
    - C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
    - D. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

- II. PLACE TOPSOIL OF REQUIRED AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

- V. TOPSOIL APPLICATION
  - I. WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

- II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.

- III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

- IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

- VI. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
  - I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
    - A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
    - B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
    - C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SF.

- VII. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

**MATERIALS SPECIFICATIONS**

TABLE 27 : GEOTEXTILE FABRICS

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSL. MIN.
A	0.30	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
FISILT FENCE	0.40-0.60*	90	170

\* US STD SIEVE CW-82215

TABLE 28 : STONE SIZE

	SIZE RANGE	0.075	0.150	AASHTO	WEIGHT
NUMBER 57*	3/8"-1 1/2"	1/2"	1/ 1/2"	M-43	N/A
NUMBER 1	2" - 3"	2 1/2"	3"	M-43	N/A
RIP-RAP**	4" - 7"	5 1/2"	7"	N/A	N/A
CLASS I	N/A	1 1/2"	1 1/2"	N/A	150 LB MAX
CLASS II	N/A	1 1/2"	2 1/2"	N/A	700 LB MAX
CLASS III	N/A	2 1/2"	3 1/2"	N/A	2000 LB MAX

\* THIS CLASSIFICATION IS USED TO BE USED ON THE INSIDE FACE OF STONE OUTLETS AND CHECK DAMS.

\*\* THIS CLASSIFICATION IS TO BE USED WHENEVER SMALL RIP-RAP IS REQUIRED. THE STATE HIGHWAY ADMINISTRATION DESIGNATION FOR THIS STONE IS SONE FOR GABIONS (& 905.0L04)

**VEGETATIVE STABILIZATION**

PERMANENT AND TEMPORARY SEEDING, SODDING AND MULCHING

**I. SITE PREPARATION**

PERMANENT OR TEMPORARY VEGETATION SHALL BE ESTABLISHED WITHIN SEVEN (7) DAYS ON THE SURFACE OF ALL SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, SEDIMENT CONTROL BASINS, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND WITHIN 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. MULCHING MAY ONLY BE USED ON DISTURBED AREAS AS TEMPORARY COVER WHERE VEGETATION IS NOT FEASIBLE OR WHERE SEEDING CANNOT BE COMPLETED BECAUSE OF WEATHER.

**II. SEEDBED PREPARATION AND SEEDING APPLICATION**

LOOSEN THE TOP LAYER OF THE SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT SUCH AS DISC HARROWS, CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF THE SOIL BY DISCING OR BY OTHER SUITABLE MEANS. ROUGH AREAS SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN A ROUGHENED CONDITION. STEEP SLOPES GREATER THAN 3:1 SHOULD BE TRACKED BY A DOZER, LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1 TO 3 INCHES OF SOIL SHOULD BE LOOSE AND FRAILABLE. PERMANENT COVER MAY REQUIRE AN APPLICATION OF TOPSOIL. IF SO, IT MUST MEET THE REQUIREMENTS SET FORTH IN SECTION 21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL FROM THE 1994 STANDARDS AND SPECIFICATIONS.

**III. SOIL AMENDMENTS**

SOIL TESTS SHALL BE MADE ON SITES OVER FIVE ACRES TO DETERMINE THE EXACT REQUIREMENTS FOR BOTH LIME AND FERTILIZER. FOR SITES UNDER 5 ACRES, IN LIEU OF A SOIL TEST, APPLY THE FOLLOWING:

FERTILIZER NITROGEN 2.0 LBS/SQ.FT. (90 LBS/AC)  
P205 4 LBS/SQ.FT. (175 LBS/AC)  
K20 4 LBS/1000 SQ.FT. (175 LBS/AC)

FOR LOW MAINTENANCE AREAS APPLY 150 LBS/AC UREAFORM FERTILIZER (30-0-0) AT 3.5 LBS./ 1000 SQ.FT. IN ADDITION TO THE ABOVE FERTILIZER AT THE TIME OF SEEDING.  
GROUND LIMESTONE 2 TONS/AC

**IV. SEDIMENT CONTROL PRACTICE SEEDING**

SELECT A SEEDING MIXTURE FROM TABLES 25 OR 26 IN SECTION G OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW. NOTE: IF SEDIMENT CONTROL PRACTICES ARE IN FOR LONGER THAN 12 MONTHS, PERMANENT SEEDING IS REQUIRED.

**V. TEMPORARY/PERMANENT SEEDING MIXTURES AND RATES**

SELECT A SEEDING MIXTURE FROM APPROPRIATE TABLE 25 OR 26 IN SECTION G OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW.

**VI. TURFGRASS ESTABLISHMENT**

THIS INCLUDES LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM OF HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILLED BY DISCING OR BY OTHER APPROVED METHODS TO A DEPTH OF 3 TO 5 INCHES, LEVELED AND RAKED TO PREPARE A PROPER SEEDBED. STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY. USE CERTIFIED MATERIAL AND CHOOSE A TURF GRASS MIXTURE FROM PAGE G-20 OF THE 1994 STANDARDS AND SPECIFICATIONS OF SELECT FROM THE LIST IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MIMED #77, "TURF GRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND". SEE MIMED AT END OF THIS SECTION.

**VII. MULCHING**

ALL SEEDINGS REQUIRE MULCHING. ALSO MULCH DURING NON-SEEDING DATES UNTIL SEEDING CAN BE DONE.  
MULCH SHALL BE UNROTTED, UNCHOPPED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS/ACRE OR 90 LBS/1000 SQ.FT. (2 BALES). IF A MULCH ANCHORING TOOL IS USED, APPLY 2.5 TONS /ACRE. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE COMPLETELY FREE OF PROHIBITED NOXIOUS WEEDS. SPREAD MULCH UNIFORMLY, MECHANICALLY OR BY HAND, TO A DEPTH OF 1 - 2 INCHES. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY MULCH NETTINGS, MULCH ANCHORING TOOL, WOOD CELLULOSE FIBER OR LIQUID MULCH BINDERS. APPLY WOOD CELLULOSE FIBER AT A DRY WEIGHT OF 1,500 LBS/ACRE. IF MIXED WITH WATER, USED 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

LIQUID BINDER SHOULD BE APPLIED HEAVIER AT THE EDGE, WHERE WIND CATCHES MULCH IN VALLEYS, AND ON CREST OF BANKS. THE REMAINDER OF THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. APPLY RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR AND MULCH. STAPLE LIGHT WEIGHT, PLASTIC NETTING OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

**VIII. SODDING**

CLASS OF TURF GRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED, OR MARYLAND OR VIRGINIA STATE APPROVED SOD. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD IS TO BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR USING STAGGERED JOINTS WITH ALL ENDS TIGHTLY ABUTTED AND NOT OVER LAPPING. SOD SHALL BE ROLLED AND THOROUGHLY WATERED AFTER INSTALLATION. DAILY WATERING TO MAINTAIN A 4 INCH DEPTH OF MOISTURE FOR THE FIRST WEEK IS REQUIRED IN THE ABSENCE OF RAINFALL. SOD IS NOT TO BE APPLIED ON FROZEN GROUND.

**IX. MAINTENANCE**

- A. IRRIGATE - APPLY MINIMUM 1" OF WATER EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE, WHEN SOIL MOISTURE BECOMES DEFICIENT TO PREVENT LOSS OF STAND OF PROTECTIVE VEGETATION.
- B. REPAIRS - IF STAND PROVIDES BETWEEN 40% AND 90% GROUND COVERAGE, OVERSEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY APPLIED. IF STAND PROVIDES LESS THAN 40% COVERAGE, REESTABLISH STAND FOLLOWING ORIGINAL RATES AND PROCEDURES.

**STANDARDS AND SPECIFICATIONS FOR LAND GRADING**

**DEFINITION**

RESHAPING OF THE EXISTING LAND SURFACE IN ACCORDANCE WITH A PLAN AS DETERMINED BY ENGINEERING SURVEY AND LAYOUT.

**PURPOSE**

THE PURPOSE OF A LAND GRADING SPECIFICATION IS TO PROVIDE FOR EROSION CONTROL AND VEGETATIVE ESTABLISHMENT ON THOSE AREAS WHERE THE EXISTING LAND SURFACE IS TO BE RESHAPED BY GRADING.

**DESIGN CRITERIA**

ACCORDING TO PLAN. THE GRADING PLAN SHOULD BE BASED UPON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIGNATION. TO AVOID EXTREME GRADE MODIFICATIONS, INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SLOPE STABILITY, EFFECT ON ADJACENT PROPERTIES AND DRAINAGE PATTERNS, MEASURES FOR DRAINAGE AND WATER REMOVAL AND VEGETATIVE TREATMENT, ETC.

MANY COUNTIES HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING AND CUT AND FILL SLOPES. WHERE THESE REQUIREMENTS EXIST, THEY SHALL BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS OF THE AREAS TO BE GRADED. THE PLAN SHALL ALSO INCLUDE PRACTICES FOR EROSION CONTROL, SLOPE STABILIZATION, SAFE DISPOSAL OF RUNOFF WATER AND DRAINAGE SUCH AS WATERWAYS, LINED DITCHES, REVERSE SLOPE BENCHES (INCLUDE GRADE AND CROSS SECTION, GRADE STABILIZATION STRUCTURES, RETAINING WALLS AND SURFACE AND SUBSURFACE DRAINS). THE PLAN SHALL ALSO INCLUDE PHASING OF THESE PRACTICES. THE FOLLOWING SHALL BE INCORPORATED INTO THE PLAN.

- I. PROVISIONS SHALL BE MADE TO SAFELY CONDUCT SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO INSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.
- II. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASSES SHALL NOT BE STEEPER THAN 2:1, WHERE THE SLOPE IS TO BE MOWED THE SLOPE SHOULD BE NO STEEPER THAN 3:1. 4:1 IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING SITES. PROPOSED SLOPES EXCEEDING 2:1 SHALL REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS THAT SHALL BE ADEQUATELY SHOWN ON THE PLANS.
- III. REVERSE BENCHES SHALL BE PROVIDED WHENEVER THE VERTICAL INTERVAL HEIGHT OF ANY 2:1 SLOPE EXCEEDS 20 FEET. FOR 3:1 SLOPE IT SHALL BE INCREASED TO 30 FEET AND FOR 4:1 TO 40 FEET. BENCHES SHALL BE LOCATED TO DIVIDE THE SLOPE FACE AS EQUALLY AS POSSIBLE AND SHALL CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, ROCK OUTCROPS, ETC. SHALL ALSO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.
  - A. BENCHES SHALL BE A MINIMUM OF SIX FEET WIDE TO PROVIDE FOR EASE OF MAINTENANCE.
  - B. BENCHES SHALL BE DESIGNED WITH A REVERSE SLOPE OF 6:1 OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. BENCH GRADIENT TO THE OUTLET SHALL BE BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.
  - C. THE FLOW LENGTH WITHIN A BENCH SHALL NOT EXCEED 800' UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS FOR FLOW CHANNEL STABILIZATION SEE TEMPORARY SWALE.

**TEMPORARY SEEDING SUMMARY**

NO.	SPECIES	SEED MIXTURE (HARDNESS ZONE 6B) FROM TABLE 26		SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-10-10)	LIME RATE
		APPLICATION RATE (LB/AC)					
1	BARLEY OR PLUS FOXTAIL MILLET	150		5/1 - 11/15	1"		
2	WEEDING LOVEGRASS	4		5/1 - 8/14	1/4"-1/2"	600 LBS/AC (15L/1000 SF)	2 TONS/AC (100LB/1000 SF)
3	MILLET	50		5/1 - 8/14	1/2"		

**PERMANENT SEEDING SUMMARY**

NO.	SPECIES	APPLICATION RATE (% BY WEIGHT)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P205	K20	
1	KENTUCKY BLUEGRASS	10	5/16 - 10/15	1/4"-1/2"				
2	PERENNIAL RYE GRASS	70	5/16 - 10/15	1/4"-1/2"	(2 LB/1000 SF)	(4 LB/1000 SF)	(4 LB/1000 SF)	2 TONS/AC (100 LB/1000 SF)
3	TURF-TYPE TALL FESCUE	20	5/16 - 10/15	1/4"-1/2"	= 900 LBS/AC OF 10-20-20			

FOR MORE DETAILS ON PERMANENT SEEDING SEE SPECIFICATIONS.

- IV. SURFACE WATER SHALL BE DIVERTED FROM THE FACE OF ALL CUT AND/OR FILL SLOPES BY THE USE OF EARTH DIKES, DITCHES AND SWALES OR CONVEYED DOWN SLOPE BY THE USE OF A DESIGNED STRUCTURE, EXCEPT WHERE:
  - A. THE FACE OF THE SLOPE IS OR SHALL BE STABILIZED AND THE FACE OF ALL GRADED SLOPES SHALL BE PROTECTED FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.
  - B. THE FACE OF SLOPE SHALL NOT BE SUBJECT TO ANY CONCENTRATED FLOWS OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGEWAYS, GRADED SWALES, DOWNSPOUTS, ETC.
  - C. THE FACE OF THE SLOPE WILL BE PROTECTED BY SPECIAL EROSION CONTROL MATERIALS, TO INCLUDE, BUT NOT LIMITED TO APPROVED VEGETATIVE STABILIZATION PRACTICES (SEE SECTION G) RIP-RAP OR OTHER APPROVED STABILIZATION METHODS.
- V. CUT SLOPES OCCURRING IN RIPABLE ROCK SHALL BE SERRATED AS SHOWN ON THE FOLLOWING DIAGRAM. THESE SERRATIONS SHALL BE MADE WITH CONVENTIONAL EQUIPMENT AS THE EXCAVATION IS MADE. EACH STEP OR SERRATION SHALL BE CONSTRUCTED ON THE CONTOUR AND WILL HAVE STEPS CUT AT NOMINAL TWO-FOOT INTERVALS WITH NOMINAL THREE-FOOT NOMINAL SLOPE RATIO OR THE CUT SLOPE. THE NOMINAL SLOPE LINE IS IN THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME FERTILIZER AND SEED THIS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION. OVERLAND FLOW SHALL BE DIVERTED FROM THE TOP OF ALL SERRATED CUT SLOPES AND CARRIED TO A SUITABLE OUTLET.
- VI. SUBSURFACE DRAINAGE SHALL BE PROVIDED WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.
- VII. SLOPES SHALL NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJACENT PROPERTIES WITHOUT ADEQUATELY PROTECTING SUCH PROPERTIES AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGES.
- VIII. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIAL. IT SHOULD BE FREE OF STONES OVER TWO (2) INCHES IN DIAMETER WHERE COMPACTED BY HAND OR MECHANICAL TAMPERS OR OVER EIGHT (8) INCHES IN DIAMETER WHERE COMPACTED BY ROLLERS OR OTHER EQUIPMENT. FROZEN MATERIAL SHALL NOT BE PLACED IN THE FILL NOR SHALL THE FILL MATERIAL BE PLACED ON A FROZEN FOUNDATION.
- IX. STOCKPILES, BORROW AREAS AND SPOIL SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATIONS.
- X. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

**GENERAL RESPONSIBILITY NOTES**

- 1. THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL REQUIRED EASEMENTS, RIGHT, AND/OR RIGHT-OF-WAY PURSUANT TO THE DISCHARGE FROM THE SEDIMENT AND EROSION CONTROL PRACTICES, STORMWATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORM WATER ONTO OR ACROSS AND DRAINING OR OTHER WORK TO BE PERFORMED ON ADJACENT OR DOWNSTREAM PROPERTIES AFFECTED BY THIS PLAN.
- 2. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A SEVEN CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND 14 FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. THE INPLACE SEDIMENT CONTROL MEASURES WILL BE MAINTAINED ON A CONTINUING BASIS UNTIL THE SITE IS PERMANENTLY STABILIZED AND ALL PERMIT REQUIREMENTS ARE MET.
- 3. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE AND
- 4. APPROVAL SHALL BE REQUESTED UPON FINAL STABILIZATION OF ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES BEFORE REMOVAL OF CONTROLS.
- 5. DISTURBED SURFACE AREA = 4.72 AC  
VOLUME OF SPOIL MATERIAL = 1000 CY  
VOLUME OF BORROW MATERIAL = 500 CY
- 6. SOIL TYPES: G60, 95% AND G6c, 5%  
HYDROLOGIC SOIL GROUP = B & D  
\* THE COMPUTED VALUES SHOULD NOT BE USED FOR BIDDING PURPOSES.

THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

<i>John R. Roberts</i>	2/11/13
HOWARD S.C.D.	DATE
APPROVED: DEPARTMENT OF RECREATION AND PARKS	
<i>John R. Roberts</i>	1/10/13
DIRECTOR	DATE
APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS	
<i>Billy Joe Moore</i>	2/12/2013
	YEAR DATE 2013
APPROVED: DEPARTMENT OF PUBLIC WORKS	
<i>Ja...</i>	2/15/13
DIRECTOR OF PUBLIC WORKS	DATE
<i>Thomas R. Balle</i>	2/15/13
CHIEF-BUREAU OF ENGINEERING	DATE
<i>Steve Slawa</i>	2/14/13
CHIEF, TRANSPORTATION & SPECIAL PROJECTS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>...</i>	2/22/13
CHIEF-DEVELOPMENT ENGINEERING DIVISION	DATE
<i>...</i>	2/25/13
CHIEF-DIVISION OF LAND DEVELOPMENT	DATE
<i>...</i>	2/27/13
DIRECTOR	DATE

OWNER: HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
7120 OAKLAND MILLS ROAD  
COLUMBIA, MD 21046  
ATTN: MRS. MALL DELERME  
VOICE 410-313-4689  
FAX 410-313-4646

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
3250 BENDIX ROAD  
COLUMBIA, MD 21045  
ATTN: MR. MARSHALL DAVIDSON  
VOICE 410-313-5306  
FAX 410-313-6144

**GPI**  
GREENMAN-PEDERSEN, INC.  
10772 CLIFTON ROAD, ANNAPOLIS, MARYLAND 21403  
FAX (410) 470-2772 BALT. (410) 880-3055  
www.gpiinc.com

Professional Certification:  
I hereby certify that these documents were prepared or approved by me or one that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 3330, Expiration Date: 07/02/2014



DES: R.H.					
DRN: A.W.W.					
CHK: M.S.Z.					
DATE: May, 201					
	BY	NO	REVISION		DATE

**Erosion and Sediment Control Notes**

**REVISED SITE DEVELOPMENT PLAN**  
**ALPHA RIDGE PARK ADDITIONS DESIGN**  
3rd ELECTION DISTRICT, TAX MAP 10

QUANTITY	FORM	KEY	SCIENTIFIC NAME	COMMON NAME	SPACING	SIZE
222	Fern	OS	Onoclea sensibilis	Sensitive Fern	2' OC	Qt.
62	Grass	AGE	Andropogon gerardii	Big Bluestem	2' OC	Qt.
146	Grass	EP	Eragrostis pectinacea	Purple Lovegrass	2' OC	Qt.
62	Grass	AGL	Andropogon glomeratus	Bushy Bluestem	2' OC	Qt.
191	Grass	PVS	Panicum virgatum 'Shenandoah'	Switchgrass	3' OC	Qt.
109	Herbaceous	RF	Rudbeckia fulgida	Orange Coneflower	1.5' OC	Qt.
262	Herbaceous	EF	Eupatorium fistulosum	Joe-Pye Weed	1.5' OC	Qt.
66	Herbaceous	AN	Aster novae-angliae	New England Aster	1.5' OC	Qt.
330	Herbaceous	RL	Rudbeckia laciniata	Cut-leaf Coneflower	1.5' OC	Qt.
368	Herbaceous	IV	Iris versicolor	Blue Water Iris	1.5' OC	Qt.
16	Herbaceous	AT	Asclepias tuberosa	Butterfly Weed	1.5' OC	Qt.
20	Herbaceous	TV	Tradescantia virginiana	Virginia spiderwort	1.5' OC	Qt.
3	Tree	LI	Lagerstroemia indica 'Dynamite'	Dynamite Crape Myrtle	As Shown	2-4'
13	Shrub	VP	Viburnum prunifolium	Black-haw Viburnum	As Shown	3' Ht.
4	Tree	CL	Cladustris lutea	Yellowwood	As Shown	2" Cal. BB/CG
3	Tree	QR	Quercus rubra	Northern Red Oak	As Shown	2" Cal. BB/CG
3	Tree	CCG	Crataegus crus-galli var. inermis	Thornless Cockspur Hawthorn	As Shown	2" Cal. BB/CG
2	Tree	MV	Magnolia virginiana	Sweetbay Magnolia	As Shown	6' Ht. BB/CG
5	Tree	PY	Prunus x yedoensis	Yoshino Cherry	As Shown	2" Cal. BB/CG
3	Tree	ZS	Zelkova serrata 'Green Vase'	Zelkova	As Shown	2" Cal. BB/CG

PARKING LOT INTERNAL LANDSCAPING	
Number of Parking Spaces	161
Number of Trees/Trees Required	8
Number of Trees Provided	
Shade Trees	8
Other Trees (2:1 substitution)	8

FOR TREE PLANTING DETAIL SEE SHEET 22 OF 25.

**NOTES:**

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING.
2. THE OWNER, TENANTS, AND OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS.
3. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL BY PROVIDING 4 SHADE TREES, 11 ORNAMENTAL TREES FOR THE PARKING LOT INTERNAL LANDSCAPING REQUIREMENT.

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
*John S. Boyle* 1/23/13  
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS  
*B. Wilson for Maura Roseman* 2/12/2013  
 COUNTY HEALTH OFFICER DATE  
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Joe J. ...* 2/15/13  
 DIRECTOR OF PUBLIC WORKS DATE

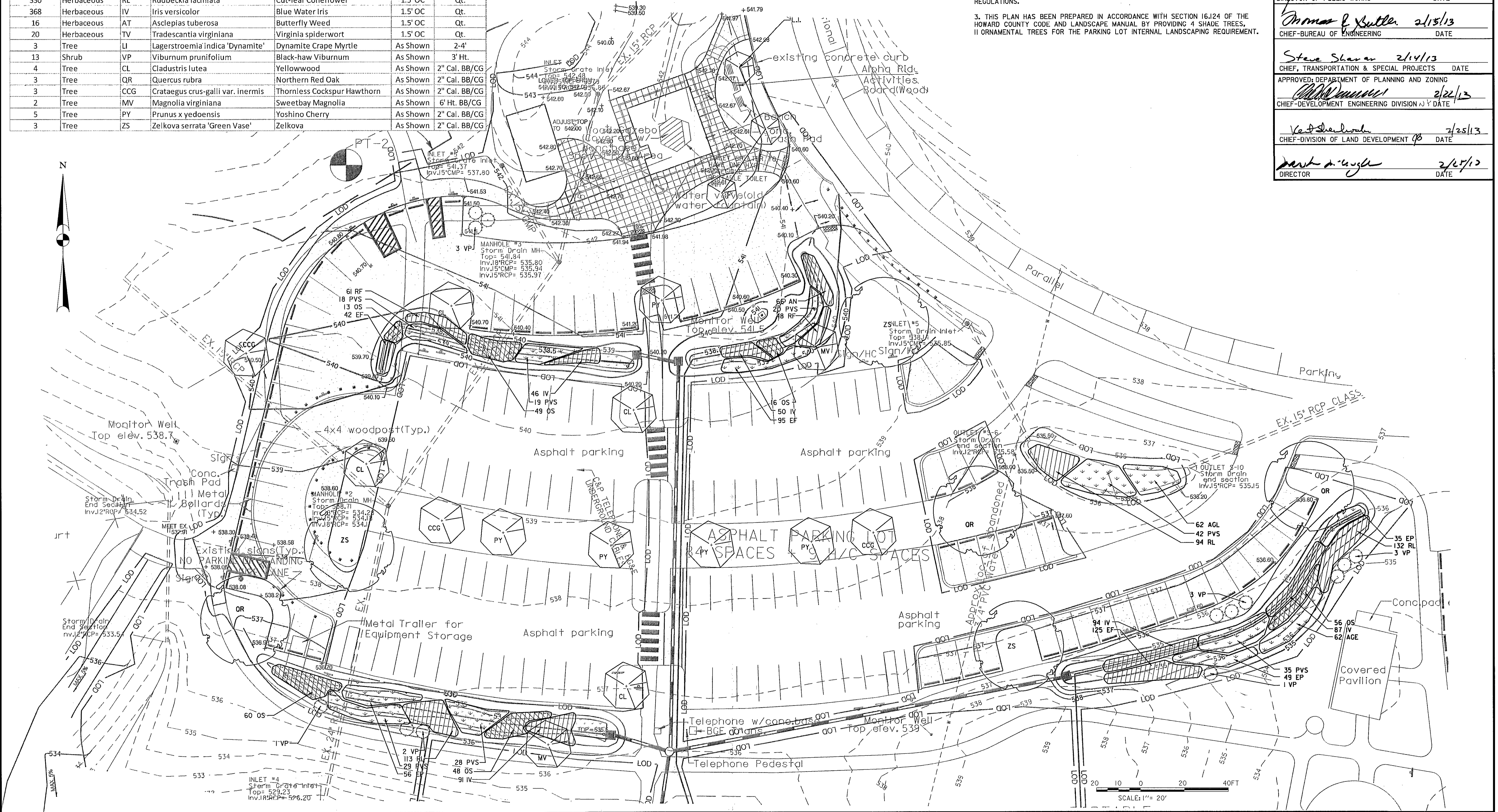
*Thomas F. Butler* 2/15/13  
 CHIEF-BUREAU OF ENGINEERING DATE

*Steve ...* 2/14/13  
 CHIEF, TRANSPORTATION & SPECIAL PROJECTS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*...* 2/22/13  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

*...* 2/25/13  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*...* 2/27/13  
 DIRECTOR DATE



<b>OWNER:</b> HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 ATTN: MR. RAUL DELERME VOICE 410-313-4689 FAX 410-313-4646	<b>DEVELOPER:</b> HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARSHALL DAVIDSON VOICE 410-313-5806 FAX 410-313-6144	<b>GPI GREENMAN-PEDERSEN, INC.</b> <small>REGISTERED PROFESSIONAL ENGINEERS AND ARCHITECTS</small> 10777 CLIFTON ROAD, ANNAPOLIS, MARYLAND, 20710 WASH. DC: 410-272-1100 BAL. MD: 410-880-3005 FAX: 410-272-0649 www.gpi-engineers.com	<b>Professional Certification:</b> 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. 19916, Expiration Date: 01/14/2015.		DES: C.P. DRN: A.W.W. CHK: M.S.Z. DATE: Nov., 2012 BY NO REVISION DATE	<b>Site &amp; SWM Landscaping Plan</b>	<b>REVISED SITE DEVELOPMENT PLAN ALPHA RIDGE PARK ADDITIONS DESIGN</b> 3rd ELECTION DISTRICT, TAX MAP 10 GRID#20,21, PARCELS 23 & 54	AS SHOWN SHEET 24 OF 38
--	--	--	--	--	--	--	--	----------------------------





REVIEWED NO FACILITIES REQUIRED

HOWARD COUNTY HEALTH DEPARTMENT  
JAMES M. BOND... 1/21/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
JAMES S. BROWN... 1/27/92

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
THOMAS J. HENNING... 1/27/92

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS  
AND PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

JAMES P. ... 1/24/92  
DIRECTOR, BUREAU OF ENGINEERING

APPROVAL STAMP

SITE DATA

OWNER: HOWARD COUNTY  
DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PARK  
DEED REF. LIBER 847, FOLIO 606  
TAX MAP #10, PARCEL #23  
ELECTION DISTRICT #3  
CENSUS TRACT #08

APPROVED: [Signature]  
DATE: JANUARY 1992

J. CHRISTOPHER BATTEN, INC.  
Land Planning & Design Consultant  
8 North Church Street  
Westminster, Maryland 21157  
301-876-3383  
SHEET S-8  
SDP-20 of 38 of 20  
SDP 9 of 21

MANHOLE SCHEDULE

Table with 5 columns: No., Type, Size, Inv. Out, Rim Elev. Rows M-1 to M-3.

INLET SCHEDULE

Table with 5 columns: No., Type, Q cfs, Inv. Out, Rim Elev. Rows I-1 to I-15.

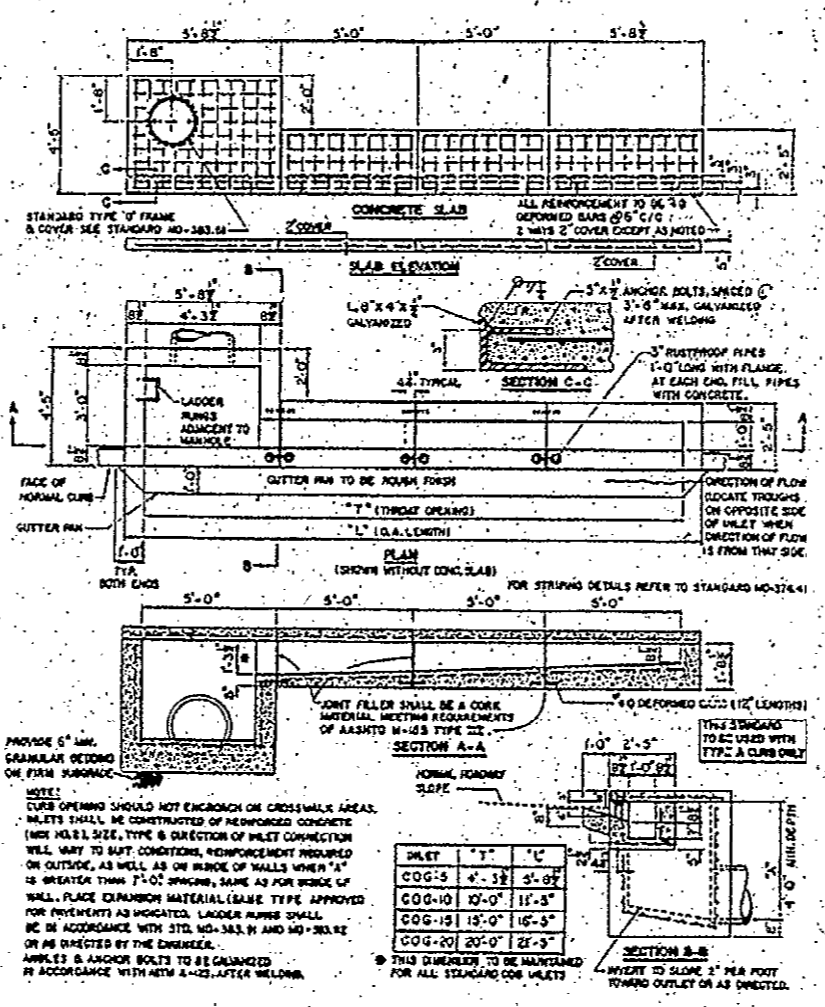
OUTLET SCHEDULE

Table with 5 columns: Struct. No., Disch. CFS, Pipe Dia. (in.), Length of Apron, Width of Apron, Stone Size (in.). Rows S-1 to S-8.

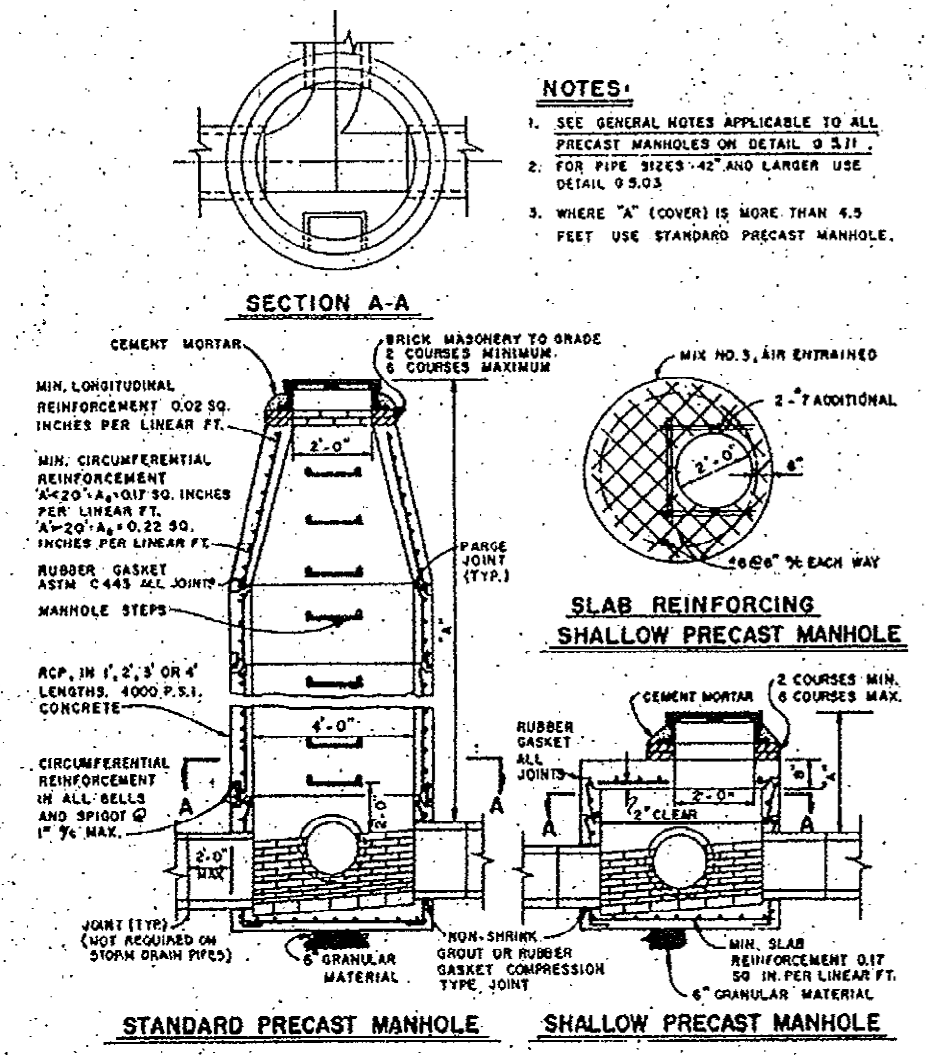
DRAINAGE AREA RUNOFF DATA

Table with 4 columns: STRUCTURE, AREA (acres), C, Q (CFS). Rows I-1 to I-15, S-10, C-2.

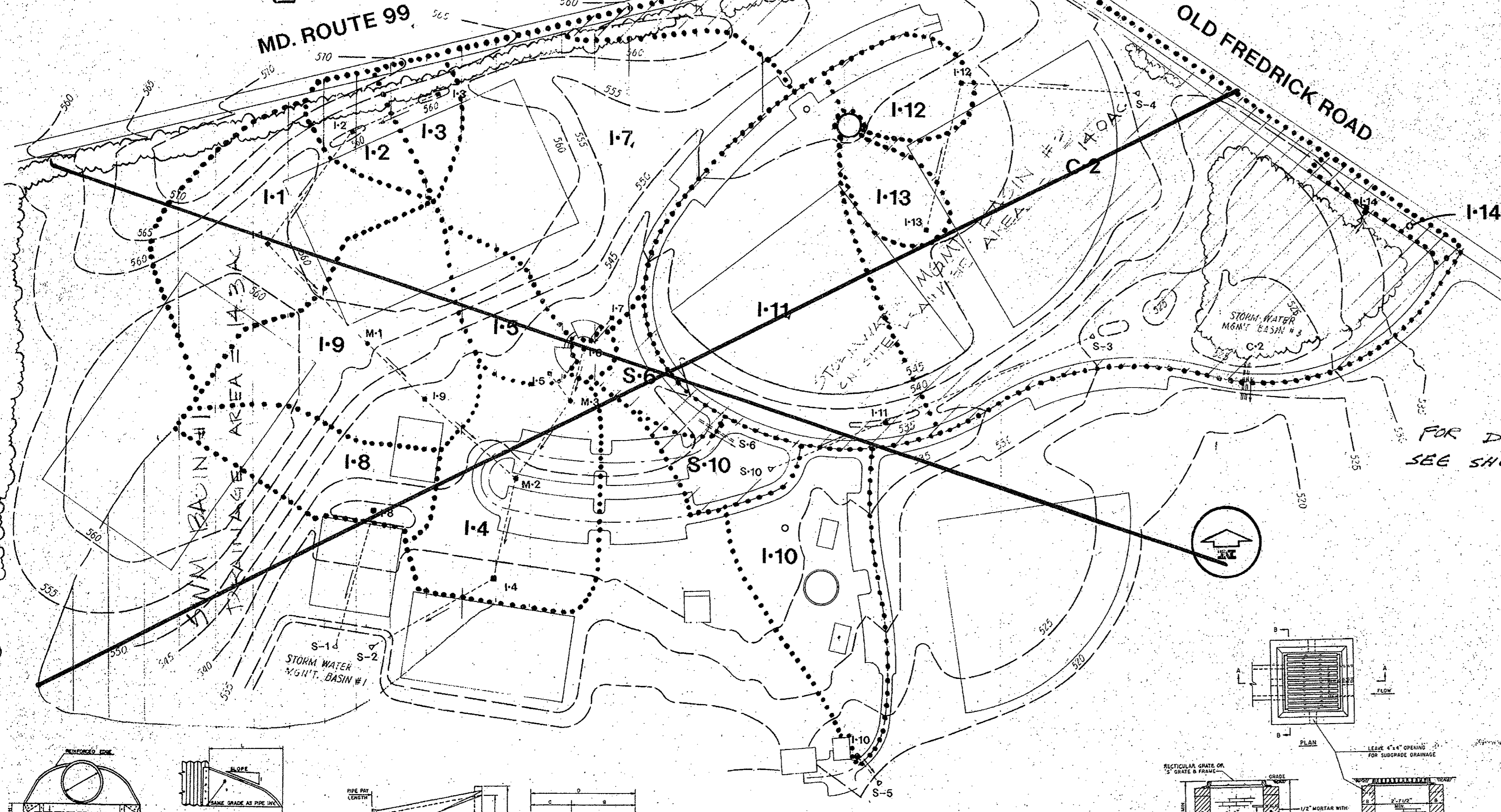
\* Refer to storm water management analysis  
\*\* Extended depth inlets will require 24" RCCP longer than 4 feet.



STANDARD 10" COG INLET  
NTS MARYLAND S.H.A. STD. NO. MD-374.31

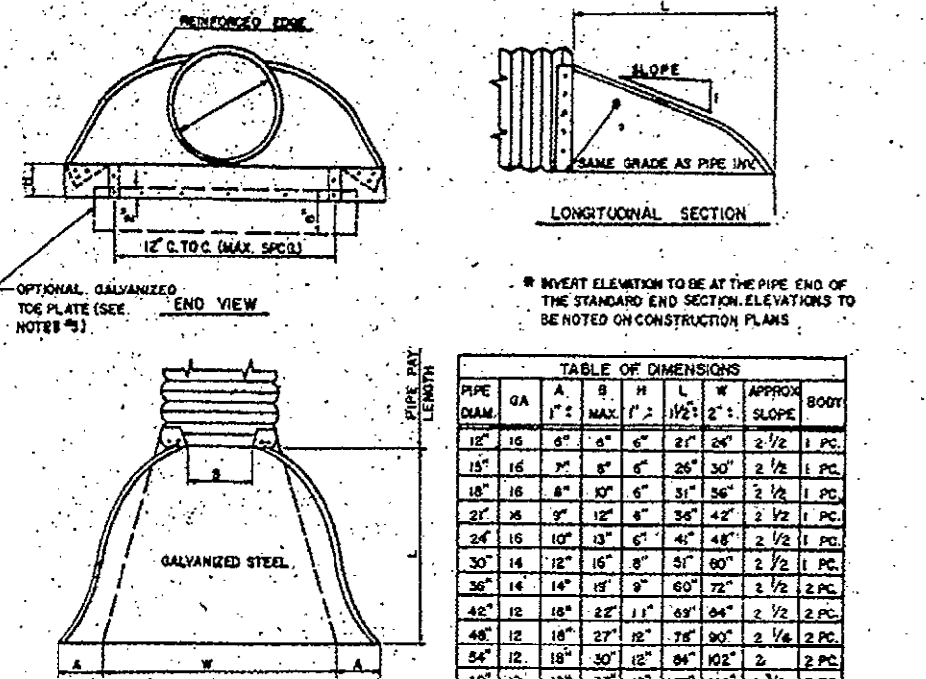


PRECAST MANHOLE  
NTS

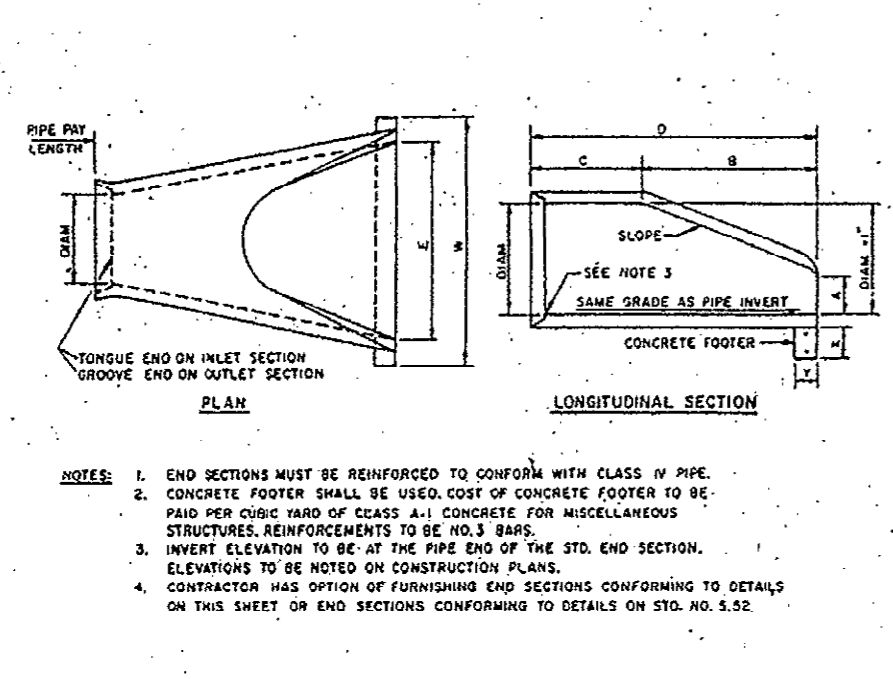


FOR DRAINAGE AREAS SEE SHEET 16 & 17

\*\* EXTENDED DEPTH INLETS WILL REQUIRE 24" RCCP LONGER THAN 4 FEET.



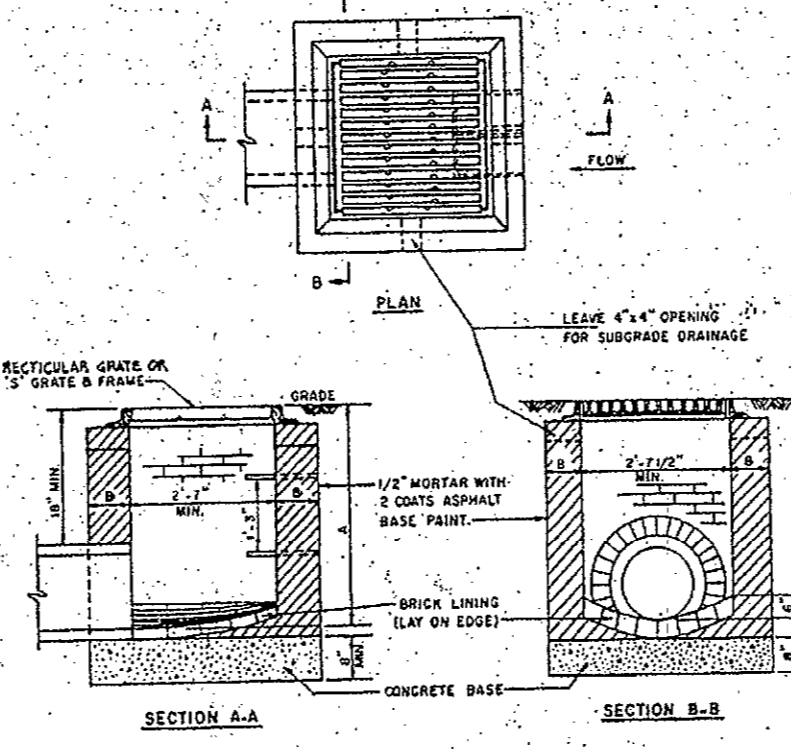
METAL END SECTION  
NTS



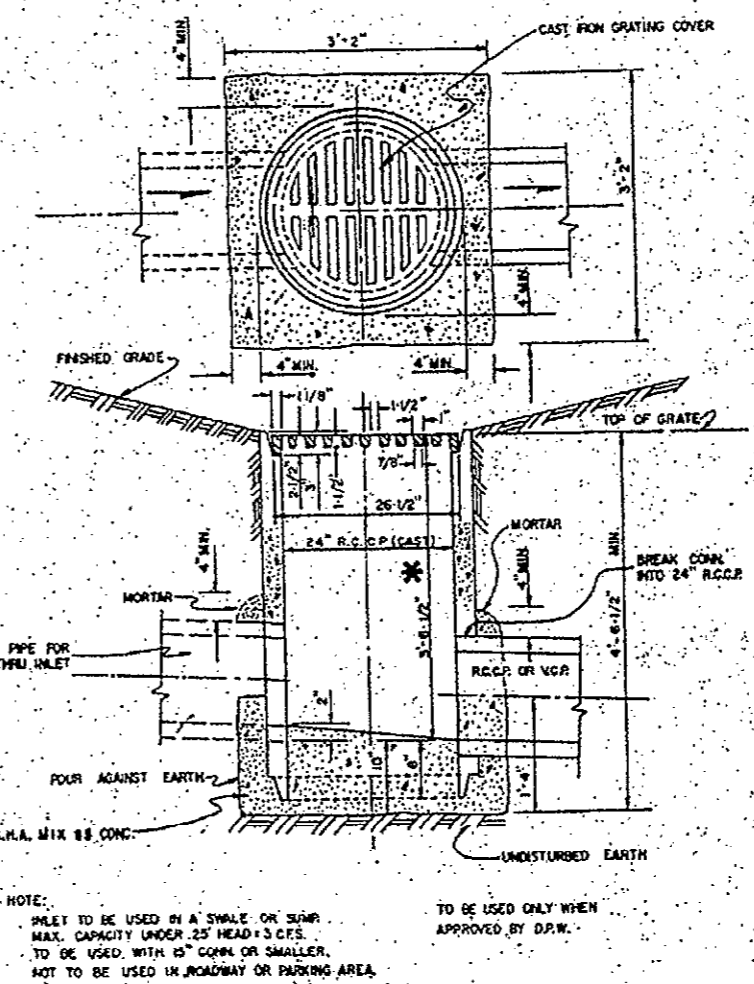
CONC. END SECTION  
NTS

STORM DRAIN COORDINATES

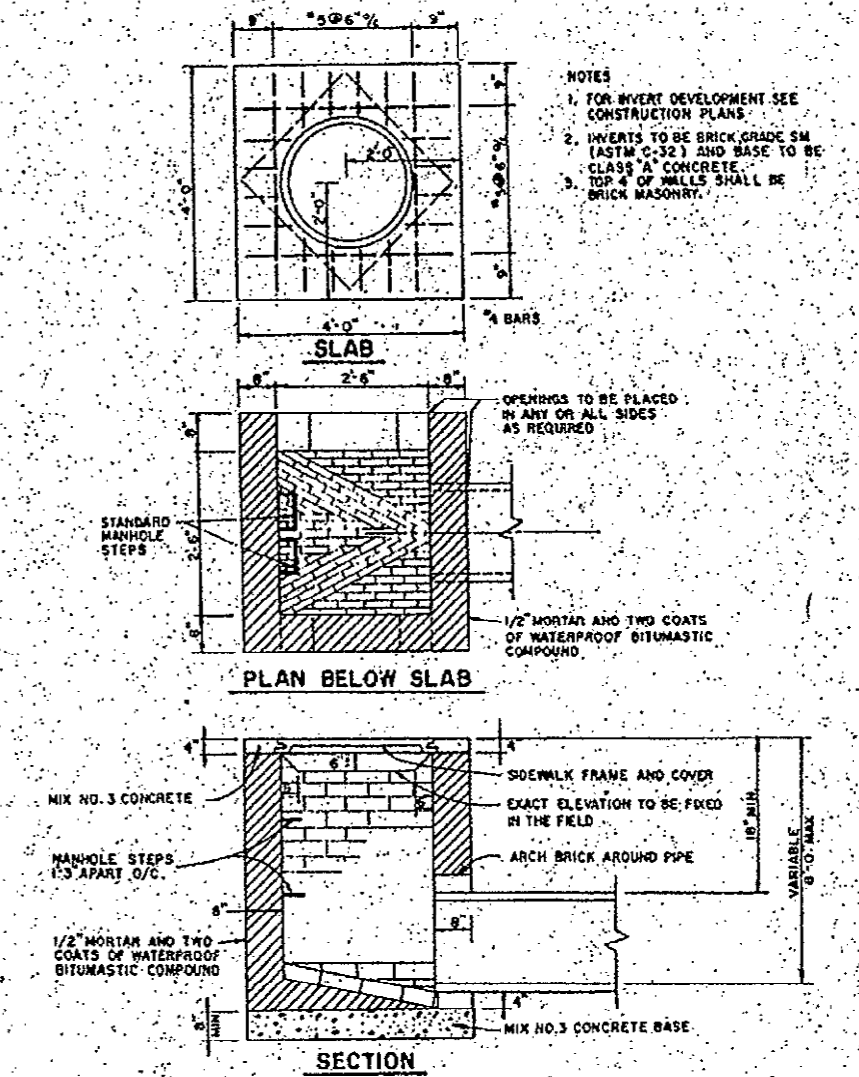
Table with 4 columns: POINT NO., STRUCTURE, NORTH, EAST. Lists coordinates for points 360 through 384.



TYPE "S" INLET  
NTS



YARD INLET  
NTS



TYPE "D" INLET GRATE  
NTS

STORM DRAIN AREAS, DATA, DETAILS AND STRUCTURE SCHEDULE

SCALE: 1" = 100'

REVIEWED NO FACILITIES REQUIRED

HOWARD COUNTY HEALTH DEPARTMENT

James M. Byrd, Director, 1/24/92

APPROVED - HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

James R. Smith, Director, 1/27/92

Emmalie Hillman, Director, 1/29/92

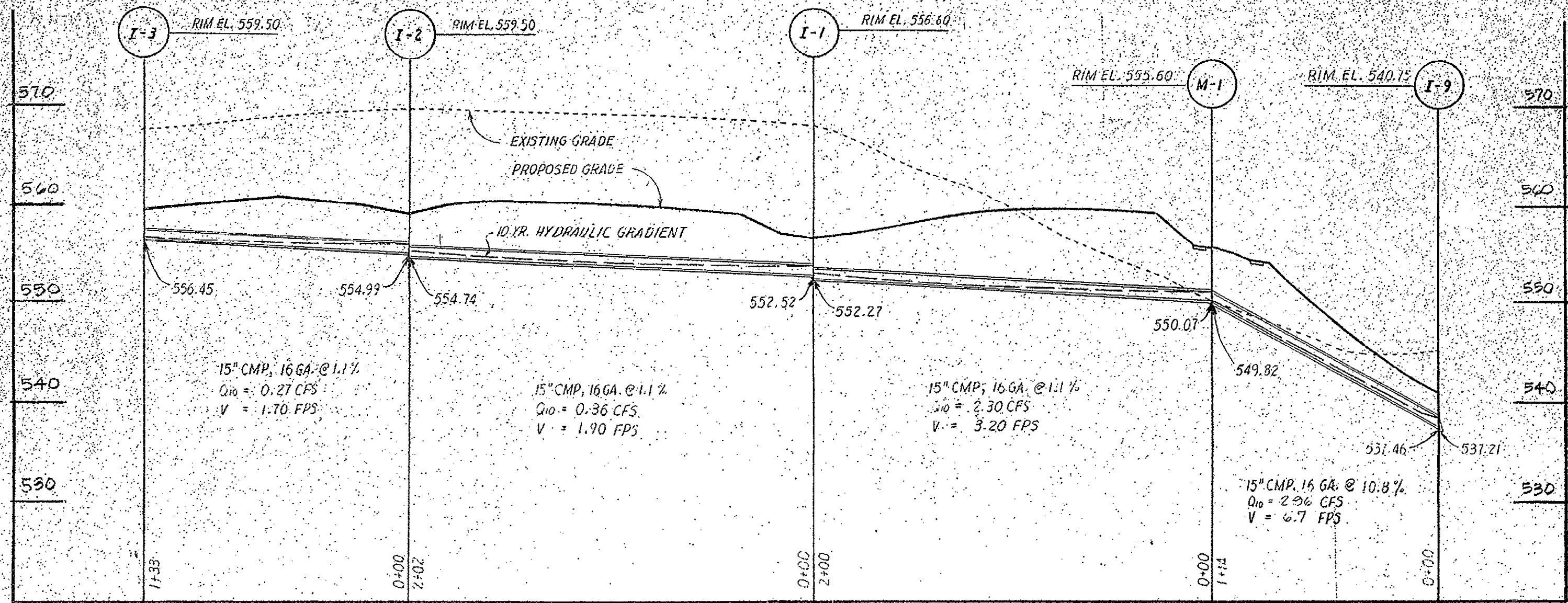
APPROVED - FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS

AND PUBLIC ROADS

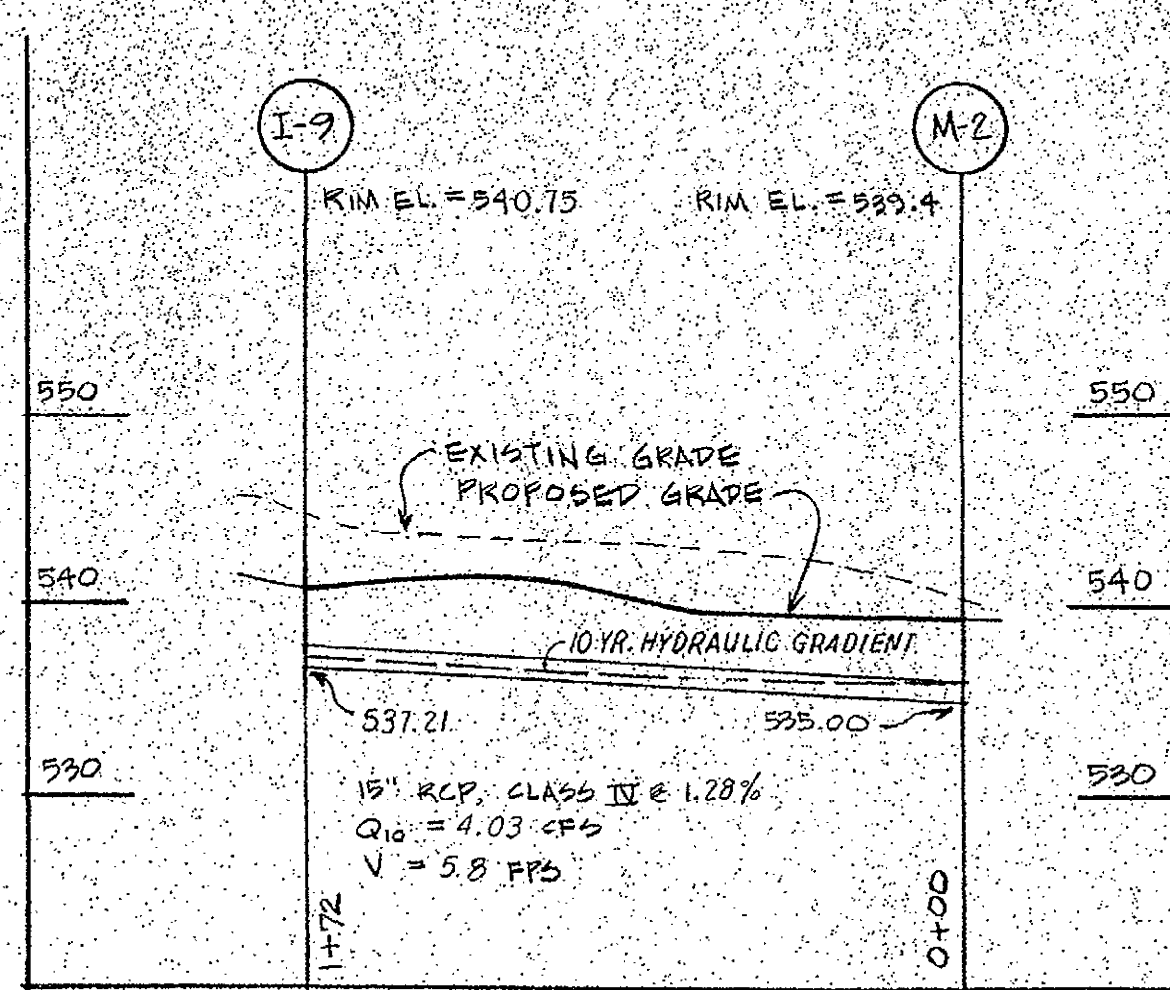
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James R. Smith, Director, 1/24/92

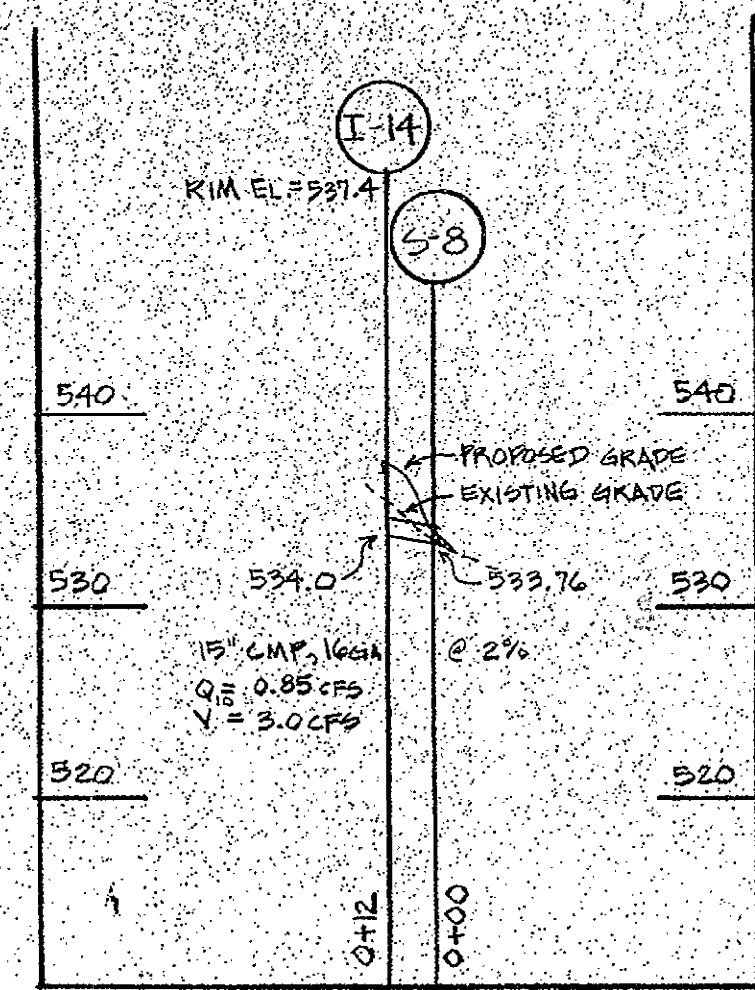
James R. Smith, Director, 1/24/92



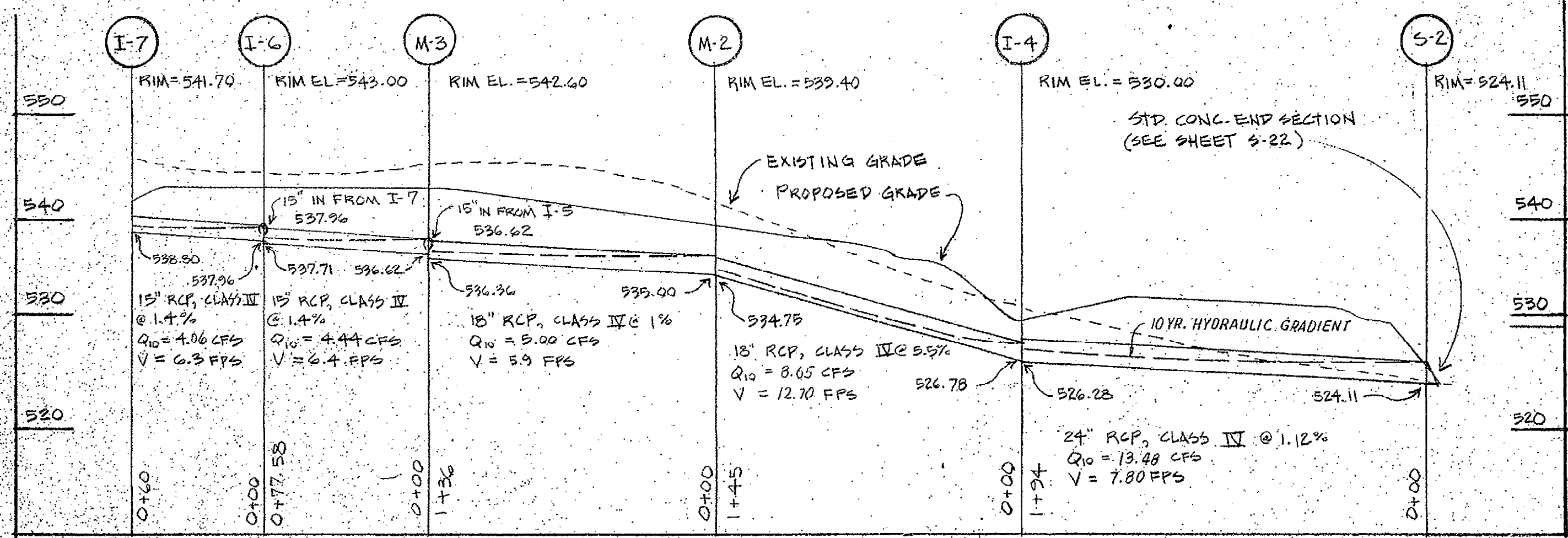
INLET 3 to INLET 9



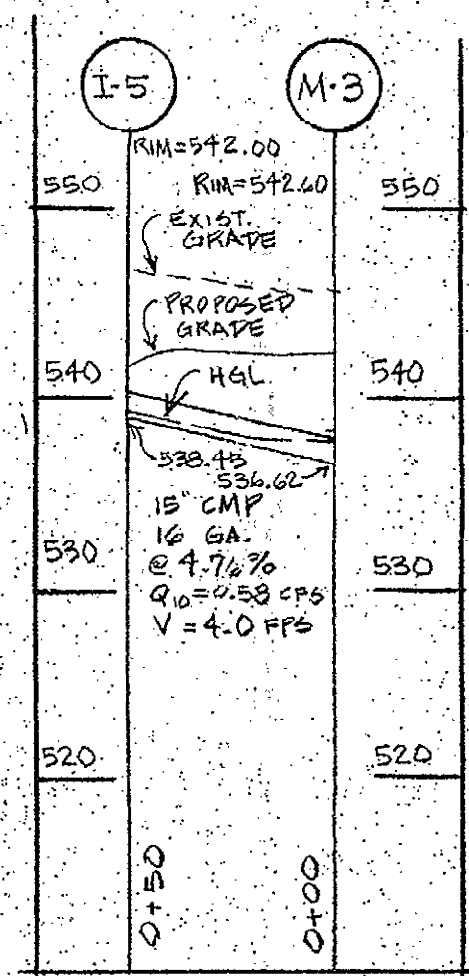
INLET 9 to MANHOLE 2



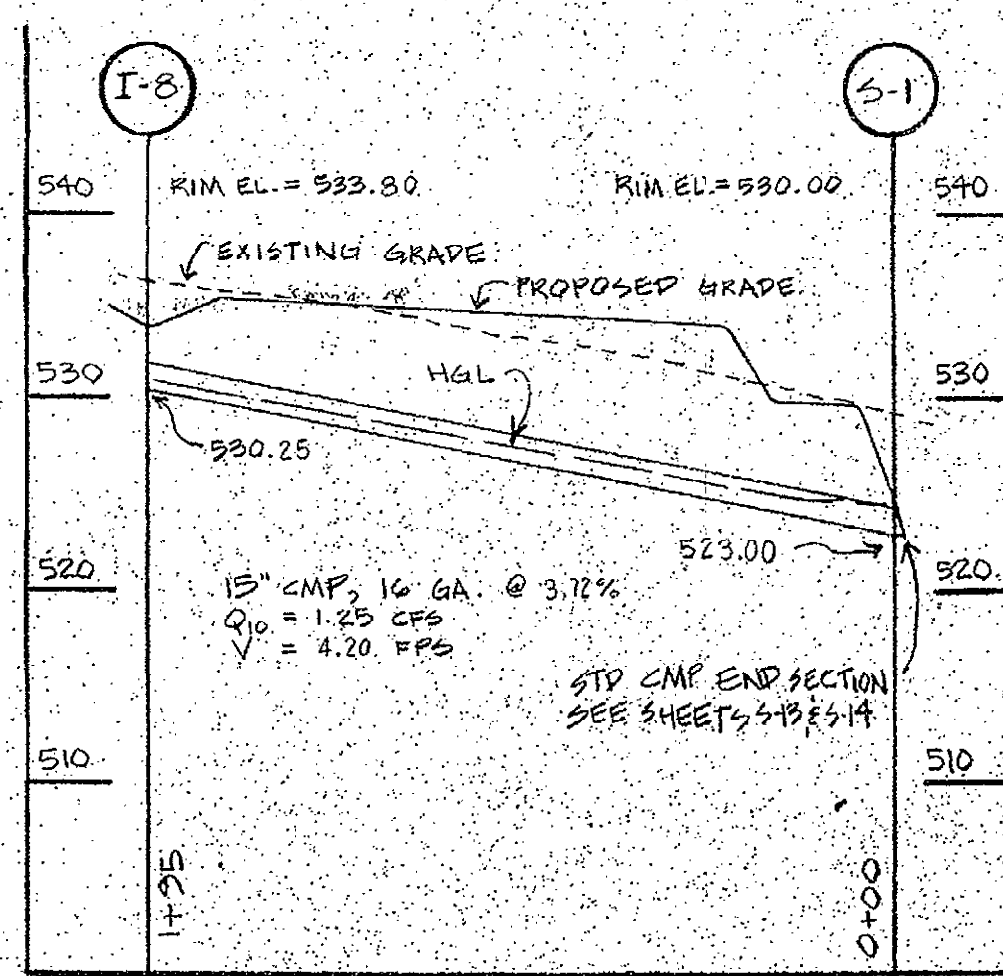
INLET 14 to STRUCTURE 8



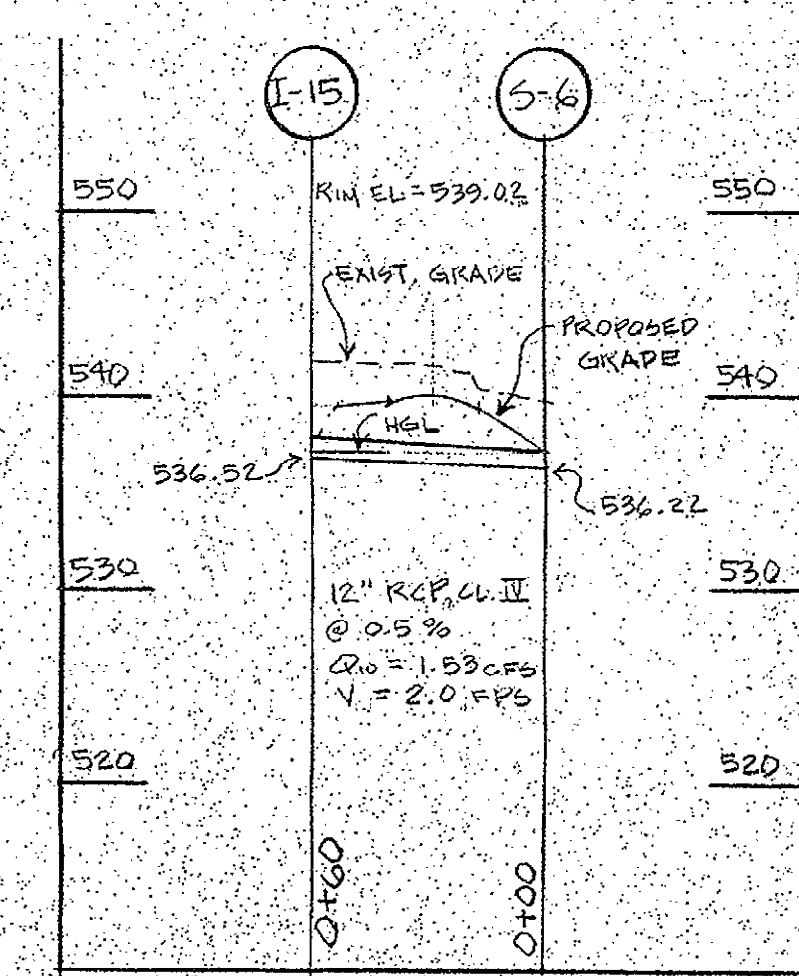
INLET 7 to STRUCTURE 2



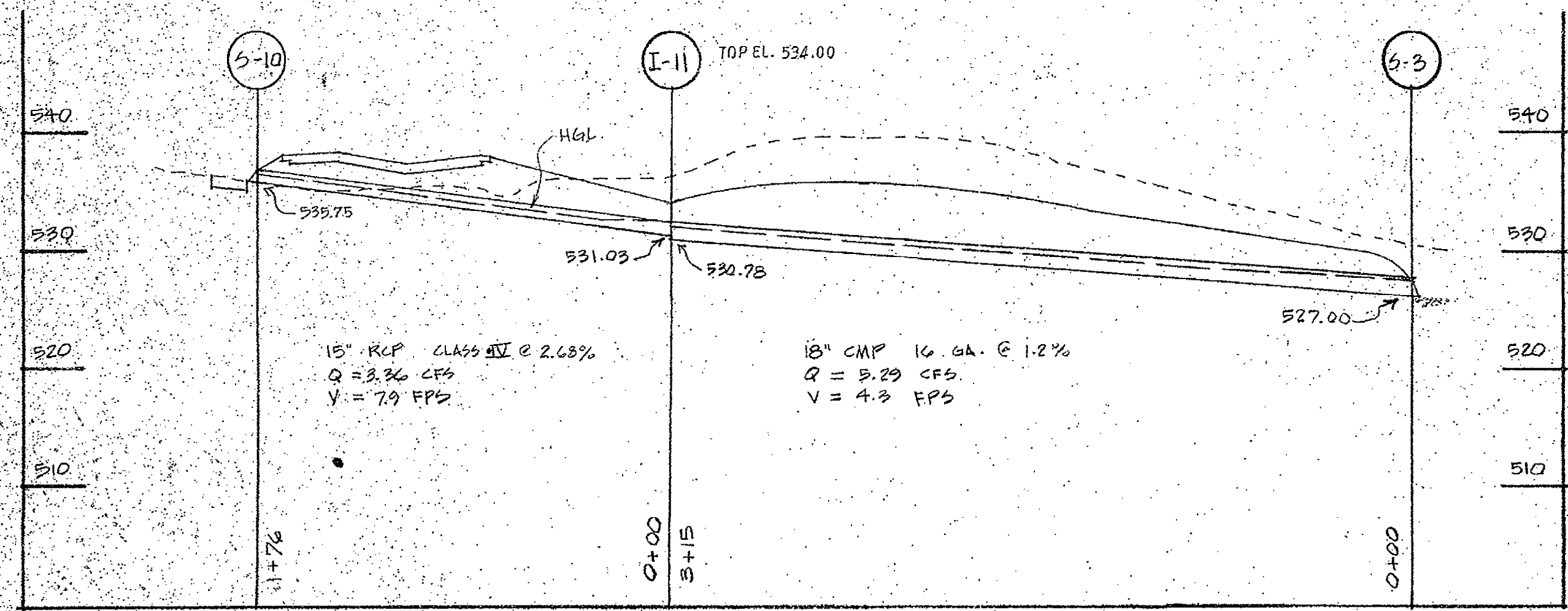
I-5 to M-3



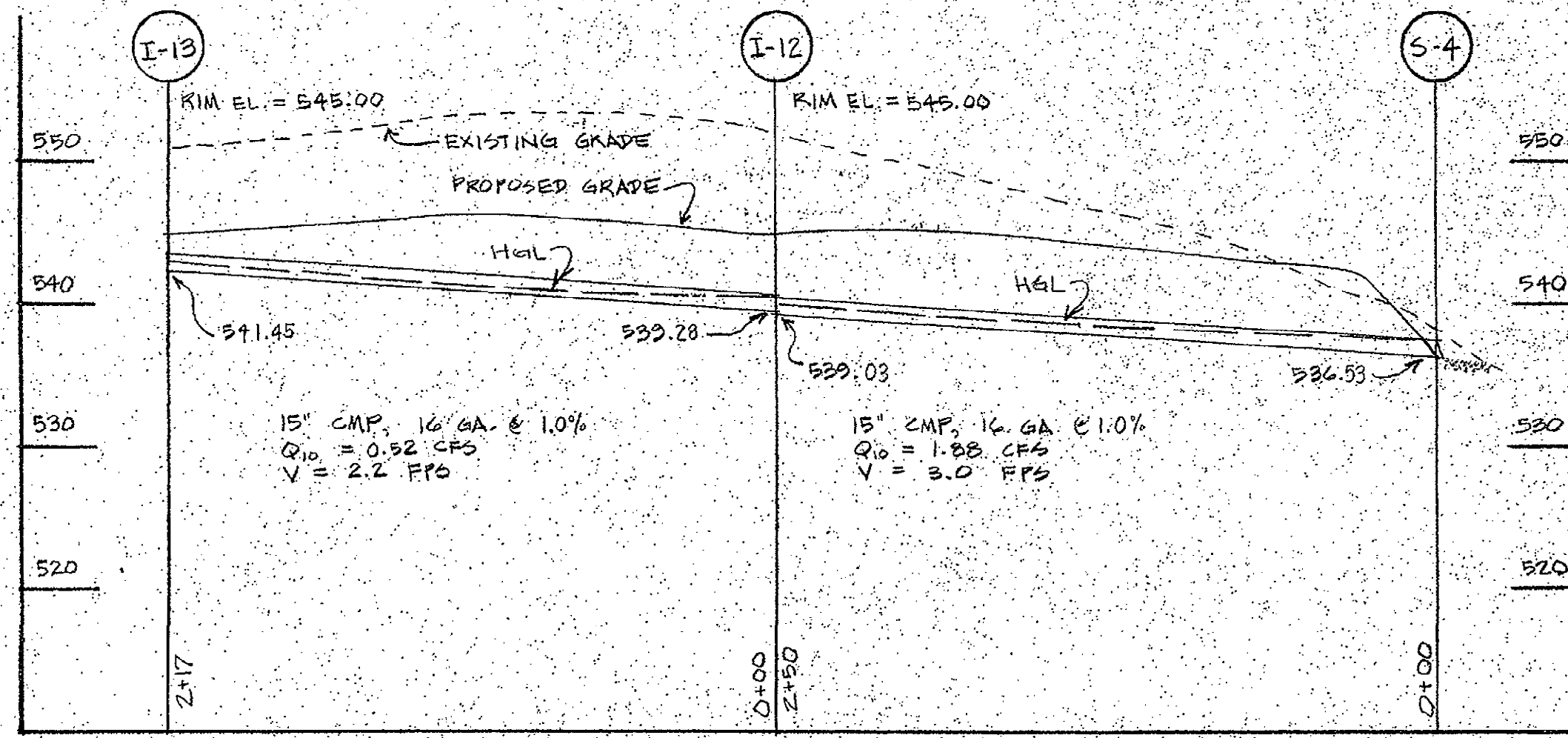
INLET 8 to S-1



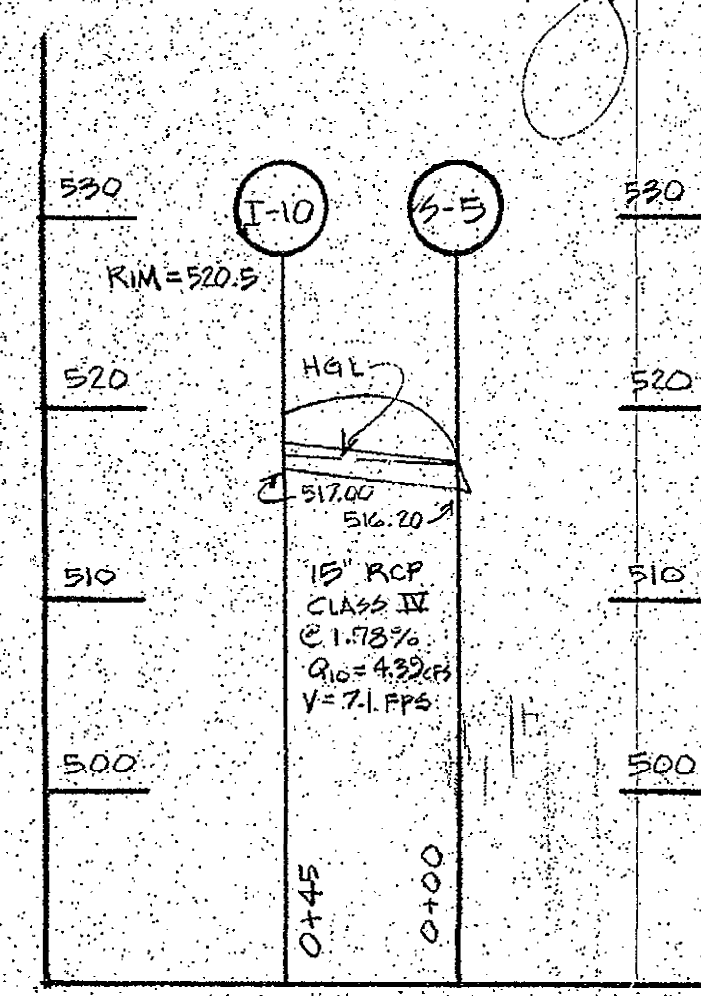
INLET 15 to S-6



STRUCTURE 10 to STRUCTURE 3



INLET 13 to STRUCTURE 4



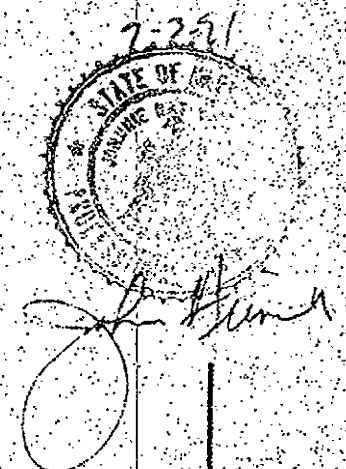
INLET 10 to STRUCTURE 5

NOTE: FOR OUTLET STRUCTURES & APPRONS SEE SHEETS S-8 & S-13

STORM DRAIN PROFILES

SCALE: Vertical 1" = 10' Horizontal 1" = 50'

APPROVAL STAMP



SITE DATA

OWNER: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PARK  
DEED REF: LIBER 847, FOLIO 808  
TAX MAP #10, PARCEL #28  
ELECTION DISTRICT #3  
CENSUS TRACT 6090  
WATER: SEWER: NONE

JANUARY 24 1992



SHEET

S-9

SDP 27 of 38 of 20

SDP 10 of 21

REVIEWED NO FACILITIES REQUIRED  
HOWARD COUNTY HEALTH DEPARTMENT

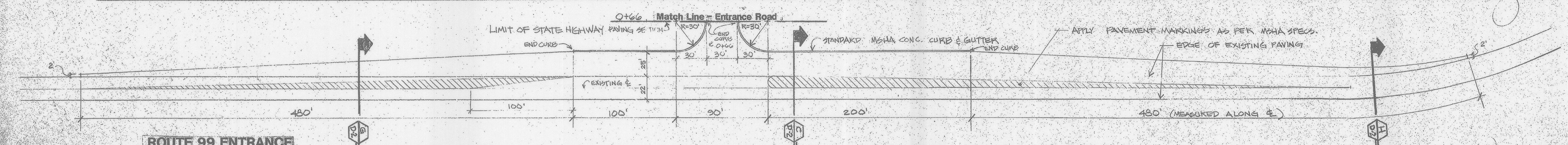
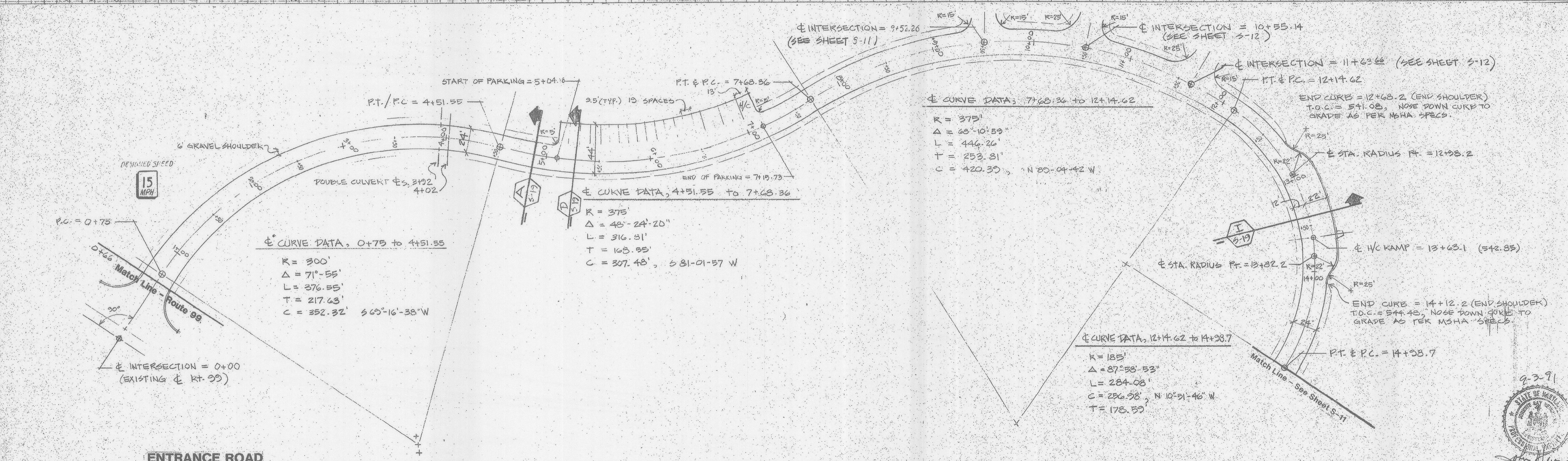
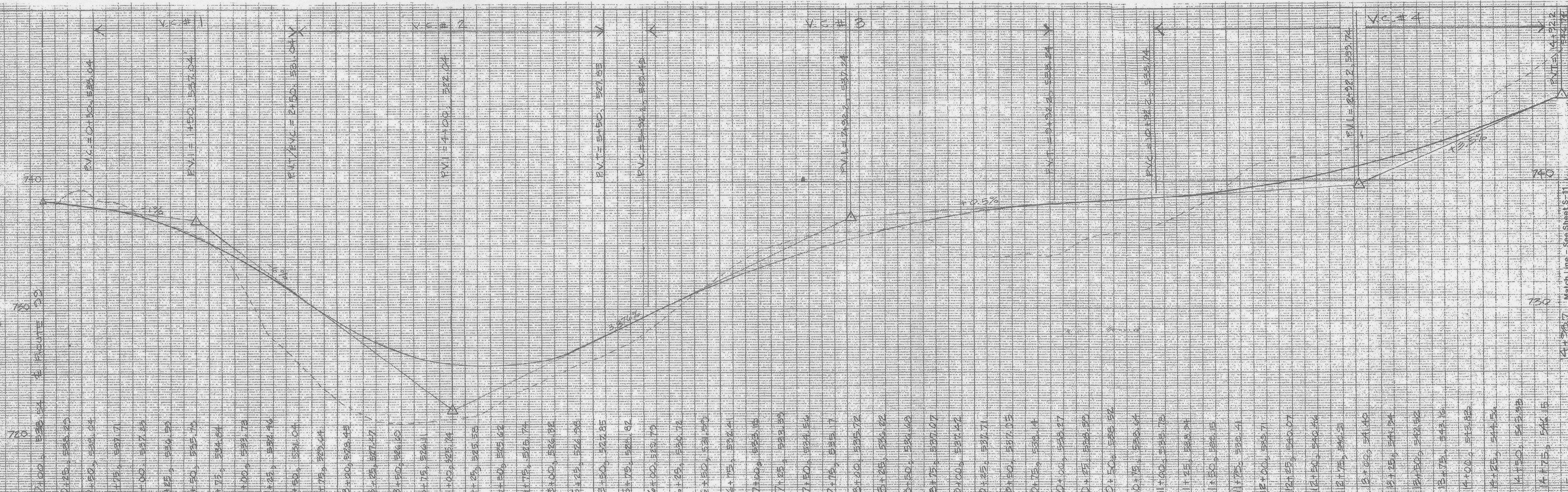
APPROVED: *James M. Boyd* 1/24/92  
COUNTY HEALTH OFFICER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: *James Smith* 1/27/92  
DIRECTOR  
APPROVED: *Emilia Helms* 1/27/92  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS AND PUBLIC C ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: *James P. Sullivan* 1/24/92  
DIRECTOR  
APPROVED: *William S. Riley* 1/24/92  
CHIEF, BUREAU OF ENGINEERING



**NOTES:**  
1) PAVING SECTIONS - SEE SHEET D-2  
2) ALL EXISTING PAVING MARKINGS MUST BE ELIMINATED BY CONTRACTOR AS DIRECTED BY S.H.A. REPRESENTATIVE

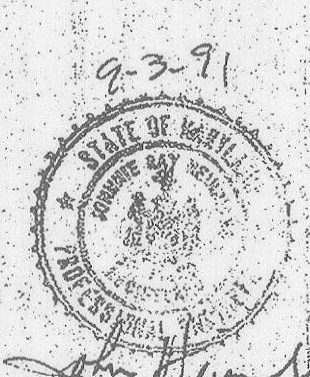
**ROUTE 99 ENTRANCE & MAIN ROAD 0-00 TO 14-98.7 ROAD PROFILE**

SCALE: Profile 1/2" = 50' PLAN 1" = 50'

APPROVAL STAMP

**SITE DATA**

OWNER: HOWARD COUNTY  
DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PAV.  
DEED REF. LIBER 847, P.O. 0 606  
TAX MAP #10, PARC. #23  
ELECTION DISTRICT #3  
CENSUS TRACT 6030  
WATER:  
SEWER:



APPROVED REVISION  
JANUARY 24, 1992  
SIGNATURE: *[Signature]*

**J. CHRISTOPHER BATTEN, INC.**  
Land Planning & Design Consultant  
8 North Church Street  
Westminster, Maryland 21157  
301-576-3383

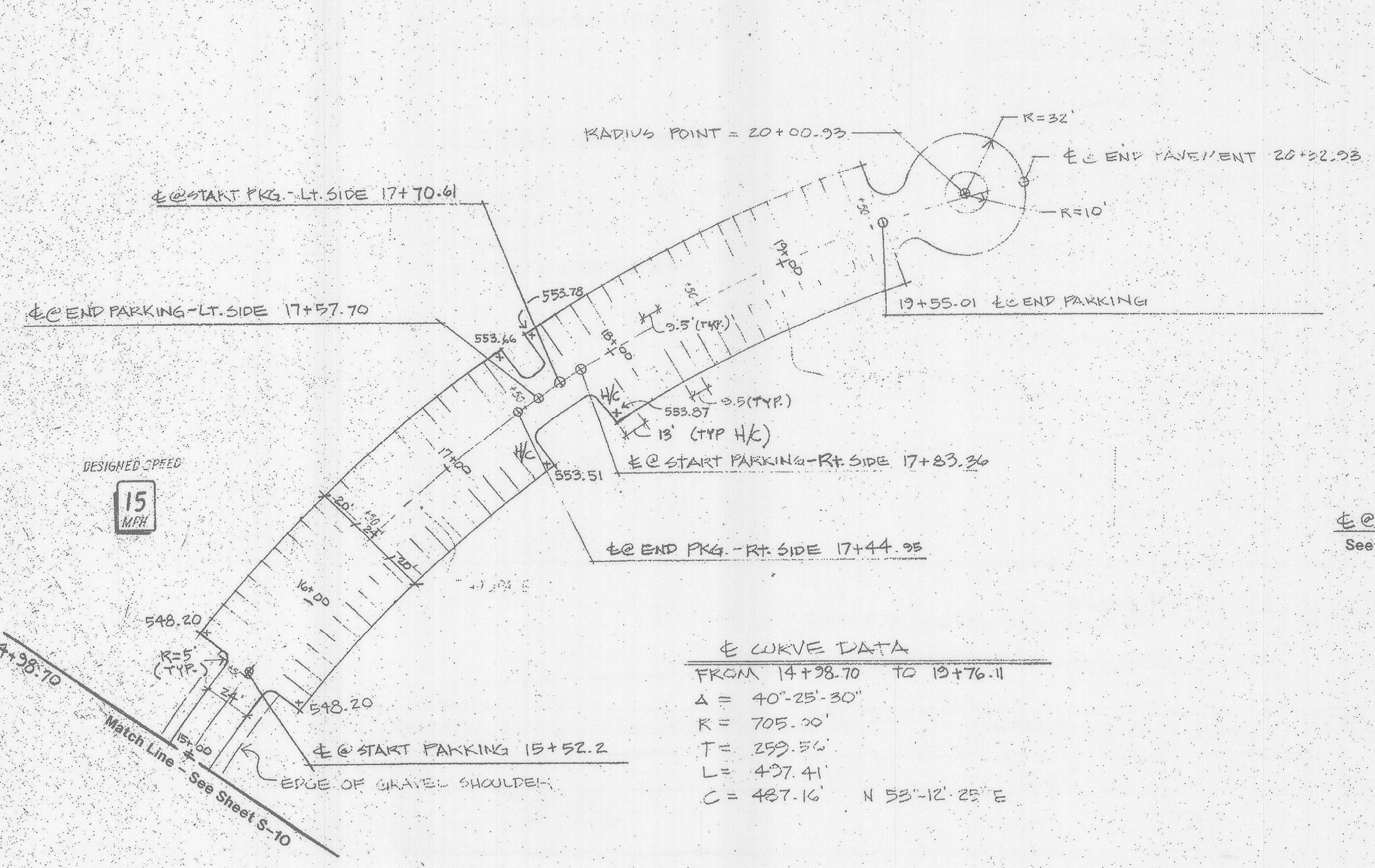
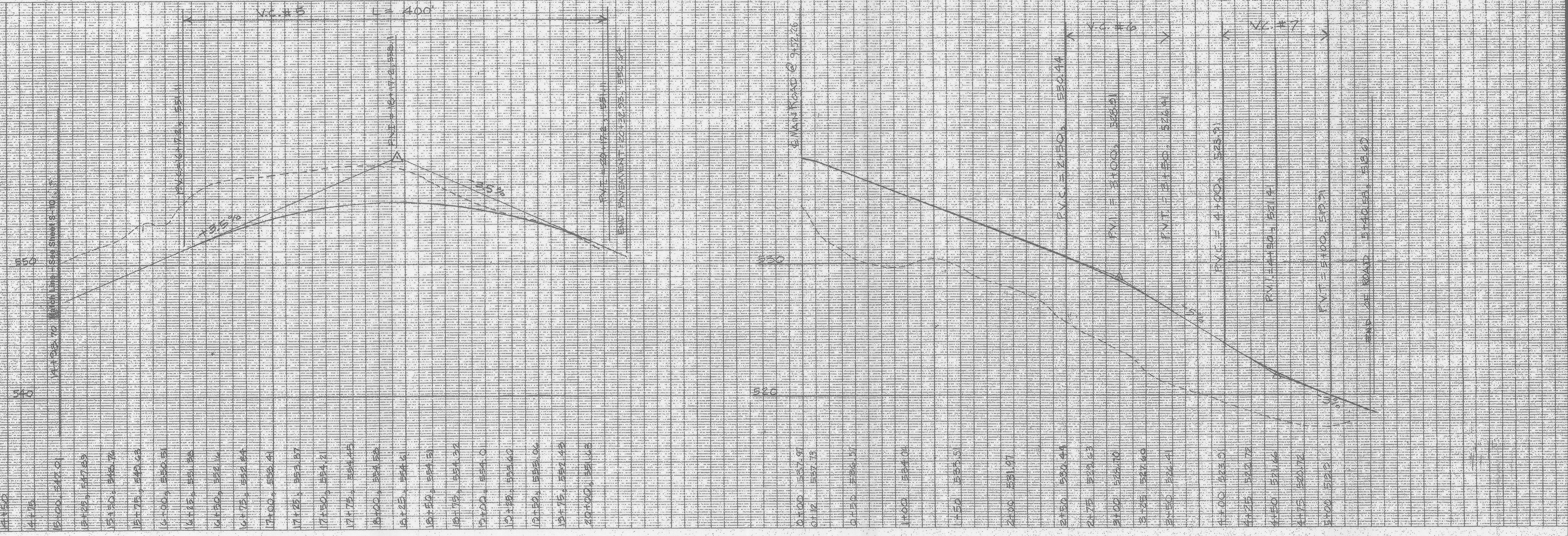
**SHEET S-10**  
SDP 18 of 38  
of 20

REVIEWED NO FACILITIES REQUIRED  
HOWARD COUNTY HEALTH DEPARTMENT  
JAMES M. BOND... 1/24/92  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DIRECTOR: James R. Smith 1/27/92  
DATE  
Anna Holmuth 1/27/92  
DATE  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

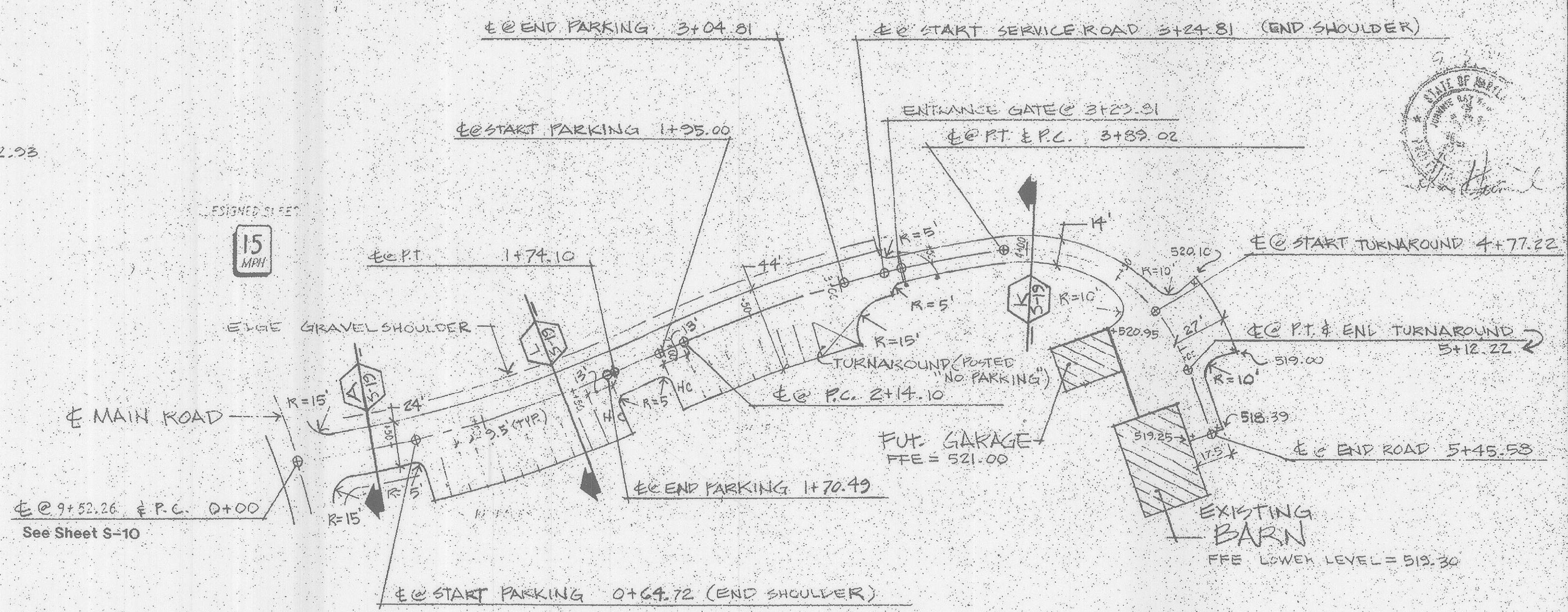
APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
DIRECTOR: James P. ... 1/24/92  
DATE  
... & ... 1/24/92  
DATE  
CHIEF, BUREAU OF ENGINEERING

APPROVAL STAMP



☒ CURVE DATA

FROM	14+38.70	TO	19+76.11
Δ	40°-25'-30"		
R	705.20'		
T	259.56'		
L	427.41'		
C	487.16' N 53°-12'-25" E		



☒ CURVE DATA

FROM	0+00	TO	1+74.10
Δ	17°-36'-06"		
R	570.00'		
T	87.73'		
L	174.92'		
C	174.23' S 01°-52'-13" E		

☒ CURVE DATA

FROM	2+14.10	TO	3+89.02
Δ	17°-34'-58"		
R	570.00'		
T	88.15'		
L	174.92'		
C	174.23' S 01°-52'-13" E		

☒ CURVE DATA

FROM	3+89.02	TO	5+12.22
Δ	78°-26'-02"		
R	30.00'		
T	73.45'		
L	123.20'		
C	113.31' S 46°-08'-15" W		

NOTES:  
1) PAVING SECTIONS - SEE SHEET D-2

☒ MAIN ROAD 14-98.17 & ROAD TO MAINTENANCE GARAGE ROAD PROFILE

SCALES Profile Horiz. 1"=50' Vert. 1"=4'  
Plan 1"=50'

SITE DATA  
OWNER: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PARK  
DEED REF: LIBER 847, FOLIO 606  
TAX MAP #10, PARCEL #23  
ELECTION DISTRICT #3  
CENSUS TRAC #0030  
WATER: NONE  
SEWER: NONE

JANUARY 24, 1992  
DATE  
SIGNATURE

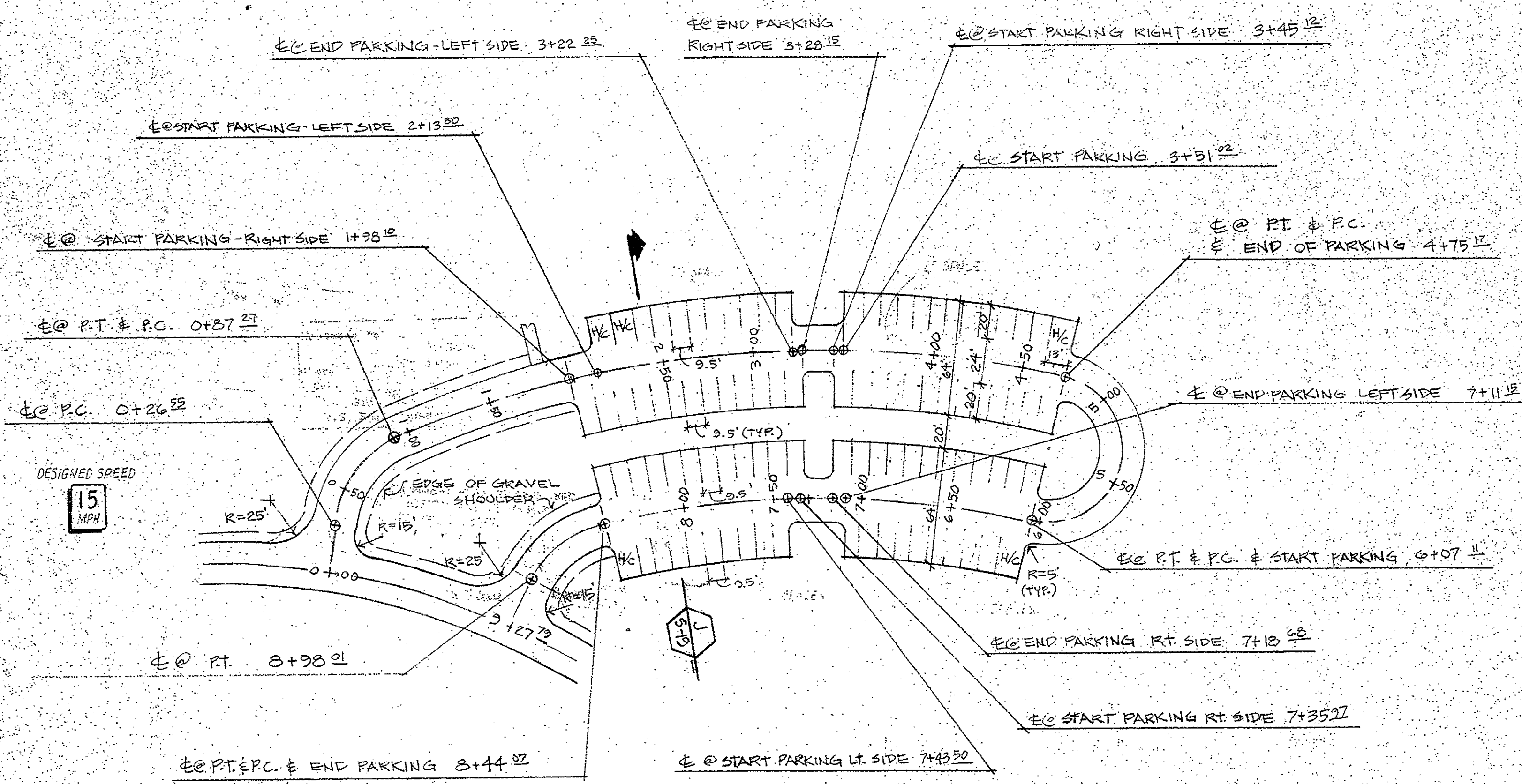
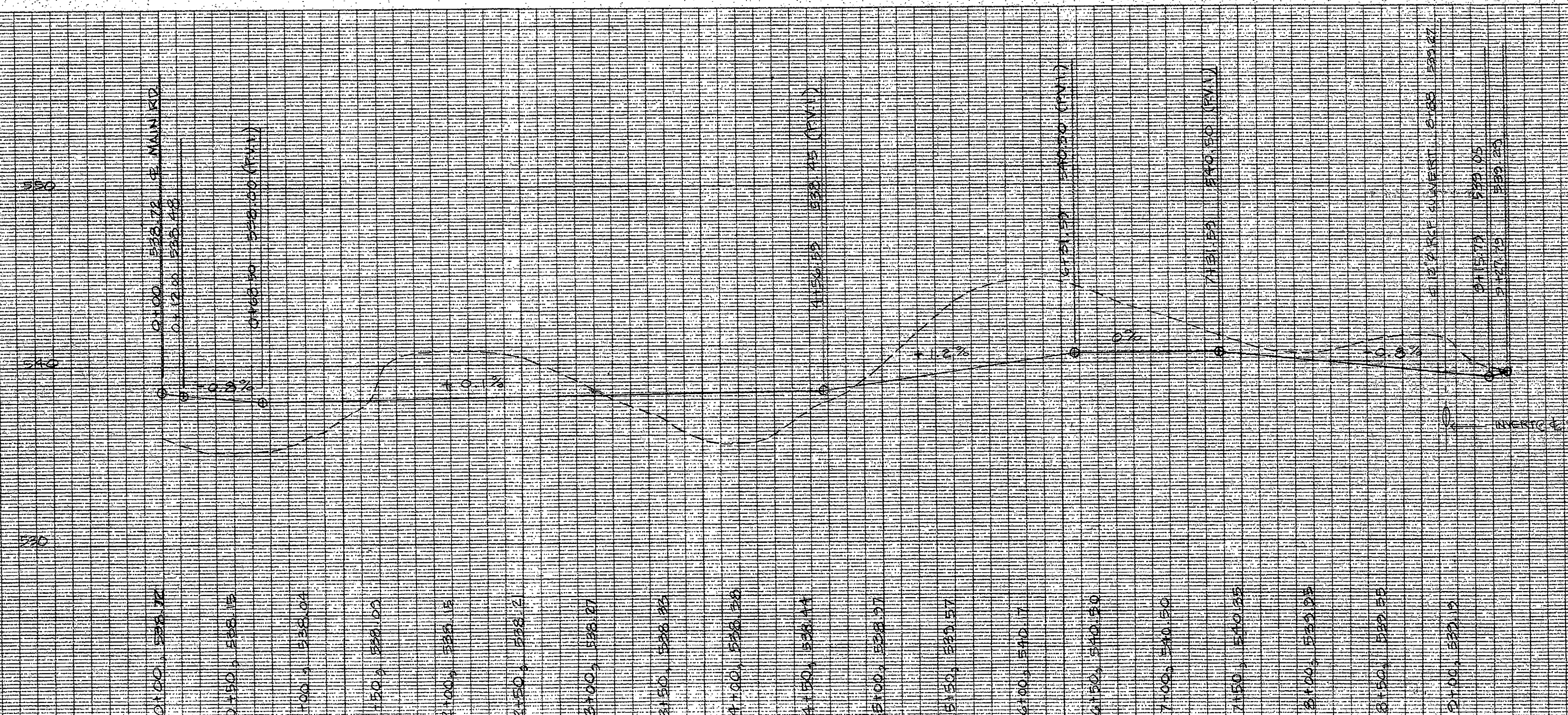
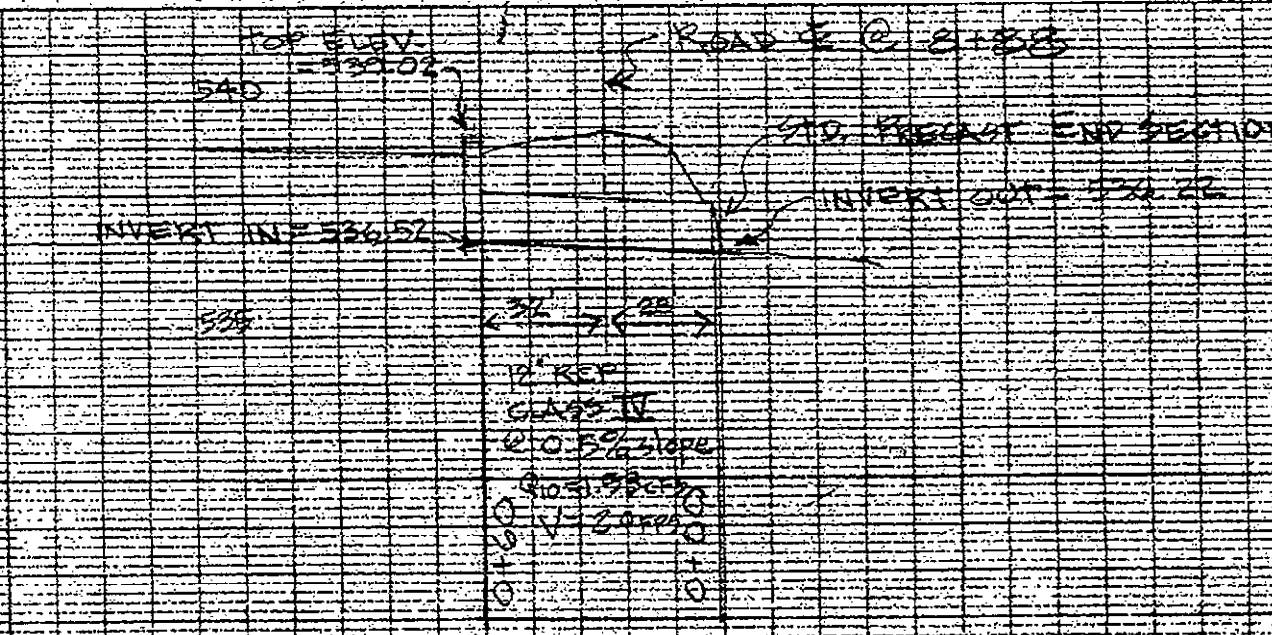
J. CHRISTOPHER BATTEN, INC.  
Land Planning & Design Consultant  
8 North Church Street  
Westminster, Maryland 21157  
301-876-3383

SHEET  
S-11  
SDP-29 of 38  
of 20  
SDP-12 of 21  
SDP-90-18

HOWARD COUNTY HEALTH DEPARTMENT  
 JAMES M. BAYLOR, JR. 1/24/92  
 COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 JAMES BATTEN 1/27/92  
 DIRECTOR DATE  
 SHARON HOLMATH 1/27/92  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 JAMES P. LEE 1/24/92  
 DIRECTOR DATE  
 MICHAEL S. REED 1/24/92  
 CHIEF, BUREAU OF ENGINEERING DATE



**NOTE:**  
 NO VERTICAL CURVE COMPUTATIONS HAVE BEEN PREPARED FOR THIS SECTION OF ROAD DUE TO THE LIMITED SLOPES. ALSO THIS IS A LOW SPEED TRAVEL AREA THROUGH THE PARKING LOT.

**HORIZONTAL CURVE DATA**

STATIONS	DELTA	RADIUS	ARC TANGENT	CHORD BEARING & DISTANCE
0+26.22 to 0+87.22	57°59'13"	60.00'	60.72' 33.25'	S 40°01'57" W 38.17'
0+87.22 to 4+75.12	35°00'00"	65.00'	387.50' 200.21'	S 86°31'33" W 381.90'
4+75.12 to 6+07.12	180°00'00"	42.00'	131.94'	N 14°01'33" E 84.00'
6+07.12 to 8+44.22	24°38'27"	551.00'	236.96' 120.34'	N 88°36'13" E 235.14'
8+44.22 to 8+98.22	50°39'54"	61.00'	53.94' 28.98'	N 53°41'38" E 52.20'

**NOTES:**  
 1.) PAVING SECTIONS - SEE SHEET D-2

**PARKING LOT LOOP ROAD PROFILE**

SCALES: Profile 1" = 4', Horiz. 1" = 50', Plan 1" = 50'

**SITE DATA**

OWNER: HOWARD COUNTY  
 DEPT. OF PUBLIC WORKS  
 PROPOSED IMPROVEMENT: PARK  
 DEED REF. LIBER 847, FOLIO 606  
 TAX MAP #10, PARCEL #23  
 ELECTION DISTRICT #3  
 CENSUS TRACT 6030  
 WATER: NONE  
 SEWER: NONE

JANUARY 24 1992

**J. CHRISTOPHER BATTEN, INC.**  
 Land Planning & Design Consultant  
 8 North Church Street  
 Westminister, Maryland 21157  
 301-576-3383

**S-12**  
 SDP-30-93B  
 01 20  
 SDP-13-95-21

REVIEWED NO FACILITIES REQUIRED

HOWARD COUNTY HEALTH DEPARTMENT  
 J. M. Bagley, Director  
 1/24/92

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 J. M. Bagley, Director  
 1/24/92

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 J. M. Bagley, Director  
 1/24/92

APPROVED FOR PRIVATE WATER AND SEWERAGE FOR STORM DRAINAGE SYSTEMS AND PUBLIC WORKS  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 J. M. Bagley, Director  
 1/24/92

SEQUENCE OF CONSTRUCTION - SWM POND # 1

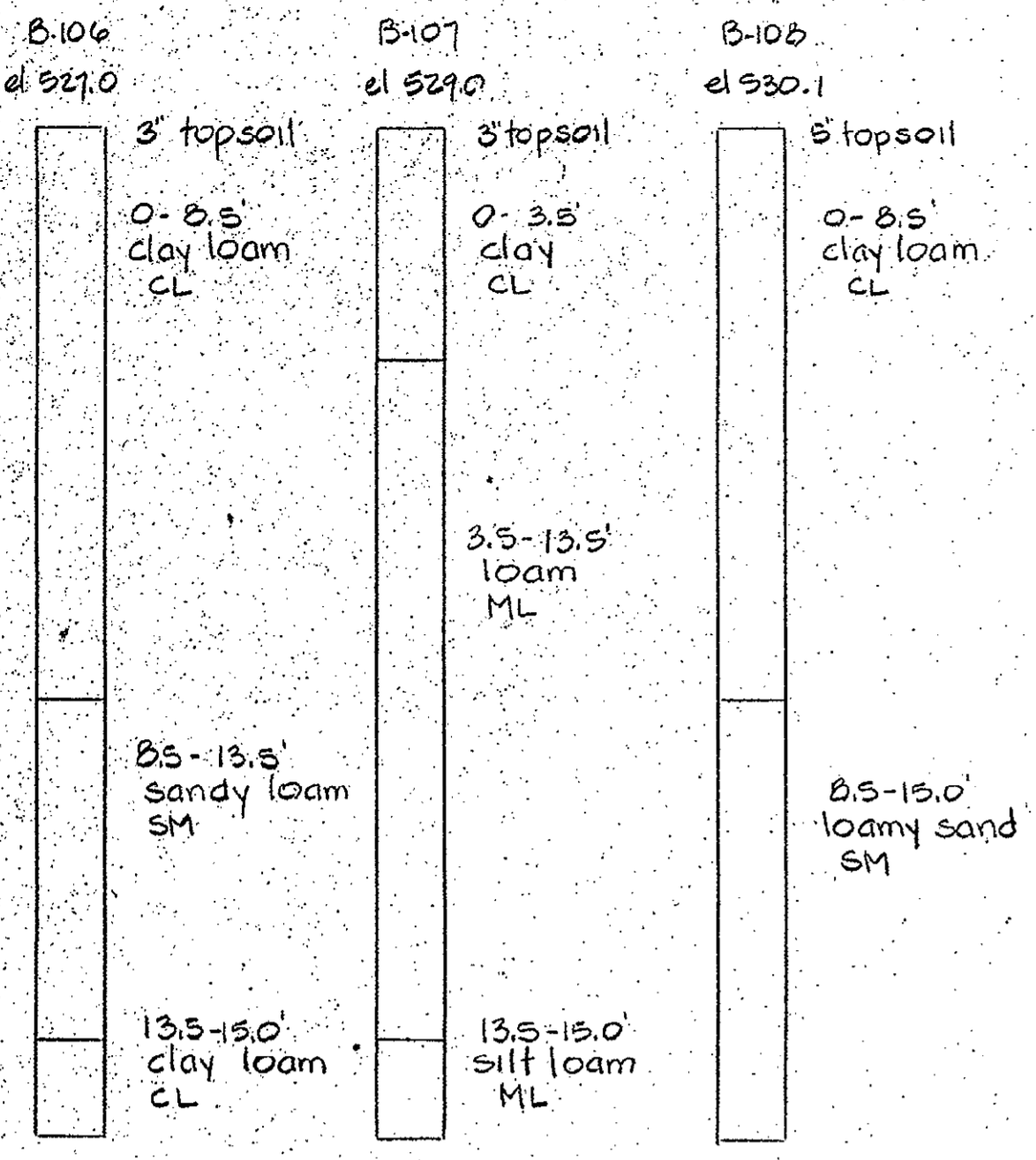
Note: Minimal sediment control measures to be in place prior to pond construction include: trap #2.

1. Clear and grub pond area.
2. Install silt fence along outside toe of dam (see plan).
3. Dig and install core trench.
4. Install [36"] riser and barrel, outfall protection, and temporary riser with stone. Install a temporary outfall channel to existing grade @ 0.5% (approx 170 LF).
5. Place dam fill and excavate storage area.
6. Grade diversion and stabilize.
7. Stabilize disturbed areas.

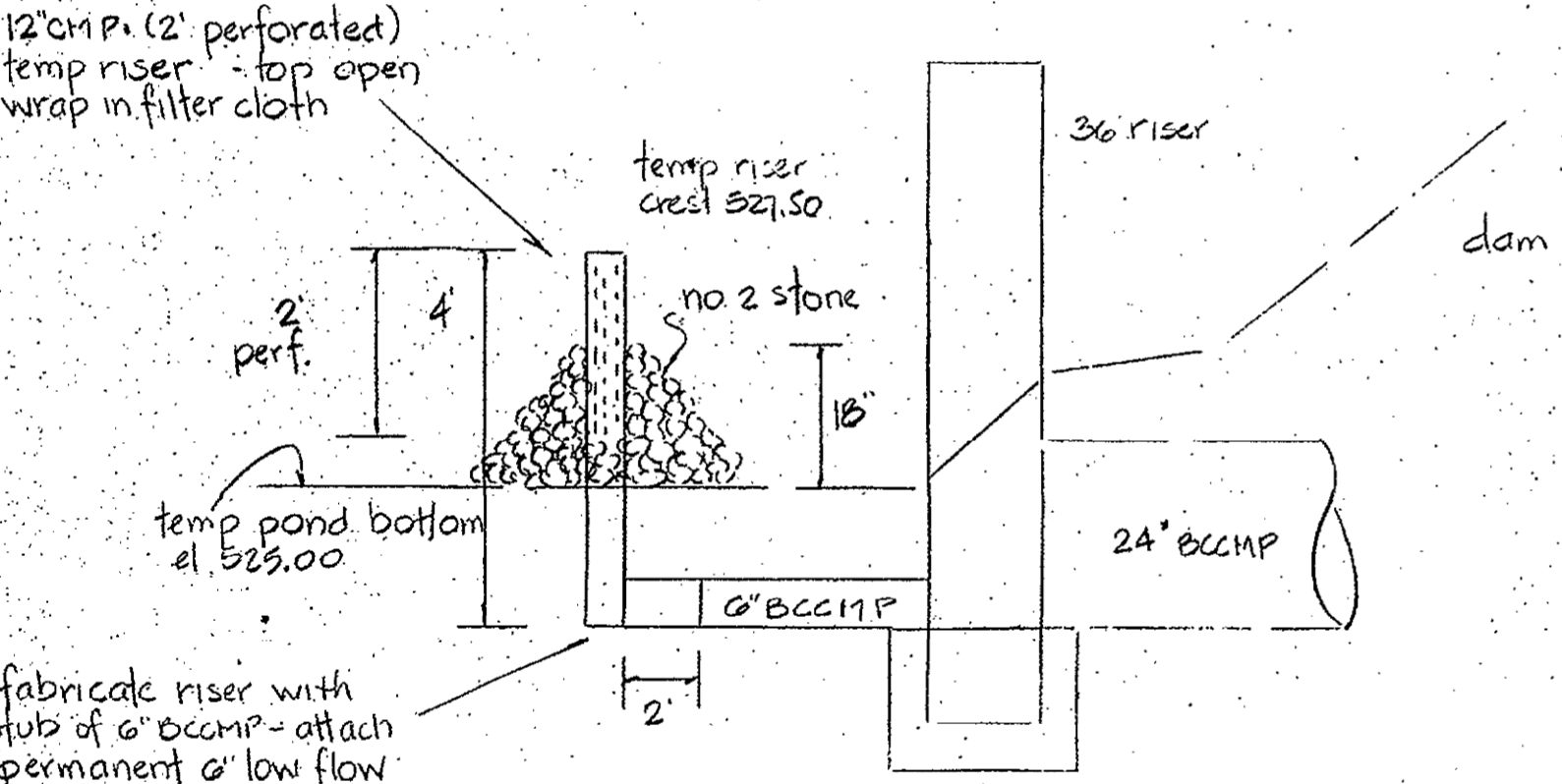
During site grading and construction - clean out sediment when it reaches elevation 527.0, or 6" below top of temporary riser.

8. At the completion of site grading and stabilization, convert pond for permanent use.
  - a. Clean out sediment.
  - b. Remove temporary riser and stone.
  - c. Grade bottom and side of pond to final configuration.
  - d. Excavate for stone infiltration trench.
  - e. Lay fabric, place stone, and install observation well as indicated in specifications, sheet
  - f. Remove trash rack, cut [36"] riser, replace trash rack.
  - g. Stabilize disturbed areas.

Note: When trap #2 is removed and stilling basins 1-a & b are installed, remove temporary outfall channel and adjust outfall protection as necessary to blend into basin 1-b.



Soil boring logs  
 no scale



prefabricate riser with 2' stub of 6" O.C.M.P. - attach to permanent 6" low flow at conversion of pond to permanent SWM pond - remove stone, 12' riser and 2' stub of 6" O.C.M.P.

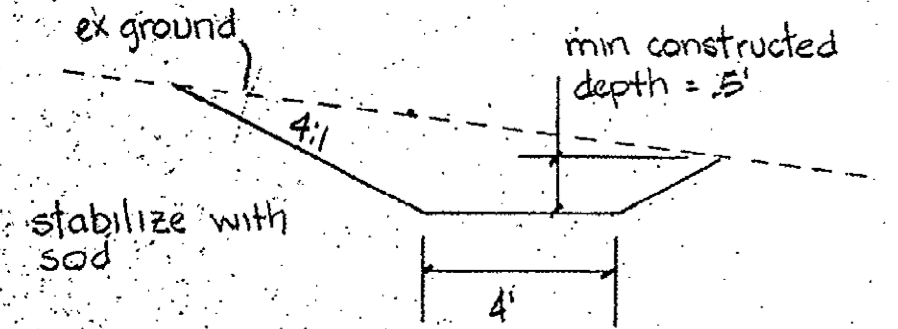
Note: temp riser will be in place during overall site grading and construction. sediment clean out shall be at el 521.0 or 6" below top of temp riser

Temporary Riser Detail  
 no scale

Requested for **HOWARD** S. 0124  
 Date **1/27/92**  
 Signature  
 U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Approved **J. M. Bagley** Date **1/27/92**  
 Howard S.C.D.



construct channel to match existing slope - minimum construction depth = 0.5' channel grade will vary stabilize entire cut area with sod

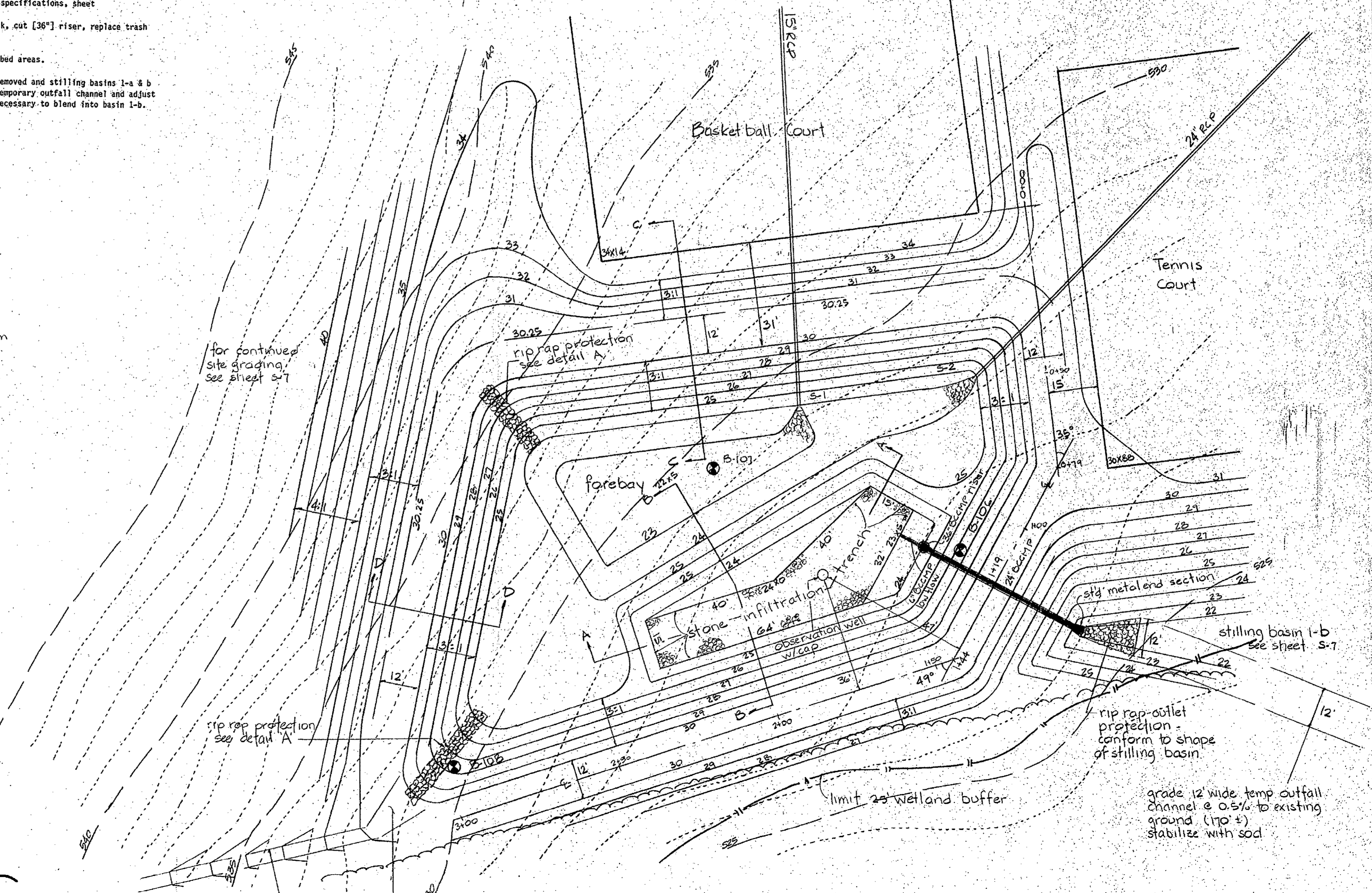
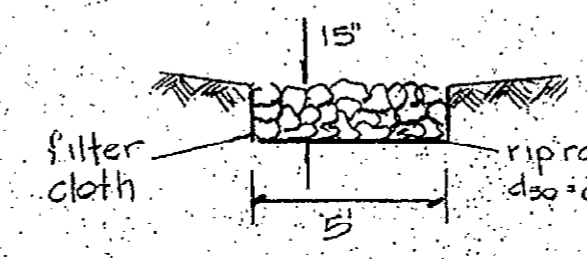
Diversion Channel Detail  
 no scale

channel continues along woods line to top of hill - see grading plan (west) sheet S-7

4' bottom 4:1 sides diversion channel see detail

flare channel to match pond grading

Rip Rap Protection Detail A (no scale)



Stormwater Management  
 Pond #1  
 Plan  
 1"=20'



APPROVAL STAMP

APPROVED FOR PRIVATE WATER AND SEWERAGE FOR STORM DRAINAGE SYSTEMS AND PUBLIC WORKS  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 J. M. Bagley, Director  
 1/24/92

SITE DATA

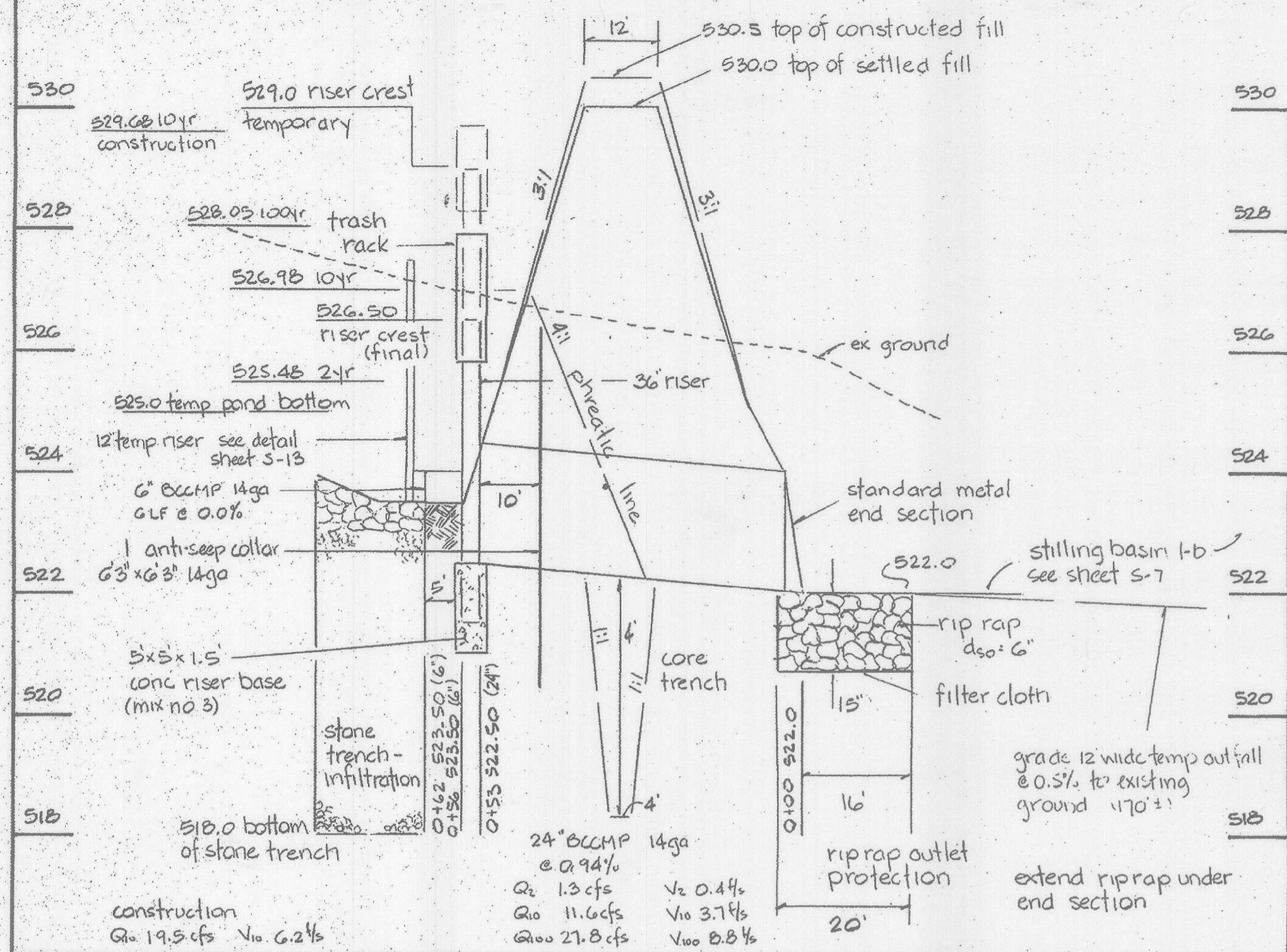
OWNER: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 PROPOSED IMPROVEMENT: PARK  
 DEED REF. LIBER 847, FOLIO 606  
 TAX MAP #10, PARCEL #23  
 ELECTION DISTRICT #8  
 CENSUS TRACT 6800  
 WATER: [blank]  
 SEWER: NONE

JANUARY 24, 1992

SHEET  
**J. CHRISTOPHER BATTEN INC.**  
 Land Planning & Design Consultant  
 1 North Church Street  
 Westminister, Maryland 21157  
 301-476-3380  
**S-13**  
 SDP-31 of 38 of 20  
 SDP-11 of 21

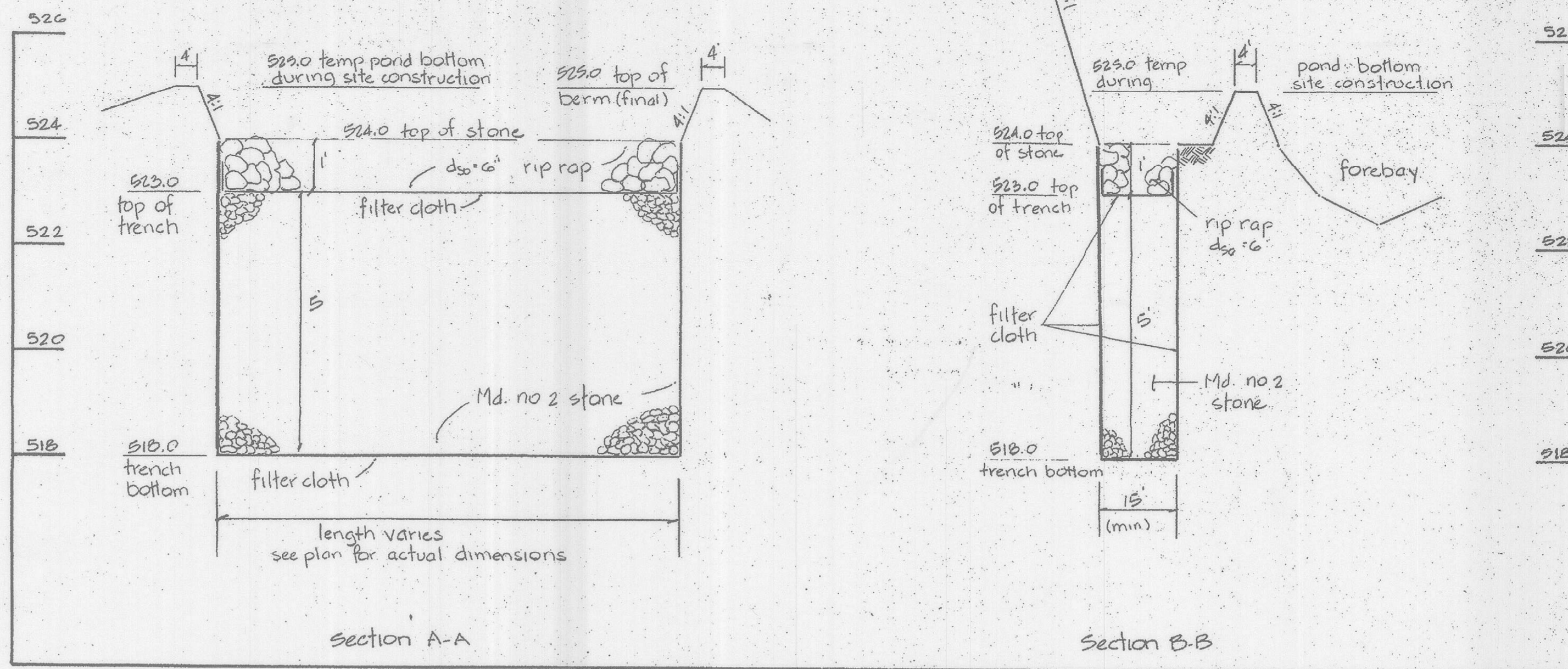
**Profile - Principal Spillway  
and  
Cross Section of Dam**

scale vert 1"=2' hor 1"=20'



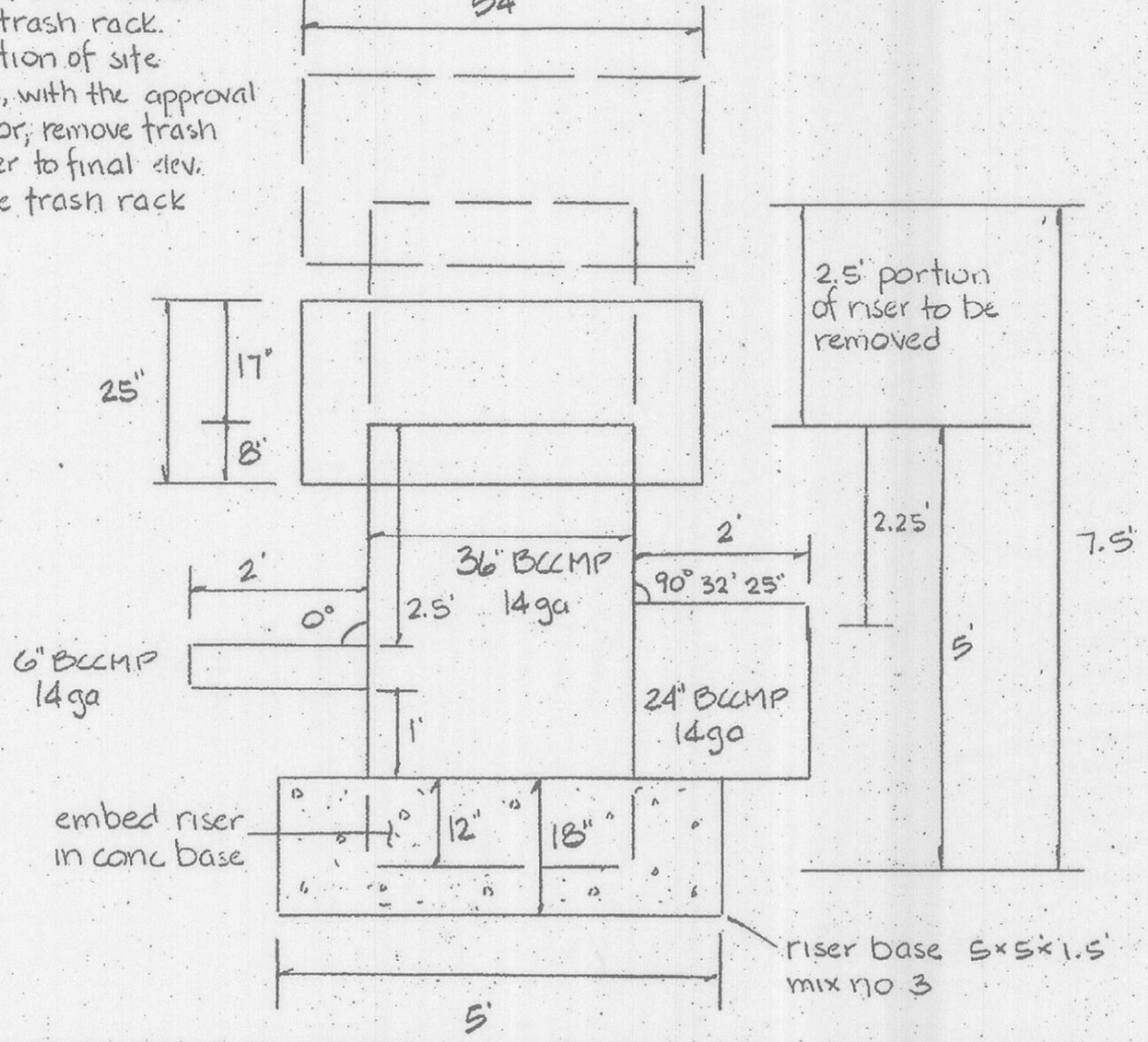
**Sections - Infiltration Trench**

scale vert 1"=2' hor 1"=20'



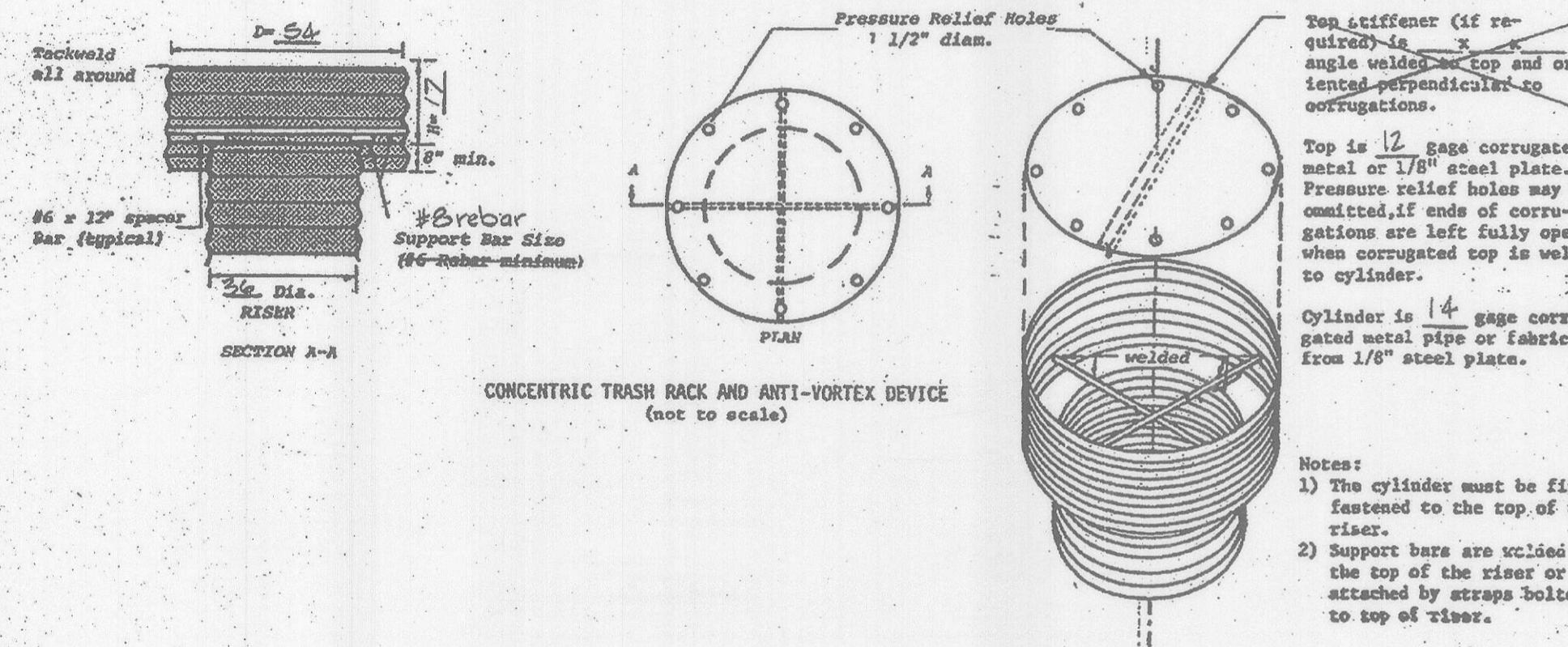
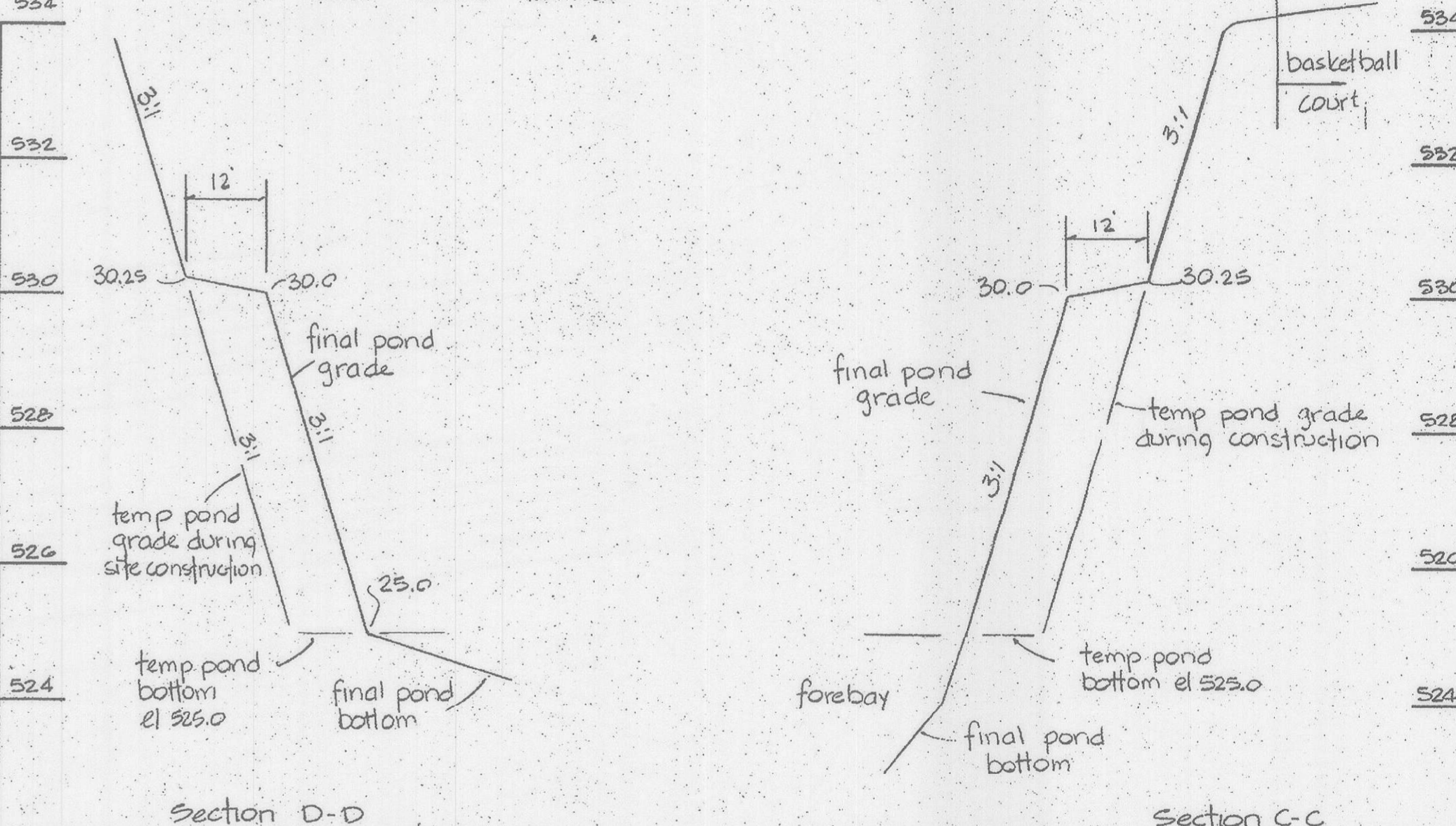
**Riser Detail**

scale 1"=2'



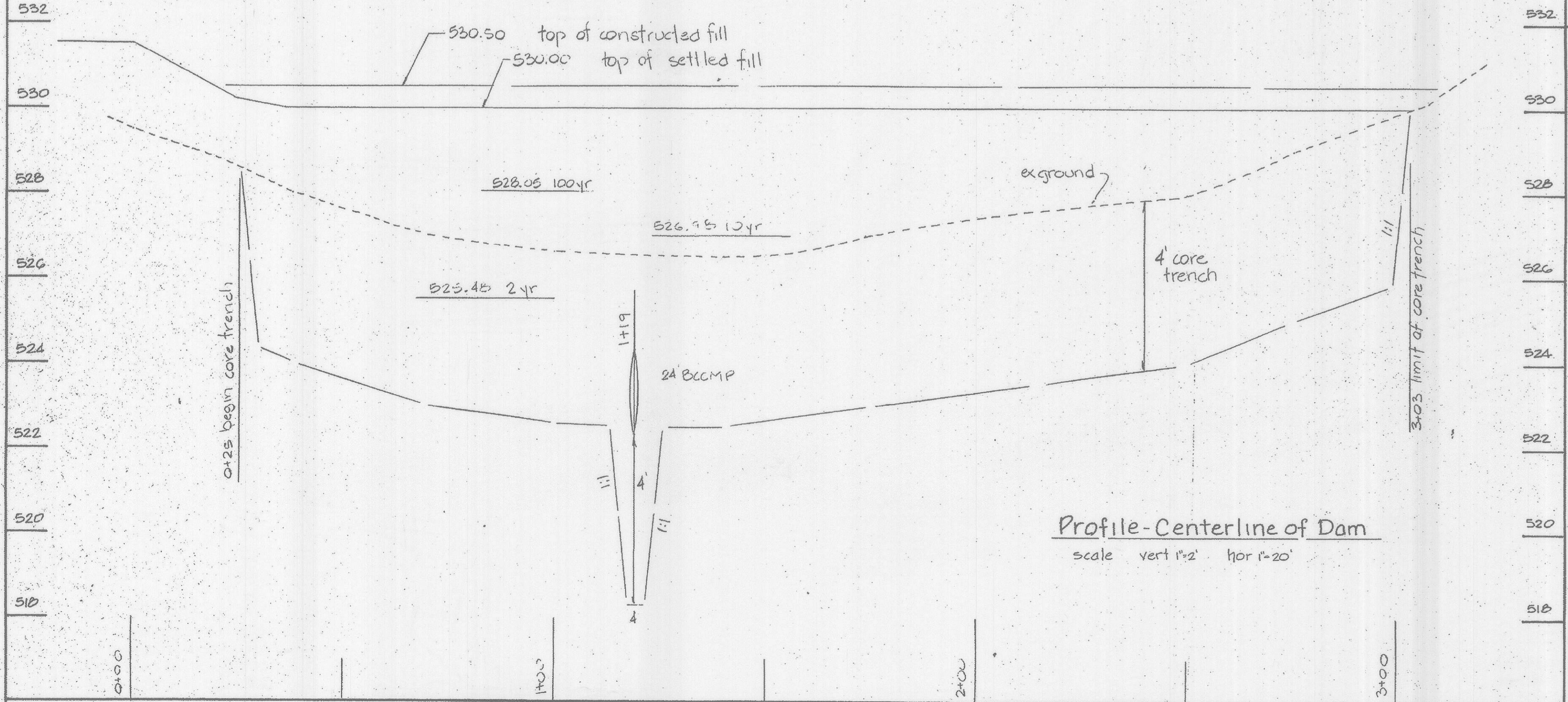
**Sections - Pond Sides**

scale vert 1"=2' hor 1"=20'



CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (not to scale)

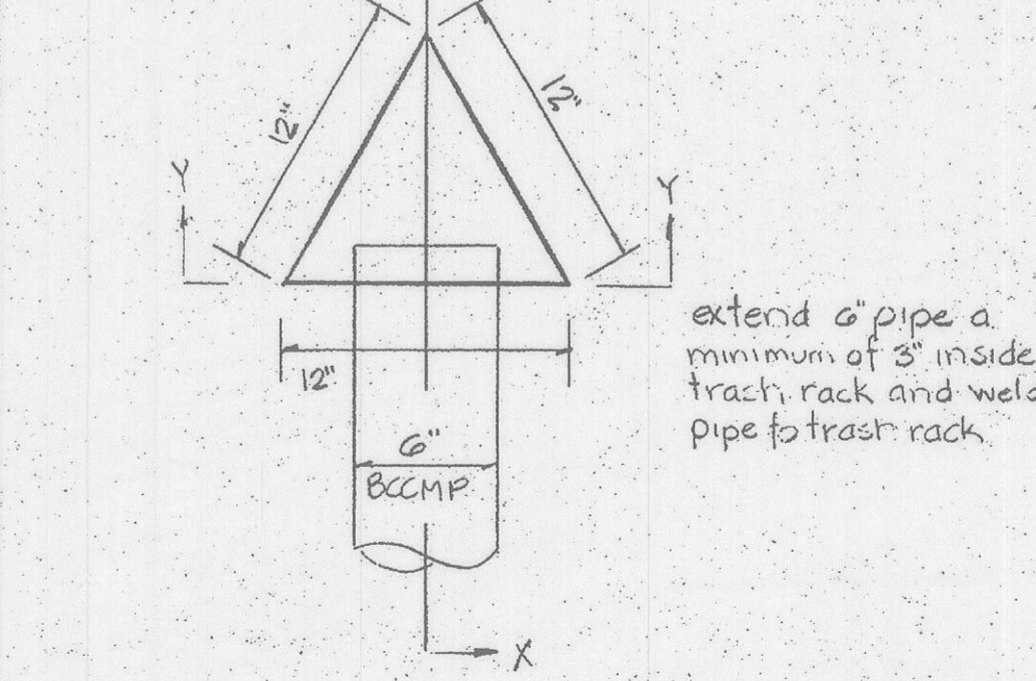
- Notes:
- 1) The cylinder must be firmly fastened to the top of the riser.
  - 2) Support bars are welded on the top of the riser or attached by straps bolted to top of riser.



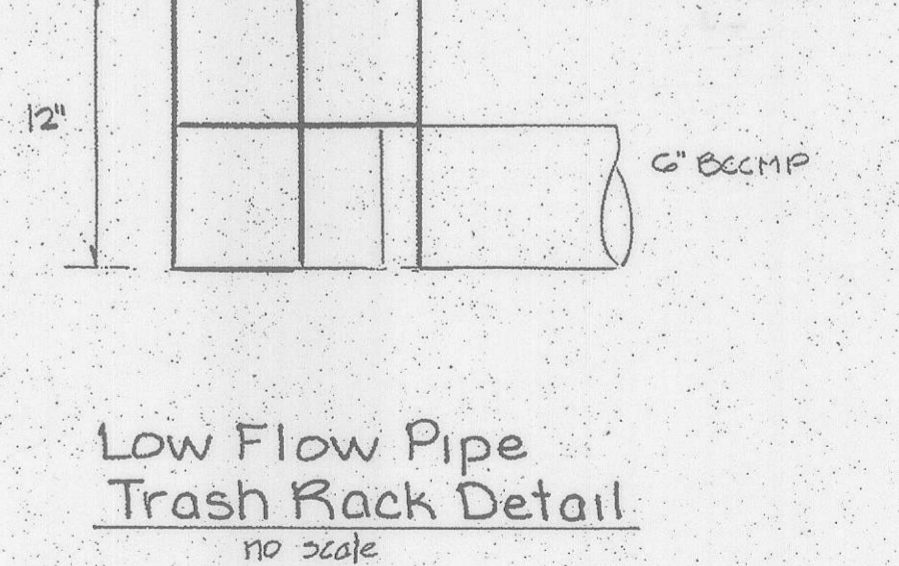
**Profile - Centerline of Dam**

scale vert 1"=2' hor 1"=20'

**Plan View**

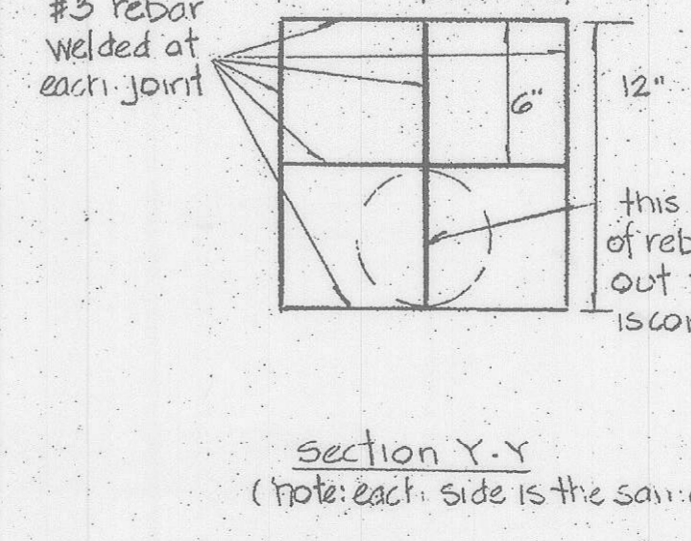


**Section X-X**



Low Flow Pipe Trash Rack Detail  
no scale

**Section Y-Y**



Section Y-Y (note: each side is the same)

**Stormwater Management  
Pond #1  
Profiles**



REVIEWED NO FACILITIES REQUIRED  
HOWARD COUNTY HEALTH DEPARTMENT  
County Health Officer: *James M. Boudreau* 1/24/92 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DIRECTOR: *James R. Batten* 1/27/92 DATE  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT: *James M. Boudreau* 1/21/92 DATE

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
DIRECTOR: *James M. Boudreau* 1/24/92 DATE  
CHIEF, BUREAU OF ENGINEERING: *James M. Boudreau* 1/24/92 DATE

APPROVAL STAMP

154P DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
Approved: *John R. Batten* 1/27/92 DATE  
HOWARD S.D.D.

Reviewed for HOWARD  
Name: *John R. Batten* S.D.D.  
and means to meet all Requirements  
Signature: *John R. Batten* Date: 1/27/92  
U.S. Soil Conservation Service

**SITE DATA**

OWNER: HOWARD COUNTY  
DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PARK  
DEED REF. LIBER 847, FOLIO 608  
TAX MAP #10, PARCEL #28  
ELECTION DISTRICT #3  
CENSUS TRACT 6000  
WATER: NONE  
SEWER: NONE

JANUARY 31, 1992

REVIEWED NO FACILITIES REQUIRED

HOWARD COUNTY HEALTH DEPARTMENT  
COUNTY HEALTH OFFICER  
*James M. [Signature]* 1/24/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 1/27/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 1/27/92

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 1/27/92

APPROVAL STAMP

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
*[Signature]* 1/27/92

Revised per **HOWARD** S.C.D.B. Name and other requirements  
*[Signature]* 1/27/92  
V.S. Soil Conservation Service

SITE DATA

OWNER: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PARK  
DEED REF: LIBER 847, FOLIO 606  
TAX MAP #10, PARCEL #23  
ELECTION DISTRICT #3  
CENSUS TRACT 6030  
WATER: NONE  
SEWER: NONE

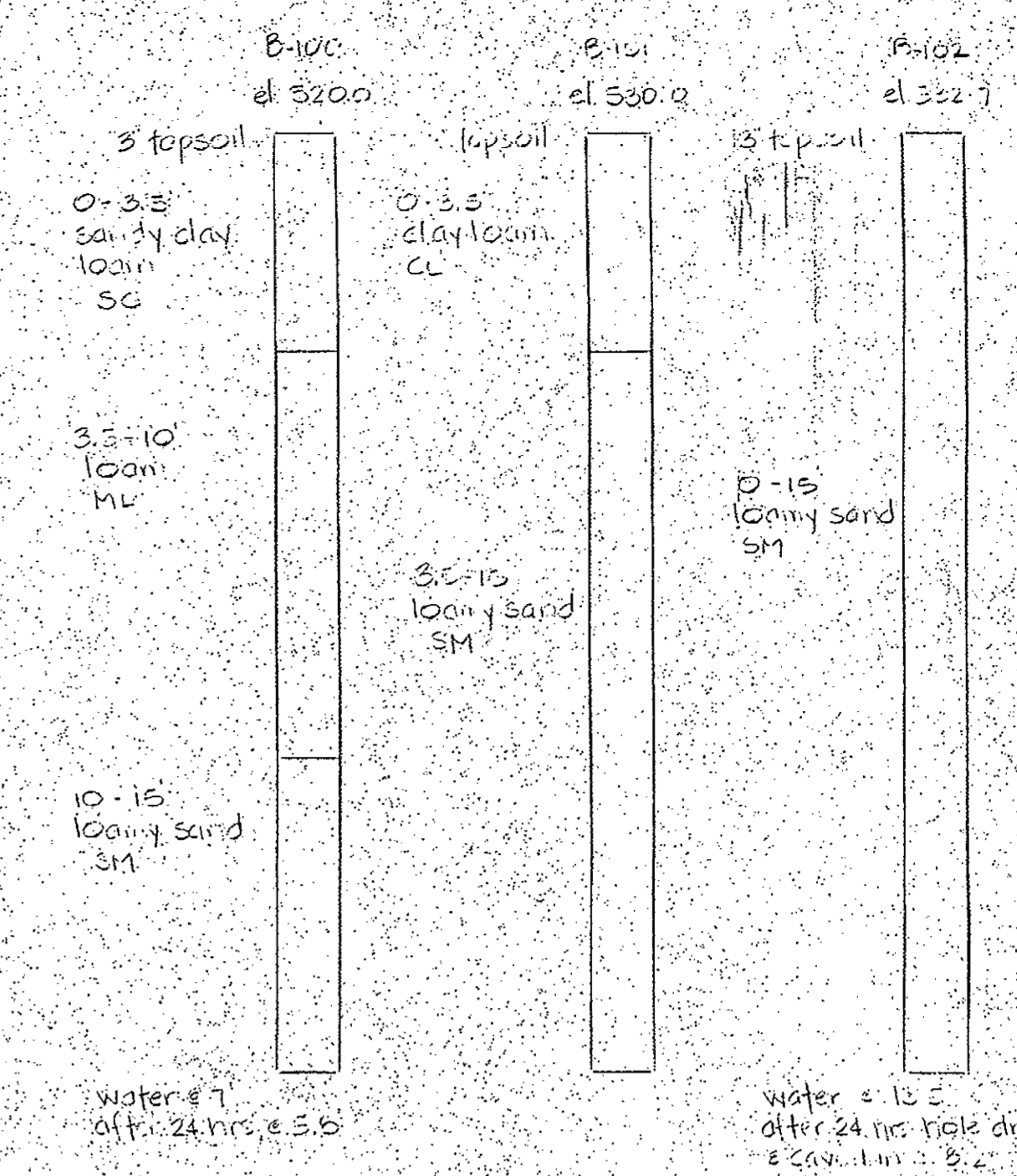
JANUARY 21, 1992  
SIGNATURE

SHEET  
**J. CHRISTOPHER BAITEN, INC.**  
Land Planning & Design Consultant  
1 North Church Street  
Westminster, Maryland 21157  
301-876-3383  
**S-15**  
SDP 33 of 38 of 20  
SDP 90-18

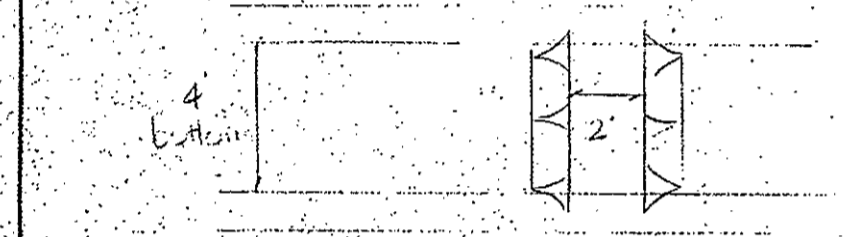
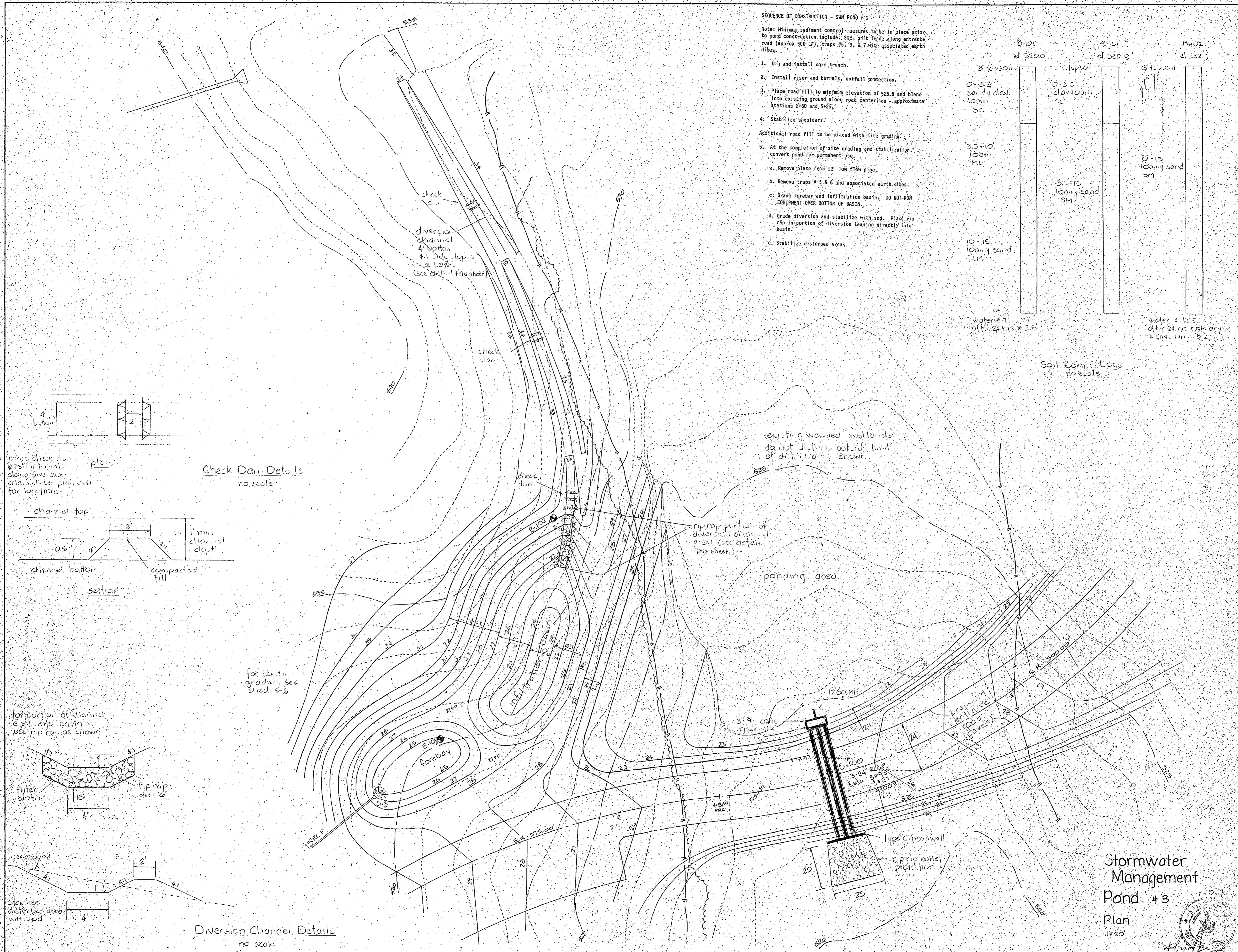
SEQUENCE OF CONSTRUCTION - SHM POND #3

Note: Minimum sediment control measures to be in place prior to pond construction include: S.E. silt fence along entrance road (approx 800 LF), traps #5, 6, & 7 with associated earth dikes.

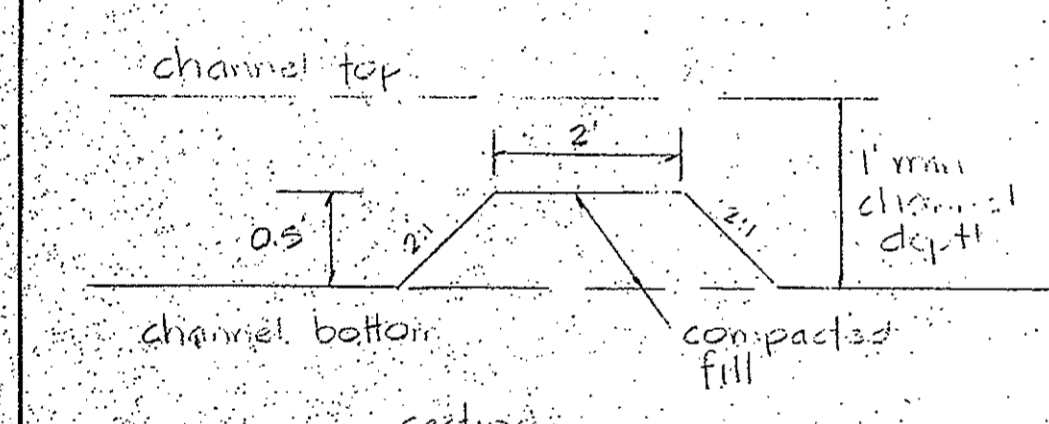
1. Dig and install core trench.
  2. Install riser and barrels, outfall protection.
  3. Place road fill to minimum elevation of 525.6 and blend into existing ground along road centerline - approximate stations 2+60 and 5+25.
  4. Stabilize shoulders.
- Additional road fill to be placed with site grading.
5. At the completion of site grading and stabilization, convert pond for permanent use.
    - a. Remove plate from 12" low flow pipe.
    - b. Remove traps # 5 & 6 and associated earth dikes.
    - c. Grade forebay and infiltration basin. DO NOT RUN EQUIPMENT OVER BOTTOM OF BASIN.
    - d. Grade diversion and stabilize with sod. Place rip rap in portion of diversion leading directly into basin.
    - e. Stabilize disturbed areas.



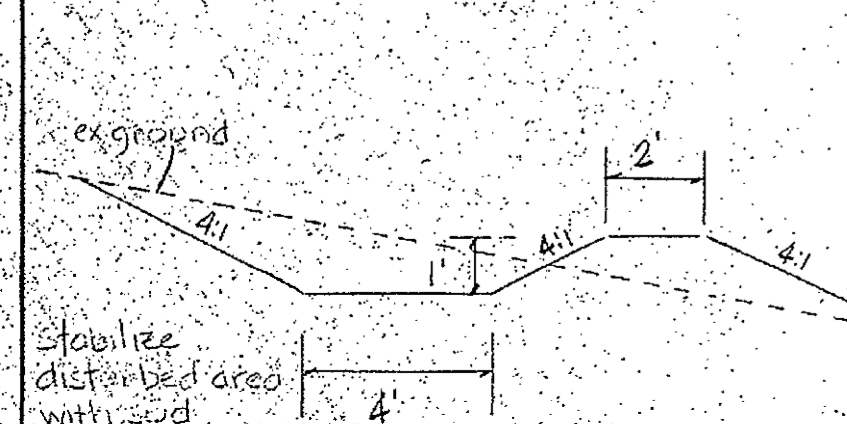
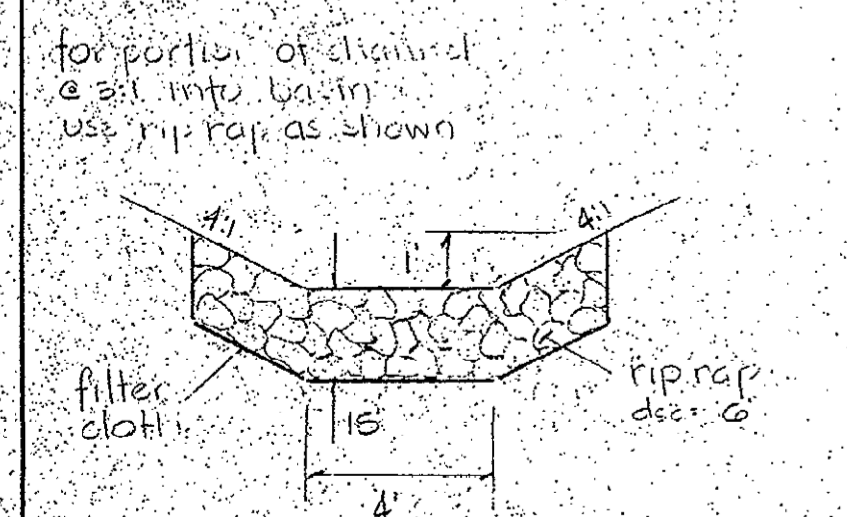
Soil Borings Log - no scale



Check Dam Details no scale



for stationing grading see sheet 5-6

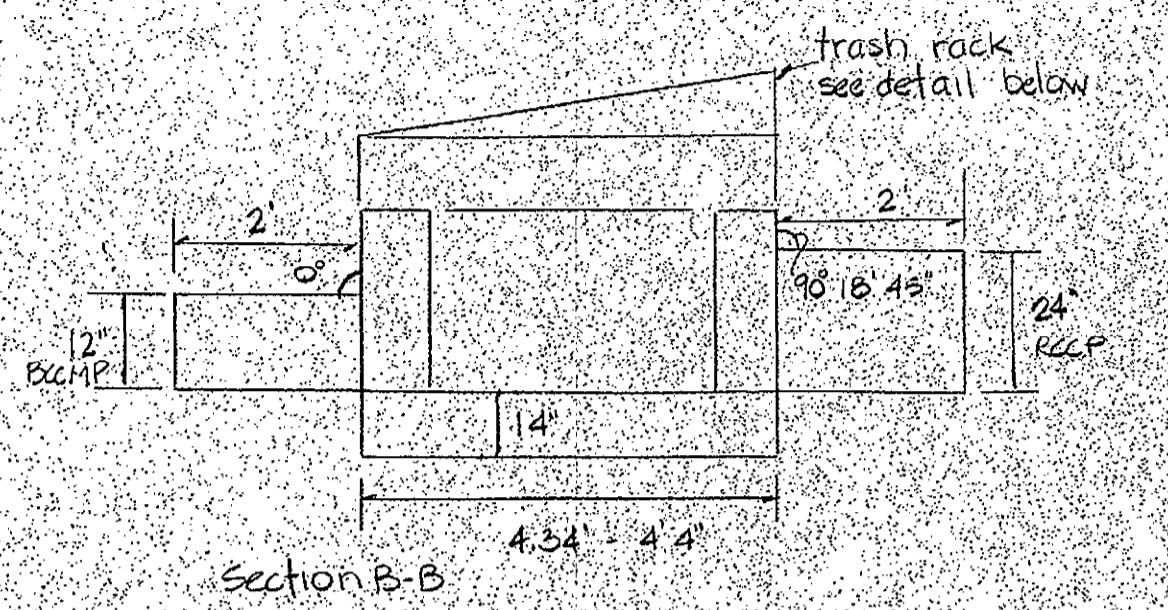
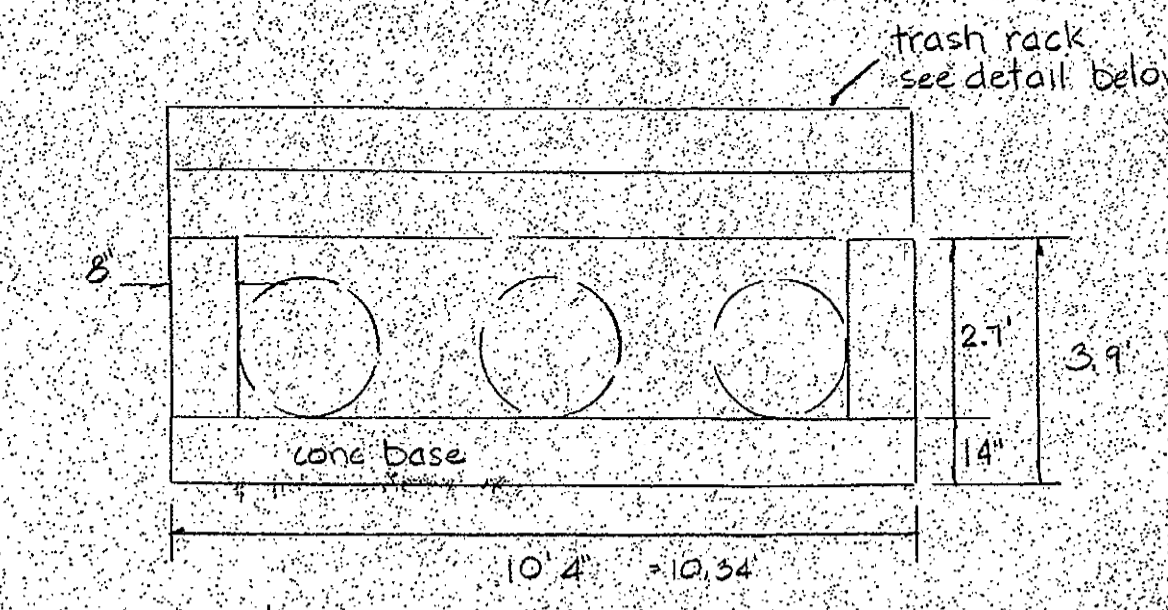
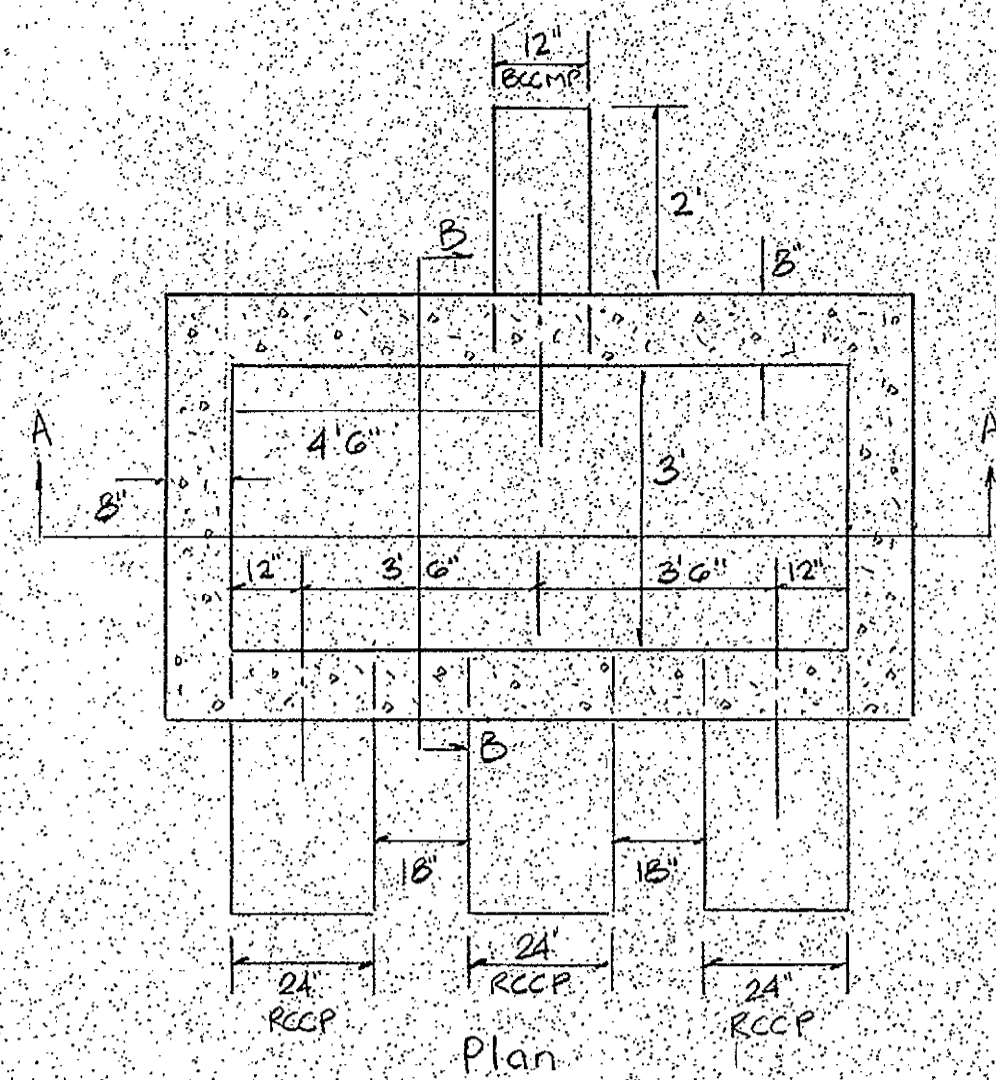
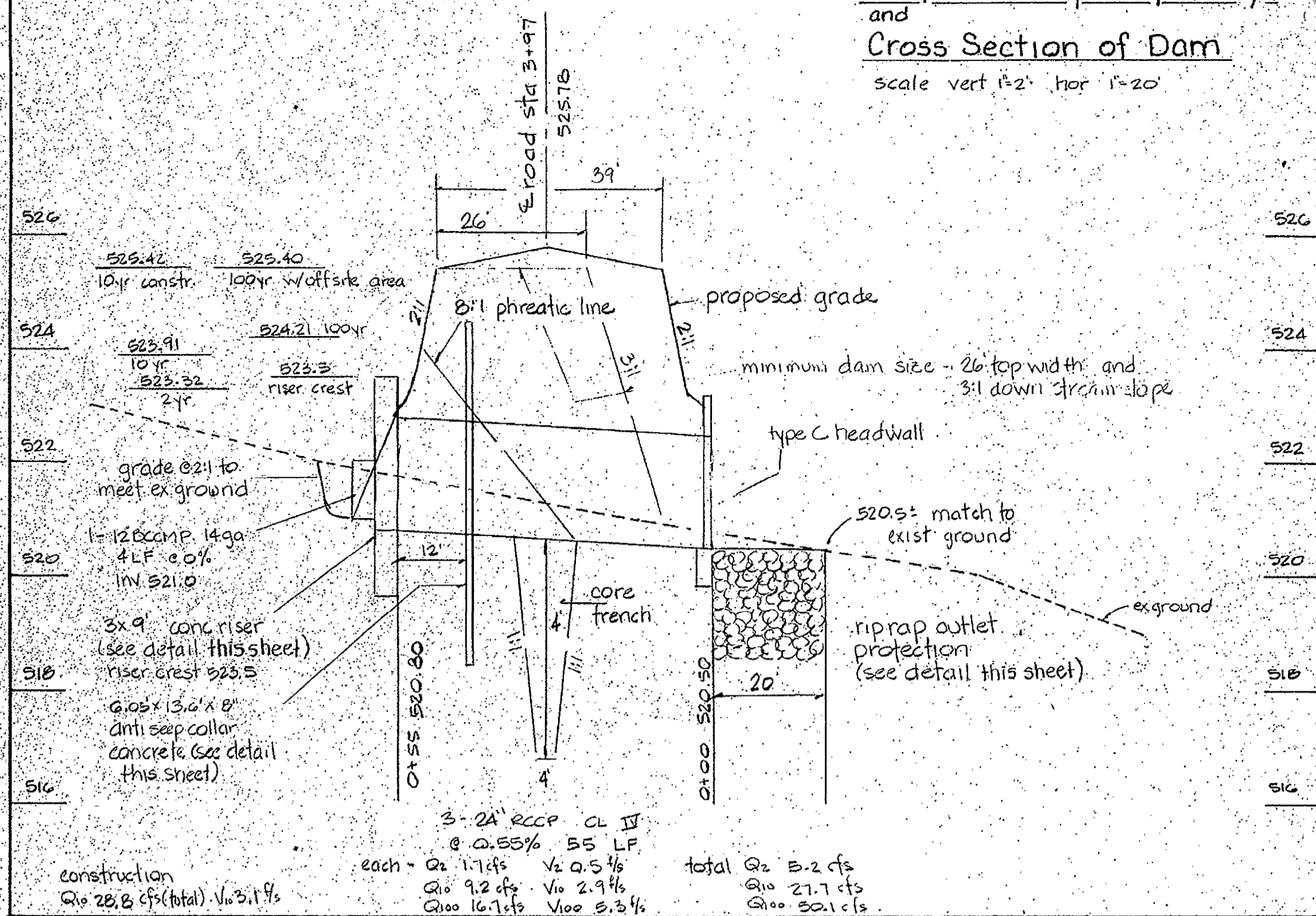


Diversion Channel Details no scale

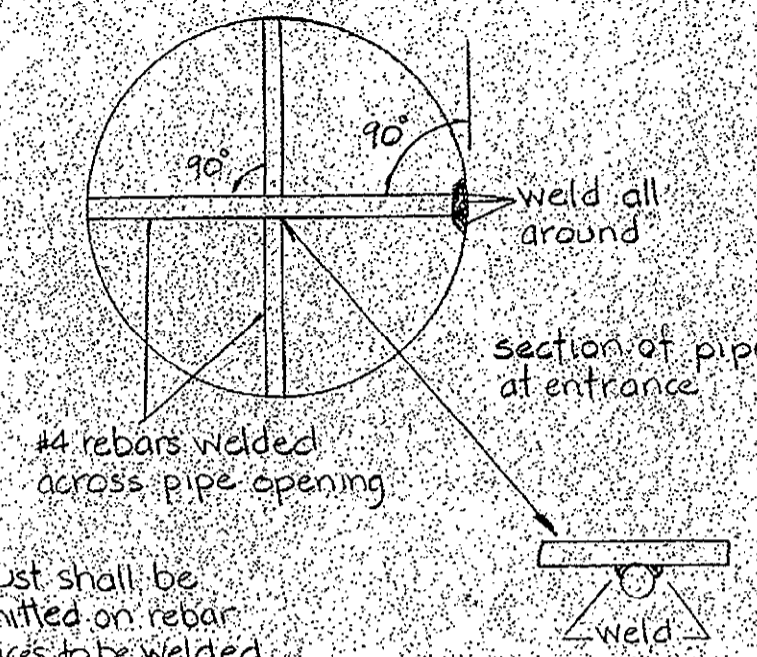


### Profile - Principal Spillway and Cross Section of Dam

scale vert 1/2" hor 1"=20'



- Notes
1. Slab, concrete base shall be mix no 3 concrete.
  2. Walls shall be reinforced mix no 3 concrete.
  3. Reinforcing shall be #4 @ 10' o.c. each way in E of walls. Reinforcing continuous at corners. All laps 1'4".

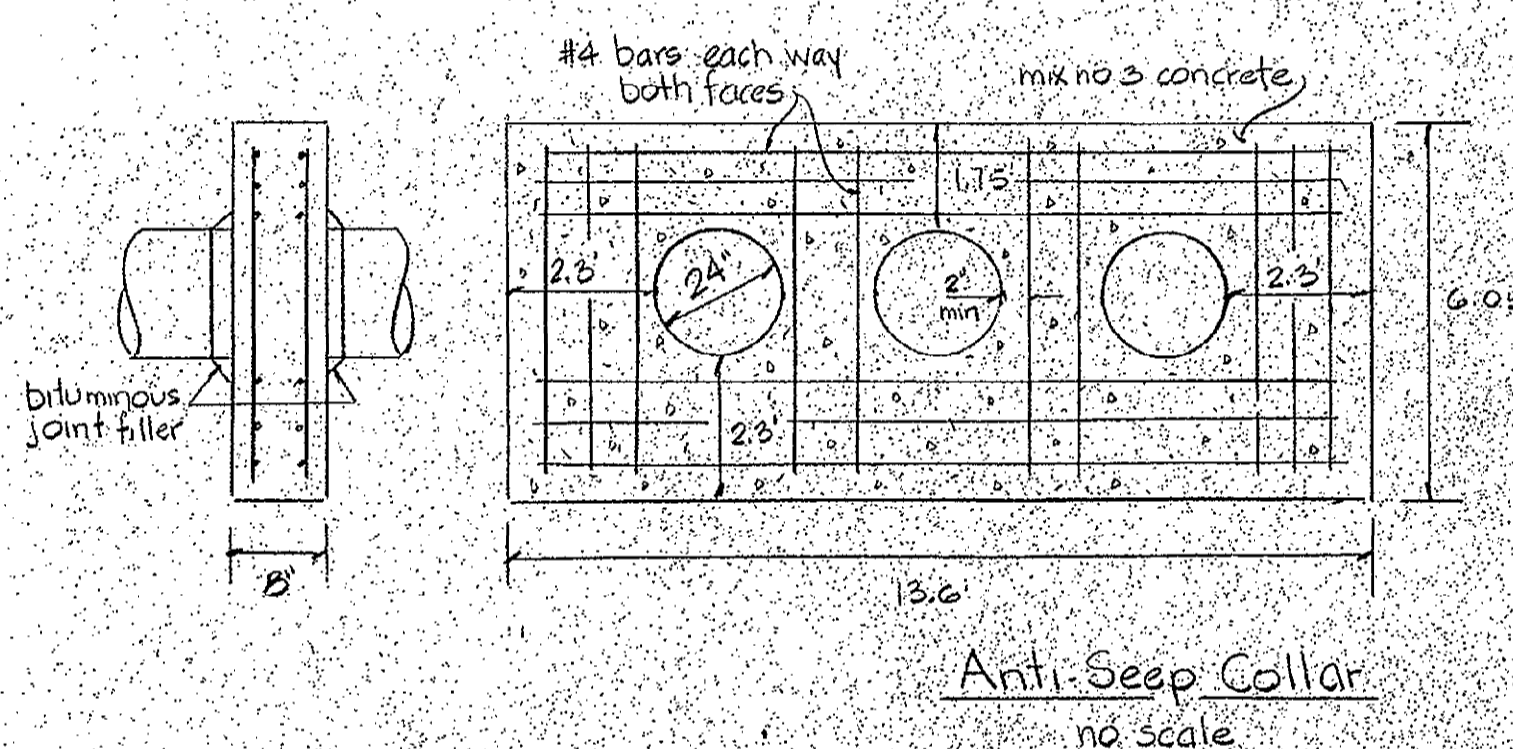
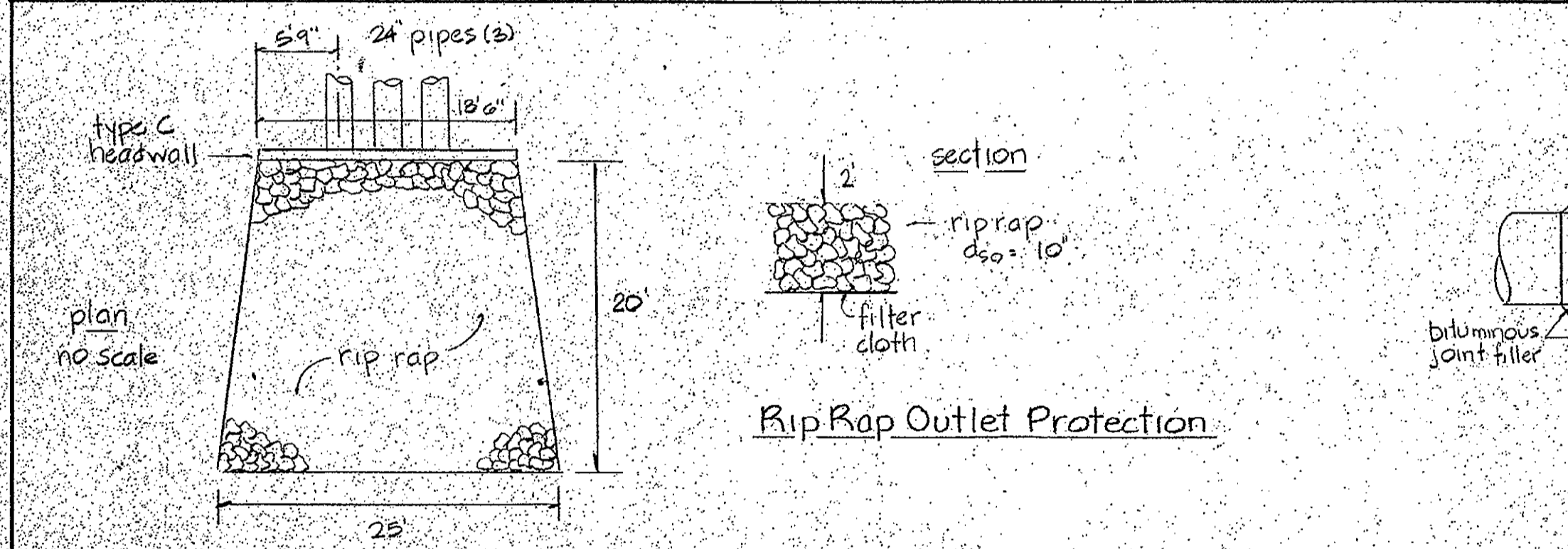


### Riser Details

no scale

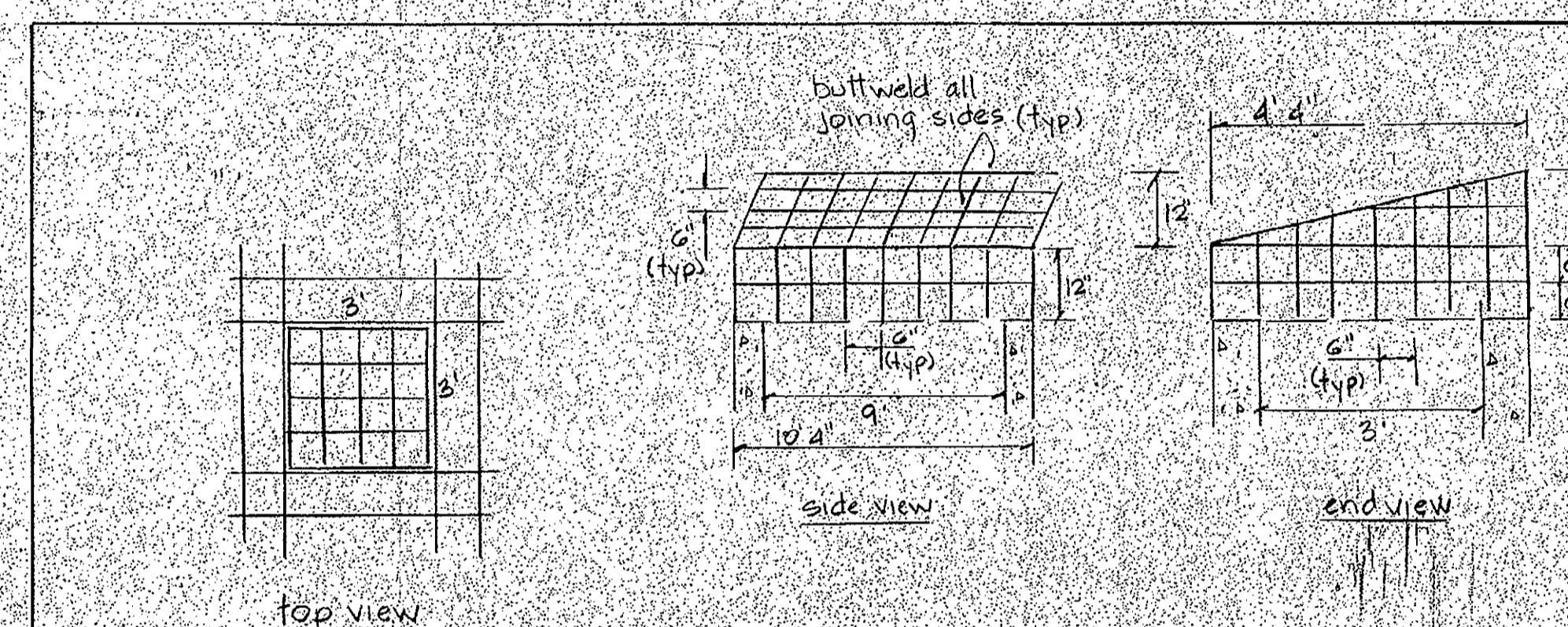
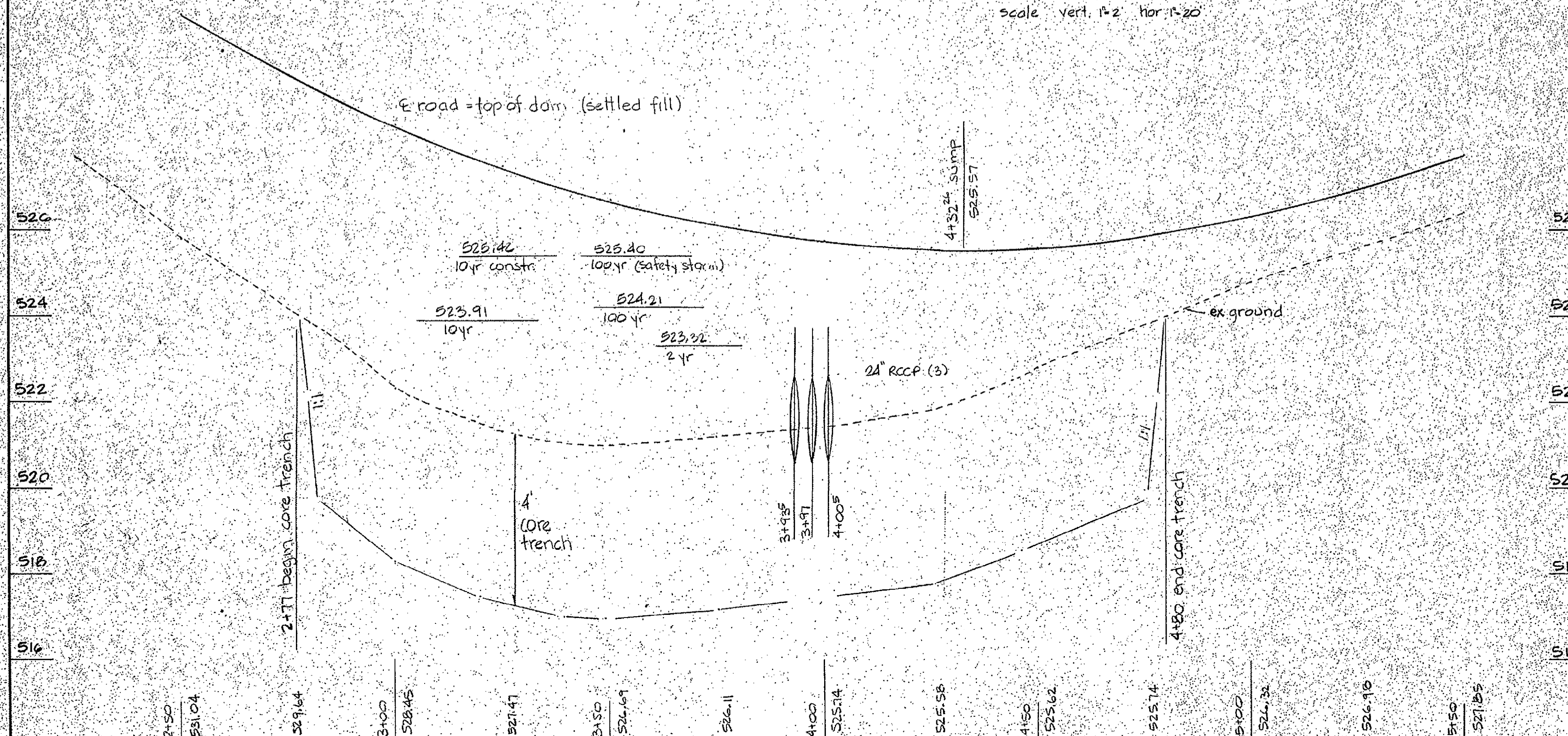
### Trash Rack for LowFlow Pipe

no scale



### Profile - Centerline of Dam

scale vert 1/2" hor 1"=20'

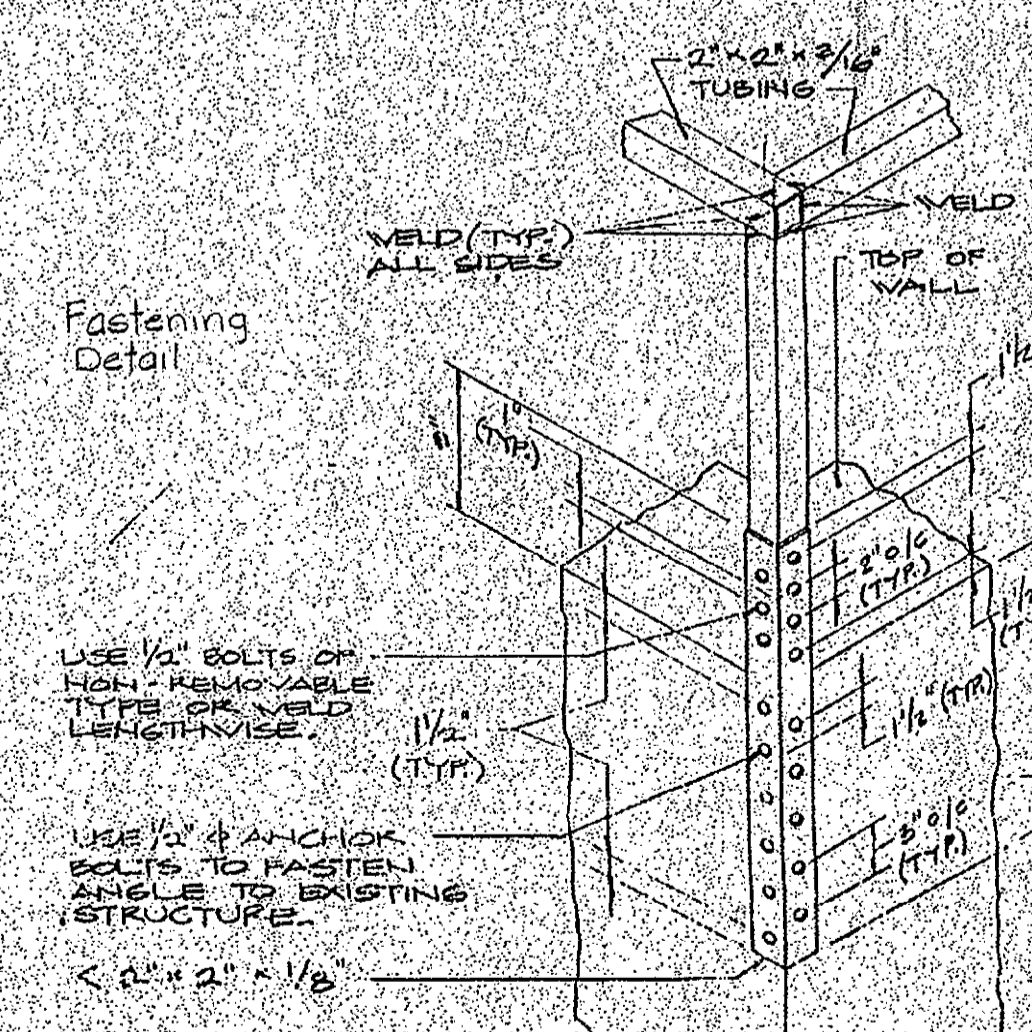


on top - leave a 3' x 3' opening, fabricate separate grid with the tubing to fit inside 3' x 3' opening. Bolt over the opening using a 2x2-1/8 angle on all 4 sides. Use removable bolts so that grid may be removed for access into riser.

Contractor shall field measure the riser dimensions for exact fitting of trash rack. The entire trash rack shall be galvanized after fabrication.

### Riser Trash Rack Details

no scale



REVIEWED NO FACILITIES REQUIRED  
HOWARD COUNTY HEALTH DEPARTMENT  
James M. Boydinger, Sr. 1/24/92  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
James R. Rutter 1/27/92  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
James R. Rutter 1/27/92  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
James R. Rutter 1/27/92  
DATE

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE - FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
James R. Rutter 1/27/92  
DATE

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE - FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
James R. Rutter 1/27/92  
DATE

APPROVAL STAMP

THIS DEVELOPMENT PLAN IS APPROVED FOR THE PROGRAM AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved: [Signature] 1/27/92  
DATE

Approved for: [Signature] 1/27/92  
DATE

Approved for: [Signature] 1/27/92  
DATE

SITE DATA

OWNER: HOWARD COUNTY DEPT OF PUBLIC WORKS

PROPOSED IMPROVEMENT: PARK

DEED REF: LIBER 847, FOLIO 606

TAX MAP #10, PARCEL #23

ELECTION DISTRICT #3

CENSUS TRACT: 6030

WATER: WATER

SEWER: NONE

UNAPPROVED REMOVALS

JANUARY 24, 1992

Stormwater Management  
Pond #3  
Profiles and Details



J. CHRISTOPHER BATTEN, INC.  
Land Planning & Design Consultant

8 North Church Street  
Westminster, Maryland 21157  
301-476-2340

SHEET

S-16

SDP-34 of 38  
of 20

SDP-90-18

STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

1. GENERAL

Unless otherwise noted, all material and construction practices shall conform to these plans and specifications and to the following:
"Standards Specifications for Construction & Materials" of the Maryland State Highway Administration, 1982 and as amended.
"Standards and Specifications for Ponds" of the Soil Conservation Service of Maryland (MD-378), July, 1981 and as amended.

2. SITE PREPARATION

Areas designated for borrow areas, embankment and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

3. EARTHWORK AND EARTH FILL

3.1 Material

The earth fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubble, stone greater than 6", frozen or other objectionable material. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased 10% above the design elevation (including freeboard) unless otherwise shown on the plans. Fill material for the center of the embankment and cut-off trench shall conform to Unified Soil Classifications CL, GC, SC, or CH. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

3.2 Placement

Areas on which earth fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8 inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

3.3 Connection

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed a minimum of four complete passes of a sheepsfoot, rubber, steel, or vibratory roller. The entire surface of each lift shall be compacted to 95% of ASTM D-1557 (or equivalent ASTM Specifications) and certified by the inspector at the time of construction. Fill material shall contain sufficient moisture so that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

3.4 Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on these plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being 4 feet. The depth shall be as shown on the plans and shall be at least 4 feet below existing grade. The side slopes of the trench shall be 1:1 or flatter. The backfill material for the cutoff trench shall be compacted with equipment or rollers to assure maximum density and minimum permeability. Compact as outlined above to 95% of ASTM D-1557 density. All cutoff trench backfill material shall meet the requirements of Unified Soil Classification SC or CL.

3.5 Impervious Core

Where specified, an impervious core shall be constructed along or parallel to the centerline of the embankment as shown on these plans. The top width of the core shall be as shown on the drawings, with the minimum width being 4 feet. The side slopes of the impervious core shall be 1:1 or flatter. The top elevation of the core shall be as shown on these plans and shall be at least to the riser crest elevation. Backfill and compaction requirements for the impervious core shall be the same as for the cutoff trench.

3.6 Structural Backfill

Backfill material to be placed adjacent to structures shall be of the type and quality conforming to that specified for the adjoining fill material. The backfill shall be placed in horizontal layers not to exceed 4 inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driver equipment be allowed to operate closer than 4 feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of 24 inches or greater over the structure pipe.

4. PIPE CONDUITS

All pipes shall be circular in cross section.

4.1 Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe.

Materials - (steel pipe) This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to all of the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasticoat, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

Connections - All connections with pipes must be completely watertight. The drain pipe of barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands shall not be considered watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 1/2" wide by 3/8" thick closed cell circular neoprene gasket and a 12" wide huggie type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24".

Helically corrugated pipe shall have either continuously welded seams or have lock seams.

Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

Backfilling shall conform to "Structure Backfilling."

Laying Pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

4.2 Reinforced Concrete Pipe

Materials - Reinforced concrete pipe conduits shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Specification C-361. An approved equivalent is ANWA Specification C-302.

Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches or as shown on the drawings. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

Backfilling shall conform to Structural Backfill.

Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

4.3 Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

Joints and connections to anti-seep collars shall be completely watertight.

Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

Backfilling shall conform to "Structure Backfilling."

Other details (anti-seep collars, valves, etc.) shall be as shown on the plans.

5. CONCRETE

Concrete shall meet the requirements set forth in the Maryland State Highway Administration "Standards and Specifications for Construction and Materials," 1982, as amended, and including:

5.1 Concrete

Section 918 (Portland Cement Concrete Mixtures), Mix No. 3.

5.2 Reinforcement

Section 610 (Reinforcement for Concrete Structures), Section 911 (Reinforcing Steel, Wire Rope and Wire Fabric)

In addition, reinforcing steel shall meet ASTM Specification A615, Grade 60. Steel angles, anchor bars and appurtenances shall be ASTM A36.

6. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and boms shall be stabilized in accordance with the specifications shown hereon and with the "1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control," as amended, immediately after finishing grading. All 2:1 slopes shall be sodded. Unless otherwise noted, all other disturbed areas shall be stabilized with permanent seeding.

6.1 Sod

Specifications - Sod shall be "KY-31 Tall Fescue or Kentucky Bluegrass/Red Fescue mixture, or approved equal. Class of turfgrass sod shall be Maryland or Virginia state certified or approved sod.

6.2 Permanent Seeding

Seeded Preparation - Loosen the upper 3 inches of soil by raking, discing or other acceptable means before seeding.

Soil Amendments - Apply 2 ton per acre of dolomitic limestone (92 lbs./1000 sq.ft.) and 600 lbs. per acre of 10-10-10 fertilizer (14 lbs./1000 sq.ft.) before seeding. Harrow or disc lime and fertilizer into upper 3 inches of soil. At time of seeding, apply 400 lbs. per acre (9 lbs./1000 sq.ft.) of 30-0-0 ureaform fertilizer, 1000 lbs. per acre (23 lbs./1000 sq.ft.) of 10-10-10 fertilizer before harrowing or discing may be substituted for the 10-10-10 and 30-0-0 fertilizers listed above.

Seeding - For the periods:

- 1) March 1 thru April 30 and August 1 thru October 15.....60 lbs. per acre (2 lbs./1000 sq.ft.) Kentucky 31 Tall Fescue.
2) May 1 thru July 31.....60 lbs. per acre (2 lbs./1000 sq.ft.) Kentucky 31 Tall Fescue and 2 lbs. per acre (0.05 lbs./1000 sq.ft.) Weeping Lovegrass.
3) October 16 thru February 28.....Protect the site by one of the following:
A) Apply 2 tons per acre (92 lbs./1000 sq.ft.) of well anchored straw mulch and seed as soon as possible in the spring.
B) Use sod, installed per these specifications.
C) Seed with 97 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching - Apply 1.5 to 2 tons per acre (69 lbs./1000 sq.ft.) of unwrapped small grain straw immediately after seeding. Anchor mulch immediately after application using 218 gallons per acre (9 gal./1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 2 feet or higher, use 340 gallons per acre (8 gal./1000 sq.ft.) for anchoring.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseeding.

6.3 Temporary Seeding

Seeded Preparation - Loosen upper 3 inches of soil by discing, raking, or other acceptable means before seeding.

Soil Amendments - Apply 600 lbs. per acre of 10-10-10 fertilizer (14 lbs./1000 sq.ft.).

Seeding - For the periods:

- 1) March 1 thru April 30 and August 15 thru November 15.....2.5 BU (Bushels) per acre annual Ryegrass.
2) May 1 thru August 14.....3 lbs. per acre of weeping Lovegrass.
3) November 16 thru February 28.....Protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in spring, or use sod.

Mulching & Maintenance - Same as Permanent Seeding.

7. EROSION & SEDIMENT CONTROL

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized, as shown on these plans and as set forth in the "1983 Standards and Specifications for Soil Erosion and Sediment Control" of the Soil Conservation District, as amended. State and local laws concerning pollution abatement will be followed.

8. FILTER CLOTH

Filter Cloth shall be Mifrafil 140N, Dupont Tyzar 3341 or 3401, or approved equal.

9. GABIONS

All Gabions shall be Class IV, with PVC-coated wire baskets.

10. ROCK RIPRAP

All rock shall be dense, sound, and free from cracks, seams, or other defects conducive to accelerated weathering. The rock fragments shall be angular to subangular in shape. The least dimension of an individual rock fragment shall not be less than one-third the greatest dimension of the fragment.

The rock shall have the following properties:

- 1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

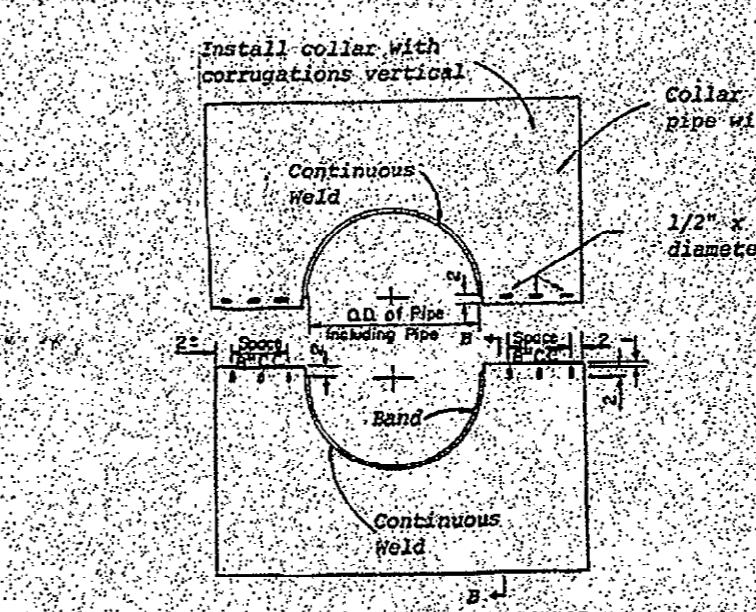
The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12

11. FENCE

Construct fencing in accordance with the State Highway Administration Standard Specifications 600.01 and 600.02. Specifications for a 5-foot fence, substituting 42" fabric and 6" x 8" line posts. Construct the gate in accordance with SHA Standard Detail 692.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO Designation M191-74.

12. CARE OF WATER DURING CONSTRUCTION

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for the removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water, as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent structure. Water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations as may require draining the water to pumps from which the water shall be pumped.



DETAILS OF CORRUGATED METAL ANTI-SEEP COLLAR

NOTES FOR COLLARS:
1. All materials to be in accordance with construction and construction material specifications.
2. Those specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.
3. Unassembled collars shall be marked by painting or tagging to identify matching pairs.
4. The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at time of installation.
5. Each collar shall be furnished with two 1/2\"/>

ENGINEER'S CERTIFICATION

I hereby certify that these plans have been prepared by me or under my supervision and meet the minimum standards of the Howard County Department of Public Works and the Howard County Soil Conservation District.

John H. ... 14920 1/24/92

PE # Date

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I/We hereby certify that all proposed work shown on these construction drawings (and on the approved sediment control drawings) will be accomplished pursuant to these plans. I/We also understand that it is my/our responsibility to have the construction supervised and certified, including the submission of "As-Built" plans within thirty (30) days of completion, by a registered Professional Engineer.

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on these plans was constructed as shown on the "As-Built" plans, and meets the approved plans and specifications.

PE # Date

CERTIFICATION BLOCKS ON THIS SHEET APPLY EQUALLY TO THE FOLLOWING SHEETS:

- S-4, SEDIMENT CONTROL PLAN - EAST
S-5, SEDIMENT CONTROL PLAN - WEST
S-6, GRADING PLAN - EAST
S-7, GRADING PLAN - WEST
S-13, STORMWATER MANAGEMENT-POND 1 PLAN
S-14, STORMWATER MANAGEMENT-POND 1 PROFILES
S-15, STORMWATER MANAGEMENT-POND 3 PLAN
S-16, STORMWATER MANAGEMENT-POND 3 PROFILES & DETAILS

ENGINEER'S CERTIFICATION

I hereby certify that these plans have been prepared by me or under my supervision and meet the minimum standards of the Howard County Department of Public Works and the Howard County Soil Conservation District.

John H. ... 14920 1/24/92

PE # Date

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I/We hereby certify that all proposed work shown on these construction drawings (and on the approved sediment control drawings) will be accomplished pursuant to these plans. I/We also understand that it is my/our responsibility to have the construction supervised and certified, including the submission of "As-Built" plans within thirty (30) days of completion, by a registered Professional Engineer.

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on these plans was constructed as shown on the "As-Built" plans, and meets the approved plans and specifications.

PE # Date

SDP #90-18

ALPHA RIDGE PARK

REVIEWED NO FACILITIES REQUIRED

Howard County Department of Public Works

Signature: ... 1/24/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

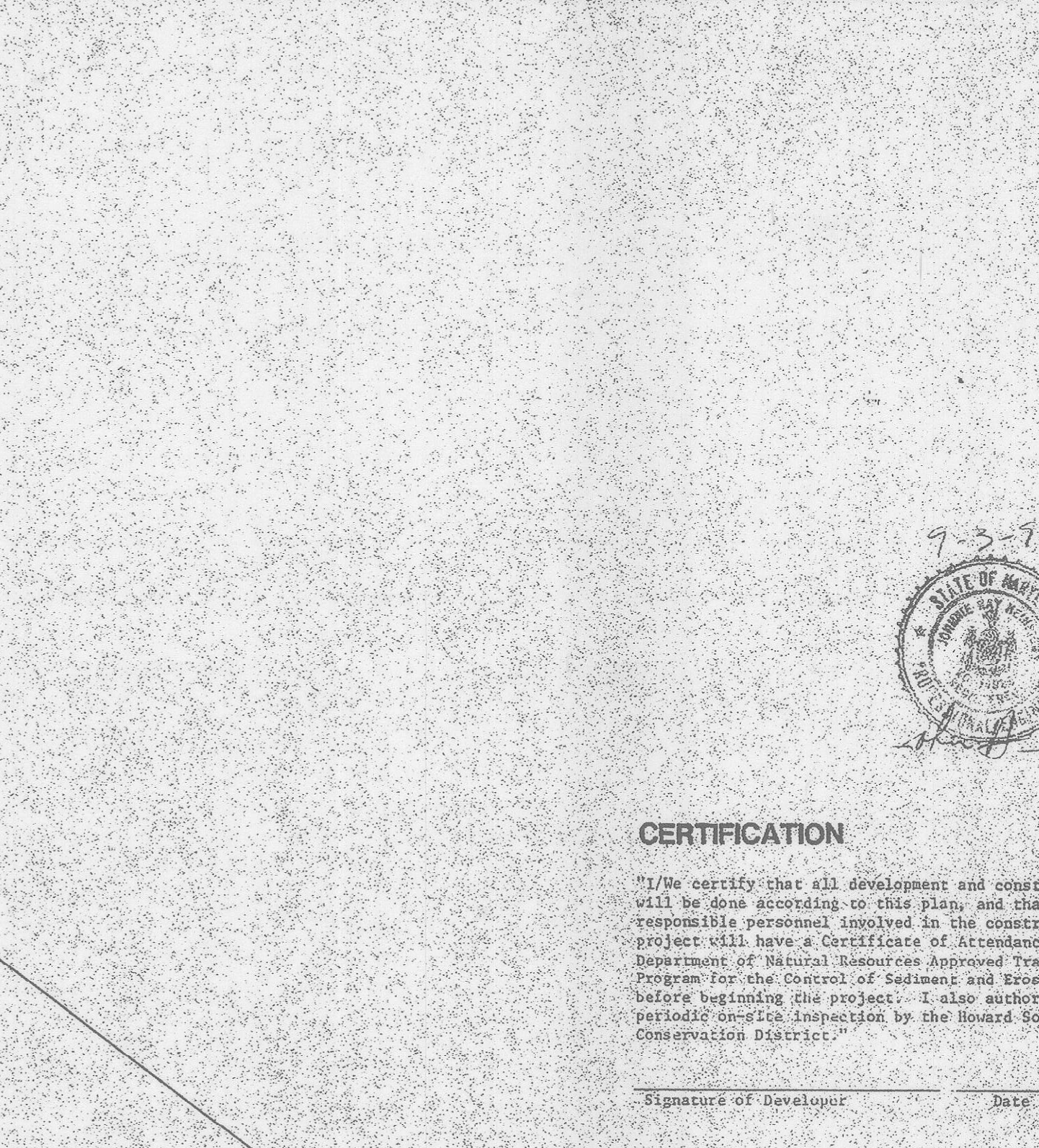
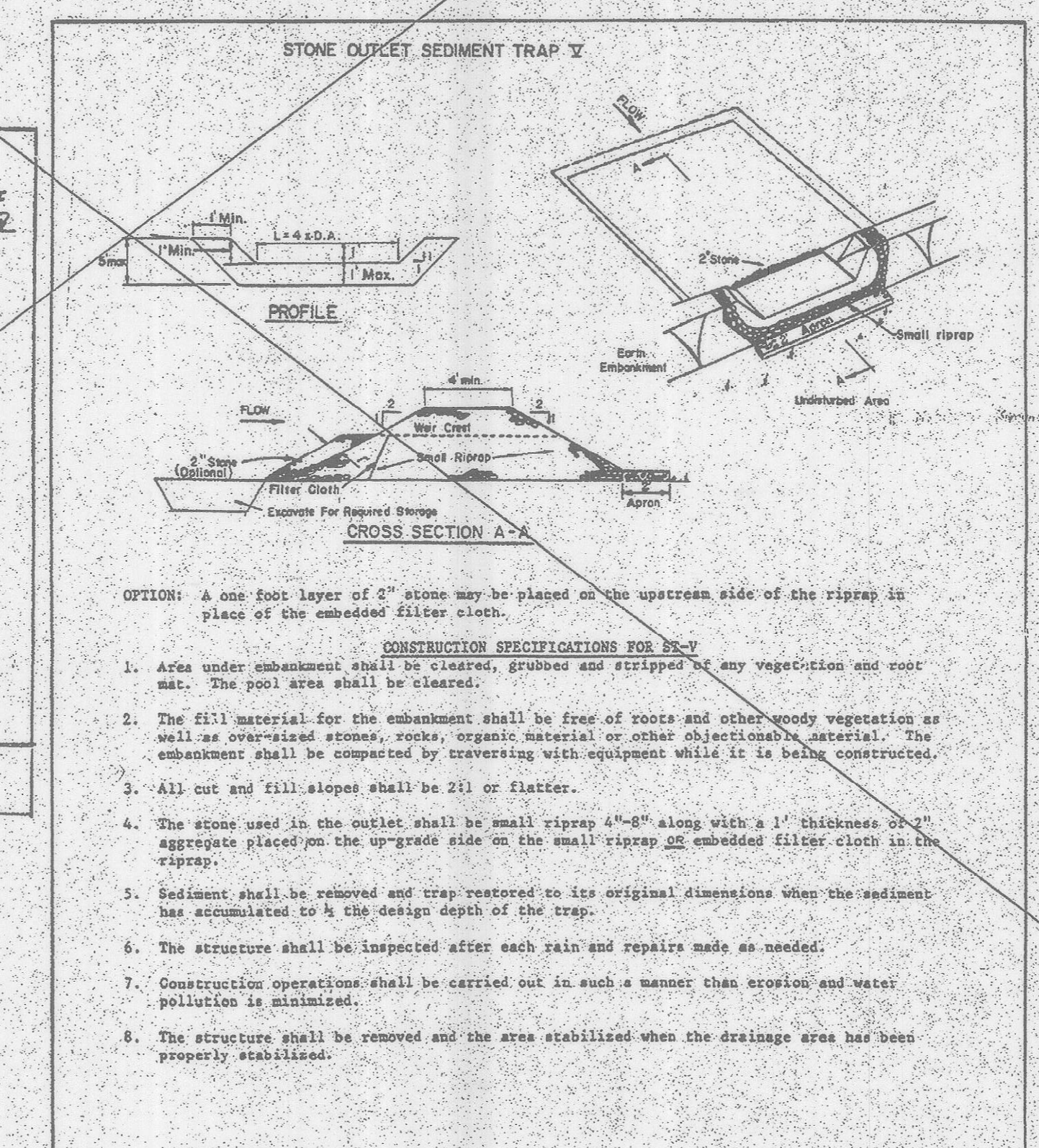
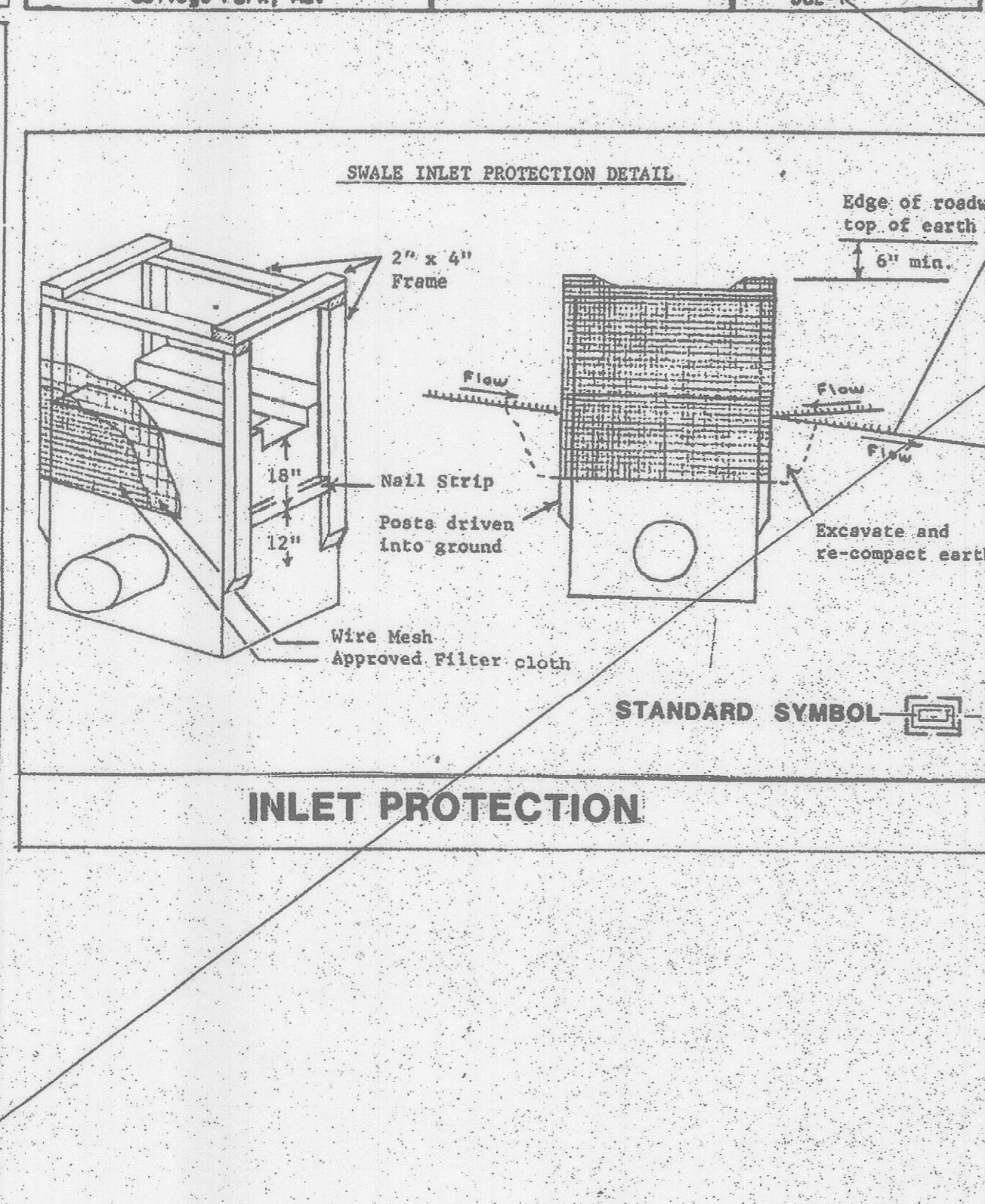
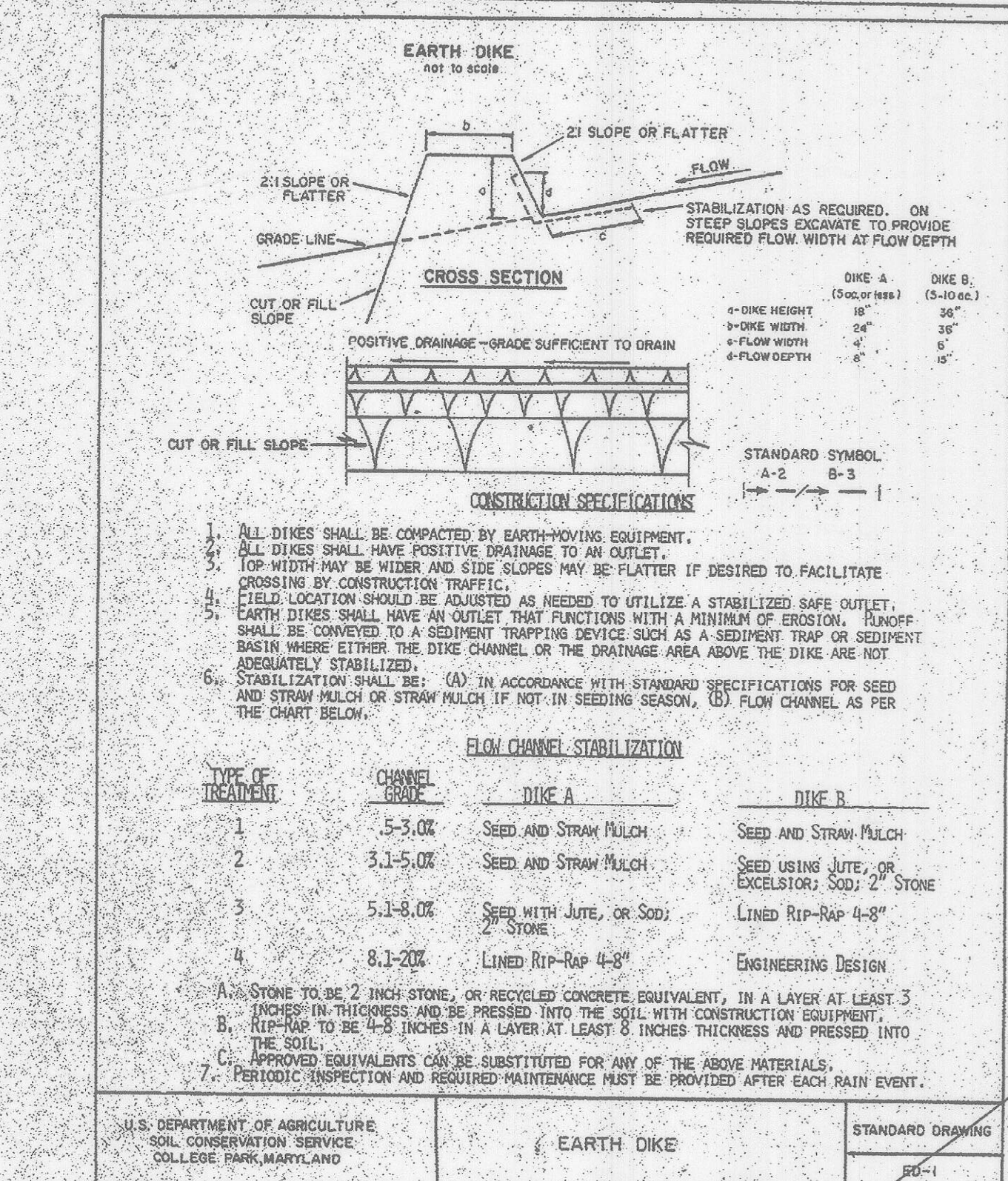
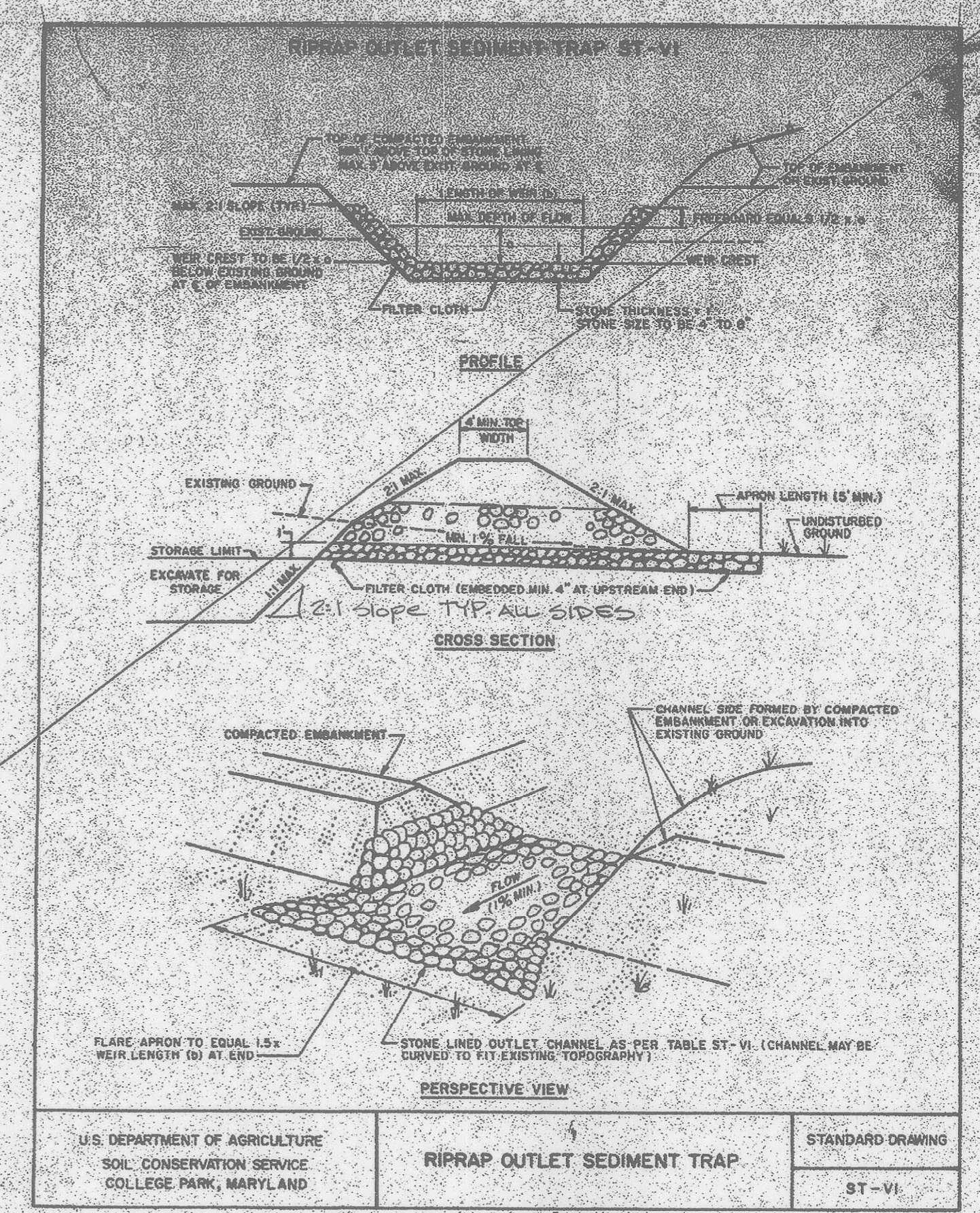
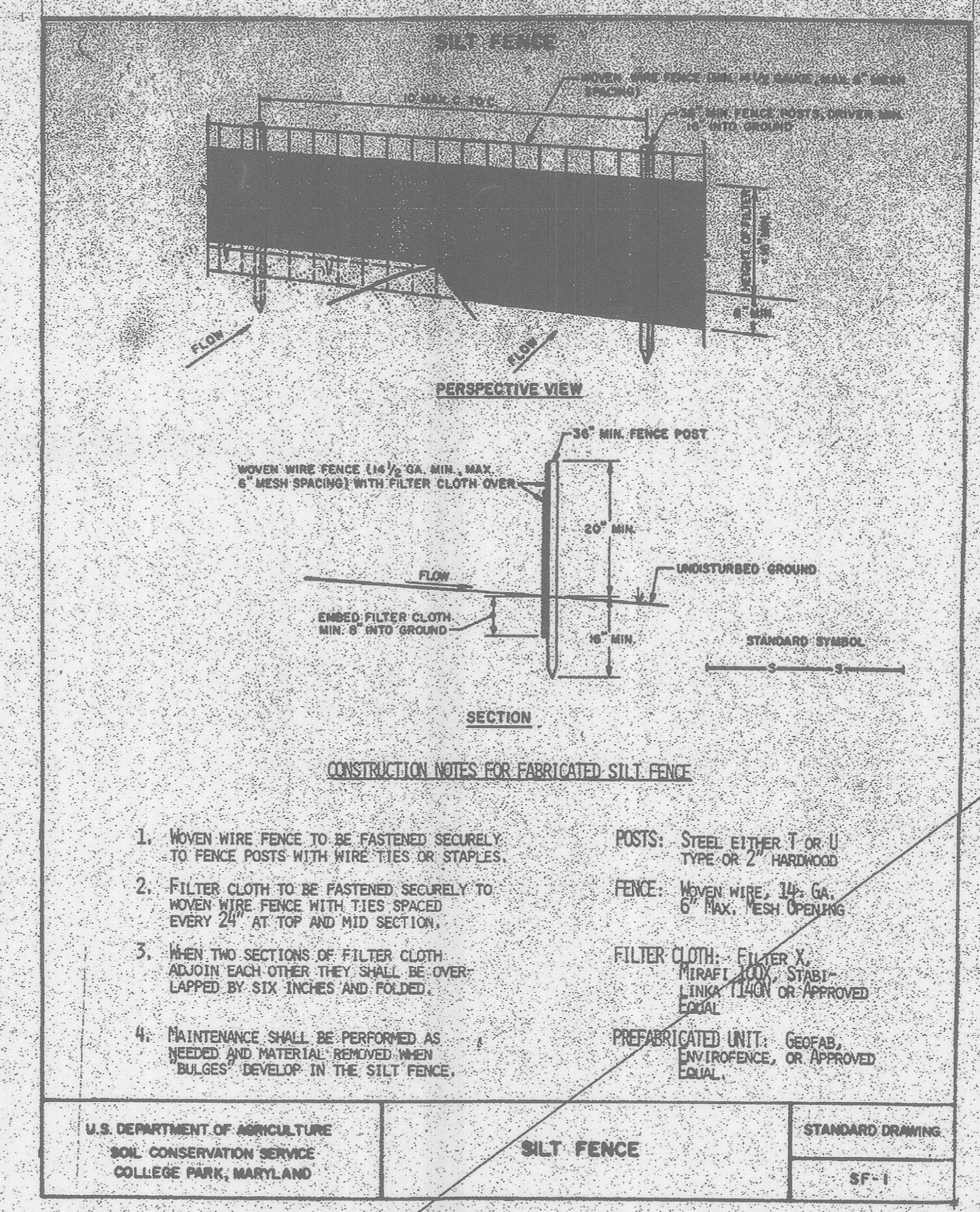
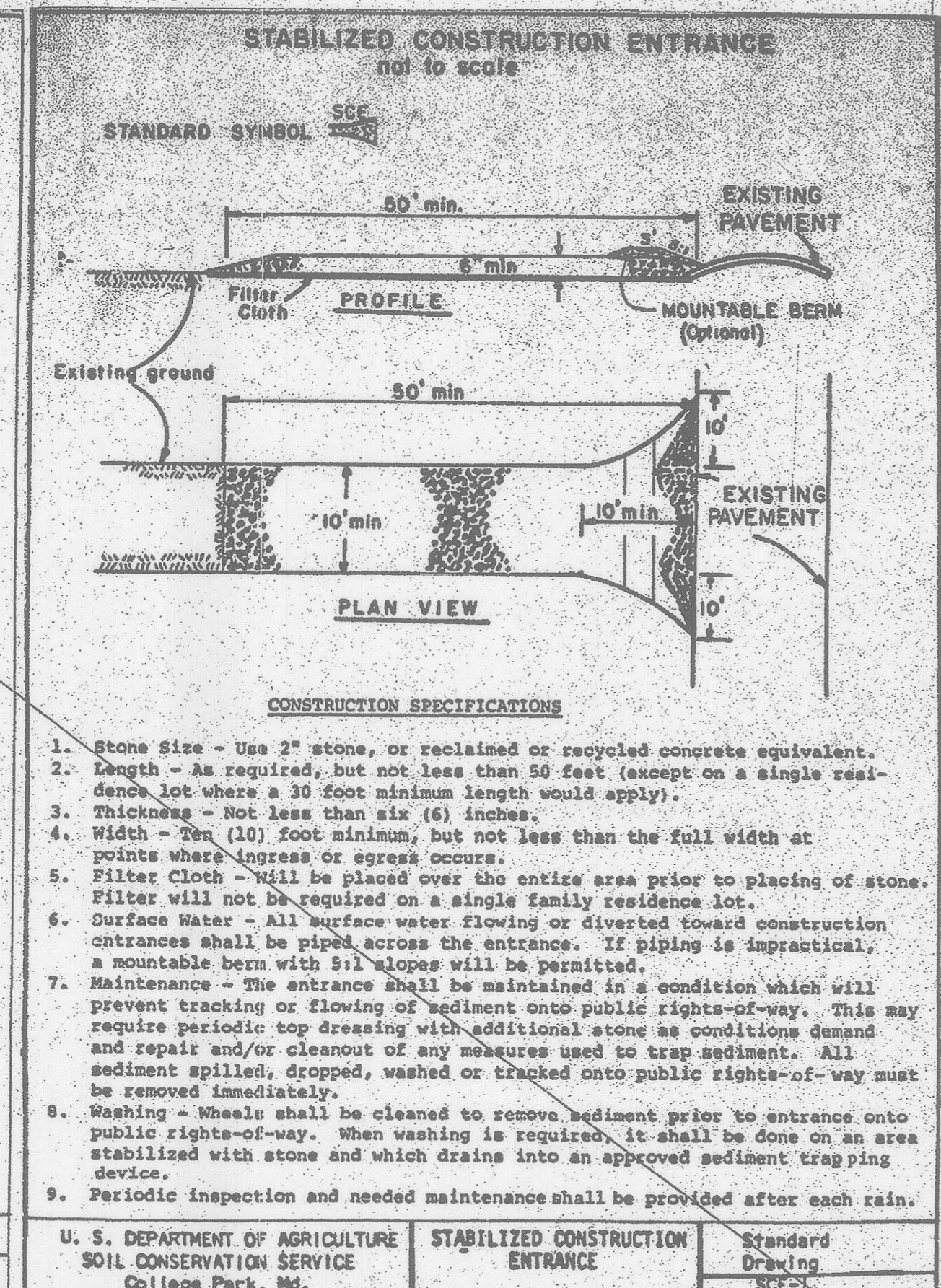
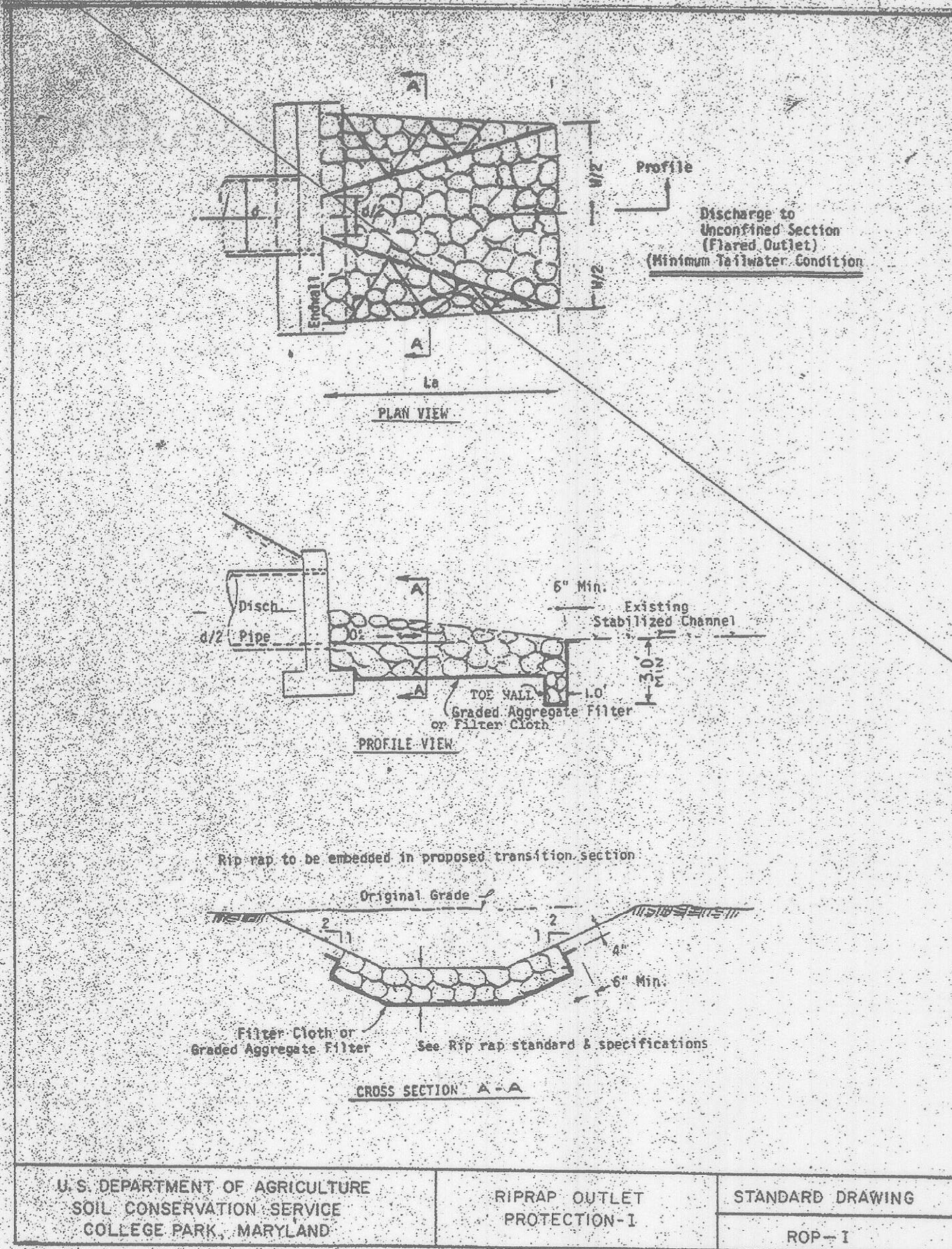
Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92

Signature: ... 1/27/92



SDP #90-18

**ALPHA RIDGE PARK**

REVIEWED NO FACILITIES REQUIRED  
HOWARD COUNTY HEALTH DEPARTMENT

James M. Boydland per SDP 1/24/92  
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
James M. Boydland 1/27/92  
DIRECTOR DATE

Approved: Edward Adams 1/27/92  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: FOR PRIVATE WATER AND SEWERAGE, FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James M. Boydland 1/27/92  
DIRECTOR DATE

Approved: Edward Adams 1/27/92  
CHIEF, BUREAU OF ENGINEERING DATE

APPROVAL STAMP

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved: J. C. Batten 1/27/92  
HOWARD S.C.D.

Reviewed for: Howard S.C.D. S.C.D. Name: J. C. Batten Date: 1/27/92  
Signature: J. C. Batten  
U.S. Soil Conservation Service

**SITE DATA**

OWNER: HOWARD COUNTY DEPT. OF PUBLIC WORKS

PROPOSED IMPROVEMENT: PARK

DEED PER: LIBER 847, FOLIO 606

TAX MAP: #10, PARCEL: #29

ELECTION DISTRICT: #3

GENUS TRAC: 6030

WATER: SEWER: NONE

APPROVED DESIGN SHEETS: 1/27/92

JANUARY 24, 1992 DATE

Signature: J. C. Batten

**CERTIFICATION**

"I do certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance as a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Signature of Developer: \_\_\_\_\_ Date: \_\_\_\_\_

Signature of Landscape Architect: John C. Batten 1/15/88 Date: \_\_\_\_\_

Reviewed for HOWARD S.C.D. and meet Technical Requirements

U.S. Soil Conservation Service Date: \_\_\_\_\_

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Howard S.C.D. Date: \_\_\_\_\_

**J. CHRISTOPHER BATTEN, INC.**  
Land Planning & Design Consultant

8 North Church Street  
Westminster, Maryland 21157  
301-876-5363

**S-18**  
SDP-3G of 38  
of 20  
SDP-90-18  
508 17 of 21

REVIEWED NO FACILITIES REQUIRED  
HOWARD COUNTY HEALTH DEPARTMENT

James M. [Signature] 1/24/92  
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/27/92  
DIRECTOR DATE

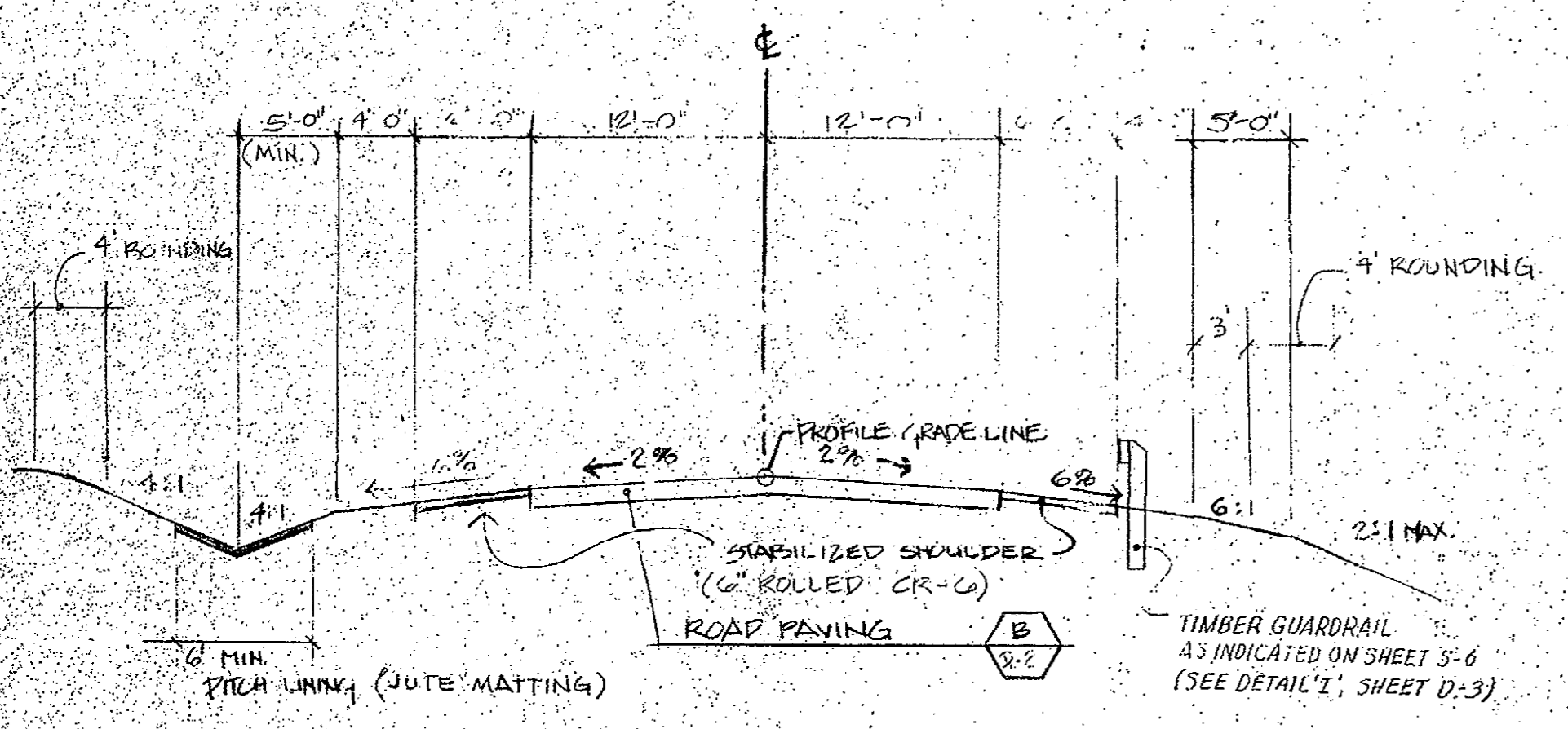
Blair [Signature] 1/27/92  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: FOR PRIVATE WATER AND NO SEWERAGE, FOR STORM DRAINAGE SYSTEMS

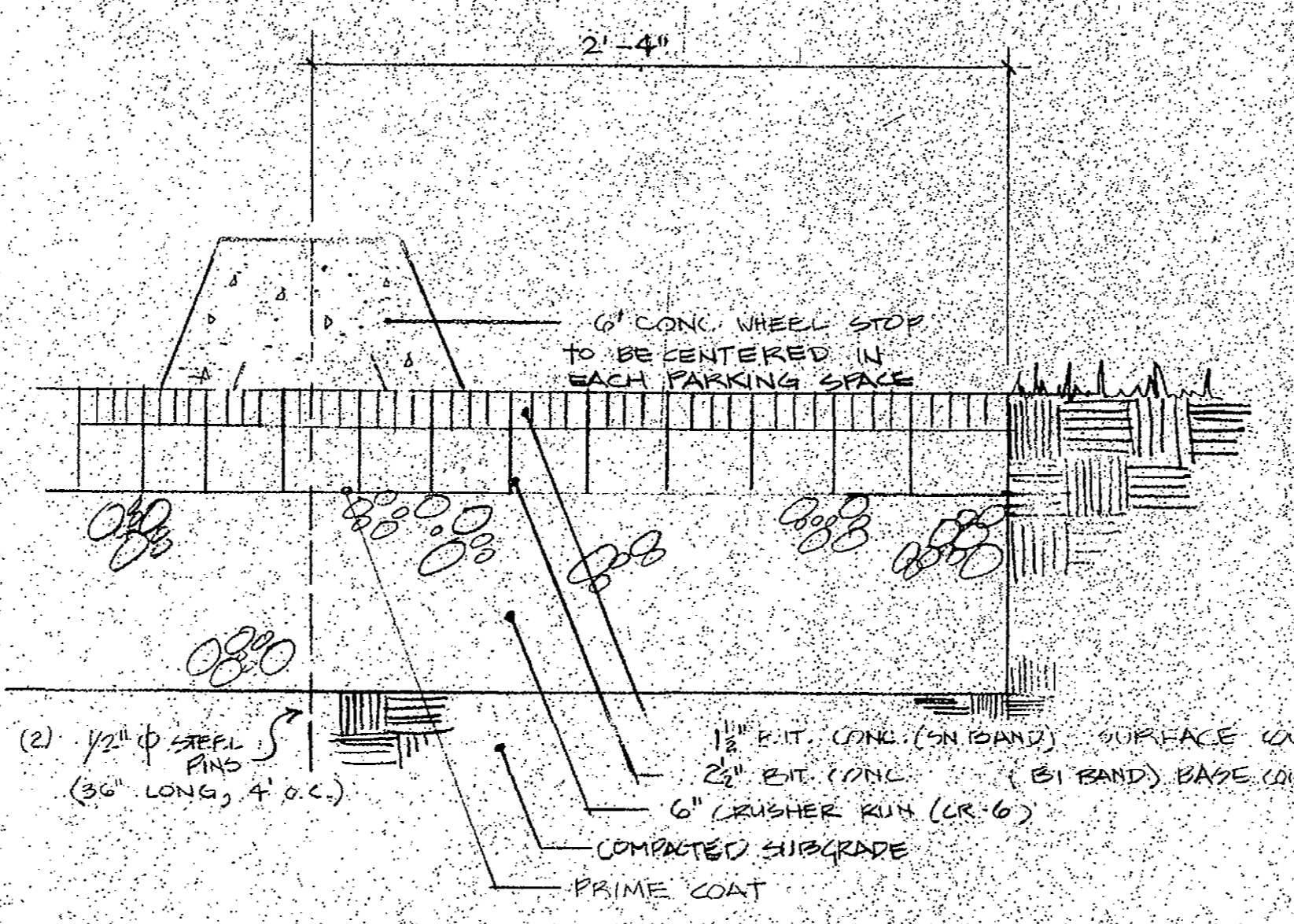
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James M. [Signature] 1/24/92  
DIRECTOR DATE

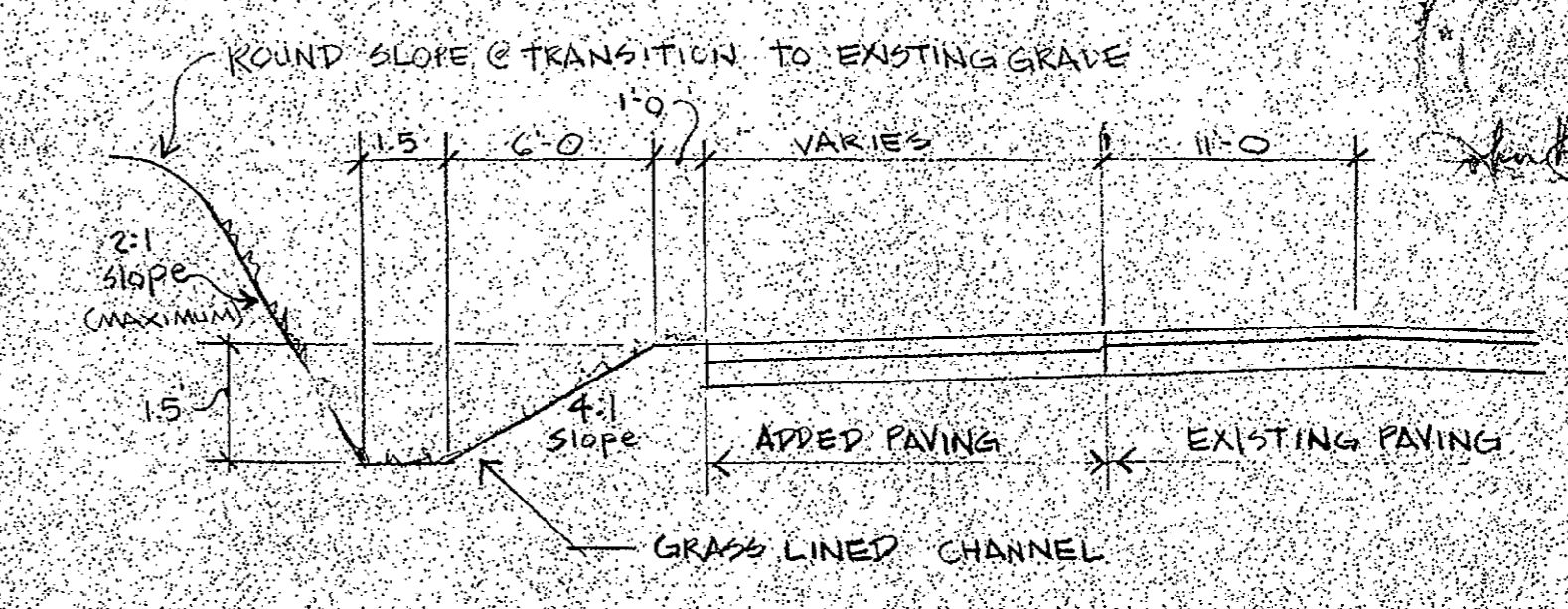
[Signature] 1/24/92  
CHIEF, BUREAU OF ENGINEERING DATE



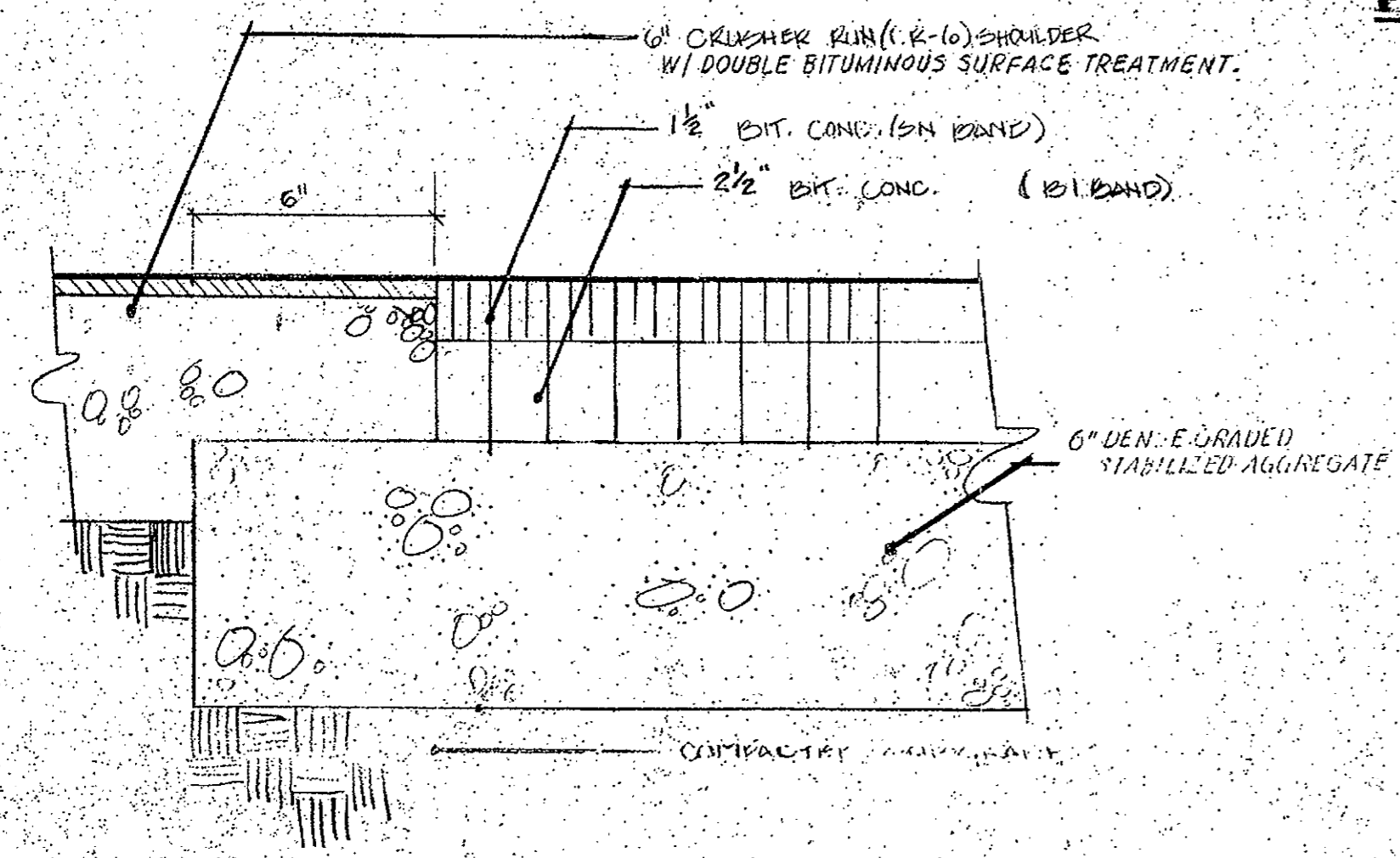
**TYPICAL ROAD SECTION** NTS **A**



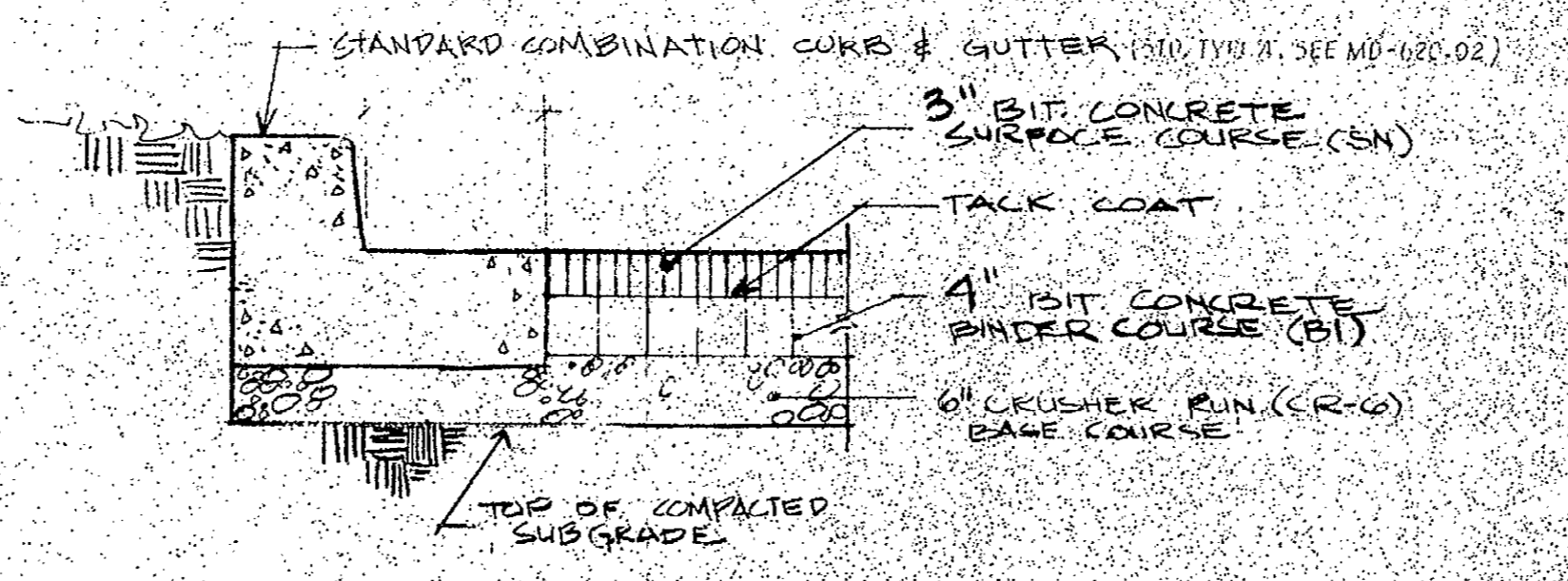
**PARKING LOT PAVING & WHEEL STOPS** Not to Scale **D**



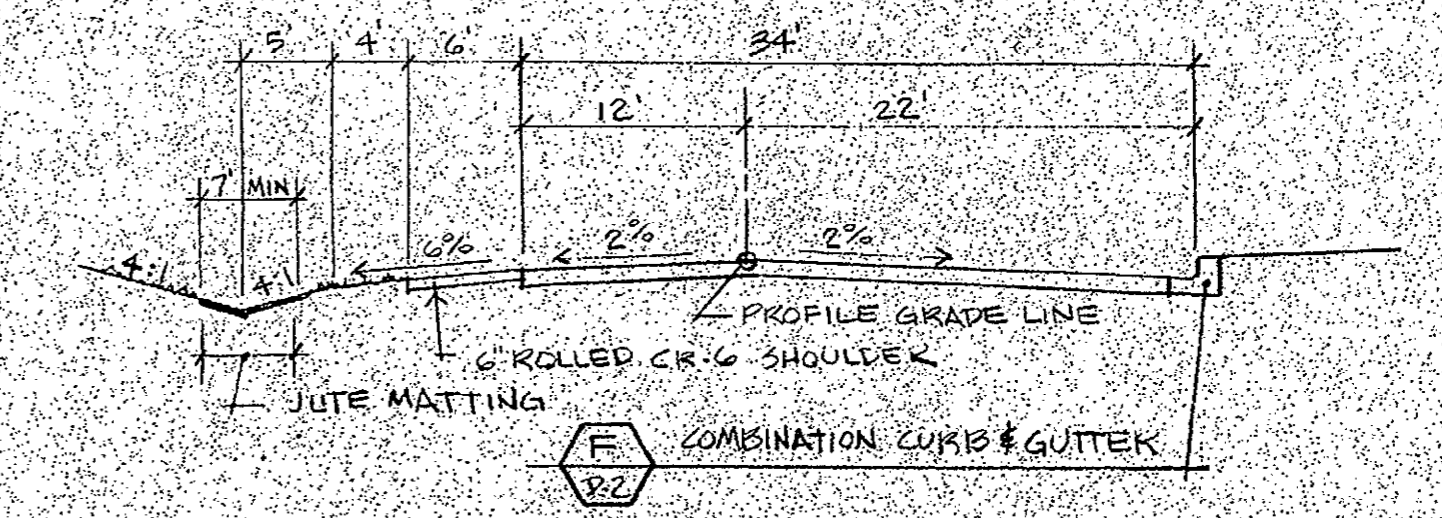
**ROUTE 99 - CHANGE OF SPEED LANE** WEST NTS **H**



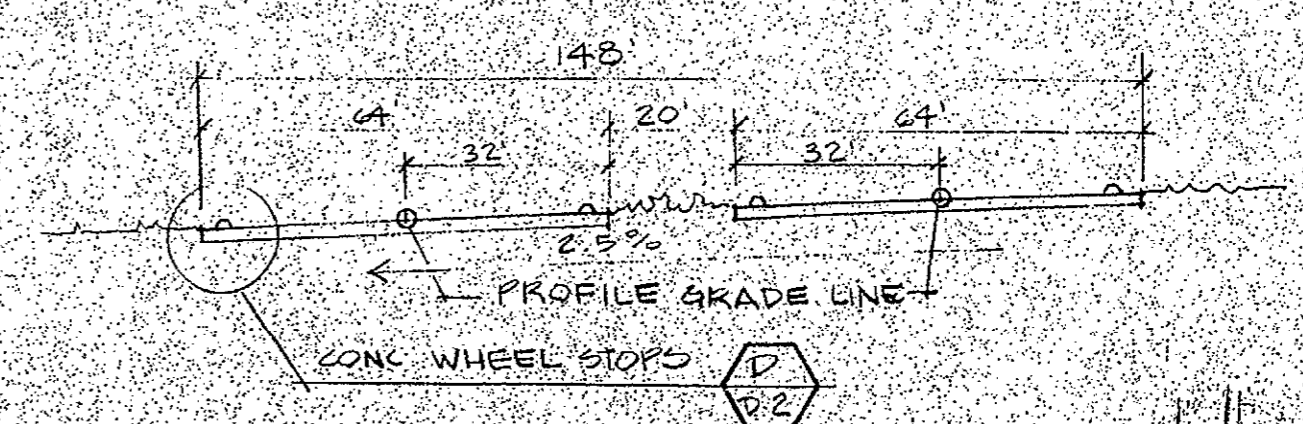
**ROAD PAVING #1 (FOR PARK ROADS & PARKING)** NTS **B**  
AS PER HOWARD COUNTY STD. DETAIL R-2.01, BAND P-2



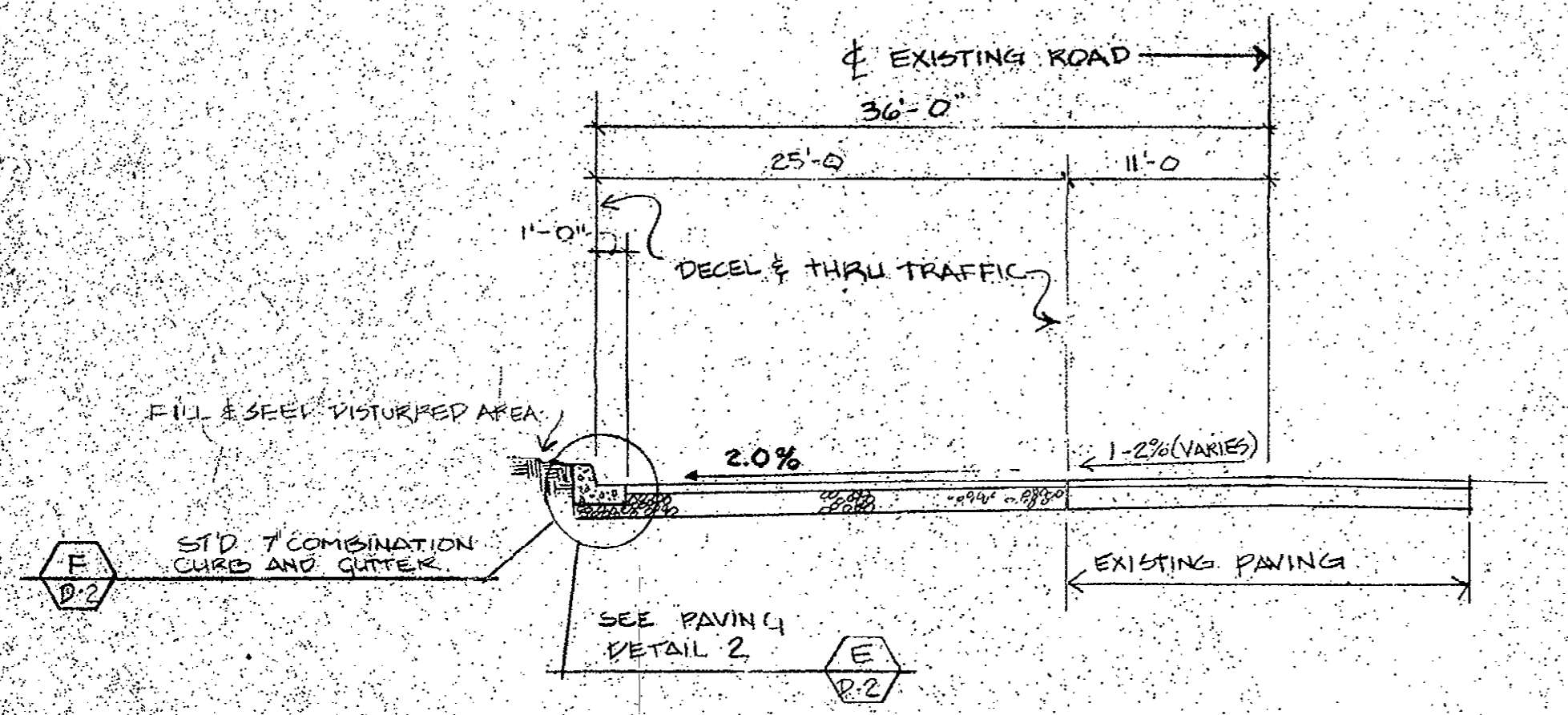
**ROAD PAVING #2 (For State Highway)** NTS **E**  
WITH MD. STATE HIGHWAY ADMIN. STD. TYPE 'A' COMBINATION CURB & GUTTER (MD-620.02)



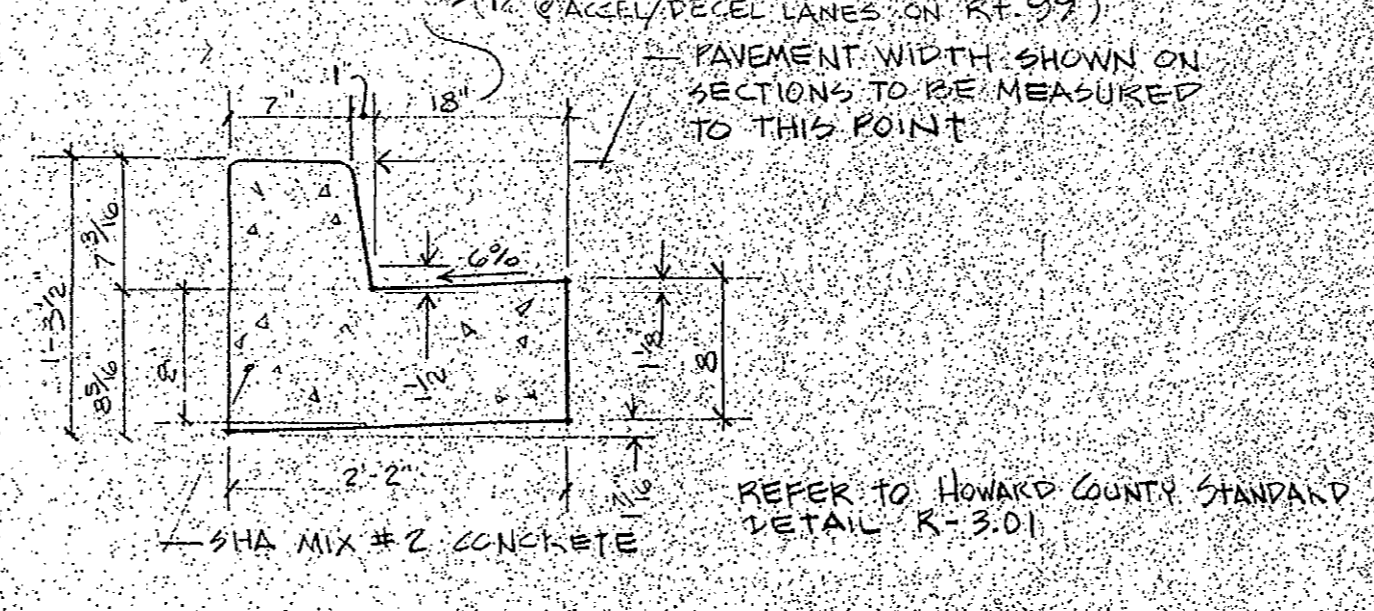
**ROAD at DROP OFF/PICK UP** NTS **I**



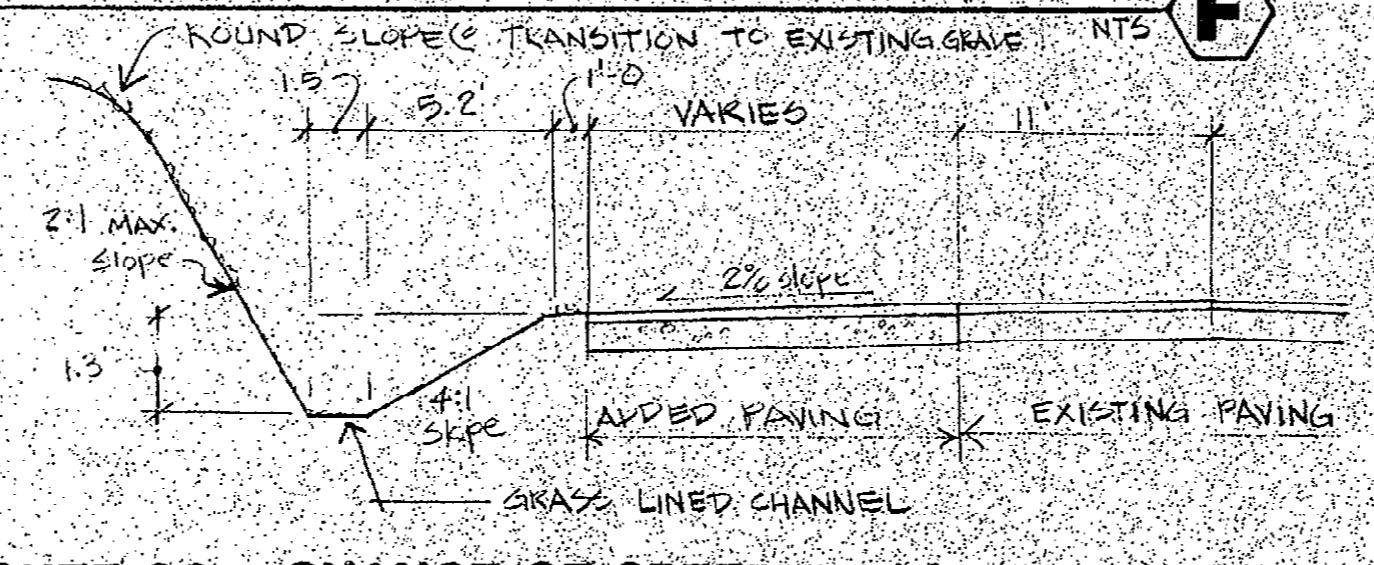
**MAIN PARKING LOT** NTS **J**



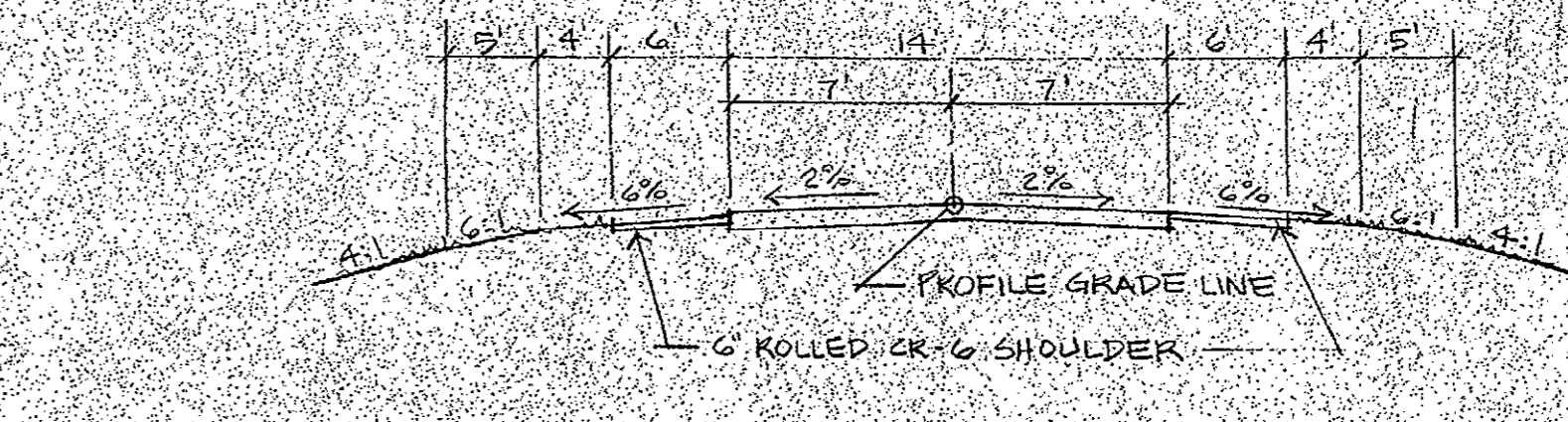
**TYPICAL SECTION CHANGE OF SPEED LANE w/ CURBINGS** NTS **C**



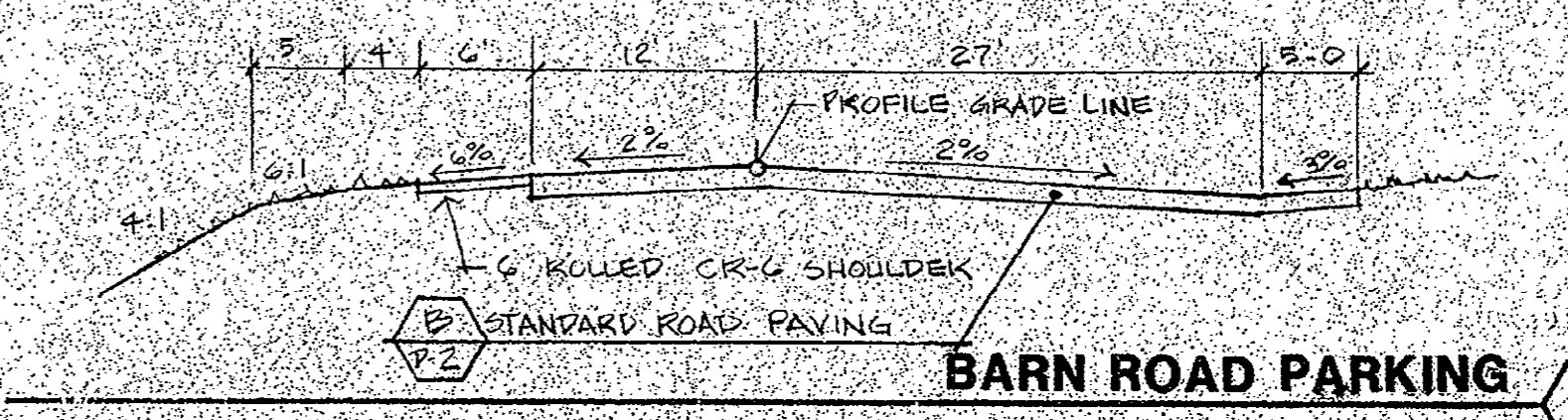
**CURB & GUTTER** NTS **F**



**ROUTE 99 - CHANGE OF SPEED LANE (EAST)** NTS **G**



**BARN/SERVICE ROAD** NTS **K**



**BARN ROAD PARKING** NTS **L**

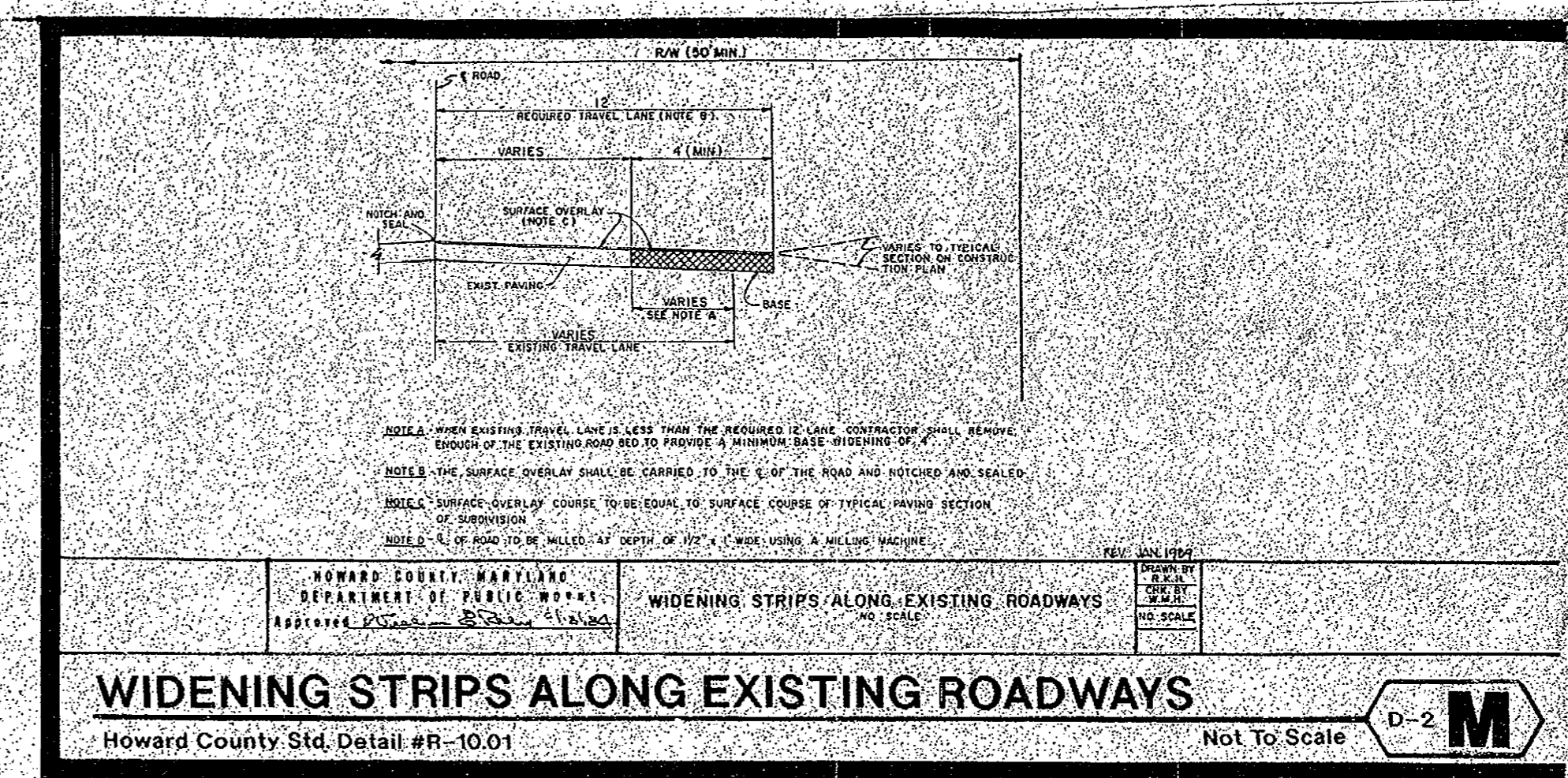
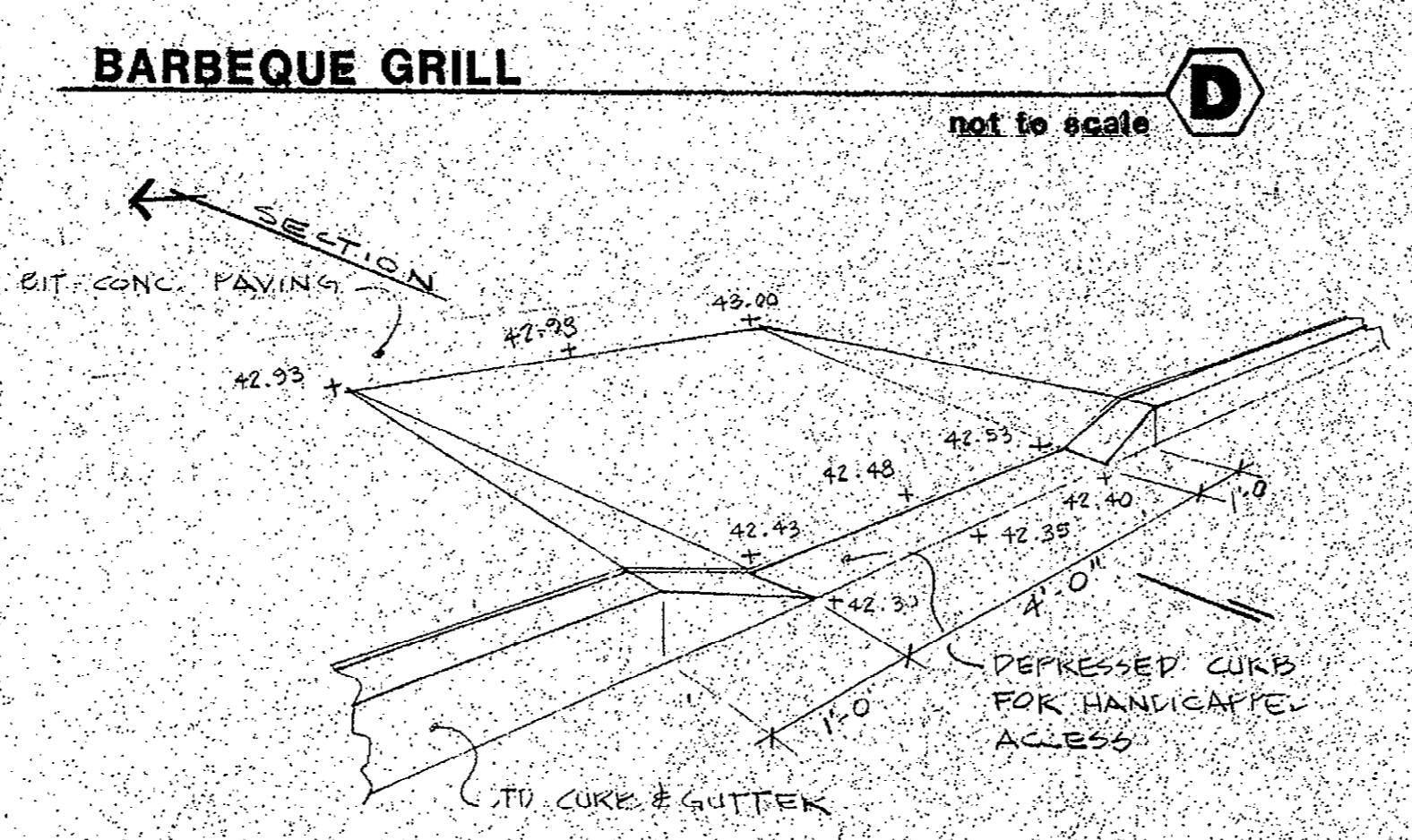
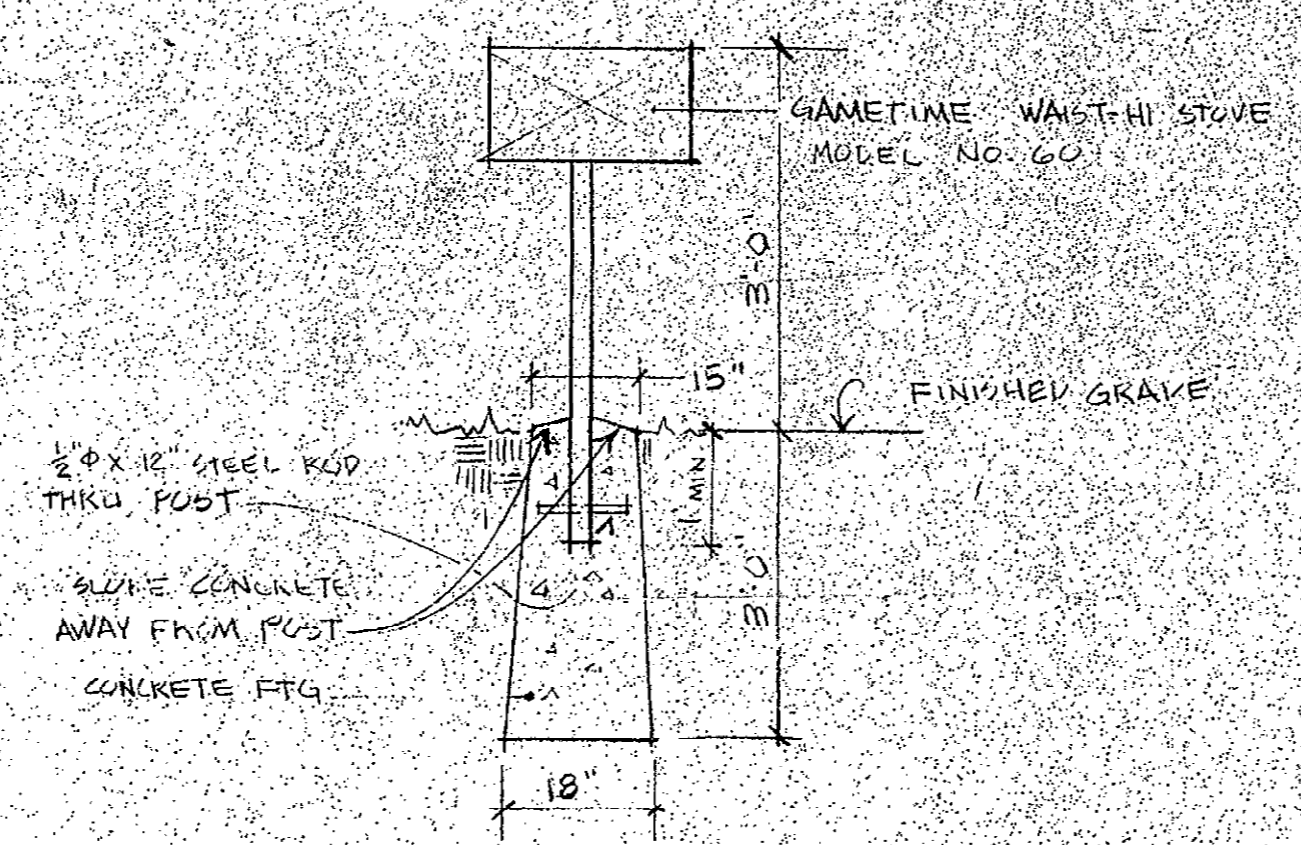
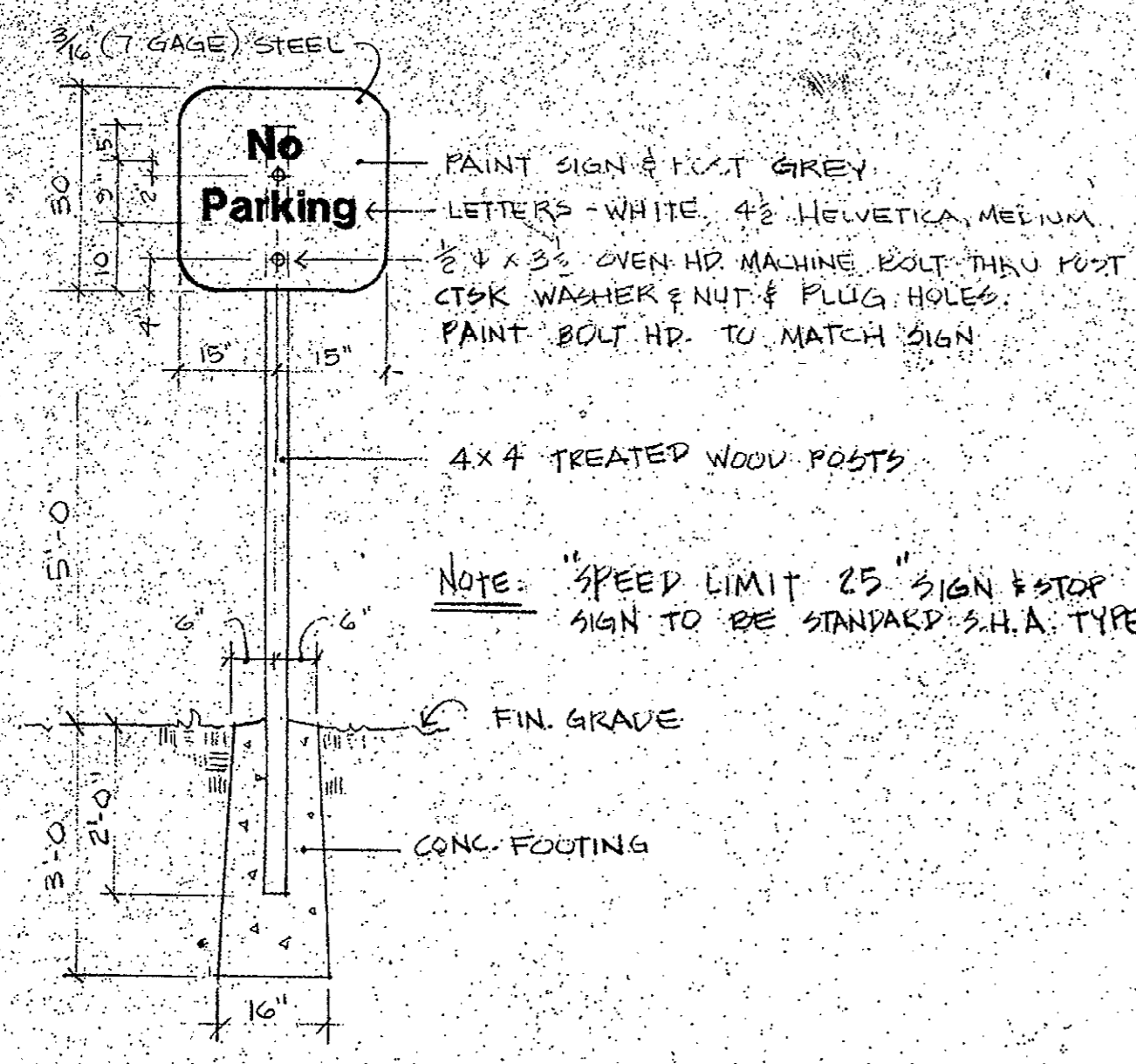
**SITE DATA**

OWNER: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
PROPOSED IMPROVEMENT: PARK DEED REF. LIBER 847 FOLIO 606  
TAX MAP #10, PARCEL #28  
ELECTION DISTRICT #3  
CENSUS TRACT #6030  
DATE: 1/24/92  
SEAL: NONE

JANUARY 1992  
APPROVED RELATIONS  
DATE SIGNATURE

J. CHRISTOPHER BATTEN, INC.  
Land Planning & Design Consultant  
8 North Church Street  
Westminster, Maryland 21157  
301-876-3383  
**S-19**  
SDP-37 of 38 of 20  
SDP-26 of 21  
SDP-90-18

**ROAD SECTIONS & DETAILS**



**TRAFFIC SIGNS**

1/2" = 1"

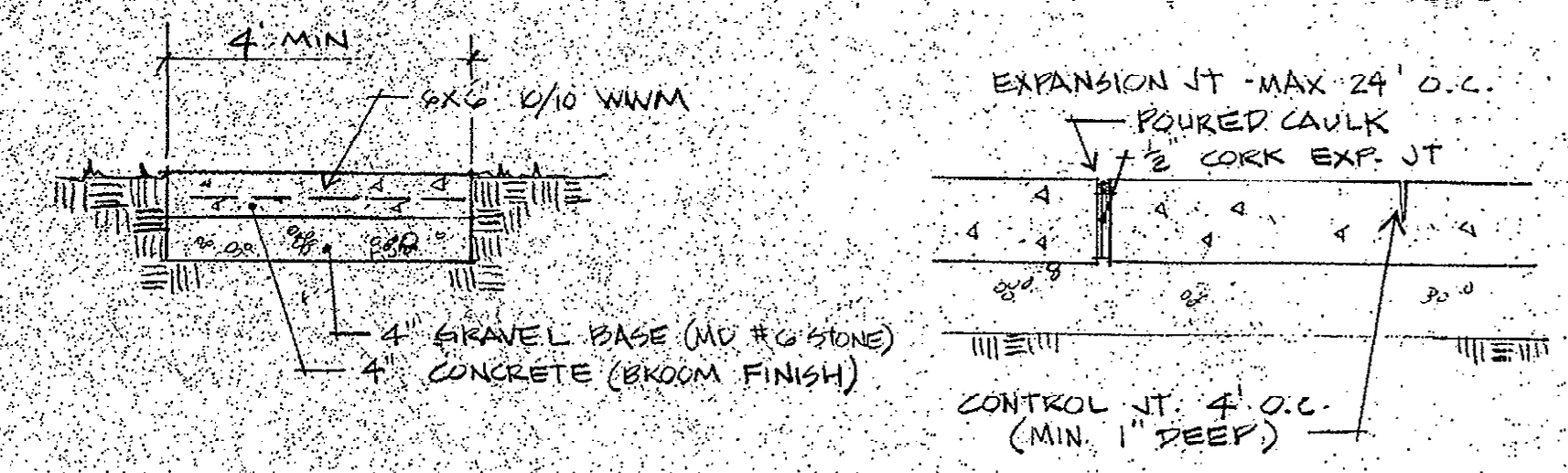


**COLORS:** LETTERS & BORDER & ARROW - GREEN  
WHITE SYMBOL ON BLUE BACKGROUND  
WHITE BACKGROUND

NOTE: LOCATE SIGN IN FRONT OF EACH H/C PARKING SPACE - 4" FROM EDGE OF PAVING

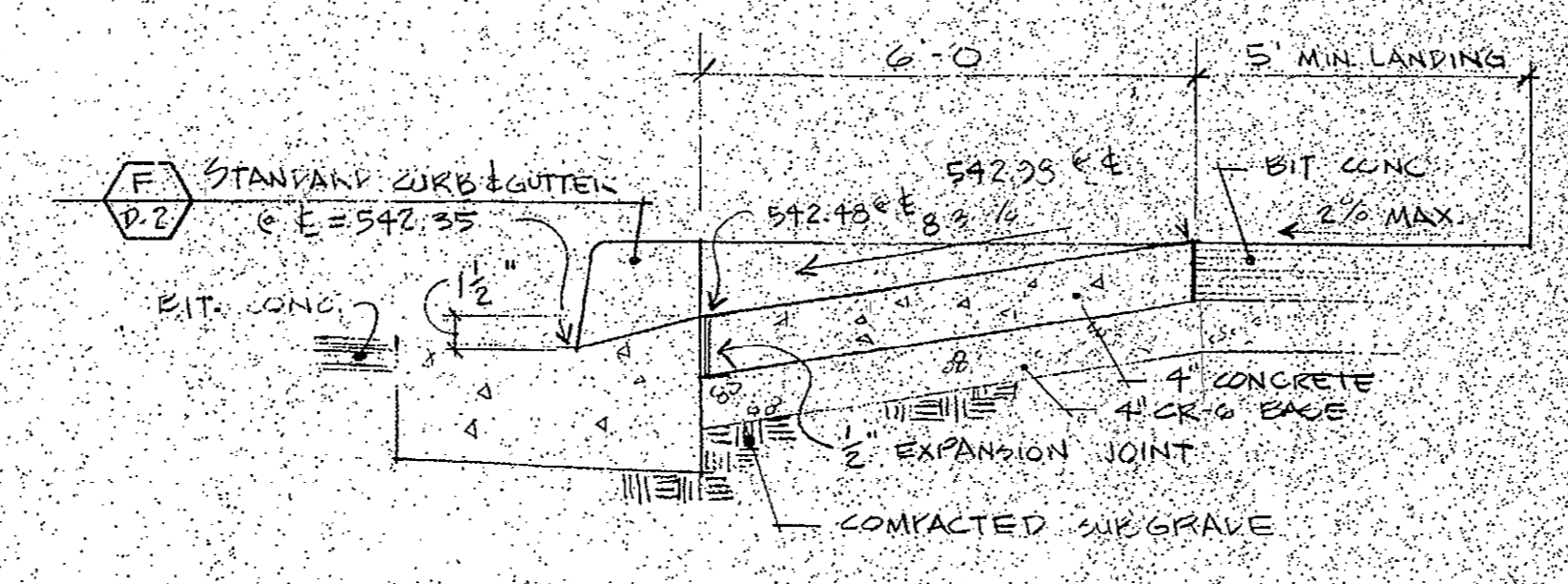
**HANDICAPPED PARKING SIGN**

NTS



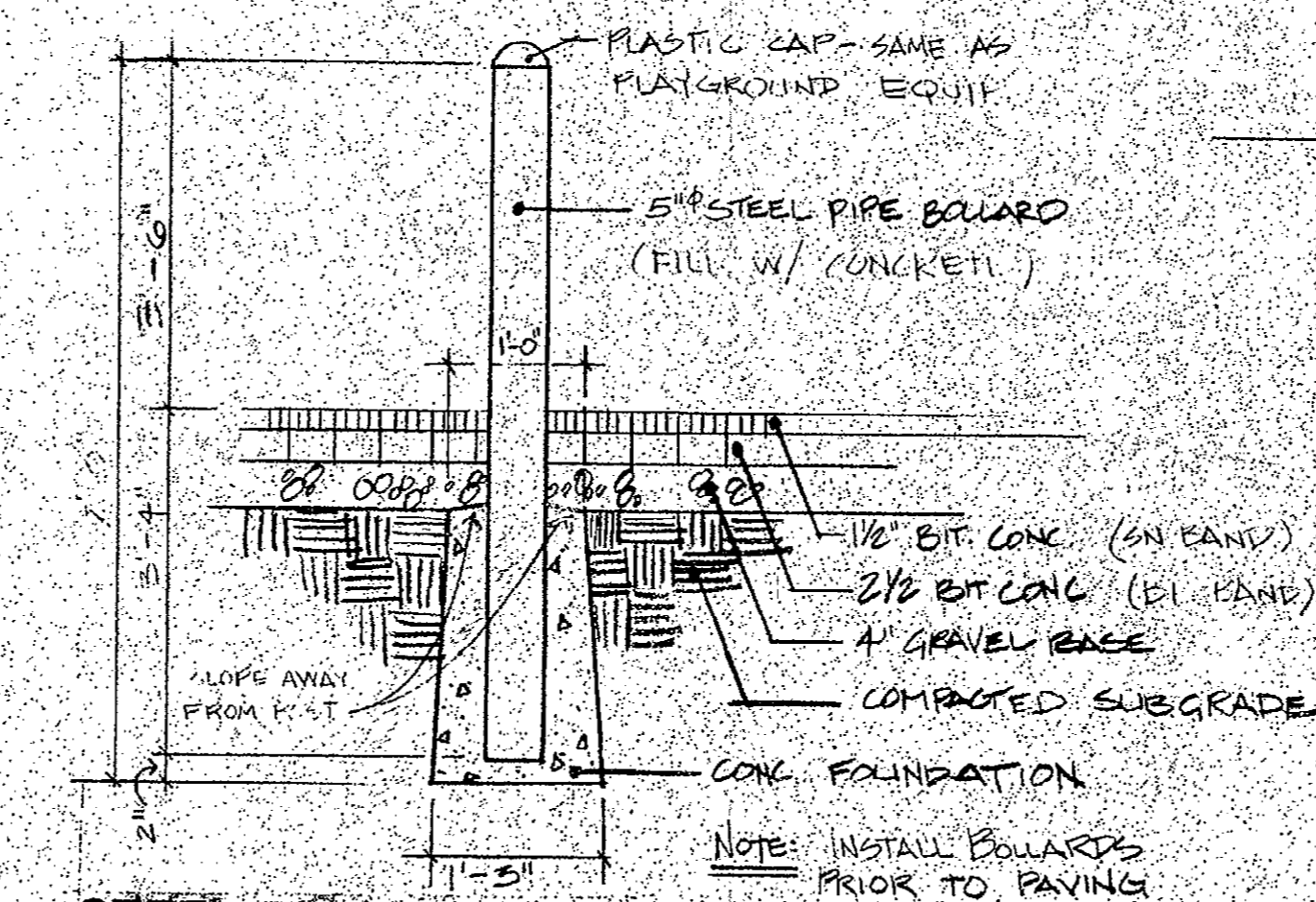
**CONCRETE SIDEWALK**

NTS



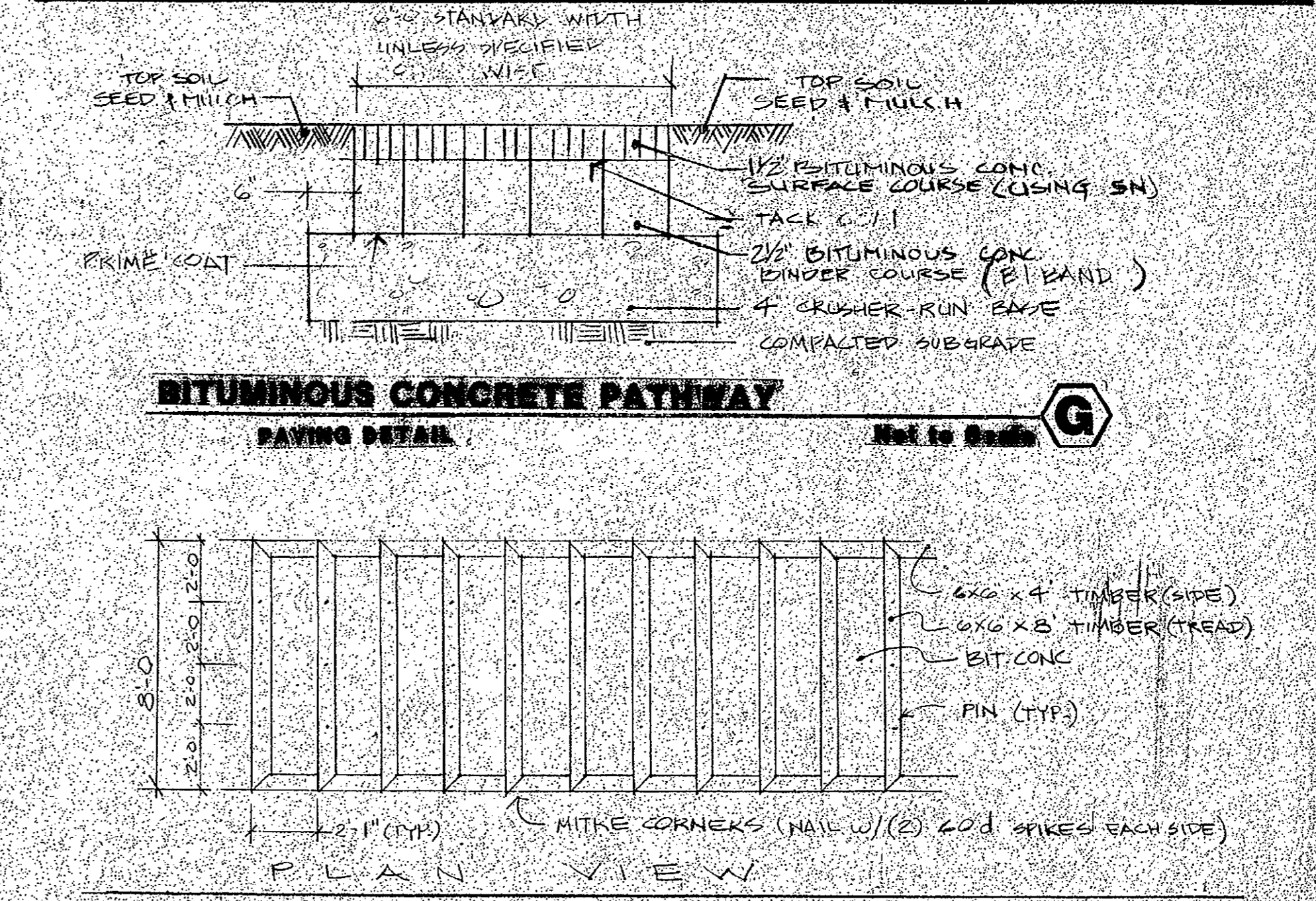
**HANDICAPPED RAMP**

not to scale



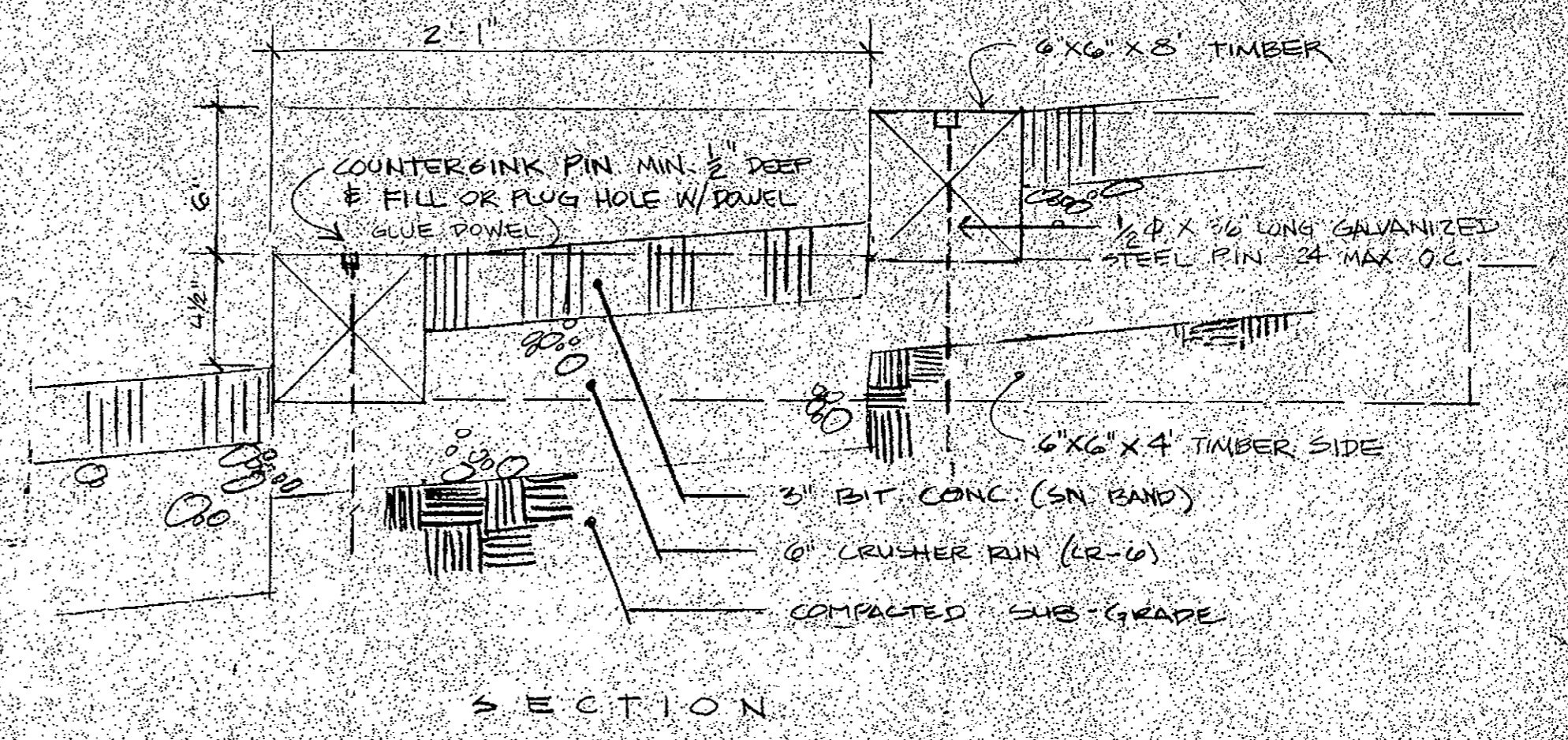
**STEEL PIPE BOLLARD**

nts



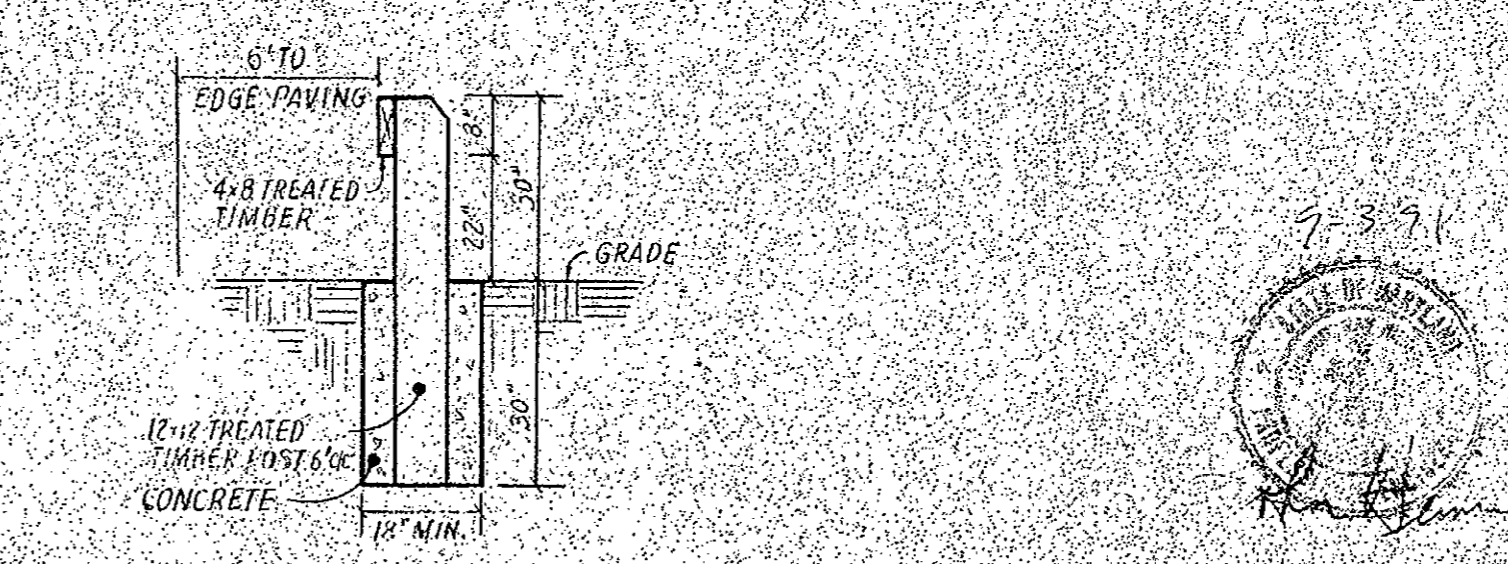
**BITUMINOUS CONCRETE PATHWAY**

not to scale



**TIMBER STEPS**

not to scale



**TIMBER GUARD RAIL**

nts

**SITE DETAILS**

SDP #90-18

ALPHA RIDGE PARK

REVIEWED NO FACILITIES REQUIRED

HOWARD COUNTY HEALTH DEPARTMENT

James M. Boyd, Director

1/24/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

James M. Boyd, Director

1/27/92

APPROVED: FOR PRIVATE WATER AND SEWERAGE FOR STORM DRAINAGE SYSTEM AND PUBLIC ROADS

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James M. Boyd, Director

1/24/92

APPROVED: FOR PRIVATE WATER AND SEWERAGE FOR STORM DRAINAGE SYSTEM AND PUBLIC ROADS

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James M. Boyd, Director

1/24/92

APPROVAL STAMP

**SITE DATA**

OWNER: HOWARD COUNTY  
DEPT. OF PUBLIC WORKS

PROPOSED IMPROVEMENT: PARK

DEED REF: LIBER 847, FOLIO 606

TAX MAP #10, PARCEL #28

ELECTION DISTRICT #3

CELSUS TRACT 8030

WATER

SEWER

APPROVED REVISIONS

JANUARY 24, 1992

J. CHRISTOPHER BATTEN INC.  
Land Planning & Design Consultant

8 North Church Street  
Westminster, Maryland 21157  
301-876-3383

**S-20**

SDP-30 of 38

of 20

SDP-90-18