

COSTCO GASOLINE

COSTCO GASOLINE OF COLUMBIA, MARYLAND GATEWAY OVERLOOK SHOPPING CENTER PARCEL U, BENSON EAST (F 06-102)

AFFO INTERSECTIONS	INTERSECTION JURISDICTION	OVERALL LEVEL OF SERVICE		MITIGATION REQUIRED	RECOMMENDATIONS
		EXISTING CONDITION	OPENING YEAR 2024		
SHOPPING CENTER OVERLOOK DRIVEWAY COSTCO FUEL	NON-STATE NON-COUNTY MAINTAINED	A (V/C 0.24)	A (V/C 0.25)	NO	*
STATE ROUTE 108 / GATEWAY OVERLOOK DRIVE	NON-STATE NON-COUNTY MAINTAINED	A (V/C 0.33)	F (V/C 0.34)	NO	*
STATE ROUTE 108 / WATERLOO ROAD (MD 108)	STATE	E (V/C 1.00)	F (V/C 1.00)	NO	*
STATE ROUTE 108 / WATERLOO ROAD (MD 108)	STATE	A (V/C 0.44)	F (V/C 0.47)	NO	*
MARIE CURIE DRIVE & GATEWAY OVERLOOK DRIVE	NON-STATE NON-COUNTY MAINTAINED	C (V/C 0.26)	C (V/C 0.29)	NO	*
LAKELAND ROAD & MARIE CURIE DRIVE	COUNTY	A (V/C 0.44)	A (V/C 0.47)	NO	*
SUMMER CLOUP HWY / OLD WATERLOO ROAD & WATERLOO ROAD (MD 108)	STATE	B (V/C 0.66)	B (V/C 0.70)	NO	*
LARK BARNUM ROAD & WATERLOO ROAD (MD 108)	STATE	B (V/C 0.68)	B (V/C 0.73)	NO	*
GATEWAY OVERLOOK DRIVE & WATERLOO ROAD (MD 108)	STATE	A (V/C 0.45)	A (V/C 0.48)	NO	*

BASE = NO-BUILD SCENARIO
PROJECTED = BUILD SCENARIO
LOS = OVERALL INTERSECTION LEVEL OF SERVICE
V/C = VOLUME TO CAPACITY RATIO
*NONE IS REQUIRED V/C IS WITHIN 0.10 BETWEEN BASE (NO BUILD) AND PROJECTED (BUILD)

LEGEND

FOR ENTIRE PLAN SET (NOT TO SCALE)

EXISTING

- ON-SITE PROPERTY LINE / R.O.W. LINE
- NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE
- EASEMENT LINE
- SETBACK LINE
- CONCRETE CURB & GUTTER
- STORM SEWER
- SANITARY SEWER MAIN
- SANITARY SEWER LATERAL
- UG WATER LINE
- UG ELECTRIC LINE
- UG GAS LINE
- OVERHEAD WIRE
- UG TELEPHONE LINE
- UG CABLE LINE

PROPOSED

- TYPICAL SPILL TRANSITION DEPRESSION
- SPOT ELEVATIONS
- CONTOUR LINE
- HYDRANT
- SANITARY MANHOLE
- STORM MANHOLE
- WATER METER
- WATER VALVE
- GAS VALVE
- GAS METER
- TYPICAL END SECTION
- HEADWALL OR ENDWALL
- YARD INLET
- CURB INLET
- CLEAN OUT
- SANITARY LABEL
- STORM LABEL
- TYPICAL LIGHT
- ACORN LIGHT
- TRAFFIC LIGHT
- UTILITY POLE
- TYPICAL SIGN
- TYPICAL NOTE TEXT
- PARKING COUNTS
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- ELECTRIC BOX
- ELECTRIC PEDESTAL
- MONITORING WELL
- TEST PIT
- BENCHMARK
- BORING
- UTILITY POLE W/LIGHT
- POLE LIGHT
- LIMITS OF DISTURBANCE

FOR REVISION 4
BOHLER ENGINEERING

D.S. HANEY
PROFESSIONAL ENGINEER
MARYLAND LIC. NO. 54512

1/21/23

PROFESSIONAL CERTIFICATION
I, DANIEL S. HANEY, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 54512, EXPIRATION DATE: 6/6/25.

GENERAL NOTES:

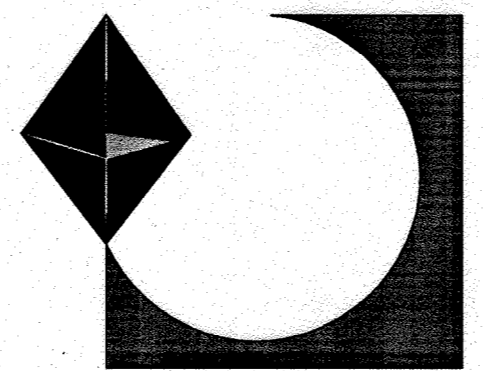
- THE TOPOGRAPHY FOR PARCEL U IS BASED ON A PLAN PREPARED BY PATTON HARRIS RUST AND ASSOCIATES, P.C. ENTITLED "DEVELOPERS MASS GRADING PLAN", DATED JUNE 28, 2005.
- THE SUBJECT PROPERTY IS ZONED NEW TOWN PER THE HOWARD COUNTY COMPREHENSIVE ZONING PLAN DATED 2/2/04.
- EXISTING USE: VACANT LOT
PROPOSED USE: COSTCO GASOLINE STATION WITH KIOSK.
- BUILDING HEIGHT: 8'-1-1/4" CANOPY HEIGHT: 17'-6"
**PLEASE REFER TO KIOSK ELEVATIONS, SHEET 22.
- REFUSE SHALL BE DISPOSED OF DAILY IN TRASH RECEPTACLES. TRASH REMOVAL WILL BE PRIVATELY CONTRACTED.
- UTILITIES:
WATER, PUBLIC - AN 8" WATER LINE IS LOCATED ON THE EAST SIDE OF MARIE CURIE DRIVE WITH AN 8" STUB FOR THIS SITE. CONTRACT # 24-4284 D.
SEWER, PUBLIC - AN 8" SANITARY SEWER LINE IS LOCATED ON THE WEST SIDE OF MARIE CURIE DRIVE WITH AN 8" STUB FOR THIS SITE. CONTRACT # 24-4284 D.
STORM DRAIN - A 15" STORM DRAINAGE LINE IS LOCATED ON THE SOUTHWEST CORNER OF THE SITE AND OUTLETS INTO A REGIONAL SWM FACILITY.
- ELECTION DISTRICT: 6
- DEED REFERENCE:
PARCEL 482: LIBER 1151, FOLIO 56 LIBER 5289, FOLIO 330
PARCEL 587: LIBER 9266, FOLIO 229
- TAX MAP: 37, GRID: 1 & 2, PARCEL: U
- PROPERTY IS OUTSIDE THE 100-YEAR FLOOD PLAIN (FEMA FIR# 240044 0038 B MAP 12/4/88).
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, MSHA STANDARDS AND SPECIFICATIONS, AND COSTCO WHOLESALE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 376D AND 376C WERE USED FOR THIS PROJECT.
- THERE ARE NO WETLANDS OR FLOOD PLAINS LOCATED ON THE SUBJECT SITE.
- THERE ARE NO KNOWN BURIAL GROUNDS ON SITE.
- THE LOCATION AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION, AND DEPTH OF EXISTING UTILITIES IN THE WORK AREA AND NOTIFY THE ARCHITECT OF RECORD AND BOHLER ENGINEERING, P.C. OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF RECORD AND BOHLER ENGINEERING, P.C. IN THE EVENT OF ANY DISCREPANCIES ON THE PLAN OR IN THE RELATIONSHIP OF EXISTING GRADES WITH PROPOSED GRADES PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT (410) 313-1880.
- PUBLIC WATER AND SEWER ARE PROVIDED FOR THIS SITE.
- EXISTING UTILITIES (PUBLIC WATER & PUBLIC SANITARY SEWER) ARE BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. TITLED "WATER AND SEWER EXTENSION PLANS FOR BENSON EAST", DATED 5/08/05 (CONTRACT #24-4284-D), REVISED 4/08/06.
- THE TRAFFIC IMPACT STUDY FOR THE OVERALL GATEWAY OVERLOOK SHOPPING CENTER WAS PREPARED BY WELLS & ASSOCIATES, LLC DATED 10/07/02 AND REVISED ON 02/20/05 AND FURTHER REVISED ON 4/13/05.
- PRELIMINARY PLAN APPROVAL FOR THIS PROJECT WAS GRANTED PRIOR TO 12/31/92 THEREFORE, THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1202(b)(1)(iv) OF THE FOREST CONSERVATION MANUAL.
- LANDSCAPING IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE SHEET. SURETY SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT, IN THE AMOUNT OF \$7,200.
- OUTDOOR LIGHTING SHALL CONFORM TO SECTION 134 OF THE ZONING REGULATIONS. (SEE SHEET NO. 20 FOR DETAILS)
- IN ACCORDANCE WITH THE "FINAL DEVELOPMENT PLAN CRITERIA PHASE 240-A-1 BENSON EAST" THERE ARE NO BUILDING SETBACKS WITHIN THE PARCEL.
- ALL HOWARD COUNTY STORM WATER QUANTITY AND QUALITY REQUIREMENTS WILL BE MET BY AN EX. REGIONAL STORMWATER MANAGEMENT FACILITY COMPLETED UNDER SDP-04-163, DATED OCT. 18, 2004. THE STORMWATER MANAGEMENT FACILITIES PROPOSED FOR THIS SITE ARE ALL PRIVATELY OWNED AND MAINTAINED. WATER QUALITY VOLUME AND CHANNEL PROTECTION WILL BE PROVIDED IN TWO WET PONDS AND ONE MICROPOOL EXTENDED DETENTION POND. NO STORMWATER MANAGEMENT IS PROVIDED FOR RESIDENTIAL USE PARCELS ALONG OLD WATERLOO ROAD. ALL FACILITIES ARE OFF-SITE EXCEPT FOR THE UNDERGROUND RECHARGE FACILITY SHOWN ON-SITE AND WILL BE PRIVATELY OWNED AND MAINTAINED.
- A KNOX BOX (FIRE DEPARTMENT ACCESS BOX) IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-5" IN HEIGHT AND NO MORE THAN 6' LATERSALLY FROM THE DOOR. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE ALARM SYSTEM NFPA-110.12.1.)
- SHARED ACCESS EASEMENTS BETWEEN PARCEL U AND PARCELS M AND T SHALL BE RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MARYLAND FOR THIS SITE.
- IN ACCORDANCE WITH FDP 240-A-1, THIS SITE MAY ONLY BE FOR A COSTCO GASOLINE STATION AND SHALL ONLY BE UTILIZED BY CUSTOMERS WITH A MEMBER CARD TO ACCESS GAS. THE NUMBER OF GAS PUMPS SHALL NOT EXCEED SIX (6) PUMPS AND THE GAS STATION SHALL NOT PROVIDE AUTOMOBILE SERVICES, CONVENIENCE STORE OR A CAR WASH.
- LIMIT OF DISTURBANCE FOR REV. 3 UPDATES: 12,150 SF.
- LIMIT OF DISTURBANCE FOR REV. 4 UPDATES: 14,825 SF.
- PREVIOUS APPROVED FDP ON FILE: 240-A-III. FDP AMENDED TO PERMIT 12 FUEL PUMPS IN LIEU OF THE PREVIOUSLY PERMITTED 8 PUMPS.

FOR REVISION 2
BOHLER ENGINEERING

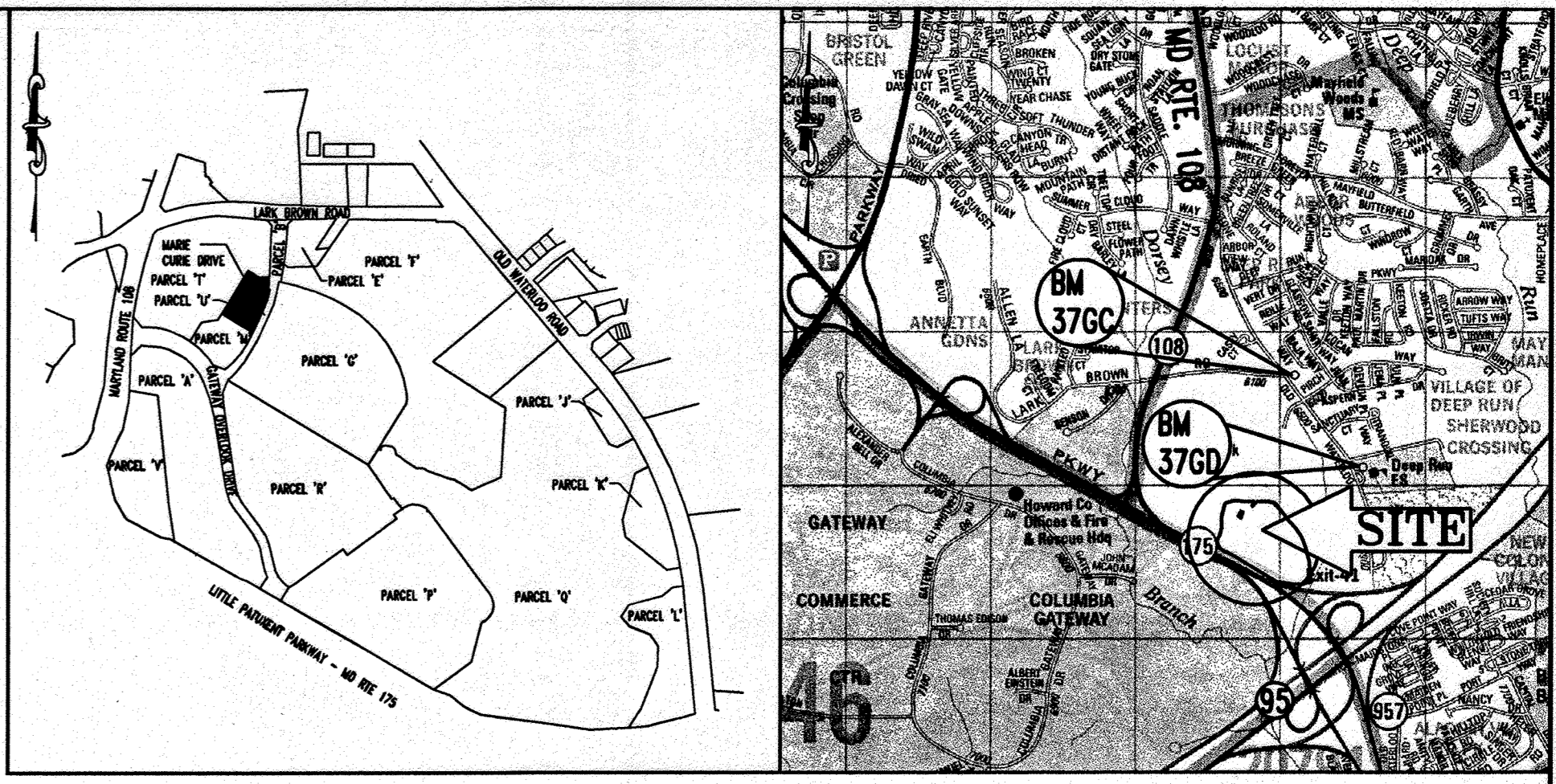
I, MICHAEL J. GOSSEL, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44007, EXPIRATION DATE: 1/15/25.

9/20/14

PROFESSIONAL CERTIFICATION
I, MATTHEW T. ALLEN, 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. 28557, EXPIRATION DATE: 4/16/13.



PREPARED BY:
BOHLER ENGINEERING, P.C.
22630 DAVIS DRIVE, SUITE 200
STERLING, VIRGINIA 20164
(703) 709-9500



OVERALL PLAN VIEW
SCALE: 1"=700'

LOCATION MAP
COPYRIGHT ADC THE MAP PEOPLE
PERMIT USE NO. 20602153-5
SCALE: 1"=2000'

SHEET INDEX CONT.

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SITE ANALYSIS DATA CHART

- TOTAL PROJECT AREA: 46,157 S.F. OR 1.0596 AC.
- LIMIT OF DISTURBED AREA: 42,880 S.F. OR 0.98 AC.
- PRESENT ZONING: NT (NEW TOWN) DISTRICT - EMPLOYMENT CENTER COMMERCIAL
- PROPOSED USE: COSTCO GASOLINE WITH KIOSK.
- KIOSK FLOOR AREA: 196 S.F.
- TOTAL NUMBER OF UNITS ALLOWED FOR PROJECT: N/A
- TOTAL NUMBER OF UNITS PROPOSED ON SUBMISSION: N/A
- MAXIMUM NUMBER OF EMPLOYEES: ONE (1).
MAXIMUM NUMBER OF TENANTS: ONE (1).
- PARKING SPACES REQUIRED: ONE PER EMPLOYEE
- PARKING SPACES PROVIDED: 2 SPACES PROVIDED ON-SITE (INCLUDING 1 HANDICAP SPACE).
- GREEN SPACE ON SITE: 0.37 AC. OR 35.0% OF SITE AREA.
- AREA OF RECREATION OPEN SPACE REQUIRED: N/A
- BUILDING COVERAGE ON SITE: 196 S.F. OR 0.4% OF SITE AREA.
- APPLICABLE DPZ FILE REFERENCE: F-05-58, SDP-04-163/24-4284-D, F-06 102, S03-05, PB 373 AND FDP-240-A, SDP # 06-111, SDP-06-072, SDP-06-108, FDP 240-A-I, PB 375, FDP-240-A-III

BENCHMARK

BM 376D
GEODETIC SURVEY CONTROL #376D
N 553,237.204
E 1,372,353.605
ELEV. 290.931'
LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL

BM 376C
GEODETIC SURVEY CONTROL #376C
N 553,250.791
E 1,370,946.348
ELEV. 331.855'
LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

APPLICANT

COSTCO WHOLESALE
45940 HORSESHOE DRIVE, SUITE 150
STERLING, VA 20166
ATTN: ERICH BRANN
PHONE: (703) 406-6862

ADDRESS CHART

LOT/PARCEL #	STREET ADDRESS
U	6670 MARIE CURIE DRIVE

PERMIT INFORMATION CHART

PROJECT NAME	SECTION/AREA	LOT/PARCEL #
BENSON EAST	X	PARCEL U

PLAN RECORDATION: BLOCK # / ZONING: TAX MAP # / ELECT. DISTRICT: CENSUS TRACT:
18444 TO 18450 / 20 NEW TOWN / 37 / 6TH / 6067.03

WATER CODE: D 06 SEWER CODE: 3390000

OWNER/DEVELOPER: HRO LAND HOLDINGS, INC.
HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE "HOUSE BUILDERS"
10275 LITTLE PATIENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6000

PROJECT: BENSON EAST
PARCEL U: GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
PARCEL U: BENSON EAST
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: COVER SHEET

BOHLER ENGINEERING, P.C.

PROFESSIONAL ENGINEERING SERVICES *
22630 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA, 20164 *
CONTACT: DAVID B. NEMERICK
(703) 709-9500 FAX: (703) 709-9501

DESIGNED BY: J.A.D.
DRAWN BY: R.F.G.
PROJECT NO.: S040011.01
DATE: 6/25/07
SCALE: AS SHOWN
DRAWING NO.: 1 OF 28

ADAM J. VOLANTH
PROFESSIONAL ENGINEER NO. 21542

APPROVED: DEPARTMENT OF PLANNING AND ZONING

7/6/07
7/16/07
7/17/07

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

7/17/07

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 2-08-07

ISSUED FOR CONSTRUCTION

SIGNATURE DATE SIGNATURE DATE SIGNATURE DATE
THIS DOCUMENT IS NOT ISSUED BY BOHLER ENGINEERING, P.C. FOR CONSTRUCTION WITHOUT (3) SIGNATURES

BEPC PROJECT # REVISION #/DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

FOR REVISION 1
BOHLER ENGINEERING P.C.

MISS UTILITY

BEFORE YOU DIG CALL 800-357-7777
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREOF APPROPRIATE.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

DEMOLITION NOTES

- ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AS WELL AS ALL FEDERAL, STATE AND LOCAL REGULATIONS. ANY DISCREPANCIES OR DEVIATIONS SHALL BE IDENTIFIED BY THE CONTRACTOR TO BOHLER ENGINEERING, P.C. IN WRITING FOR RESOLUTION PRIOR TO INITIATION OF SITE ACTIVITY.
- PRIOR TO STARTING ANY DEMOLITION CONTRACTOR IS RESPONSIBLE FOR/TO:
 - ENSURING THAT COPIES OF ALL APPLICABLE PERMITS AND APPROVALS ARE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW.
 - INSTALLING THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL AND/OR TREE PROTECTION MEASURES PRIOR TO SITE DISTURBANCE.
 - LOCATING (VERTICALLY AND HORIZONTALLY) ALL UTILITIES AND SERVICES, INCLUDING, BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.
 - PROTECTING AND MAINTAINING IN OPERATION, ALL ACTIVE SYSTEM THAT ARE NOT BEING REMOVED DURING ALL DEMOLITION ACTIVITIES.
 - FAMILIARIZING THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
 - COORDINATION WITH UTILITY COMPANIES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE AFFECTED PARTIES.
 - A COMPLETE INSPECTION FOR CONTAMINANTS BY A LICENSED ENVIRONMENTAL TESTING AGENCY, OF ALL BUILDINGS AND/OR STRUCTURES TO BE REMOVED. SAME SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL ENVIRONMENTAL REGULATIONS. ANY/ALL CONTAMINANTS SHALL BE REMOVED AND DISPOSED OF BY A FEDERALLY LICENSED CONTRACTOR IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL, SOILS, ASBESTOS, OR OTHER REFERENCED OR IMPLIED HEREIN IS THE SOLE RESPONSIBILITY OF THE OWNER'S ENVIRONMENTAL CONSULTANT.
- BOHLER ENGINEERING P.C. IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. CONTRACTOR IS TO PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL THE OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY.
- THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF HIS ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.
- IN THE ABSENCE OF SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM EARTH MOVEMENT ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.
- EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF BOTH THE OWNER AND APPLICABLE GOVERNMENTAL AUTHORITIES. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS SHALL BE IN PLACE PRIOR TO STARTING AN EXPLOSIVE PROGRAM. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH: THE "MANUAL ON UNIFORM TRAFFIC CONTROL," AS WELL AS FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS OR ROADWAY RIGHTS - OF - WAY.
- CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY.
- DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE DEFINED PROPERTY LINE WITHOUT WRITTEN PERMISSION OF THE APPLICABLE PROPERTY OWNER, AND/OR APPROPRIATE GOVERNMENT AGENCY.
- USE DUST CONTROL MEASURES TO LIMIT AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR IN ACCORDANCE WITH FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ADJACENT STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.
- CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF UNAUTHORIZED PERSONS AT ANY TIME.
- THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
- DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION WASTES AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL TOWN, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES.

GRADING & UTILITY NOTES

- LOCATION OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR IN FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO BOHLER ENGINEERING, P.C.. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. ALL PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL UTILITIES AND SERVICES INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION AT NO COST TO THE OWNER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
- DEFINE AND LOCATE VERTICALLY AND HORIZONTALLY ALL ACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.
- THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, OIL/WATER SEPARATOR REQUIREMENTS/DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE UTILITY SERVICE SIZES ARE TO BE DETERMINED BY THE ARCHITECT. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND ENSURE PROPER DEPTHS ARE ACHIEVED. THE JURISDICTION UTILITY REQUIREMENTS SHALL ALSO BE MET, AS WELL AS COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE. WHERE CONFLICTS EXIST WITH THESE SITE PLANS, BOHLER ENGINEERING, P.C. IS TO BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE SAME.
- WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS SHALL BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTOR'S PRICE FOR WATER SERVICE SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE A COMPLETE WORKING SERVICE.
- ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES/SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.
- SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT PREPARED BY WHITESTONE ASSOCIATES, INC., DATED OCTOBER 20, 2005; ENTITLED: REPORT OF GEOTECHNICAL INVESTIGATION-PROPOSED COSTCO WHOLESALE SITE-MARYLAND INTERSTATE I-95 AND LITTLE PATUXENT-PARKWAY (MARYLAND ROUTE 175)-COLUMBIA, HOWARD COUNTY, MARYLAND; PROJECT NO.: WPOS-7961. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED AS OUTLINED IN THE GEOTECHNICAL REPORT. MOISTURE CONTENT AT TIME OF PLACEMENT SHALL BE SUBMITTED IN COMPACTION REPORT PREPARED BY A QUALIFIED GEOTECHNICAL ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT SHALL BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DETERMINED UNSUITABLE BY OWNER OR OWNER'S REPRESENTATIVE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED AS DIRECTED BY THE GEOTECHNICAL REPORT.
- ALL FILL, COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION SHALL BE IN CONFORMANCE WITH THE GEOTECHNICAL REPORT AND SHALL ALSO BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS.
- THE CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS AND REGULATIONS, OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES.
- PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
- THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS SHALL BE ADJUSTED, IF REQUIRED, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR TO ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS; 1.0% ON ALL CONCRETE SURFACES; AND 1.5% MINIMUM ON ASPHALT, TO PREVENT PONDING. ANY DISCREPANCIES THAT MAY AFFECT THE PUBLIC SAFETY OR PROJECT COST MUST BE IDENTIFIED TO BOHLER ENGINEERING, P.C. IN WRITING IMMEDIATELY. PROCEEDING WITH CONSTRUCTION WITHOUT NOTIFICATION IS DONE SO AT THE CONTRACTOR'S OWN RISK.
- IN CASE OF DISCREPANCIES BETWEEN PLANS OR RELATIVE TO OTHER PLANS, THE SITE PLAN WILL TAKE PRECEDENCE. IMMEDIATELY NOTIFY THE ARCHITECT OF RECORD AND BOHLER ENGINEERING, P.C. IN WRITING OF ANY CONFLICTS.
- CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS AND APPROVALS FOR ALL OFF-SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO THE ARCHITECT OF RECORD AND BOHLER ENGINEERING, P.C. AND OWNER PRIOR TO INITIATING WORK.

SITE PLAN/DOCUMENT REFERENCES:

- DEVELOPER/OWNERS PLANS:**
 - BENSON EAST EROSION AND SEDIMENT CONTROL AND LANDSCAPE PLANS PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. DATED 08/03/2004 (SDP-04-163).
 - WATER AND SEWER EXTENSION PLANS FOR BENSON EAST PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. DATED 6/8/05 REVISED 4/6/06 (CONTRACT #24-4284-D).
 - ROADWAY AND STORM DRAIN PLANS PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. DATED 8/18/05 REVISED 4/20/06 (REFERENCE #F-05-058).
 - ALL EXISTING CONDITIONS AND EXISTING TOPOGRAPHY ARE TAKEN FROM THE "DEVELOPER'S MASS GRADING PLAN" PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. DATED 06/28/05.

CONTACT INFORMATION:
 PATTON, HARRIS, RUST, AND ASSOCIATES, P.C.
 8818 CENTRE PARK DRIVE
 COLUMBIA, MD 21045
 TELEPHONE: (610) 395-7033
 FAX: (610) 395-5811
 CONTACT: DOMENICK COLANGELO

2. GEOTECHNICAL INFORMATION:

DATED: 10/20/05
 PROJECT NO.: WPOS-7961
 ENTITLED:
 REPORT OF GEOTECHNICAL INVESTIGATION
 PROPOSED COSTCO WHOLESALE SITE
 MARYLAND INTERSTATE I-95 AND LITTLE PATUXENT
 PARKWAY (MARYLAND ROUTE 175)
 COLUMBIA, HOWARD COUNTY, MARYLAND
 PREPARED BY:
 WHITESTONE ASSOCIATES, INC.
 1600 MANOR DRIVE, SUITE 220
 CHALFONT, PA 18914
 TELEPHONE: (215) 393-8200
 FAX: (215) 393-8574
 CONTACT: JEFFREY SCHAUMBURG, P.E.

WATER LINE NOTES:

- PLEASE REFER TO "WATER AND SEWER EXTENSIONS PLAN SET" CONTRACT NO. 24-4284-D PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. P.C. DATED 6/8/05, REVISED 4/6/06 FOR INFORMATION ON THE EXISTING 8" WATER MAIN ON-SITE.
- ALL WATER MAINS ON SITE SHALL BE D.I.P. (CLASS 52 UNLESS OTHERWISE NOTED).

SANITARY SEWER NOTES:

- PLEASE REFER TO "WATER AND SEWER PLAN SET" CONTRACT NO. 24-4284-D PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. DATED 6/8/05, REVISED 4/6/06 FOR INFORMATION ON THE EXISTING 8" PUBLIC SANITARY SEWER MAIN ON SITE.
- ALL SANITARY SEWER LINES SHALL BE D.I.P. OR PVC UNLESS OTHERWISE NOTED.

BENCHMARK	
BM 37GD	GEODETIC SURVEY CONTROL #37GD N 553,237.204 E 1,372,353.605 ELEV. 290.931' LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL
BM 37GC	GEODETIC SURVEY CONTROL #37GC N 553,250.791 E 1,370,946.348 ELEV. 331.855' LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

APPLICANT	
COSTCO WHOLESALE 45940 HORSESHOE DRIVE, SUITE 150 STERLING, VA 20166 ATTN: ERICH BRANN PHONE: (703) 406-6862	

ADDRESS CHART	
LOT/PARCEL #	STREET ADDRESS
U	6670 MARIE CURIE DRIVE

PERMIT INFORMATION CHART					
PROJECT NAME:	BENSON EAST	SECTION/AREA:	X	LOT/PARCEL #:	PARCEL U
PLAT RECORDATION:	18444 TO 18450	BLOCK #:	37	ELECT. DIST.:	6TH
WATER CODE:	D 06	SEWER CODE:	3390000	CENSUS TRACT:	6067.03

REV.	DATE	DESCRIPTION	BY
3	11/20/05	REVISED EXISTING 8" WATER MAIN CROSSING UNDER 6" WATER MAIN	MSB

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE "HOUSE BUILDERS"
 10275 LITTLE PATUXENT-PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

PROJECT: BENSON EAST
 PARCEL U: GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER
AREA: TAX MAP 37 GRID PARCEL U & 2 ZONED NEW TOWN
 BENSON EAST
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

GENERAL NOTES

BOHLER ENGINEERING, P.C.
 * PROFESSIONAL ENGINEERING SERVICES *
 222830 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA, 20164
 * CONTACT: DAVID B. NEMZICK *
 * (703) 709-9000 FAX: (703) 709-9501 *
 WWW.BEENGINEERING.COM

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: SD40011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 2 OF 28
 BOHAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION 7/5/07 DATE
 CHIEF-DIVISION OF LAND DEVELOPMENT 8/8/07 DATE
 DIRECTOR 7/21/07 DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER 7/15/07 DATE
 HOWARD COUNTY HEALTH DEPARTMENT 50

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 8-08-07

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. GESSELL, 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. 44971, EXPIRATION DATE: 4/9/15

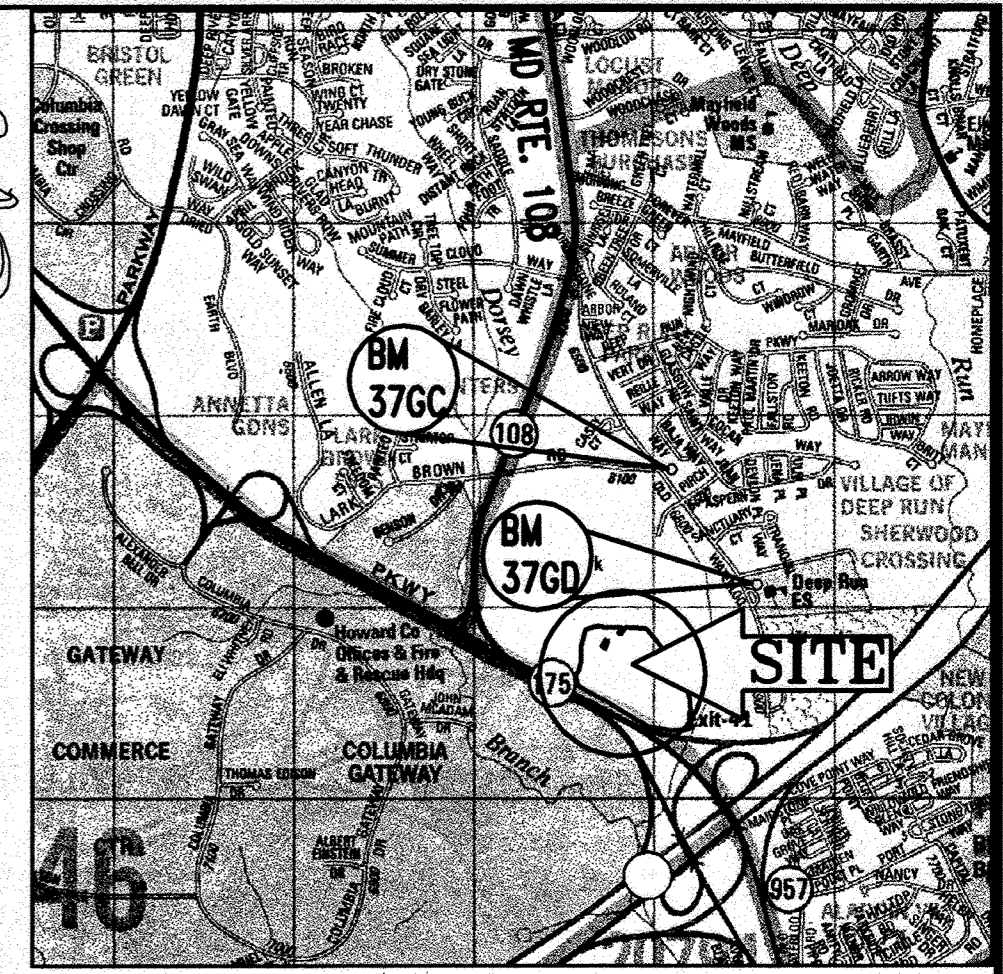
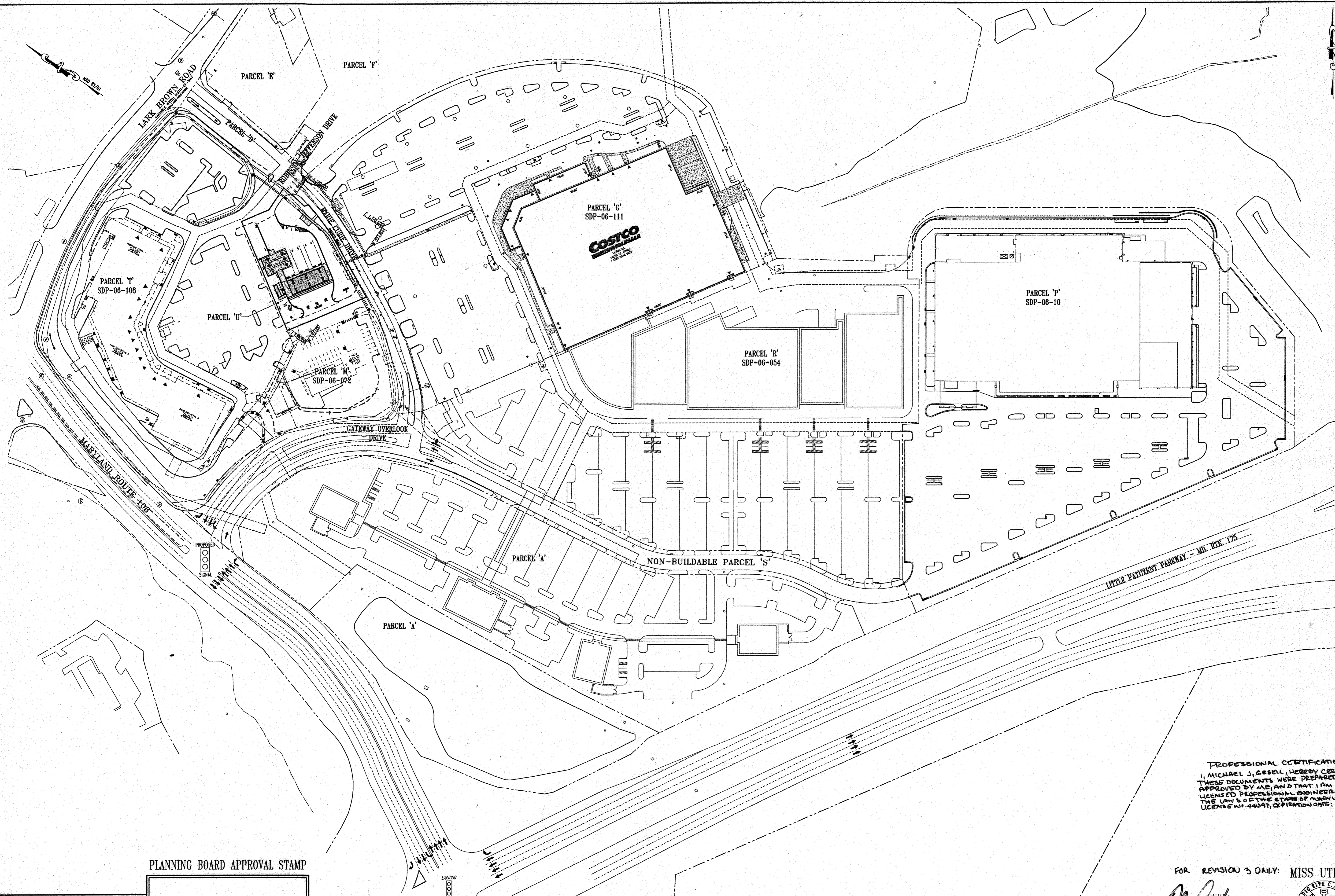
FOR REVISION 3 ONLY.

MISS UTILITY

BEFORE YOU DIG CALL 800-951-7777. PROTECT YOURSELF. GIVE TWO WORKING DAYS' NOTICE.

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREOF APPURTENANT.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.



LOCATION MAP
 COPYRIGHT ADC THE MAP PEOPLE
 PERMIT USE NO. 20602153-5
 SCALE: 1"=2000'

LEGEND			
---	---	---	SOIL TYPE DIVIDES

REV.	DATE	DESCRIPTION	BY
1	1/18/07	REVISED CANTON NEW PARKS & RECREATION	AD
2	2/1/07	REVISED BUS STOP & UTILITY LOCATIONS	AD

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE R-05USE BUILDING
 10275 LITTLE PATUXENT-PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

PROJECT: BENSON EAST
 PARCEL U; GASOLINE STATION WITH
 KIOSK (COSTCO GASOLINE); GATEWAY
 OVERLOOK SHOPPING CENTER

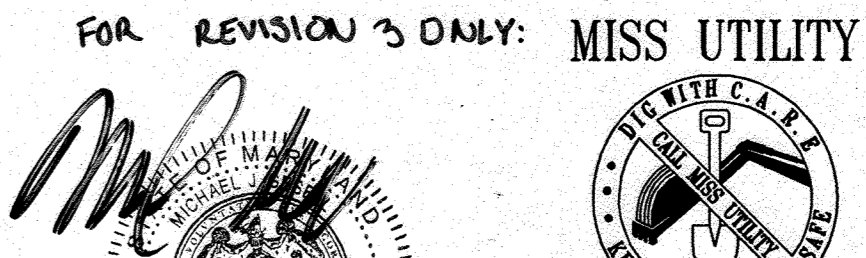
AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
 PARCEL U
 BENSON EAST
 8TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: OVERALL SITE PLAN

BOHLER ENGINEERING, P.C.
 * PROFESSIONAL ENGINEERING SERVICES *
 * 22950 JAMES DIXON, SUITE 200 STERLING, VIRGINIA, 20164 *
 * CONTACT: DAVID B. NEMECEK *
 * (703) 709-9000 FAX: (703) 709-9501 * WWW.BEENGINEERS.COM

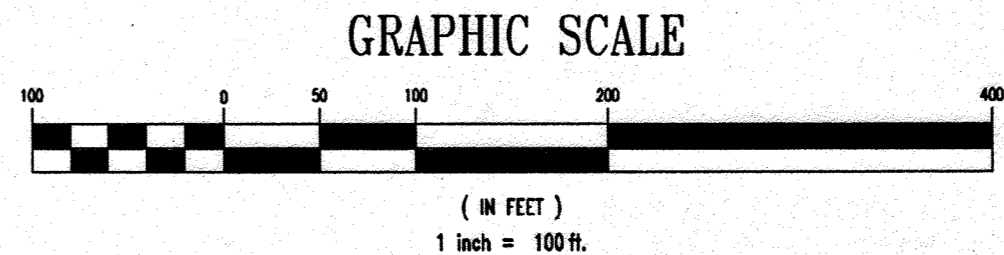
DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 3 OF 28
 ADAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. GOSSEL, HEREBY CERTIFY THAT
 THESE DOCUMENTS WERE PREPARED OR
 APPROVED BY ME, AND THAT I AM A FULLY
 LICENSED PROFESSIONAL ENGINEER UNDER
 THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 14047, EXPIRATION DATE: 6/30/15



FOR REVISION 3 ONLY: MISS UTILITY
 BEFORE YOU DIG CALL
 PROTECT YOURSELF - GIVE TWO
 WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY
 COMPONENTS FOR CONSTRUCTION SAFETY. ALL
 CONSTRUCTION MUST BE DONE IN COMPLIANCE
 WITH THE OCCUPATIONAL SAFETY AND HEALTH
 ACT OF 1970 AND ALL RULES AND
 REGULATIONS THEREOF APPLICABLE.
 THE CONTRACTOR TO CALL MISS UTILITY TO
 HAVE ALL EXISTING UTILITIES MARKED 48
 HOURS PRIOR TO ANY CONSTRUCTION.

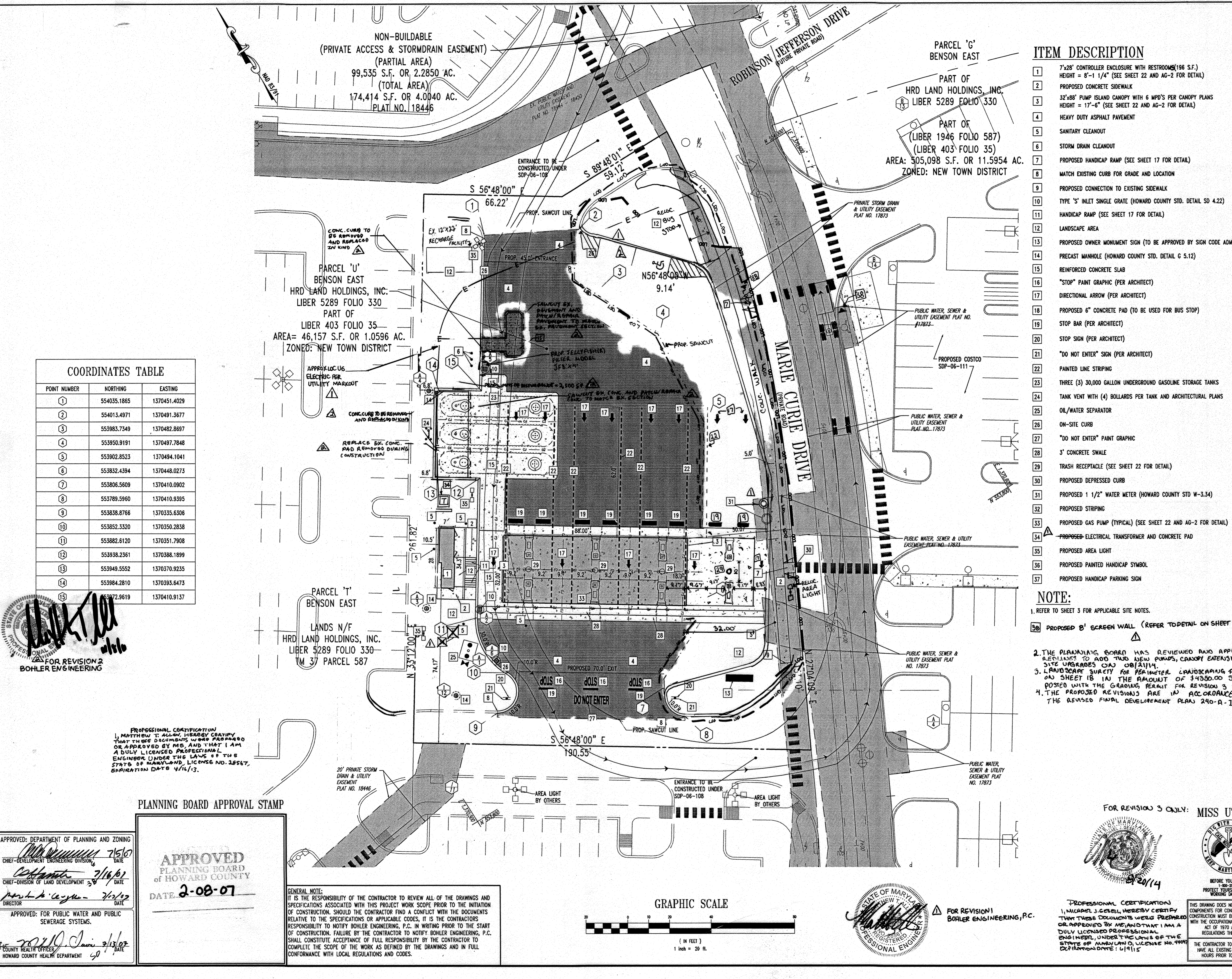


PLANNING BOARD APPROVAL STAMP

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 2-08-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION 66 DATE: 7/16/07
 CHIEF-DIVISION OF LAND DEVELOPMENT 35 DATE: 7/16/07
 DIRECTOR DATE: 7/17/07
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER DATE: 7/17/07
 HOWARD COUNTY HEALTH DEPARTMENT

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.



NON-BUILDABLE
(PRIVATE ACCESS & STORMDRAIN EASEMENT)
(PARTIAL AREA)
99,535 S.F. OR 2.2850 AC.
(TOTAL AREA)
174,414 S.F. OR 4.0040 AC.
PLAT NO. 18446

PARCEL 'G'
BENSON EAST
PART OF
HRD LAND HOLDINGS, INC.
LIBER 5289 FOLIO 330
PART OF
(LIBER 1946 FOLIO 587)
(LIBER 403 FOLIO 35)
AREA: 505,098 S.F. OR 11.5954 AC.
ZONED: NEW TOWN DISTRICT

PARCEL 'U'
BENSON EAST
HRD LAND HOLDINGS, INC.
LIBER 5289 FOLIO 330
PART OF
LIBER 403 FOLIO 35
AREA= 46,157 S.F. OR 1.0596 AC.
ZONED: NEW TOWN DISTRICT

PARCEL 'T'
BENSON EAST
LANDS N/F
HRD LAND HOLDINGS, INC.
LIBER 5289 FOLIO 330
TM 37 PARCEL 587

COORDINATES TABLE

POINT NUMBER	NORTHING	EASTING
1	554035.1865	1370451.4029
2	554013.4971	1370491.3677
3	553983.7349	1370482.8697
4	553950.9191	1370497.7848
5	553902.8523	1370484.1041
6	553832.4394	1370448.0273
7	553806.5609	1370410.0902
8	553789.5960	1370410.9395
9	553838.8766	1370335.6306
10	553852.3320	1370350.2838
11	553882.6120	1370351.7908
12	553938.2361	1370388.1899
13	553949.5552	1370370.9235
14	553984.2810	1370393.6473
15	553972.9619	1370410.9137

FOR REVISION 2
BOHLER ENGINEERING

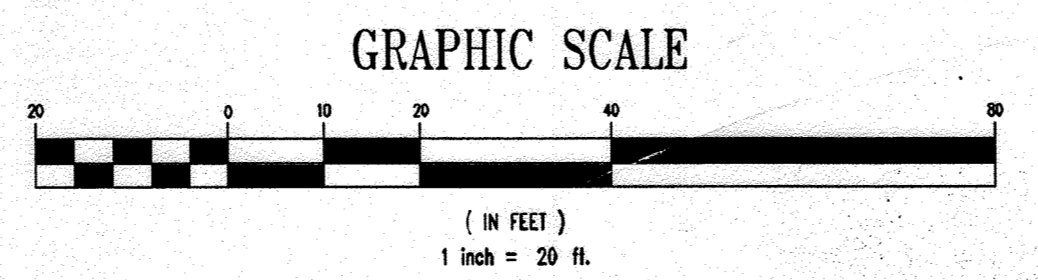
PROFESSIONAL CERTIFICATION
I, MATTHEW T. GIBBY, HEREBY CERTIFY
THAT THESE DOCUMENTS WERE PREPARED
OR APPROVED BY ME, AND THAT I AM
A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE
STATE OF MARYLAND, LICENSE NO. 38567,
EXPIRATION DATE 4/1/13.

PLANNING BOARD APPROVAL STAMP

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE 2-08-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/5/07
CHIEF-DEVELOPMENT ENGINEERING DIVISION
7/16/07
CHIEF-DIVISION OF LAND DEVELOPMENT
7/1/07
DIRECTOR
APPROVED: FOR PUBLIC WATER AND PUBLIC
SEWERAGE SYSTEMS.
3/13/07
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND
SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION
OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS
RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS
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OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C.
SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO
COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL
CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

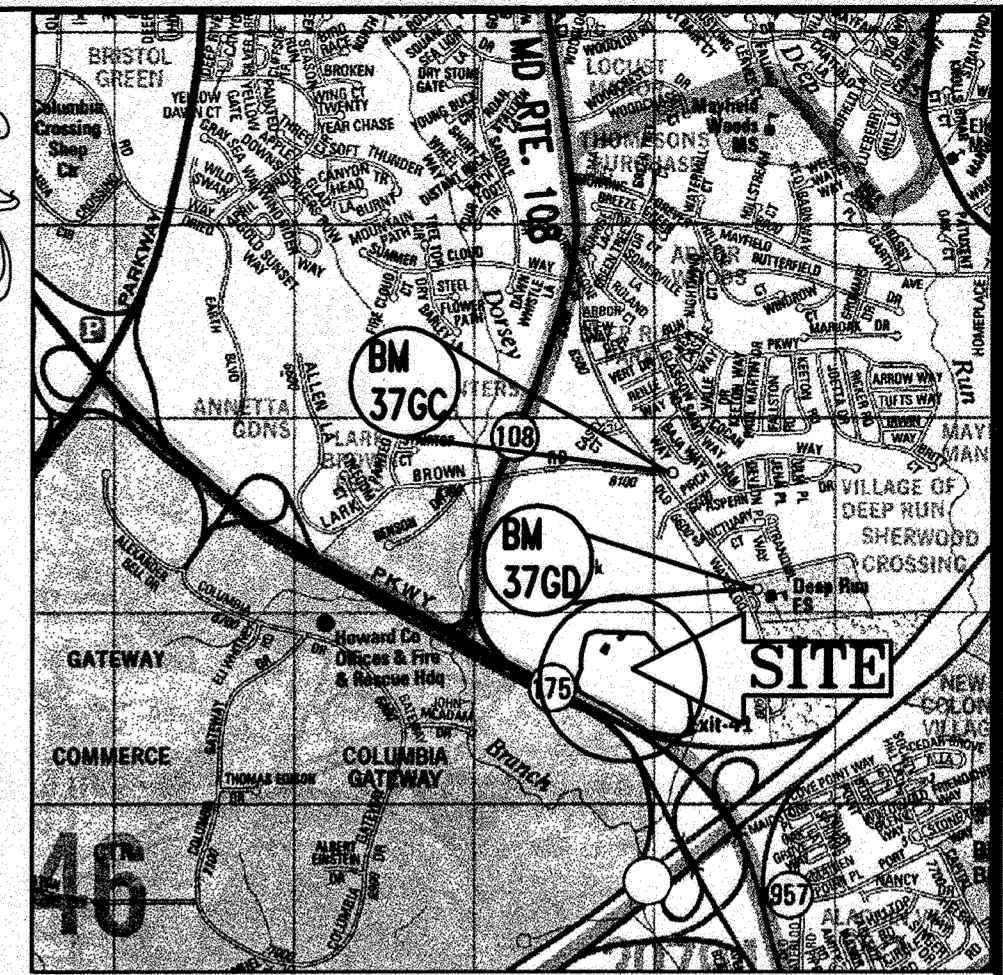


ITEM DESCRIPTION

- 1 7'x28" CONTROLLER ENCLOSURE WITH RESTROOM (196 S.F.)
HEIGHT = 8'-1 1/4" (SEE SHEET 22 AND AG-2 FOR DETAIL)
- 2 PROPOSED CONCRETE SIDEWALK
- 3 32'x88" PUMP ISLAND CANOPY WITH 6 MPD'S PER CANOPY PLANS
HEIGHT = 17'-6" (SEE SHEET 22 AND AG-2 FOR DETAIL)
- 4 HEAVY DUTY ASPHALT PAVEMENT
- 5 SANITARY CLEANOUT
- 6 STORM DRAIN CLEANOUT
- 7 PROPOSED HANDICAP CURB (SEE SHEET 17 FOR DETAIL)
- 8 MATCH EXISTING CURB FOR GRADE AND LOCATION
- 9 PROPOSED CONNECTION TO EXISTING SIDEWALK
- 10 TYPE 'S' INLET SINGLE GRATE (HOWARD COUNTY STD. DETAIL SD 4.22)
- 11 HANDICAP RAMP (SEE SHEET 17 FOR DETAIL)
- 12 LANDSCAPE AREA
- 13 PROPOSED OWNER MONUMENT SIGN (TO BE APPROVED BY SIGN CODE ADMINISTRATION)
- 14 PRECAST MANHOLE (HOWARD COUNTY STD. DETAIL C 5.12)
- 15 REINFORCED CONCRETE SLAB
- 16 "STOP" PAINT GRAPHIC (PER ARCHITECT)
- 17 DIRECTIONAL ARROW (PER ARCHITECT)
- 18 PROPOSED 6" CONCRETE PAD (TO BE USED FOR BUS STOP)
- 19 STOP BAR (PER ARCHITECT)
- 20 STOP SIGN (PER ARCHITECT)
- 21 "DO NOT ENTER" SIGN (PER ARCHITECT)
- 22 PAINTED LINE STRIPING
- 23 THREE (3) 30,000 GALLON UNDERGROUND GASOLINE STORAGE TANKS
- 24 TANK VENT WITH (4) BOLLARDS PER TANK AND ARCHITECTURAL PLANS
- 25 OIL/WATER SEPARATOR
- 26 ON-SITE CURB
- 27 "DO NOT ENTER" PAINT GRAPHIC
- 28 3" CONCRETE SWALE
- 29 TRASH RECEPTACLE (SEE SHEET 22 FOR DETAIL)
- 30 PROPOSED DEPRESSED CURB
- 31 PROPOSED 1 1/2" WATER METER (HOWARD COUNTY STD W-3.34)
- 32 PROPOSED STRIPING
- 33 PROPOSED GAS PUMP (TYPICAL) (SEE SHEET 22 AND AG-2 FOR DETAIL)
- 34 PROPOSED ELECTRICAL TRANSFORMER AND CONCRETE PAD
- 35 PROPOSED AREA LIGHT
- 36 PROPOSED PAINTED HANDICAP SYMBOL
- 37 PROPOSED HANDICAP PARKING SIGN

NOTE:

1. REFER TO SHEET 3 FOR APPLICABLE SITE NOTES.
2. THE PLANNING BOARD HAS REVIEWED AND APPROVED THE
REVISIONS TO ADD TWO NEW PUMPS, CANOPY EXTENSION AND
SITE UPGRADES ON 08/21/14.
3. LANDSCAPE SURVEY FOR PLANTING LANDSCAPING AS SHOWN
ON SHEET 18 IN THE AMOUNT OF \$4350.00 SHALL BE
POSTED WITH THE GRADING PERMIT FOR REVISION 3 RED LINE.
4. THE PROPOSED REVISIONS ARE IN ACCORDANCE WITH
THE REVISED FINAL DEVELOPMENT PLAN 240-A-III.



LOCATION MAP

COPYRIGHT ACC THE MAP PEOPLE
PERMIT USE NO. 20622153-5
SCALE: 1"=2000'

38 PROP. CROSSWALK SIGN (NO
SHA DETAIL WILL 2)

LEGEND

- SANITARY SEWER STRUCTURE LABEL
- STORM DRAIN STRUCTURE LABEL
- ITEM "CALL OUT" LABEL
- HEAVY DUTY PAVING

REV.	DATE	DESCRIPTION	BY
3	1/20/14	REVISIONS TO ADD PUMPS & CANOPY, REVISION 3	MB
2	10/21/14	ADD 1500 GALLON FUEL ADDITIVE TANK	MB
1	9/27/07	EX. ELEC. LINE TRANSFORMER, PROP. SCREEN WALL	MB
1	9/12/07	IRRIGATION WATER LINE AND METER	MB

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATENT RD - PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6000

PROJECT: BENSON EAST
PARCEL U; GASOLINE STATION WITH
KIOSK (COSTCO GASOLINE); GATEWAY
OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID PARCEL U & 2 ZONED NEW TOWN
BENSON EAST
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

DETAILED SITE PLAN

BOHLER ENGINEERING, P.C.
PROFESSIONAL ENGINEERING SERVICES
22620 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA 20164
CONTACT: DAVID B. BOHLER
(703) 709-9500 FAX: (703) 709-9501 E: dbohler@bohlereng.com

DESIGNED BY: J.A.D.
DRAWN BY: R.F.G.
PROJECT NO.: S040011.01
DATE: 6/25/07
SCALE: AS SHOWN
DRAWING NO.: 5 OF 28
ADAM J. VOLANTH
PROFESSIONAL ENGINEER NO. 21342

FOR REVISION 3 ONLY: MISS UTILITY

PROFESSIONAL CERTIFICATION
I, MICHAEL J. GIBBY, 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. 39909,
EXPIRATION DATE: 6/19/15

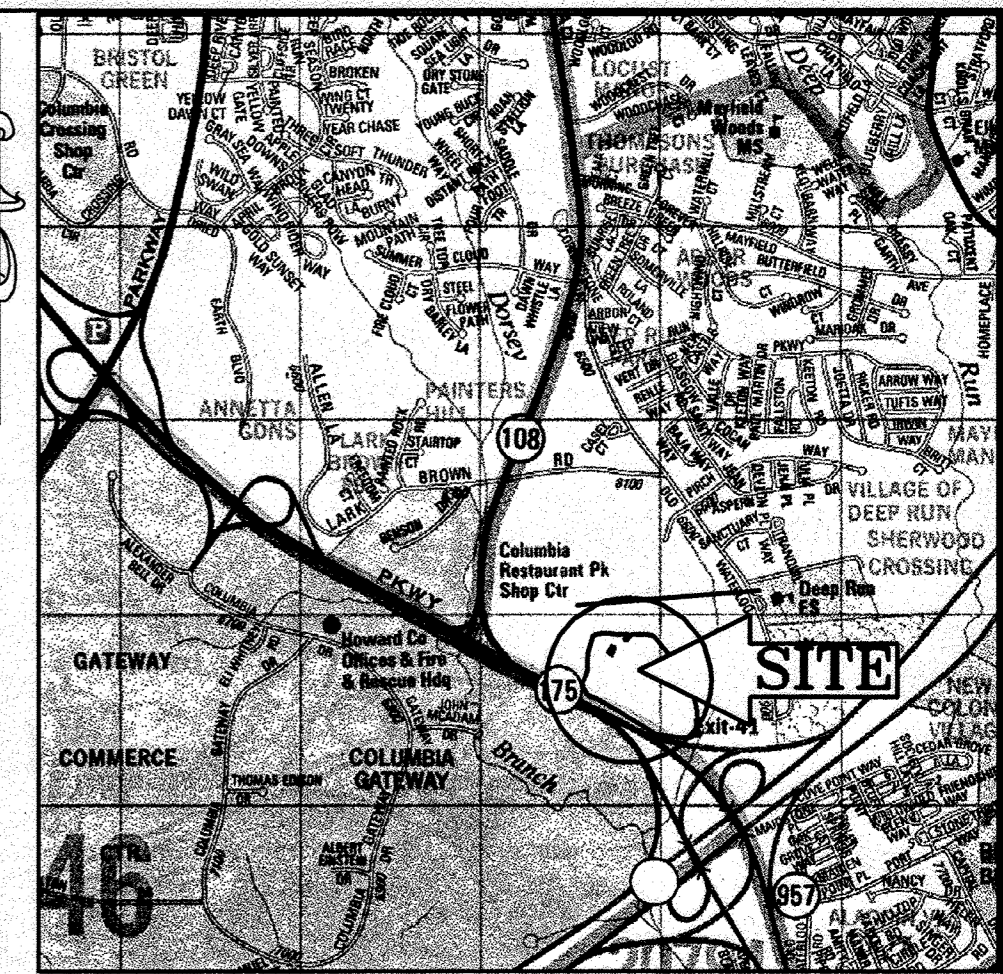
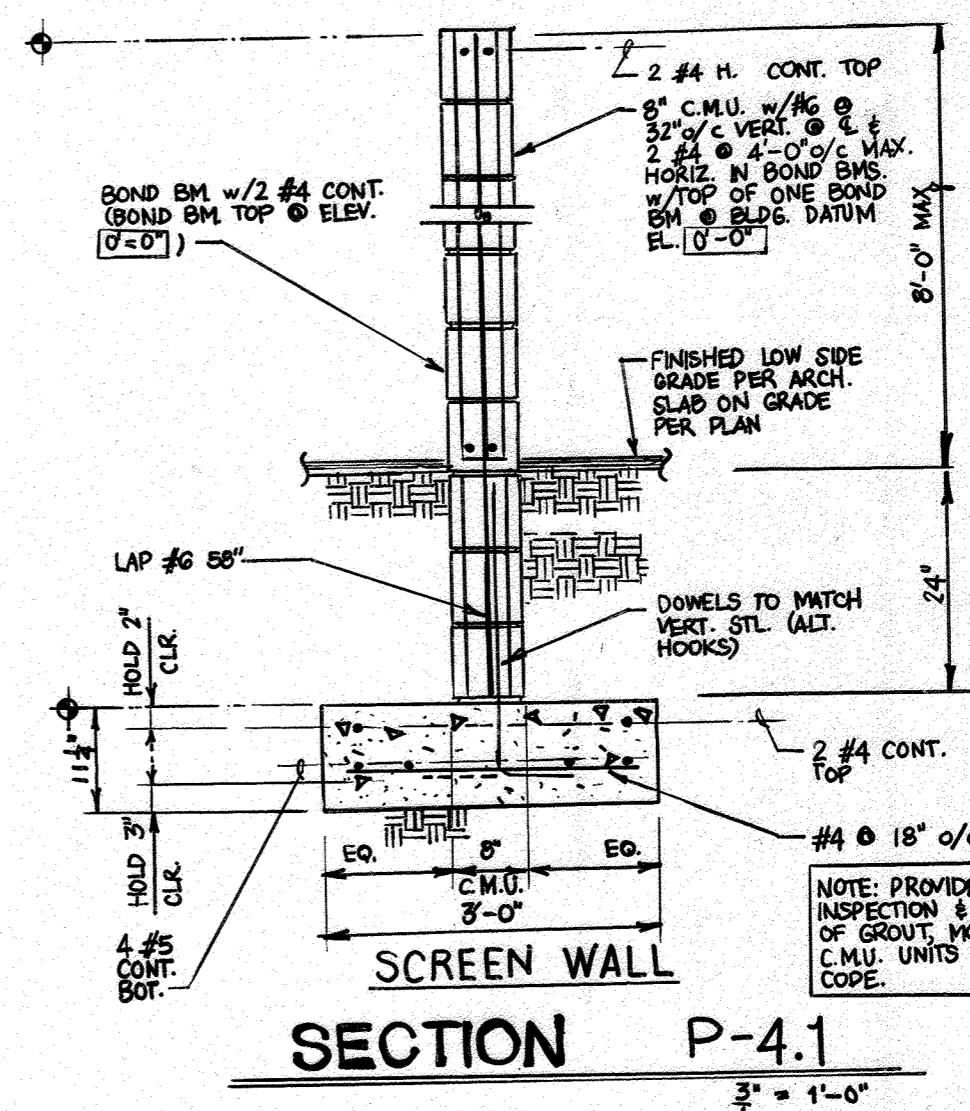
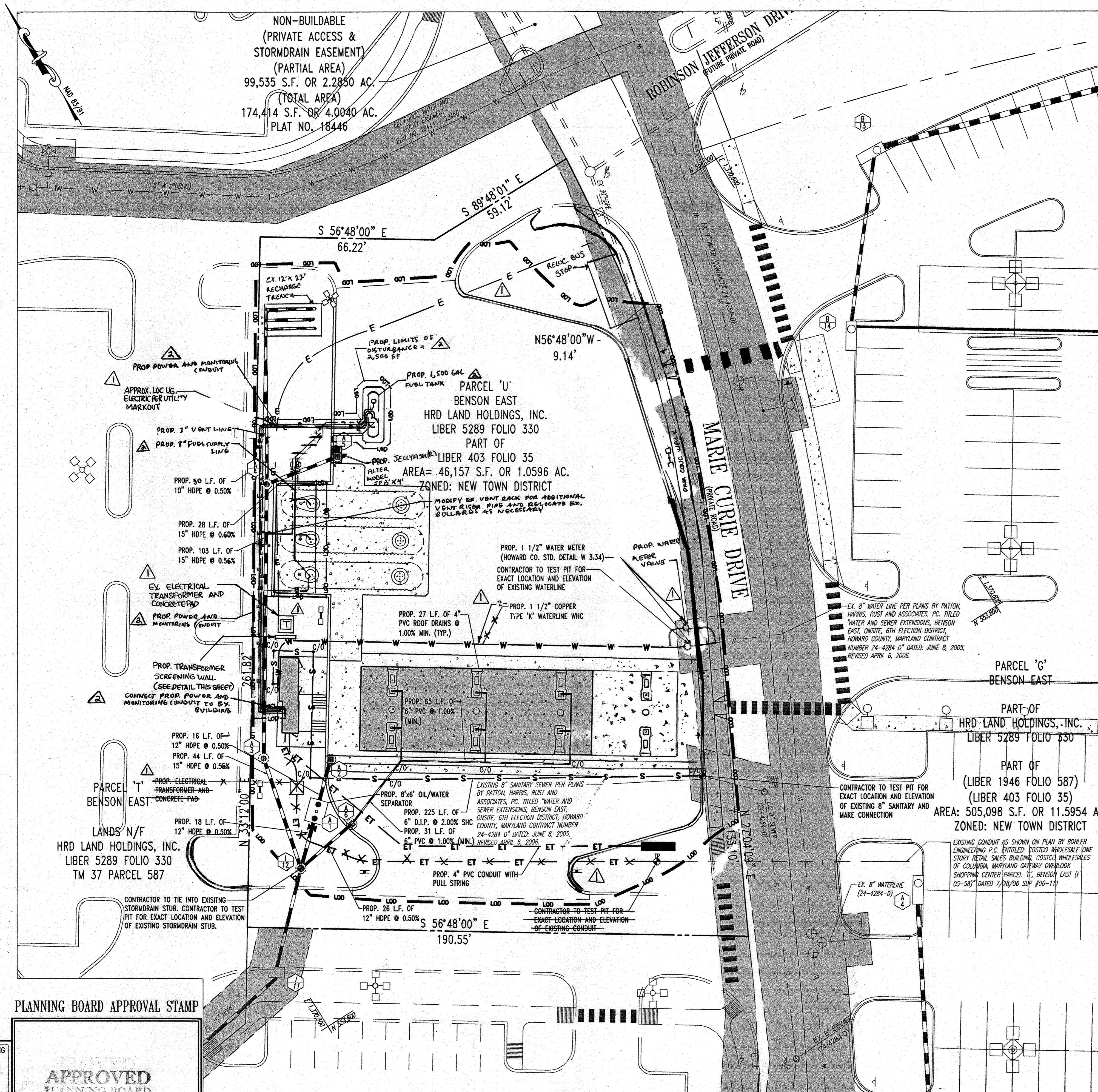
FOR REVISION 1
BOHLER ENGINEERING, P.C.

BEFORE YOU DIG CALL
PROTECT YOURSELF, GIVE TWO
WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY
COMPONENTS FOR CONSTRUCTION SAFETY. ALL
CONSTRUCTION MUST BE DONE IN COMPLIANCE
WITH THE OCCUPATIONAL SAFETY AND HEALTH
ACT OF 1970 AND ALL RULES AND
REGULATIONS THEREOF APPURTENANT.

THE CONTRACTOR TO CALL MISS UTILITY TO
HAVE ALL EXISTING UTILITIES MARKED 48
HOURS PRIOR TO ANY CONSTRUCTION.





UTILITY PIPE SCHEDULE

SIZE	DESCRIPTION	LENGTH
1 1/2"	COPPER TYPE 'K' WATERLINE	174 LF. 204'
6"	D.I.P.	225 LF.

NOTE

- THIS PROPERTY IS LOCATED WITHIN THE GATEWAY OVERLOOK STOPPING CENTER.
- HOWARD COUNTY REFERENCE NUMBERS:
SITE PLAN DEVELOPMENT PREPARED BY: PATTON, HARRIS, RUST AND ASSOCIATES, P.C. DATED: APRIL 22, 2005
WATER AND SEWER PLANS PREPARED BY: PATTON, HARRIS, RUST AND ASSOCIATES, P.C. DATED: 6/8/05 REVISED 4/6/06 SDP-04-163
ROADWAY AND STORM DRAIN PLANS PREPARED BY: PATTON, HARRIS, RUST AND ASSOCIATES, P.C. DATED: 8/18/05 REVISED 4/20/06 SDP-04-163
- REFER TO THE COVER SHEET FOR THE LEGEND.
- REFER TO GENERAL NOTES SHEET FOR STANDARD GRADING NOTES.
- REFER TO GENERAL NOTES SHEET FOR STORMDRAIN SCHEDULE.

BENCHMARK

GEODETIC SURVEY CONTROL #376D
N 553,237.204
E 1,372,353.605
ELEV. 290.931'
LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL

GEODETIC SURVEY CONTROL #376C
N 553,250.791
E 1,370,946.348
ELEV. 331.855'
LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

PROFESSIONAL CERTIFICATION
I, MICHAEL J. BOHLER, HEREBY CERTIFY THAT THESE DOCUMENTS, WHETHER PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41947, EXPIRATION DATE 4/15/13.

FOR REVISION 2
BOHLER ENGINEERING

PROFESSIONAL CERTIFICATION
I, MATTHEW T. ALLEN, HEREBY CERTIFY THAT THESE DOCUMENTS, WHETHER PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 28517, EXPIRATION DATE 4/15/13.

FOR REVISION 3 ONLY:
MISS UTILITY

PLANNING BOARD APPROVAL STAMP

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE 2-08-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/5/07 DATE
7/14/07 DATE
7/17/07 DATE

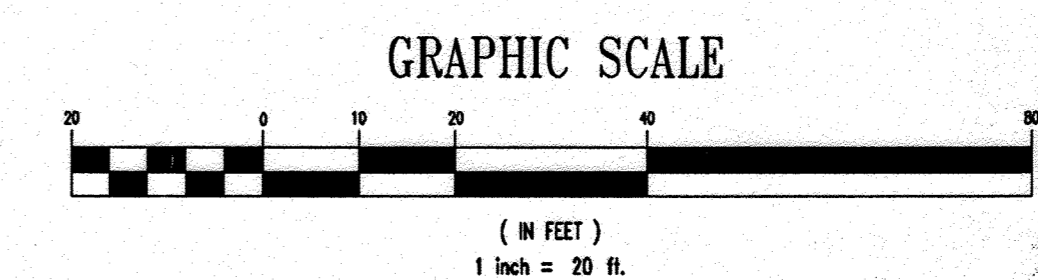
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

7/13/07 DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

STATE OF MARYLAND
PROFESSIONAL ENGINEER
NO. 28517
REGISTERED
BOHLER ENGINEERING, P.C.

FOR REVISION 1
BOHLER ENGINEERING, P.C.

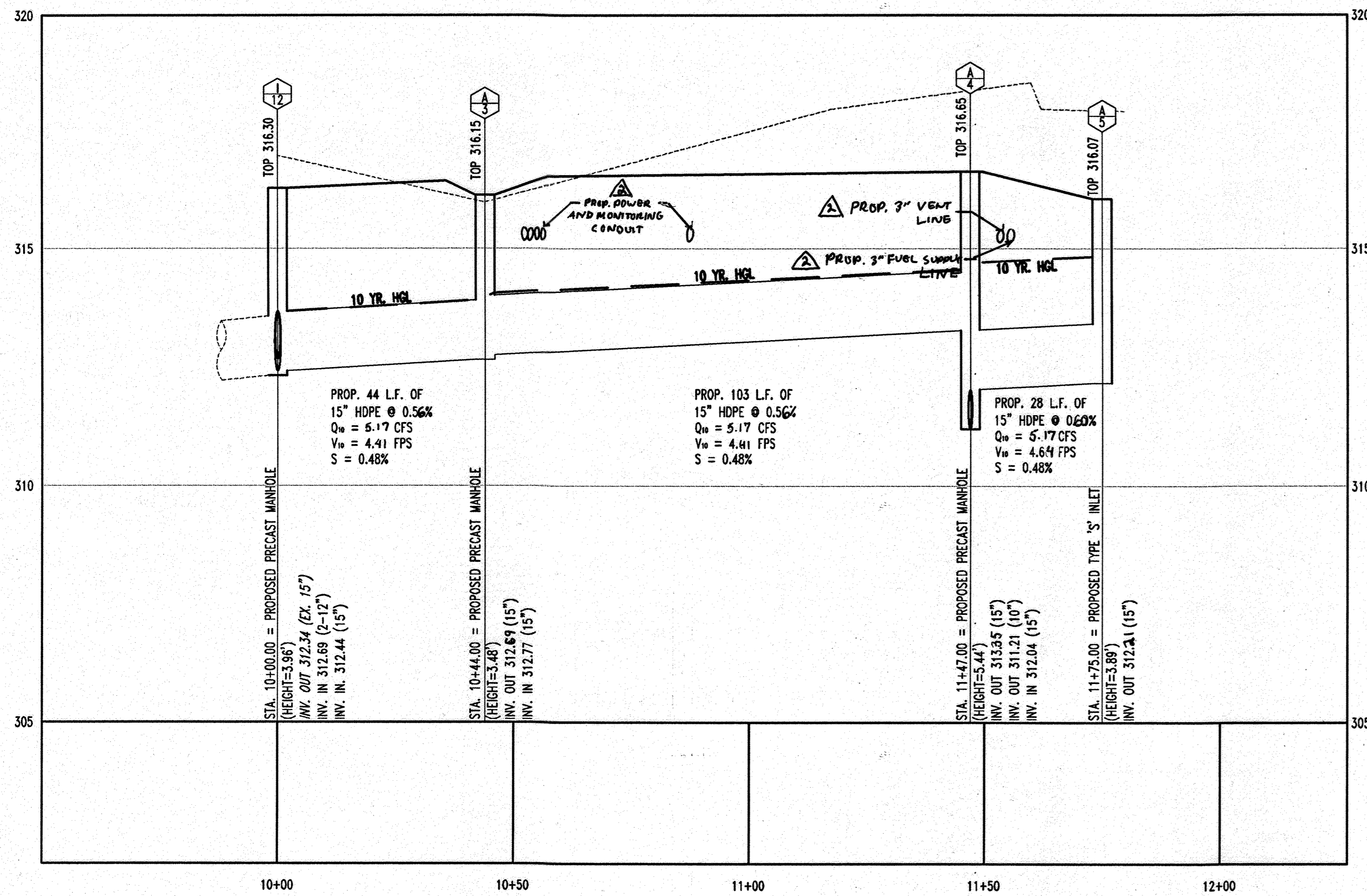


THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREOF APPLICABLE.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

BOHLER ENGINEERING, P.C.
PROFESSIONAL ENGINEERING SERVICES
22830 Davis Drive, Suite 200 Sterling, Virginia, 20166
CONTACT: DAVID S. NEMERSON, MARYLAND 21044
(703) 709-9600 FAX: (703) 709-9601

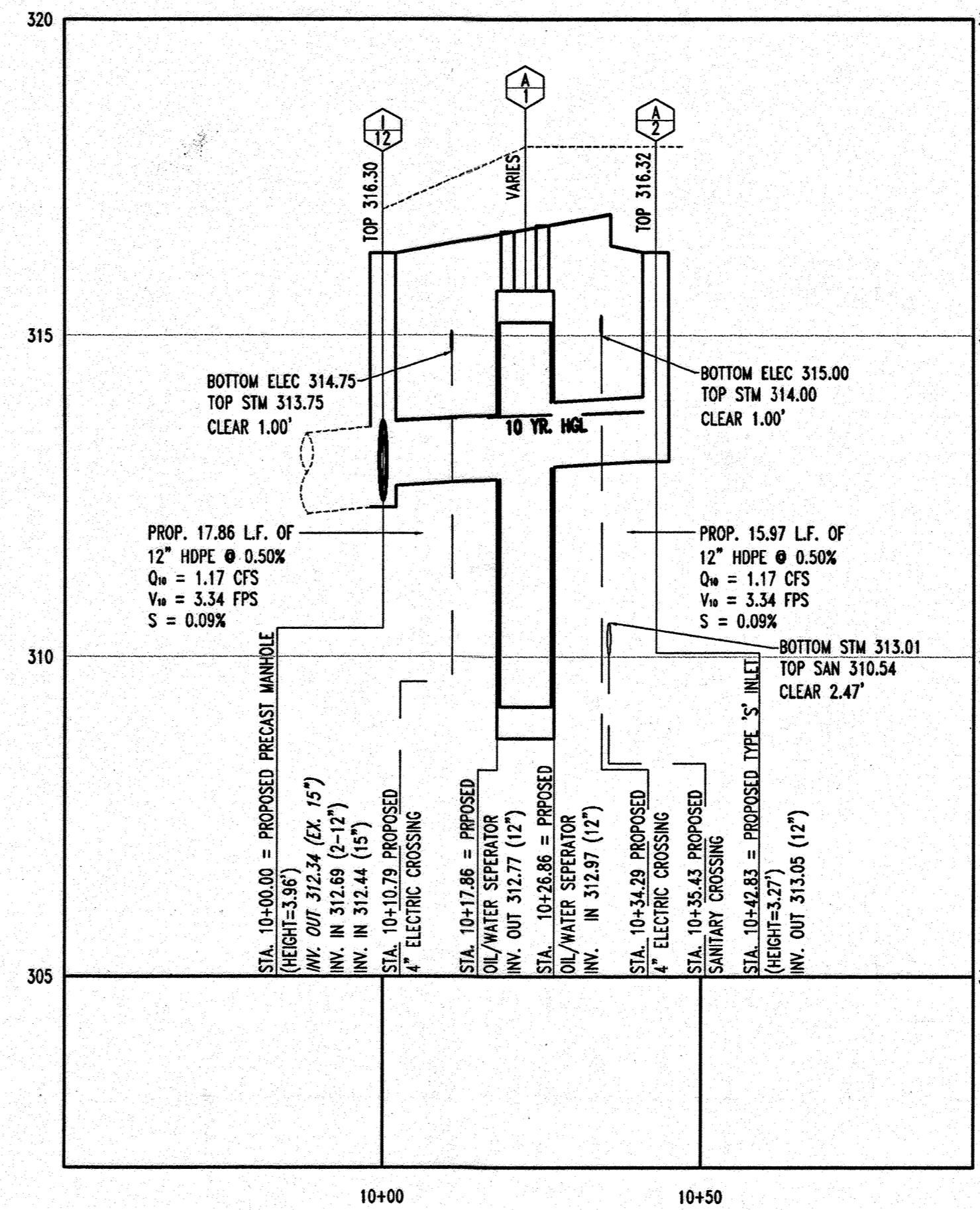
DESIGNED BY: J.A.D.
DRAWN BY: R.F.G.
PROJECT NO.: S040011.01
DATE: 6/25/07
SCALE: AS SHOWN
DRAWING NO.: 7 OF 28



STORMDRAIN PROFILE I12-A5

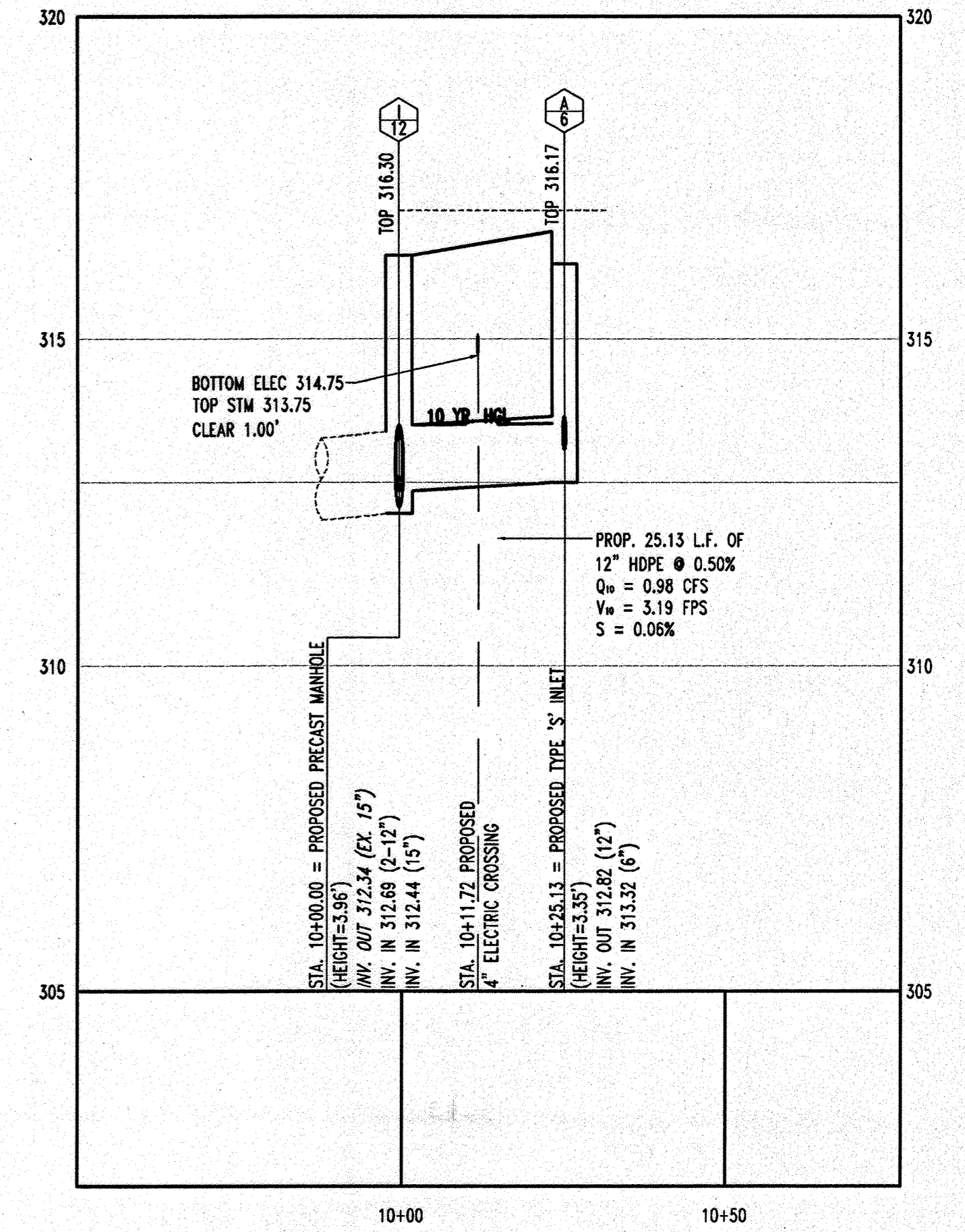
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

*STUB TO I-12 WAS CONSTRUCTED UNDER SDP 06-108



STORMDRAIN PROFILE I12-A2

SCALE: HORIZ. 1"=20'
VERT. 1"=2'



STORMDRAIN PROFILE I12-A6

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION
 DATE 7/16/07
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE 2-08-07

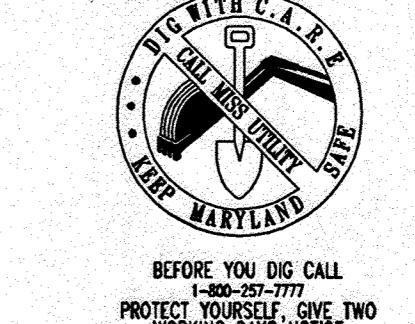
FOR REVISION 3
 BOHLER ENGINEERING

PROFESSIONAL CERTIFICATION
 I, MATTHEW T. ALLAN, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 28567, EXPIRATION DATE 11/11/13.

FOR REVISION 3 ONLY.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. BOHLER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21342, EXPIRATION DATE 12/19/15.

MISS UTILITY



BEFORE YOU DIG CALL 1-800-957-7777
 PROTECT YOURSELF. GIVE TWO WORKING DAYS NOTICE.

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPLICABLE.
 THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

REV.	DATE	DESCRIPTION	BY
3	11/20/11	REVISED LAYOUT FOR ROADWAY CROSSING	WTE
2	10/24/11	ADD 6500 FUEL ADDITIVE TANK	WTE

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

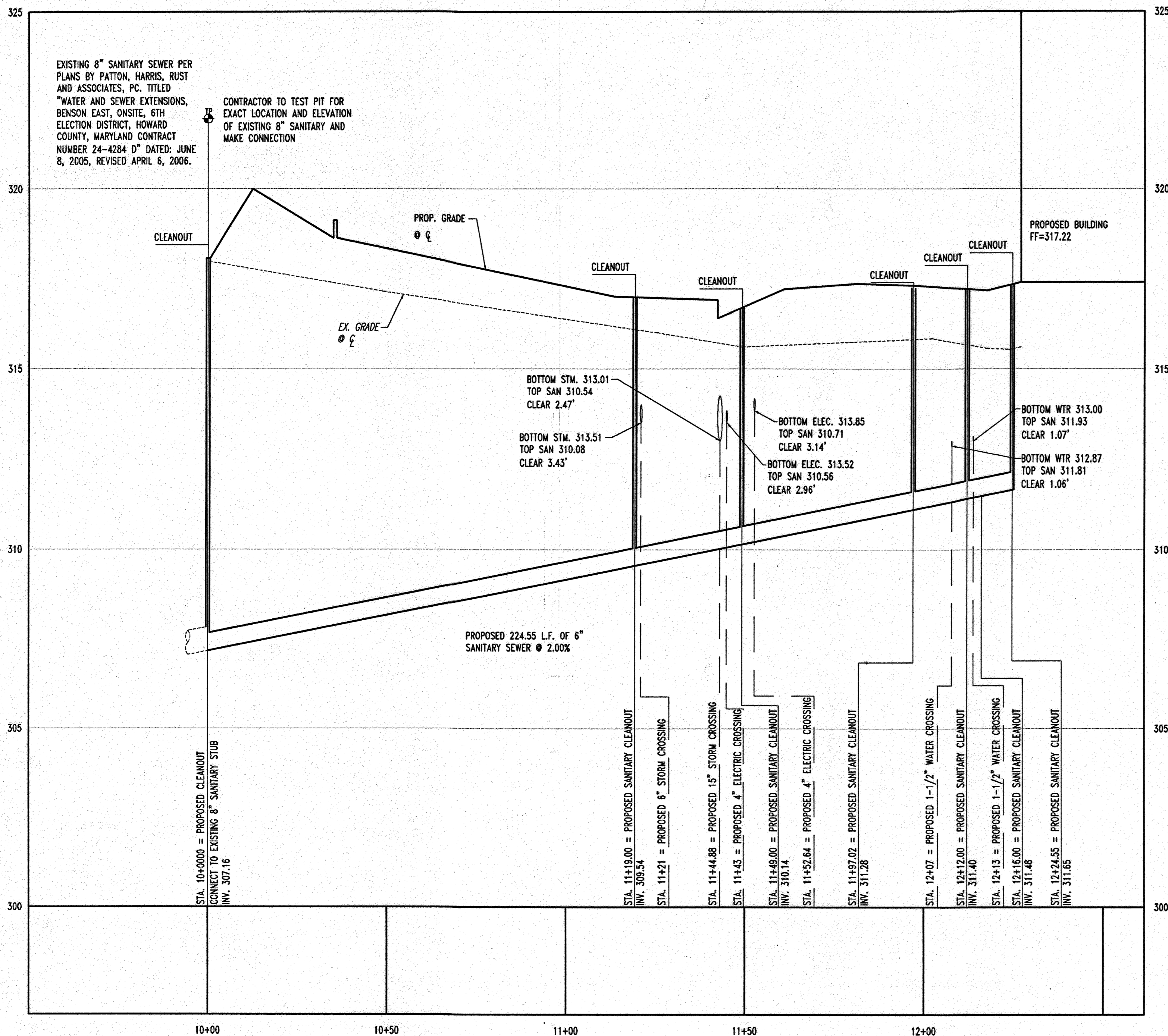
PROJECT: BENSON EAST
 PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
 BENSON EAST
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: UTILITY PROFILES

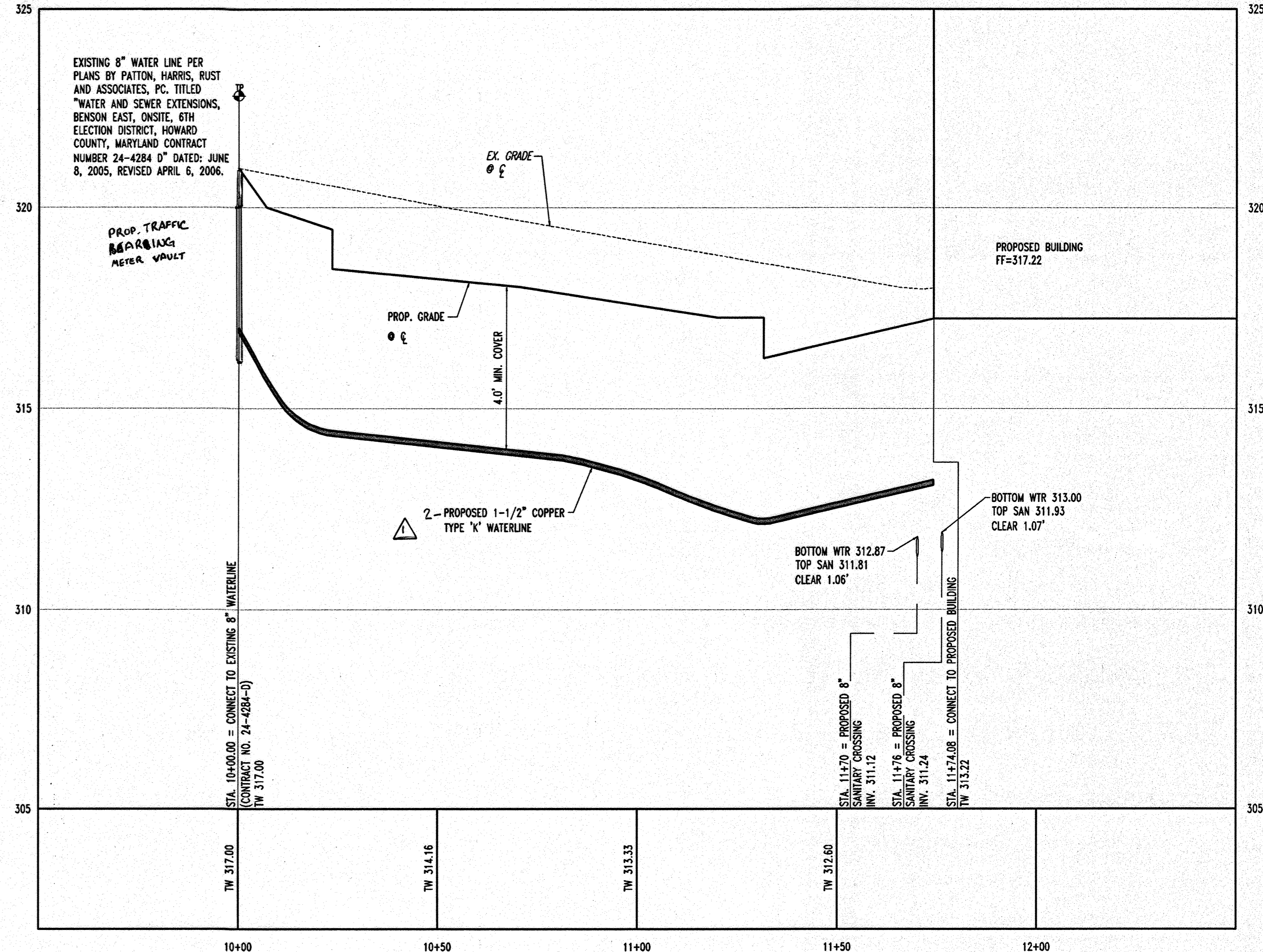
BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22630 MYLES DRIVE, SUITE 200 STERLING, VIRGINIA, 20164
 CONTACT: DAVID B. MEMBERS
 (703) 709-9500 FAX: (703) 709-9501

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 8 OF 28



PROPOSED 6" SANITARY PROFILE

SCALE: HORZ. 1"=20'
VERT. 1"=2'



PROPOSED 1-1/2" WATERLINE PROFILE

SCALE: HORZ. 1"=20'
VERT. 1"=2'

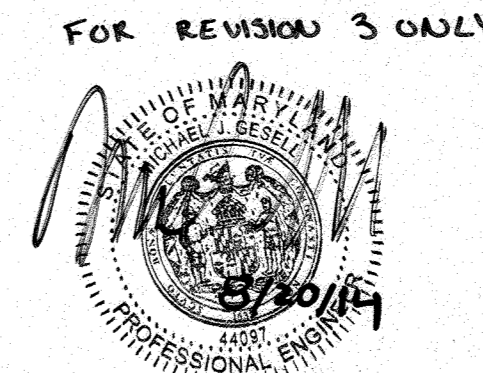
PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION
 DATE 7/15/07
 CHIEF-DIVISION OF LAND DEVELOPMENT
 DATE 7/16/07
 DIRECTOR
 DATE 7/17/07
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT
 DATE 7/18/07

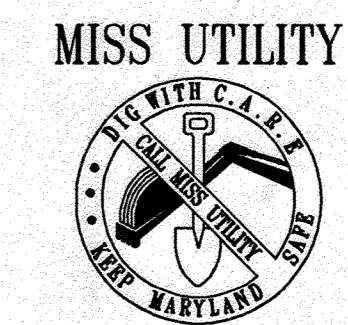
APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE 2-08-07



FOR REVISION 1
 BOHLER ENGINEERING, P.C.



PROFESSIONAL CERTIFICATION
 I, MICHAEL J. COBELL, 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. 22823, EXPIRATION DATE: 6/9/15



BEFORE YOU DIG CALL 800-391-9773
 PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 252830 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA, 20164
 CONTACT: DAVID B. NEMECK
 (703) 708-9000 FAX: (703) 708-9501

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 9 of 28

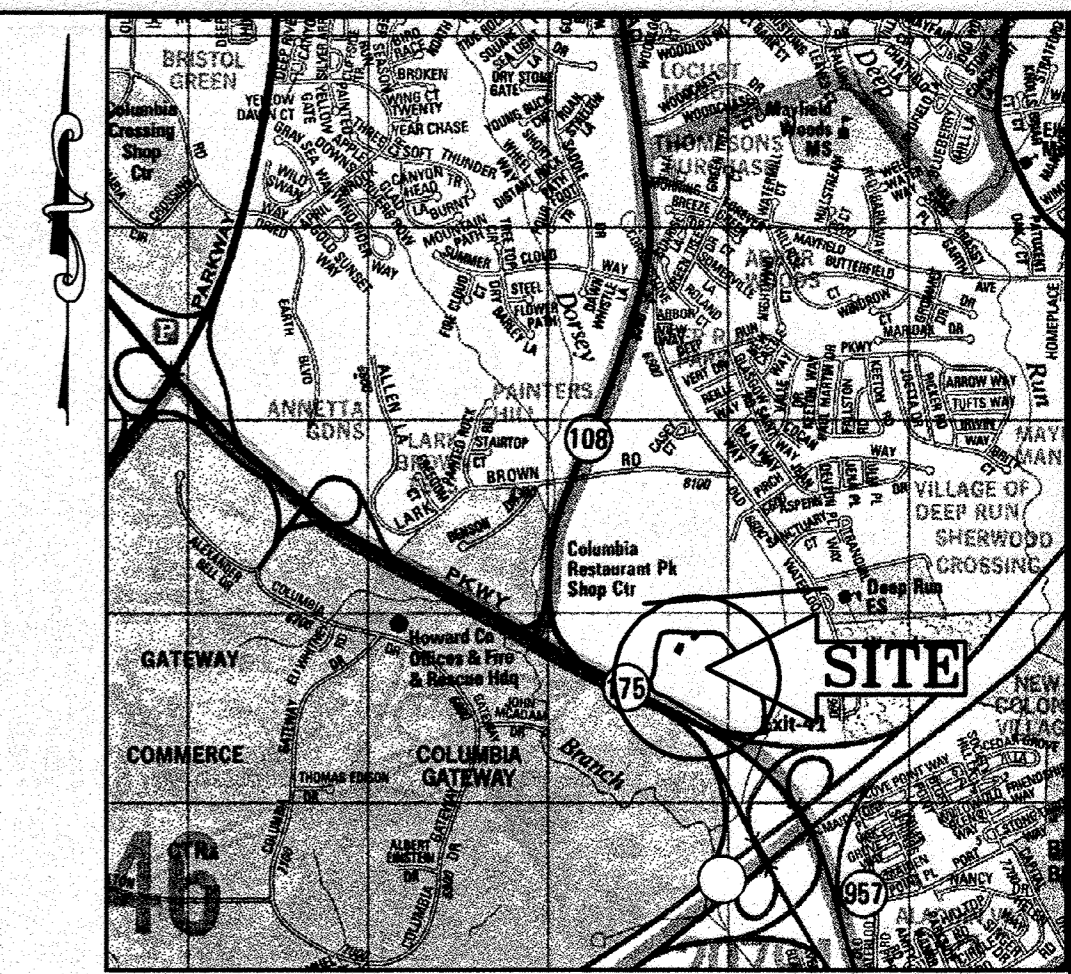
REV.	DATE	DESCRIPTION	BY
5	1/18/04	REVISED SITE LAYOUT AND UTILITIES	MB
1	9/12/07	EX. ELEC. LINE TRANSFORMER, PROF. SCREEN WALL, BOLLER	MB
1	9/12/07	IRRIGATION WATER LINE AND METER	MB

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE HOUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

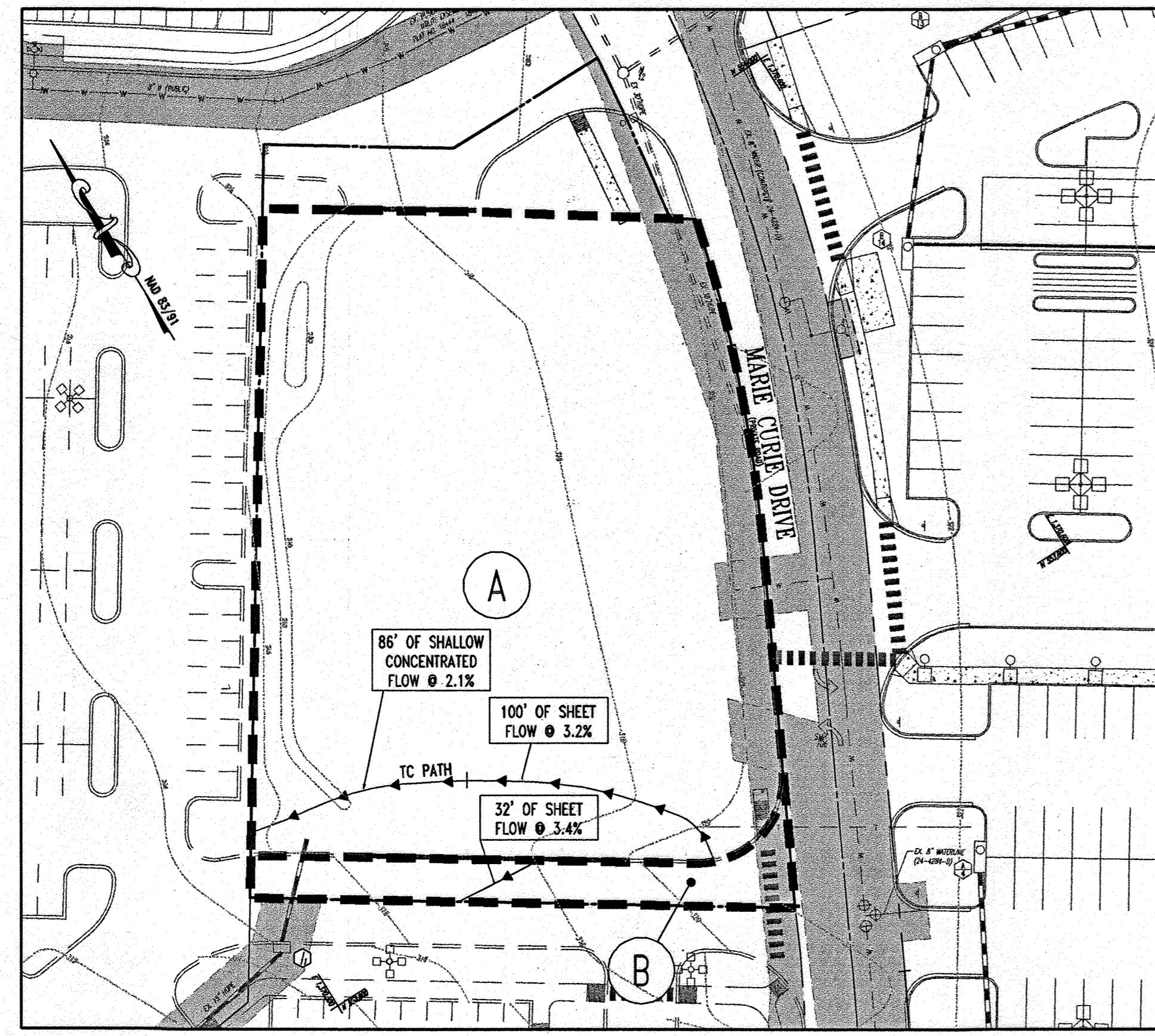
PROJECT: BENSON EAST
 PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
 PARCEL U
 BENSON EAST
 8TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: UTILITY PROFILES

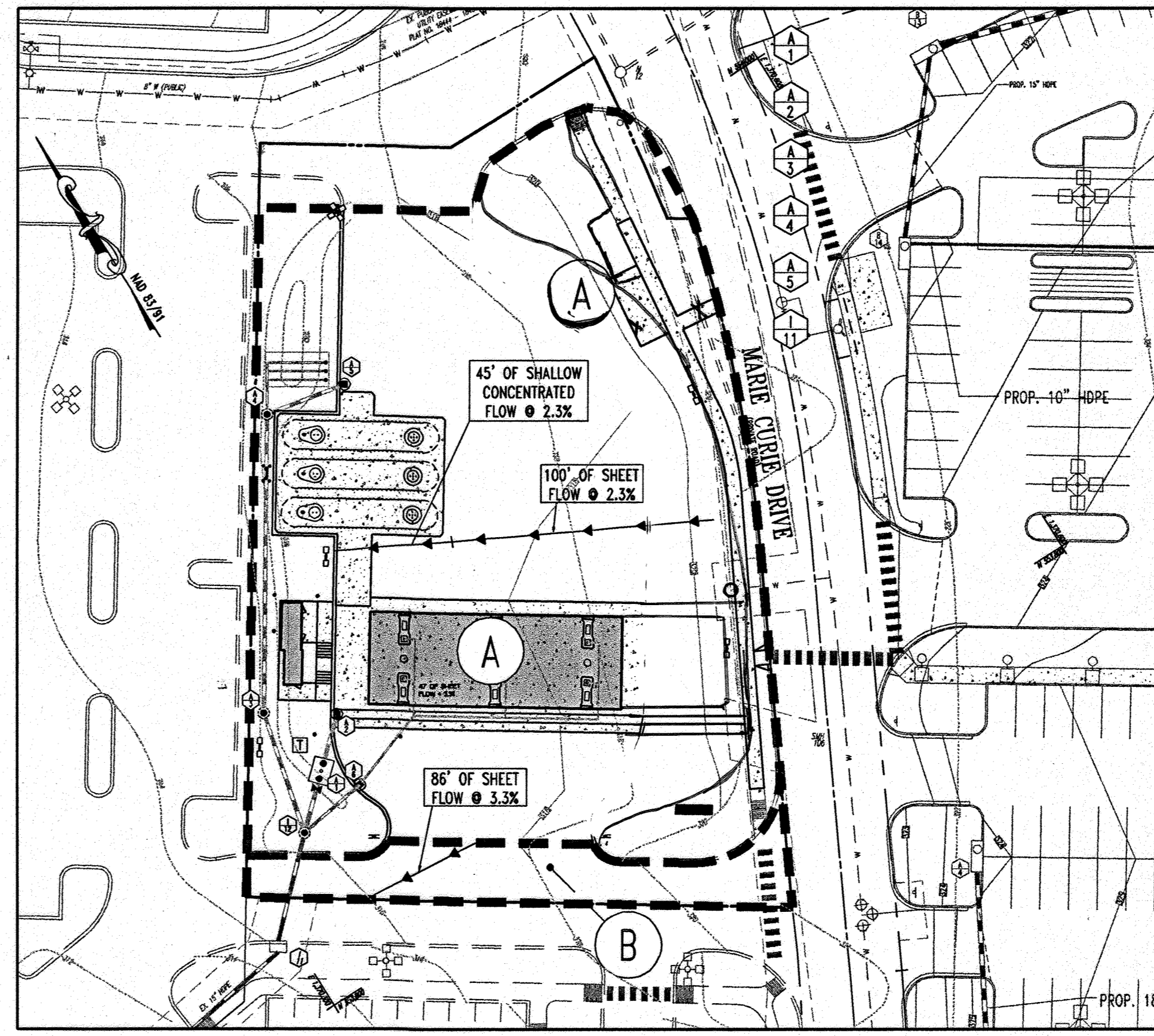


LOCATION MAP
 COPYRIGHT ADC THE MAP PEOPLE
 PERMIT USE NO. 20602153-5
 SCALE: 1"=2000'



EXISTING SWM DRAINAGE AREAS
 SCALE: 1"=40'

- A** IMPERVIOUS AREA = 1,307 S.F. OR 0.03 AC.
 PERVIOUS AREA = 40,946 S.F. OF 0.94 AC.
 TOTAL AREA = 42,253 S.F. OR 0.97 AC.
 "C" FACTOR = 62
- B** IMPERVIOUS AREA = 3,920 S.F. OR 0.09 AC.
 PERVIOUS AREA = 0 S.F. OF 0 AC.
 TOTAL AREA = 3,920 S.F. OR 0.09 AC.
 "C" FACTOR = 98



PROPOSED SWM DRAINAGE AREAS
 SCALE: 1"=40'

- A** IMPERVIOUS AREA = 32,912 S.F. OR 0.76 AC.
 PERVIOUS AREA = 4,906 S.F. OF 0.10 AC.
 TOTAL AREA = 41,818 S.F. OR 0.96 AC.
 "C" FACTOR = 95
- B** IMPERVIOUS AREA = 4,356 S.F. OR 0.10 AC.
 PERVIOUS AREA = 0 S.F. OF 0 AC.
 TOTAL AREA = 4,356 S.F. OR 0.10 AC.
 "C" FACTOR = 98

NOTE:
 PROPOSED STORMWATER MANAGEMENT DRAINAGE AREAS USED A TIME OF CONCENTRATION OF 0.10 HOURS. THE ACTUAL TIME OF CONCENTRATION WAS CALCULATED TO BE LESS THAN THE MINIMUM REQUIREMENT OF 0.10 HOURS.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. BOHLER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULL LICENSED PROFESSIONAL CIVIL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 44091, EXPIRATION DATE: 6/31/15

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION 7/5/07 DATE
 CHIEF-DIVISION OF LAND DEVELOPMENT 7/16/07 DATE
 DIRECTOR 7/13/07 DATE
 COUNTY HEALTH OFFICER 7/13/07 DATE
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 2-08-07

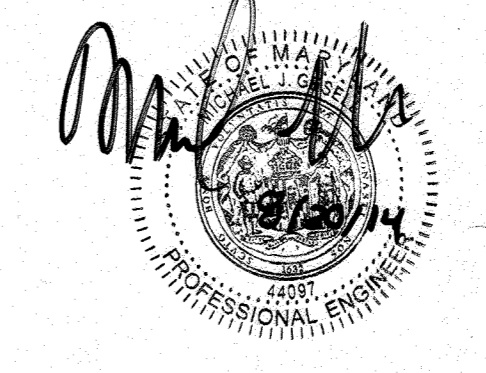
GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

REV. 3	DATE 1/20/14	DESCRIPTION REVISED CANNON/NEW PUMPERS 1 CANOPY	BY
OWNER/DEVELOPER: HRO LAND HOLDINGS, INC. HOWARD RESEARCH AND DEVELOPMENT CORPORATION THE ROUSE BUILDING 10275 LITTLE PATENT PARKWAY COLUMBIA, MARYLAND 21044 PHONE: (410) 992-6000			
PROJECT: BENSON EAST PARCEL 15 GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER			
AREA: TAX MAP 37	GRID 1 & 2	ZONED NEW TOWN	
BENSON EAST 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND			
TITLE: SWM DRAINAGE AREA MAPS			
BOHLER ENGINEERING, P.C. PROFESSIONAL ENGINEERING SERVICES 22630 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA, 20164 CONTACT: DAVID H. NEMSER (703) 709-9600 FAX: (703) 709-9501			
DESIGNED BY: J.A.D.		DRAWN BY: R.F.G.	
PROJECT NO.: S040011.01		DATE: 6/25/07	
SCALE: AS SHOWN		DRAWING NO.: 10 of 28	
ADAM J. VOLANTH PROFESSIONAL ENGINEER NO. 21342			

MISS UTILITY



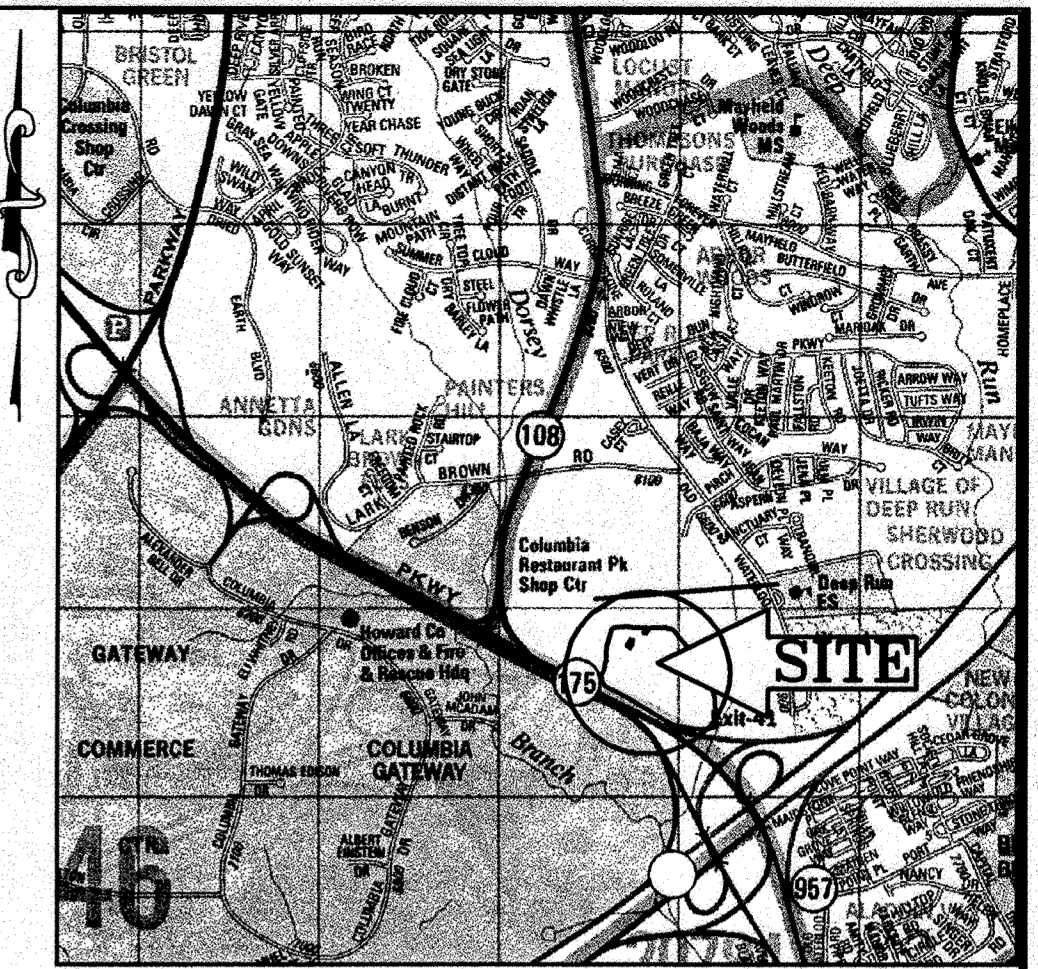
FOR REVISION 3 ONLY:



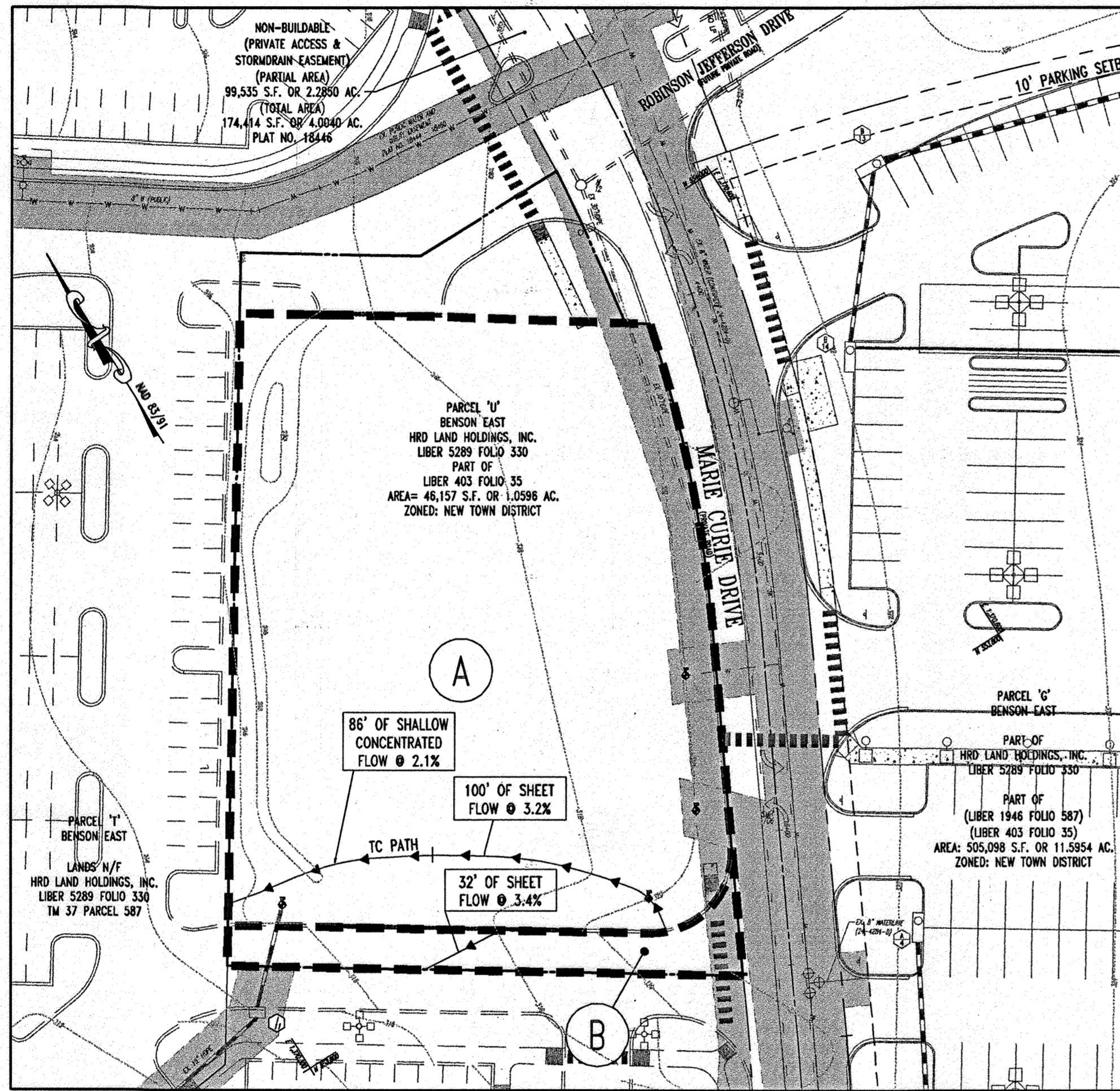
BEFORE YOU DIG CALL
 1-800-393-7777
 PROTECT YOURSELF, GIVE TWO
 WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPURTENANT.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

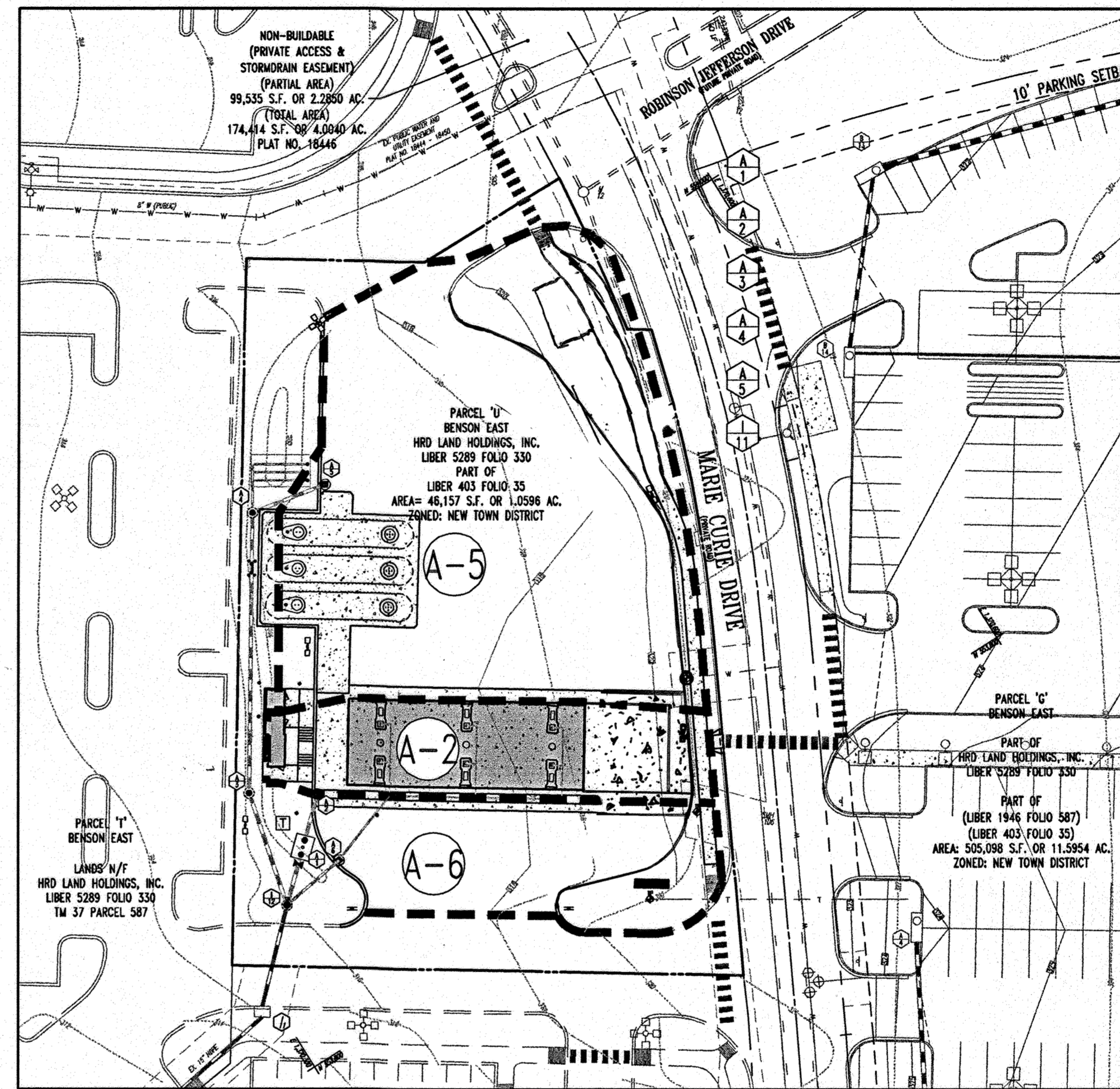


LOCATION MAP
 COPYRIGHT ACC. THE MAP PEOPLE
 PERMIT USE NO. 20602153-5
 SCALE: 1"=2000'



EXISTING STORMDRAIN DRAINAGE AREAS
 SCALE: 1"=40'

- A** IMPERVIOUS AREA = 1,397 S.F. OR 0.03 AC.
 PERVIOUS AREA = 40,946 S.F. OF 0.94 AC.
 TOTAL AREA = 42,253 S.F. OR 0.97 AC.
 "C" FACTOR = 62
- B** IMPERVIOUS AREA = 3,920 S.F. OR 0.09 AC.
 PERVIOUS AREA = 0 S.F. OF 0 AC.
 TOTAL AREA = 3,920 S.F. OR 0.09 AC.
 "C" FACTOR = 98



PROPOSED STORMDRAIN DRAINAGE AREAS
 SCALE: 1"=40'

- A-2** IMPERVIOUS AREA = 5,947 S.F. OR 0.14 AC.
 PERVIOUS AREA = 6,537 S.F. OF 0.62 AC.
 TOTAL AREA = 6,584 S.F. OR 0.15 AC.
 "C" FACTOR = 95
- A-5** IMPERVIOUS AREA = 24,954 S.F. OR 0.57 AC.
 PERVIOUS AREA = 3,238 S.F. OF 0.07 AC.
 TOTAL AREA = 28,192 S.F. OR 0.64 AC.
 "C" FACTOR = 95
- A-6** IMPERVIOUS AREA = 9,950 S.F. OR 0.11 AC.
 PERVIOUS AREA = 9,776 S.F. OF 0.02 AC.
 TOTAL AREA = 5,928 S.F. OR 0.13 AC.
 "C" FACTOR = 94

PLANNING BOARD APPROVAL STAMP

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 2-08-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/5/07

APPROVED: FOR PUBLIC WATER AND SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT
 DATE: 7/13/07

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

REV.	DATE	DESCRIPTION	BY
3	7/26/07	REVISED LAYOUT WITH COMMENTS	ADAM J. VOLANTH
2	7/16/07	REVISED LAYOUT WITH COMMENTS	ADAM J. VOLANTH
1			

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE HOUSE BUILDING
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

PROJECT: BENSON EAST
 PARCEL 17 GASOLINE STATION WITH
 KIOSK (COSTCO GASOLINE); GATEWAY
 OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
 BENSON EAST
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: STORMDRAIN
 DRAINAGE AREA MAPS

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22630 DAVIS DRIVE, SUITE 306 STERLING, VIRGINIA, 20166
 CONTACT: DAVID B. NEMICKER
 (703) 709-0600 FAX: (703) 709-0501

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 11 of 28

ADAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

MISS UTILITY

BEFORE YOU DIG CALL
 1-800-357-7777
 PROTECT YOURSELF, GIVE TWO
 WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPLICABLE.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

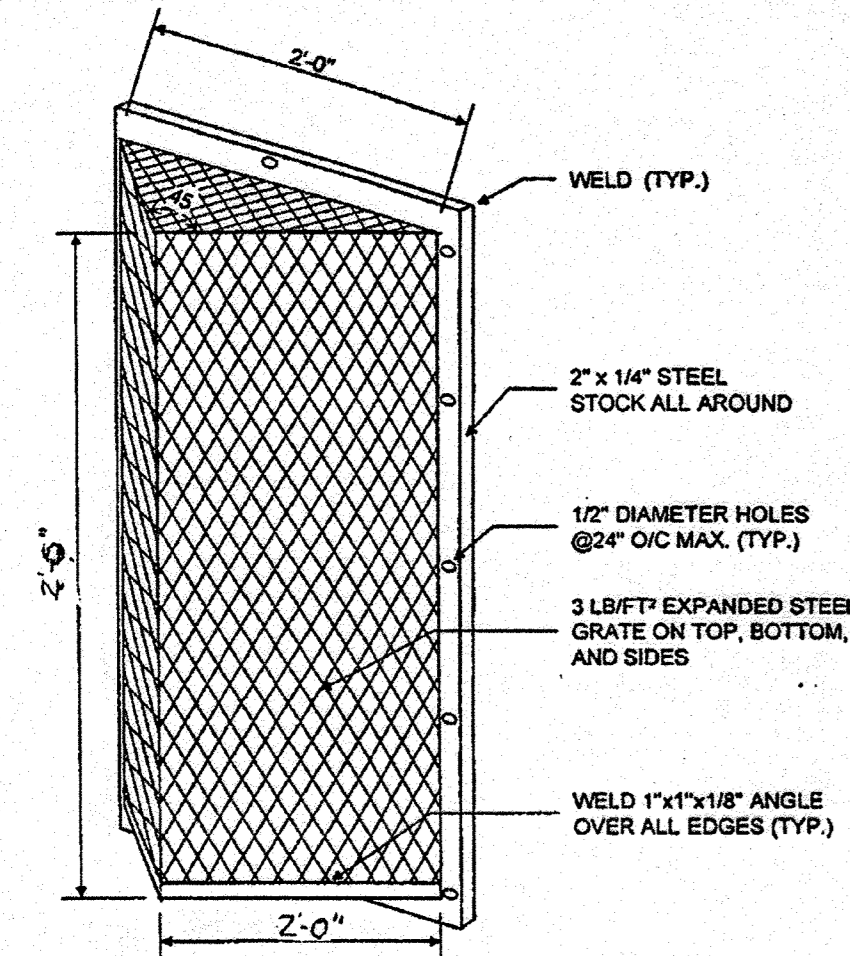
FOR REVISION 3 ONLY:

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. BOHLLER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR DRAWN BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 44097, EXPIRATION DATE: 6/31/15

ADAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

Appendix D.8. Miscellaneous Details for Compliance with Performance Criteria

Detail 1 Trash Rack Protection for Low Flow Orifice



- NOTES FOR TRASH RACK**
- TRASH RACK TO BE CENTERED OVER OPENING.
 - STEEL TO CONFORM TO ASTM A-36.
 - ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.
 - TRASH RACK TO BE FASTENED TO THE WALL WITH 1/2" MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.

TRASH RACK DETAIL (NTS)

D.8.2

PLANNING BOARD APPROVAL STAMP

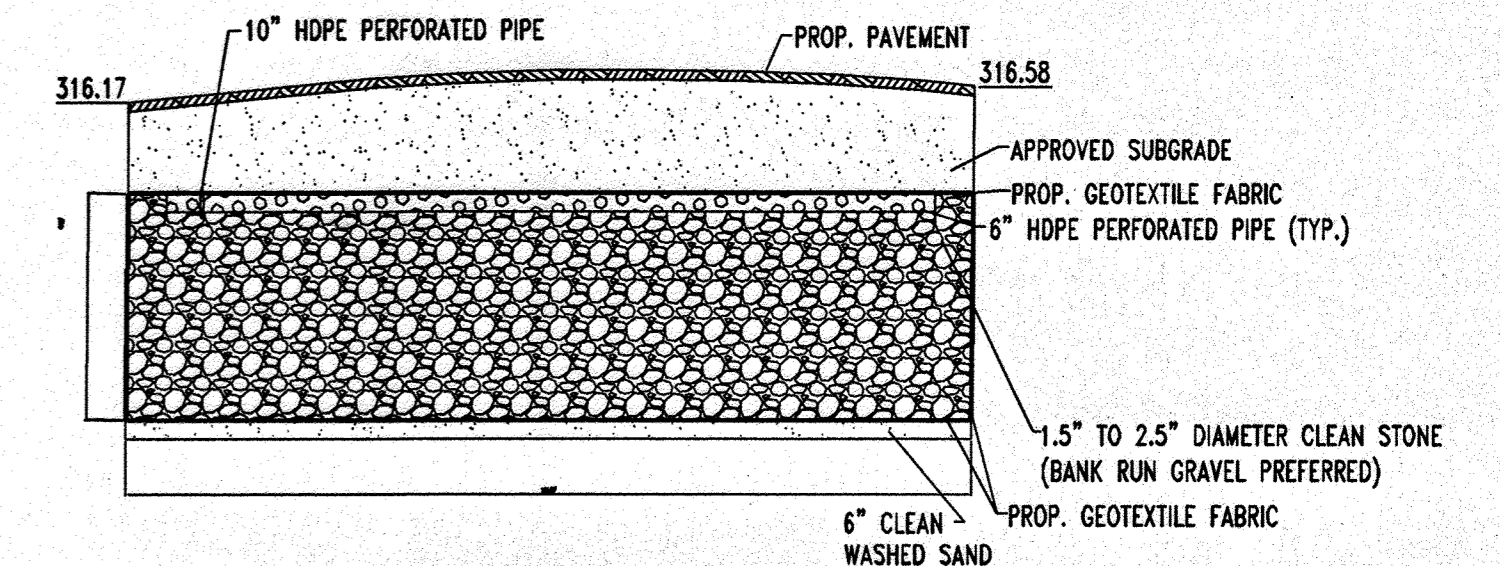
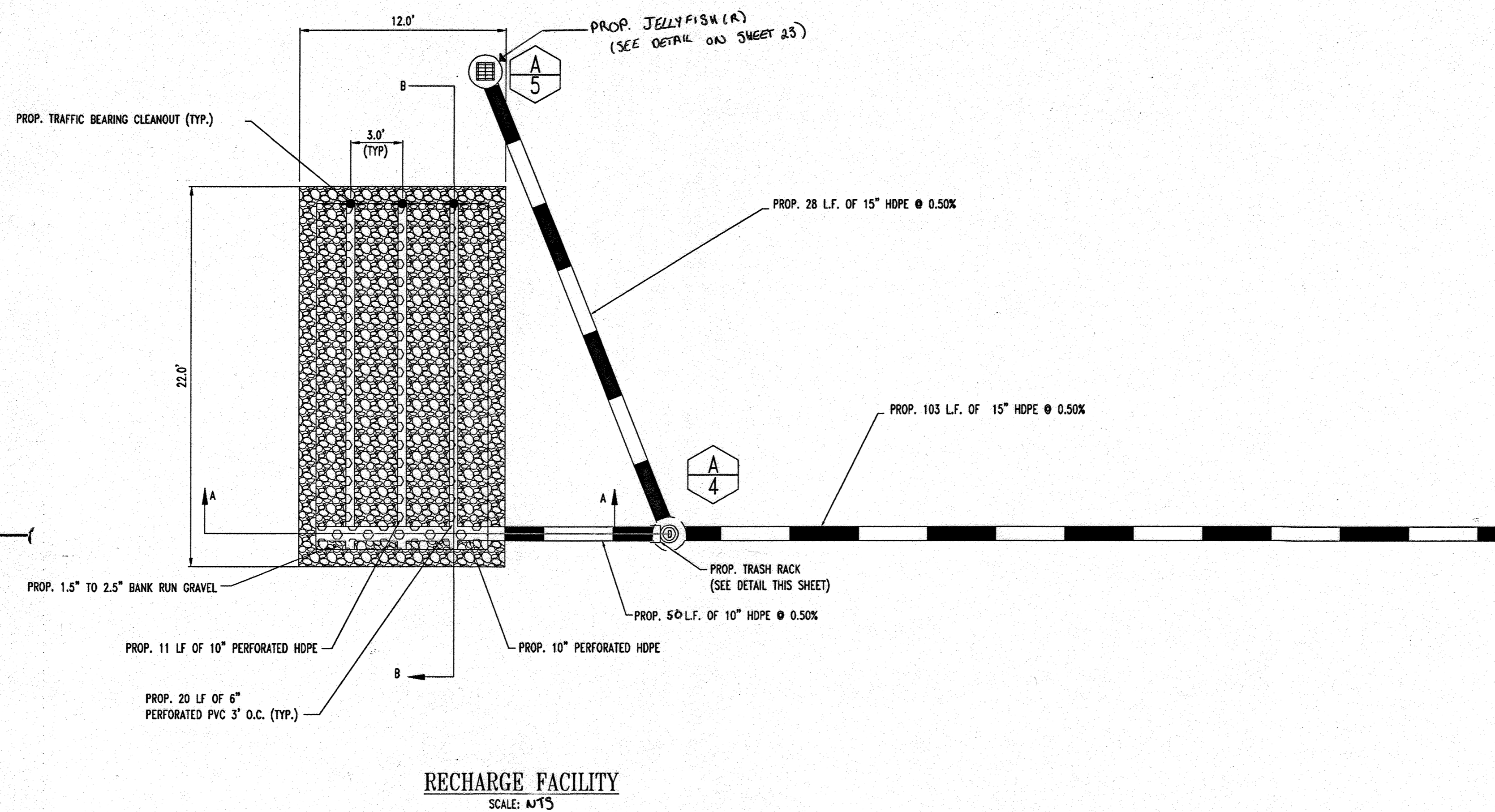
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/15/07
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER
 DATE: 7/13/07

APPROVED
 PLANNING BOARD
 HOWARD COUNTY
 DATE: 2-08-07

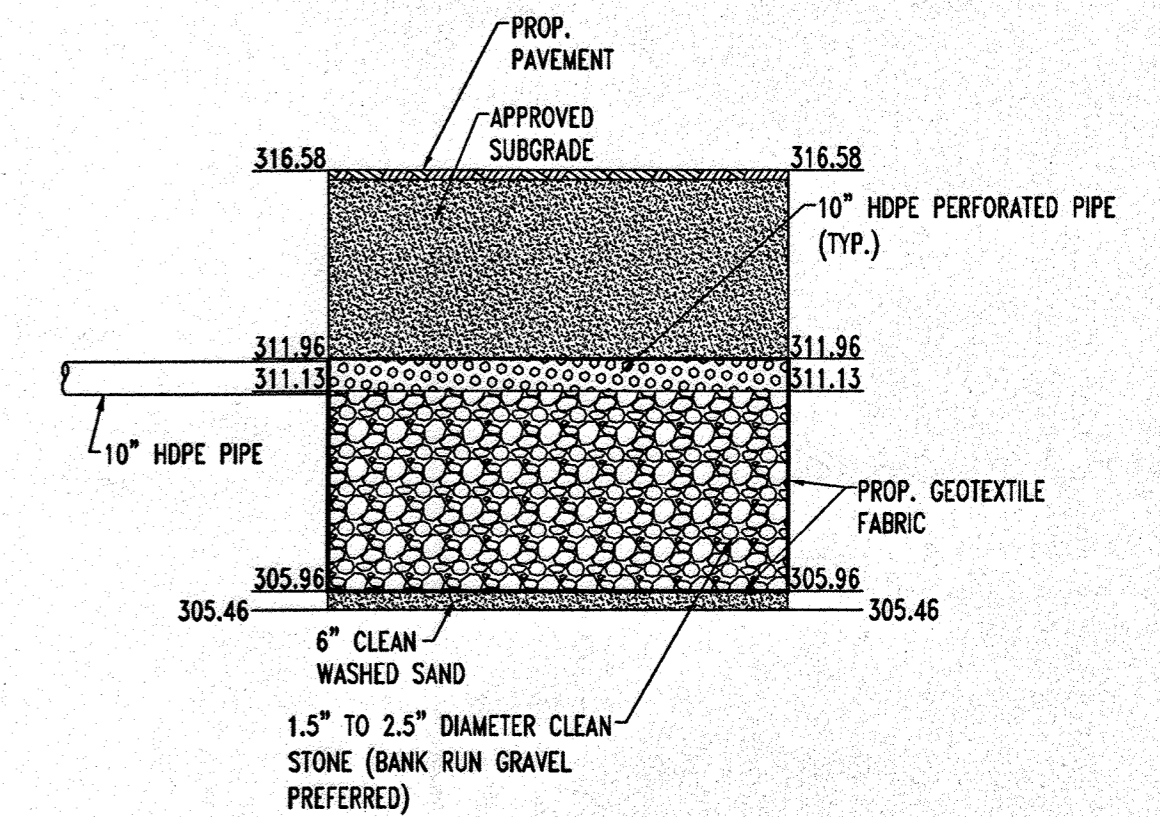
GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER RECHARGE TRENCHES

- THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
- WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN A FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN 72 HOURS TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



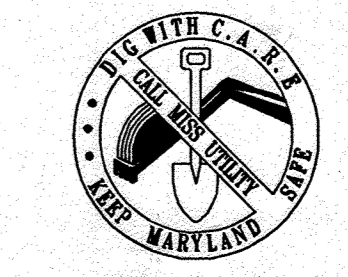
PROFILE VIEW SECTION B-B
 SCALE: 1"=5'



PROFILE VIEW SECTION A-A
 SCALE: 1"=5'

REV.	DATE	DESCRIPTION	BY
3	11/20/14	REVISIONS TO EXISTING 10" HDPE PERFORATED PIPE	
OWNER/DEVELOPER: HRD LAND HOLDINGS, INC. HOWARD RESEARCH AND DEVELOPMENT CORPORATION THE HOUSE BUILDING 10275 LITTLE PATENT PARKWAY COLUMBIA, MARYLAND 21044 PHONE: (410) 992-6000			
PROJECT: BENSON EAST PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER			
AREA: TAX MAP 57 GRID 1 & 2 ZONED NEW TOWN PARCEL U BENSON EAST 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND			
TITLE: STORMWATER MANAGEMENT DETAILS			
BOHLER ENGINEERING, P.C. PROFESSIONAL ENGINEERING SERVICES 22230 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA 20154 (703) 709-9600 FAX: (703) 709-9501 WWW.BEENGINEERING.COM		DESIGNED BY: J.A.D. DRAWN BY: R.F.G. PROJECT NO.: S040011.01 DATE: 6/25/07 SCALE: AS SHOWN DRAWING NO.: 12 OF 28	

MISS UTILITY

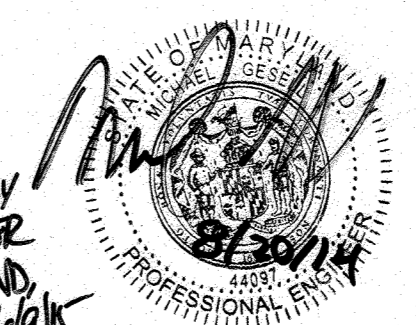


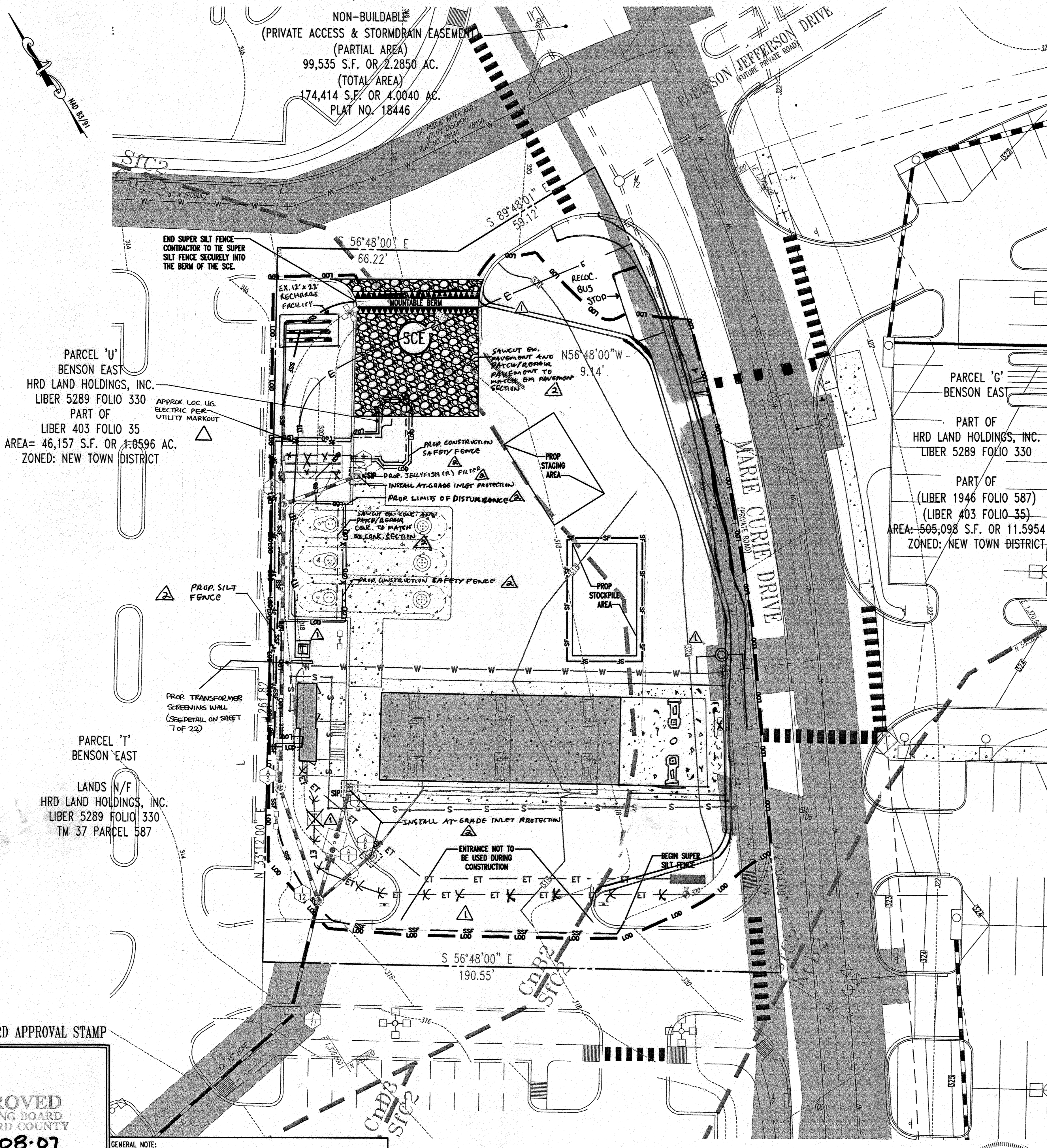
BEFORE YOU DIG CALL 800-955-7777 PROJECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERE TO APPLICANT.
 THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

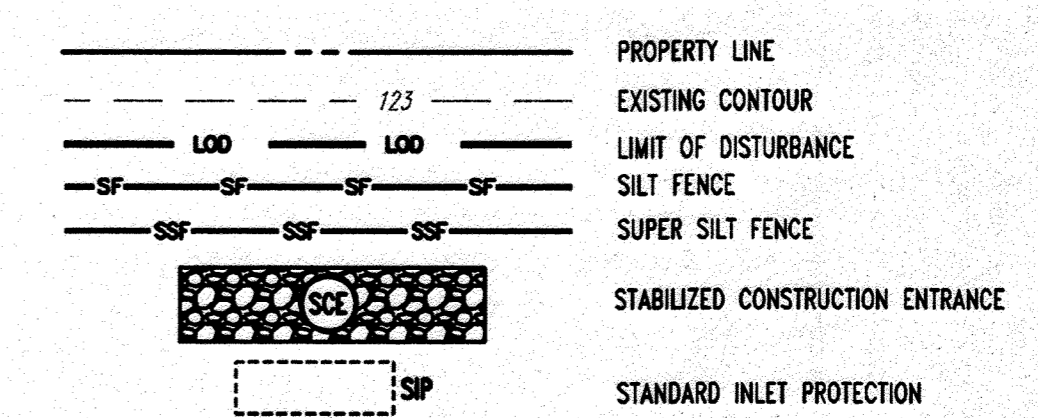
FOR REVISION 3 ONLY:

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. LESON, 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. 44094, EXPIRES ON 07/01/15





EROSION AND SEDIMENT CONTROL LEGEND



ON-SITE SOILS INFORMATION:

- SIC2 - SASSAFRAS GRAVELLY SANDY LOAM, 5%-10% SLOPES, MODERATELY ERODED.
- ChB2 - CHILLUM FAIRFAX LOAMS, 1%-5% SLOPES, MODERATELY ERODED.

REFERENCE:

SOIL SURVEY
HOWARD COUNTY, MD
PREPARED BY:
UNITED STATES DEPARTMENT OF AGRICULTURE
DATED: JULY 1968

REVIEWED FOR HOWARD SCD AND MEETS THE TECHNICAL REQUIREMENT
John M. ... 6/29/07
 HOWARD COUNTY SOIL CONSERVATION DISTRICT
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.
John M. ... 6/29/07
 HOWARD SCD

ENGINEER'S CERTIFICATE
 "I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL, A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE OF REQUIREMENT OF THE HOWARD SOIL CONSERVATION DISTRICT."
 SIGNATURE OF ENGINEER: _____ DATE: _____
 ADAM J. VOLANTH P.E.

DEVELOPER'S CERTIFICATE
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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."
 SIGNATURE OF DEVELOPER: _____ DATE: _____

NOTES
 1. THE OWNER OF THE SHOPPING CENTER IS RESPONSIBLE FOR ALL ROUGH GRADING AND EROSION AND SEDIMENT CONTROL ONSITE, PER PLANS PREPARED BY PATTON, HARRIS, RUST AND ASSOCIATES, P.C. (SEE SHEET 1 NOTE 1).
 2. REFER TO GENERAL NOTES SHEET FOR ANY APPLICABLE EROSION AND SEDIMENTATION NOTES.

BENCHMARK
 GEODETIC SURVEY CONTROL #376D
 N 553,237.204
 E 1,372,353.605
 ELEV. 290.931'
 LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL
 GEODETIC SURVEY CONTROL #376C
 N 553,250.791
 E 1,370,948.348
 ELEV. 331.855'
 LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

REV.	DATE	DESCRIPTION	BY
1	11/21/04	REVISION 1: ADD FUEL TANK	Bohler
2	11/21/04	REVISION 2: ADD FUEL TANK	Bohler
3	11/21/04	REVISION 3: ADD FUEL TANK	Bohler

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

PROJECT: BENSON EAST
 PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER
AREA: TAX MAP 37 GRID PARCELS 1 & 2 ZONED NEW TOWN BENSON EAST
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: EROSION AND SEDIMENT CONTROL PLAN

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22200 Davis Drive, Suite 200 Sterling, Virginia, 20166
 *CONTACT: DAVID B. BOHLER
 (703) 709-9900 FAX: (703) 709-9501 | www.bohlereng.com
 DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 13 OF 28
 ADAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

THIS PLAN IS FOR EROSION AND SEDIMENT CONTROL PURPOSES ONLY

SEE SHEET 14 FOR E&S NOTES

SITE ANALYSIS

- DISTURBED AREA 42,880 S.F. OR 0.98 AC.
- TOTAL SITE AREA 46,157 S.F. OR 1.0596 AC.
- TOTAL CUT - 8 CU. YDS.
- TOTAL FILL - 1,145 CU. YDS.
- EARTH QUANTITIES LISTED ABOVE ARE BASED ON A GRADING PLAN PREPARED BY BOHLER ENGINEERING, P.C. ENTITLED: "GRADING AND DRAINAGE PLAN", DATED 10/10/06, PROJECT NUMBER S040011.01.
- SILT FENCE - 146 L.F.
- SUPER SILT FENCE - 358 L.F.
- STANDARD INLET PROTECTION - 3 EA.
- STABILIZED CONSTRUCTION ENTRANCE - 1 EA.

MISS UTILITY

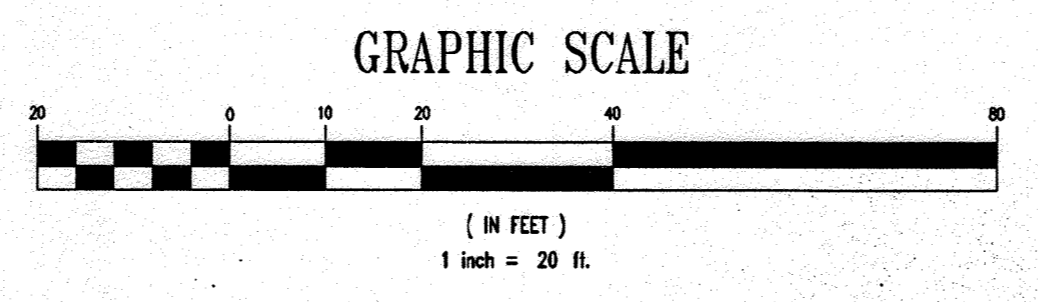
BEFORE YOU DIG CALL 1-800-557-7777
 PROTECT YOURSELF, SAVE TWO WORKING DAYS NOTICE
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 THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

PLANNING BOARD APPROVAL STAMP

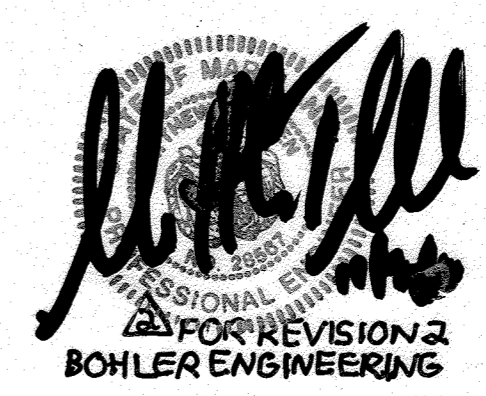
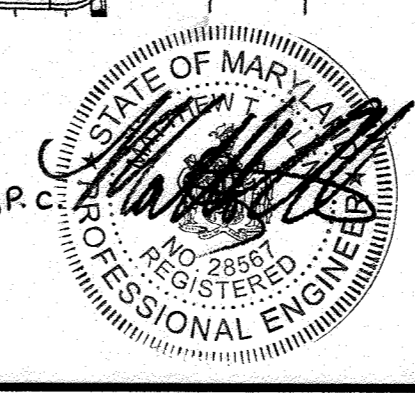
APPROVED: DEPARTMENT OF PLANNING AND ZONING
John ... 7/5/07
 CHIEF-DEVELOPMENT ENGINEERING DIVISION
John ... 7/16/07
 CHIEF-DIVISION OF LAND DEVELOPMENT
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
John ... 7/13/07
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 2-08-07

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

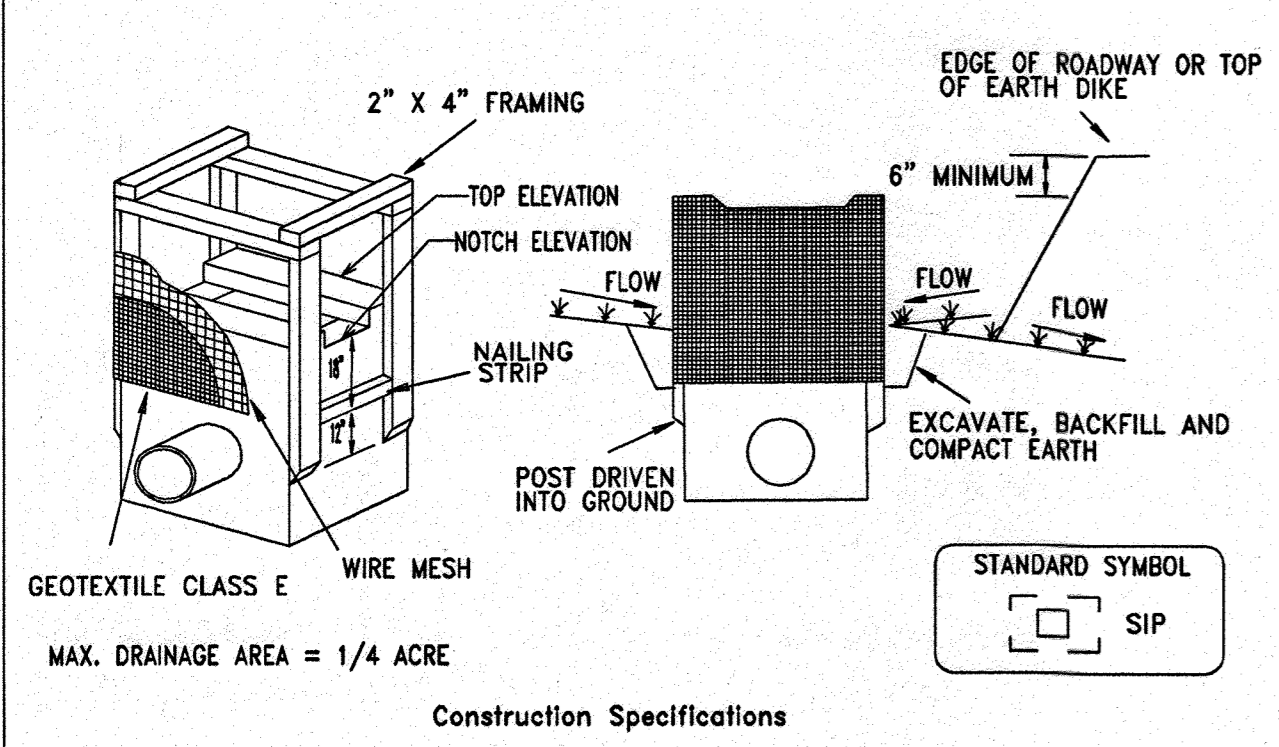


FOR REVISION 1
 BOHLER ENGINEERING, P.C.



FOR REVISION 3 ONLY:
 PROFESSIONAL CERTIFICATION
 I, MICHAEL J. PASDOL, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44091, EXPIRATION DATE 4/1/15.
 PROFESSIONAL CERTIFICATION
 I, MATTHEW T. ALLEN, 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. 28507, EXPIRATION DATE 4/1/15.

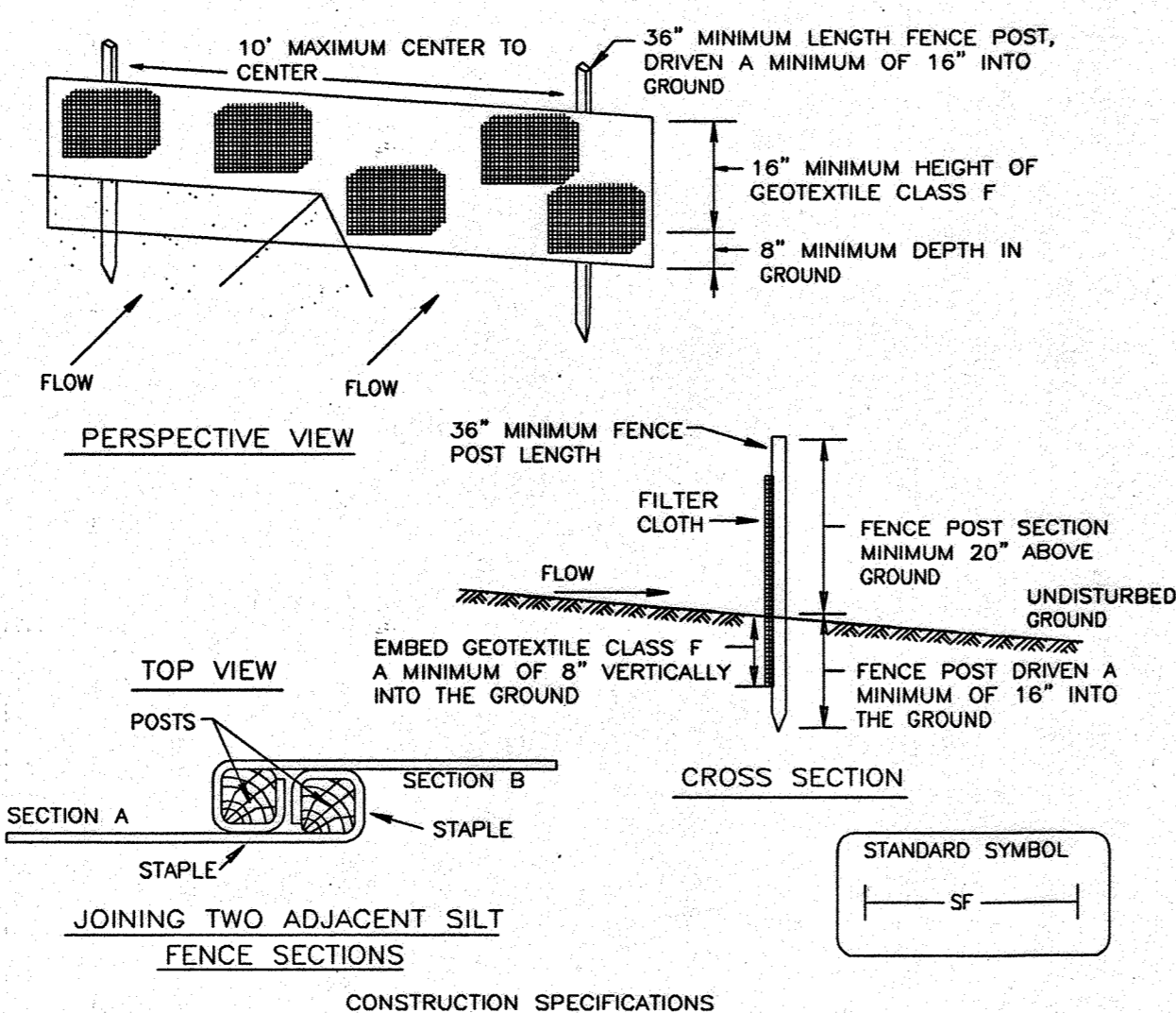
DETAIL 23A - STANDARD INLET PROTECTION



- Construction Specifications
- Excavate completely around the inlet to a depth of 18" below the notch elevation.
 - Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 8" below adjacent roadways where flooding and safety issues may arise.
 - Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
 - Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
 - Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
 - If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
 - The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

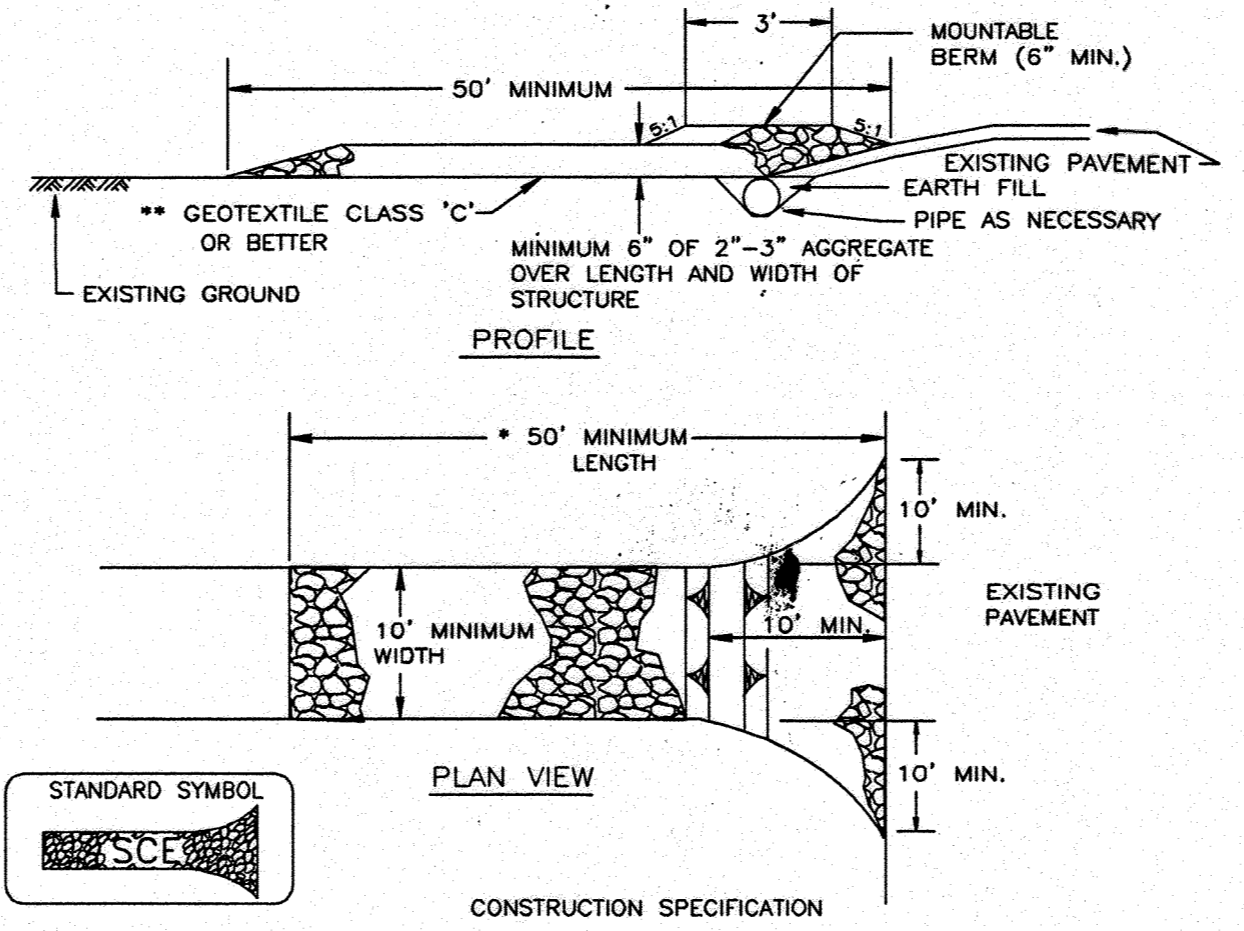


- CONSTRUCTION SPECIFICATIONS
- FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" X 1 1/2" SQUARE (MINIMUM) CUT, OR 1 3/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHTING NOT LESS THAN 1.00 POND PER LINEAR FOOT.
 - GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL FT / MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322
 - WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
 - SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

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

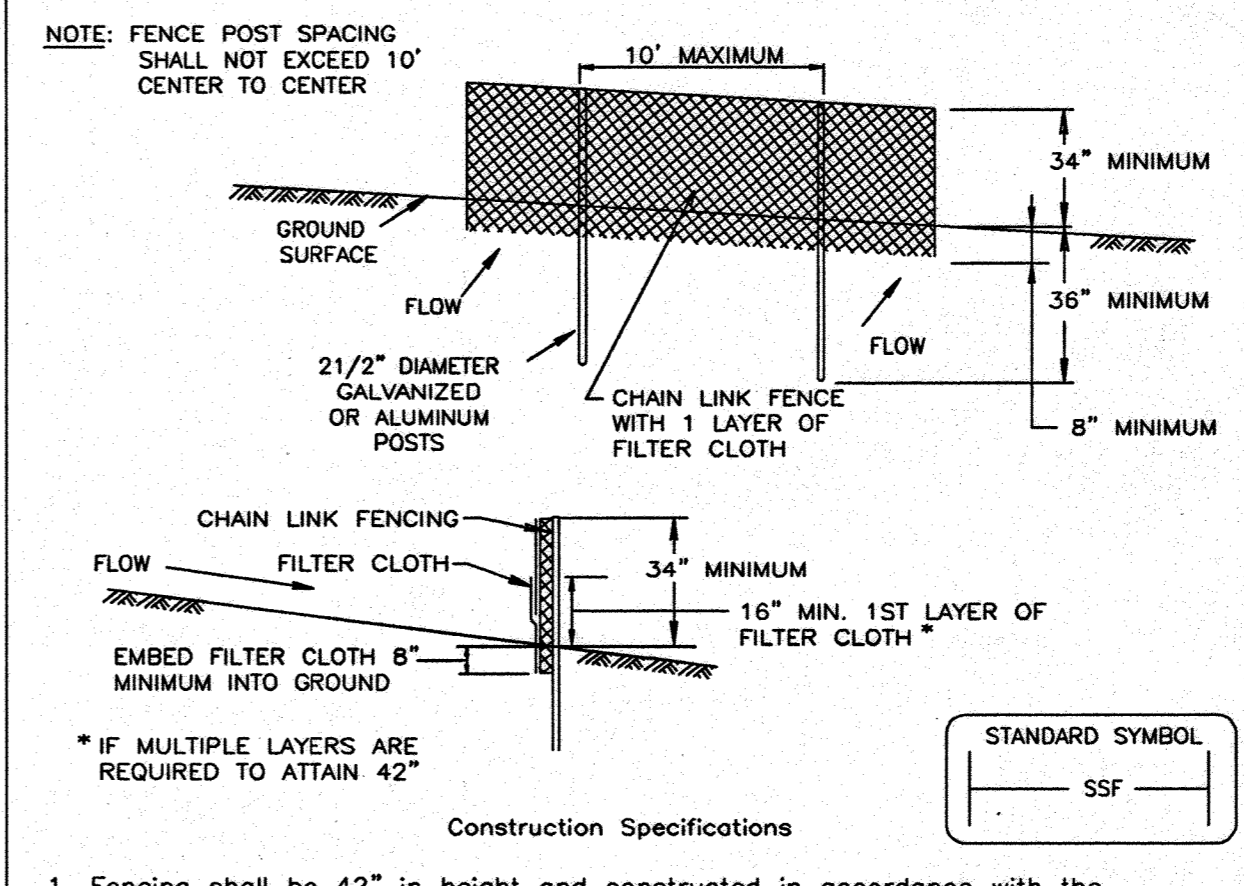
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



- CONSTRUCTION SPECIFICATION
- LENGTH - MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
 - WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
 - GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
 - STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
 - SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
 - LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

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

DETAIL 33 - SUPER SILT FENCE



- CONSTRUCTION SPECIFICATIONS
- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
 - Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
 - Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
 - Filter cloth shall be embedded a minimum of 8" into the ground.
 - When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
 - Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
 - Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-28-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

SILT FENCE DESIGN CRITERIA

SLOPE STEEPNESS	(MAXIMUM)	(MAXIMUM)
	SLOPE LENGTH	SILT FENCE LENGTH
FLATTER THAN 50:1	UNLIMITED	UNLIMITED
50:1 TO 10:1	125 FEET	1,000 FEET
10:1 TO 5:1	100 FEET	750 FEET
5:1 TO 3:1	60 FEET	500 FEET
3:1 TO 2:1	40 FEET	250 FEET
2:1 AND STEEPER	20 FEET	125 FEET

NOTE: IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM, SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

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

SUPER SILT FENCE

Design Criteria

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

- NOTIFY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. (1 DAY)
- THE GENERAL CONTRACTOR SHALL NOT COMMENCE ANY LAND DISTURBING ACTIVITIES PRIOR TO OBTAINING A GRADING PERMIT. (1 DAY)
- THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH COSTCO'S CONSTRUCTION MANAGER AND THE HOWARD COUNTY EROSION AND SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES. (1 DAY)
- ALL AREAS WHICH ARE TO BE DISTURBED SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DISTURBED AREAS WITHIN THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED SHALL BE PERMANENTLY OR TEMPORARILY STABILIZED WITHIN: (2 DAYS)
 - SEVEN CALENDAR DAYS ON SLOPES GREATER THAN 3:1. ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
 - FOURTEEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE. ALL HARD SURFACE PUBLIC ROADS SHALL BE CLEANED AT THE END OF EACH WORK DAY. (2 DAYS)
- INSTALL PERIMETER SUPER SILT FENCE. THIS MUST BE INSPECTED AND APPROVED BY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR. NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT APPROVAL. (2 DAYS)
- INSTALL UTILITIES AS SHOWN. GENERAL CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES. INSTALL UNDERGROUND STORAGE TANKS AND ASSOCIATED PIPING (4 WEEKS)
- BEGIN BUILDING CONSTRUCTION. (3 WEEKS)
- INSTALL CURB AND APPLY BASE STONE FOR ALL PARKING AREAS. (4 WEEKS)
- FLUSH THE PROPOSED STORM DRAIN SYSTEM TO REMOVE ANY SEDIMENT AND CLEAN THE RECEIVING POND. THIS MUST BE INSPECTED AND APPROVED BY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR. (1 DAY)
- AS THE SITE IS BROUGHT TO FINAL GRADE, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN FOURTEEN (14) DAYS. (2 WEEKS)
- INSTALL ALL PERMANENT LANDSCAPING. (2 WEEKS)
- AFTER CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED, SEDIMENT CONTROL DEVICES CAN BE REMOVED UPON COORDINATION WITH COSTCO'S, AND THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. (2 DAYS)

REVIEWED FOR HOWARD SCD AND MEETS THE TECHNICAL REQUIREMENT
 6/29/07
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 6/29/07

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE OF REQUIREMENT OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER: ADAM J. VOLANTH P.E. DATE: _____

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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."

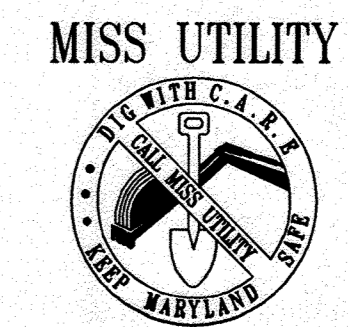
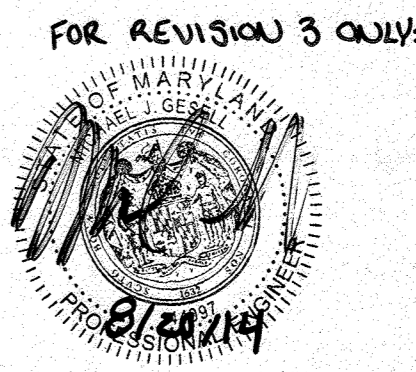
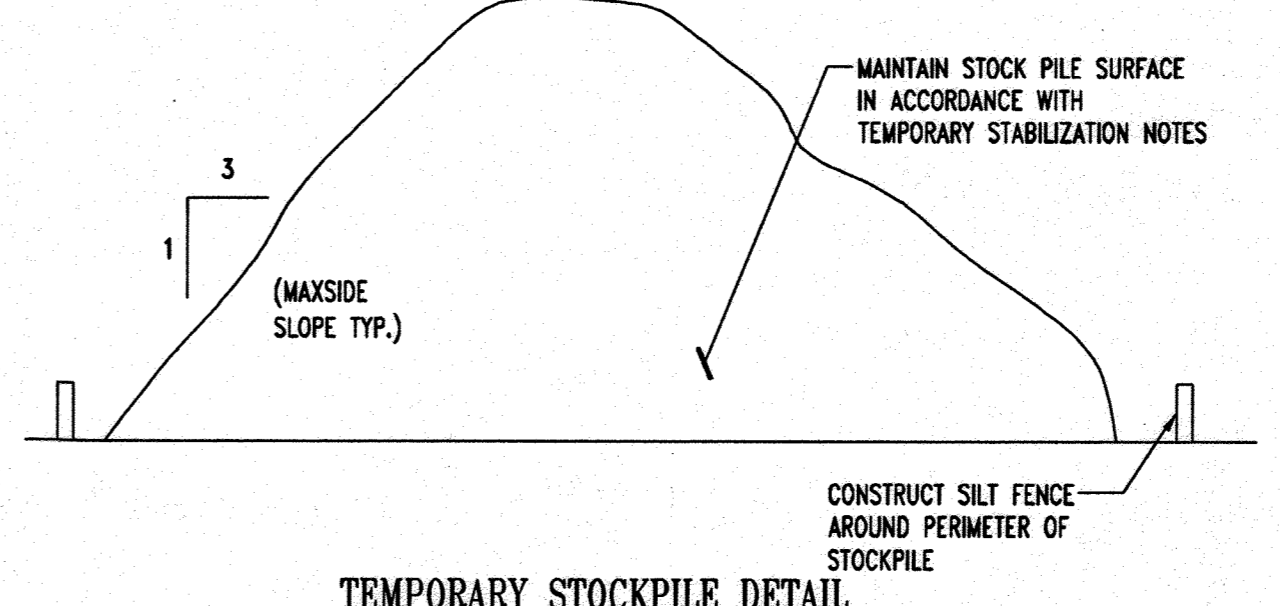
SIGNATURE OF DEVELOPER: _____ DATE: _____

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 APPROVED: DEPARTMENT OF PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER
 DATE: 2-08-07

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. GOSALL, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44047, EXPIRATION DATE: 6/30/15



REVISIONS

REV.	DATE	DESCRIPTION	BY
3	1/20/19	REVISED 2.0000: NEW PUMPS & CATCHERS	BOHLER
2	1/20/19	REVISED 2.0000: NEW PUMPS & CATCHERS	BOHLER

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

PROJECT: BENSON EAST
 PARCEL U: GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
 PARCEL U
 BENSON EAST
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

BOHLER ENGINEERING, P.C.
 * PROFESSIONAL ENGINEERING SERVICES *
 22850 DAVID DRYDEN, SUITE 200 STERLING, VIRGINIA, 20164
 * CONTACT: DAVID B. NEMECKEK
 (703) 799-9600 FAX: (703) 799-9601 | www.bohlereng.com

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 14 OF 28

ADAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

STANDARD AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION WITH SOD

- SPECIFICATIONS:**
- CLASS OF TURFGRASS SOD SHALL BE MARYLAND STATE CERTIFIED, OR MARYLAND STATE APPROVED SOD.
 - SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH.
 - STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
 - INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIER'S WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
 - SOD SHALL NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD SHALL BE INSPECTED AND APPROVED PRIOR TO INSTALLATION.

SITE PREPARATION:
FERTILIZER AND LIME APPLICATION RATES SHALL BE DETERMINED BY SOIL TEST, UNDER UNUSUAL CIRCUMSTANCES WHERE THERE IS INSUFFICIENT TIME FOR A COMPLETE SOIL TEST, FERTILIZER AND LIME MATERIALS MAY BE APPLIED IN AMOUNTS SHOWN UNDER B. BELOW.

- PRIOR TO SODDING, THE SURFACE SHALL BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.
- WHERE THE SOIL IS ACID OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 2 TONS PER ACRE (100 LBS./1000 SQ. FT.) IN ALL SOILS 1,000 POUNDS PER ACRE OR 25 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 FERTILIZER OR EQUIVALENT SHALL BE UNIFORMLY APPLIED AND MIXED INTO THE TOP 3 INCHES OF SOIL WITH THE REQUIRED LIME.
- ALL AREAS RECEIVING SOD SHALL BE UNIFORMLY FINE GRADED. HARD PACKED EARTH SHALL BE SCARIFIED PRIOR TO PLACEMENT OF SOD. SOD INSTALLATION:
 - DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE THE SOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING SOD.
 - THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. INSURE THAT SOD IS NOT ORDER TO PREVENT VOIDS WHICH COULD CAUSE AIR DRYING OF THE ROOTS.
 - LAY WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SECURE THE SOD BY TAMPING AND PEGGING OR OTHER APPROVED METHODS.
 - AS SODDING IS COMPLETED IN ANY ONE SECTION, THE ENTIRE AREA SHALL BE ROLLED OR TAMPED TO INSURE SOLID CONTACT OF ROOTS WITH THE SOIL SURFACE. SOD SHALL BE WATERED IMMEDIATELY AFTER OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

- SOD MAINTENANCE:**
- IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO THE DAY TO PREVENT WILTING.
 - AFTER THE FIRST WEEK, SOD SHALL BE WATERED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE AND INSURE ESTABLISHMENT.
 - FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED.
 - MAINTENANCE OF ESTABLISHED SOD SHOULD FOLLOW SPECIFICATIONS OUTLINED IN TABLE 54-1.

TOPSOIL CONSTRUCTION AND MATERIAL SPECIFICATIONS

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE 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 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS PER ACRE (200-400 LBS./1000 SQ. FT.) PRIOR TO 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:

- PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

- TOPSOIL APPLICATION
 - WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
 - GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4" - 8" HIGHER IN ELEVATION.
 - 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 TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. THESE TOPSOIL SPECIFICATIONS HAVE BEEN EDITED FROM THE 1994 EROSION AND SEDIMENT CONTROL STANDARDS TO FIT THIS PROJECT. IT IS STILL THE INTENTION TO FOLLOW THE REFERENCED 1994 EROSION AND SEDIMENT CONTROL STANDARDS IN THEIR ENTIRETY.

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREA NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENEED).

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ. FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. APPLY 400 LBS. PER ACRE 30-0-0 AREAFORM FERTILIZER (9 LBS./1000 SQ. FT.)
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (25 LBS./1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS./1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (.05 LBS./1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GALS./1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GALS./1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREA LIKELY TO REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENEED).

SOILS AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.)

SEEDING: FOR PERIODS MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2 1/3 BU. PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ. FT.). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70-90 LBS./1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GALS./1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GALS./1000 SQ. FT.) FOR ANCHORING.

STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

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

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATION GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

1. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SPECIFIED. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SET FORTH IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE 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 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - 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 (200-400 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.

- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES.
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION SECTION 1-VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 - ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS INDICATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - PH FOR TOPSOIL SHALL BE BETWEEN 6.0 TO 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.
 - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - 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.

- TOPSOIL APPLICATION
 - 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.
 - GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4" - 8" HIGHER IN ELEVATION.
 - 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 RESULTING FROM SURFACE TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - 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.
- ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS COMMERCIAL BELOW:
 - 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:
 - 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.
 - 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.
 - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
 - COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4LBS/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 - ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS INDICATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - PH FOR TOPSOIL SHALL BE BETWEEN 6.0 TO 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.
 - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - 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.

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION, PRIOR TO THE START OF ANY CONSTRUCTION. (313-1855)
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7 OF "HOWARD COUNTY DESIGN MANUAL", STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G) TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL SITE AREA - 46,157 S.F. OR 1.0596 AC.
AREA DISTURBED - 42,880 S.F. OR 0.98 AC.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

GENERAL NOTES

- THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL REQUIRED EASEMENTS, RIGHT AND/OR RIGHTS-OF-WAY PURSUANT TO THE DISCHARGE FROM THE SEDIMENT AND EROSION CONTROL PRACTICES, STORMWATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORMWATER ONTO OR ACROSS AND GRADING OR OTHER WORK TO BE PERFORMED ON ADJACENT OR DOWNSTREAM PROPERTIES AFFECTED BY THIS PLAN.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) AND 10 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. THE IN-PLACE SEDIMENT CONTROL MEASURES WILL BE MAINTAINED ON A CONTINUING BASIS UNTIL THE SITE IS PERMANENTLY STABILIZED AND ALL PERMIT REQUIREMENTS ARE MET.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF TWO (2) ACRES, APPROVAL OF THE INSPECTION AGENCY IS REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCES OR GRADING. OTHER GUIDING OR GRADING INSPECTION APPROVALS WILL NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- APPROVAL SHALL BE REQUESTED UPON FINAL STABILIZATION OF ALL SITES WITH DISTURBED AREAS IN EXCESS OF TWO (2) ACRES BEFORE REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES.

REVIEWED FOR HOWARD SCD AND MEETS THE TECHNICAL REQUIREMENTS

Jan M. Meyer 6/29/07
USA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John K. Wilson 6/29/07
HOWARD SCD DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE OF REQUIREMENT OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER: ADAM J. VOLANTH P.E. DATE: 6/29/07

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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."

SIGNATURE OF DEVELOPER: DATE: 6/29/07

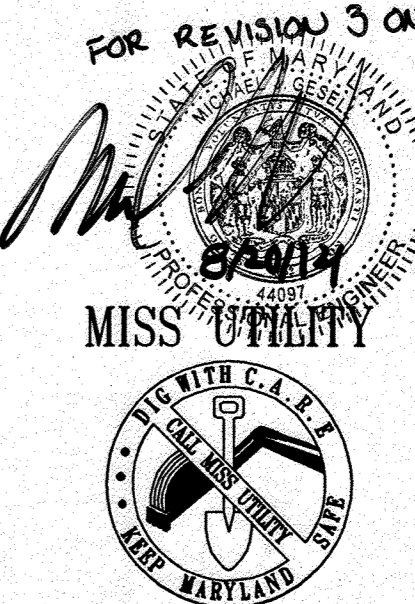
UTILITY CONTACT INFORMATION:

NATURAL GAS AND ELECTRIC BALTIMORE GAS AND ELECTRIC 7317 PARKWAY DRIVE SOUTH HANOVER, MD 21076 PHONE: (410) 859-9383	WATER AND SANITARY SEWER HOWARD COUNTY PUBLIC WORKS BUREAU OF UTILITIES 8250 OLD MONTGOMERY ROAD COLUMBIA, MD 21045 PHONE: (410) 313-4910
TELEPHONE VERIZON 7133 RUTHERFORD ROAD BALTIMORE, MD 21244 PHONE: (410) 224-5286	EROSION AND SEDIMENT CONTROL DEPARTMENT OF INSPECTIONS, LICENSES & PERMITS 3430 COURTHOUSE DRIVE ELLCOTT CITY, MD 21043 PHONE: (410) 313-2455
STORMWATER MANAGEMENT HOWARD COUNTY PLANNING AND ZONING DEPARTMENT 3430 COURTHOUSE DRIVE ELLCOTT CITY, MD 21043 PHONE: (410) 313-2350	PLANNING AND ZONING HOWARD COUNTY PLANNING AND ZONING DEPARTMENT 3430 COURTHOUSE DRIVE ELLCOTT CITY, MD 21043 PHONE: (410) 313-2350

STANDARDS SEDIMENT CONTROL PLAN NOTES FOR UTILITIES

- ONLY ENOUGH TRENCH WILL BE EXCAVATED THAT CAN BE BACKFILLED DAILY.
- EXCAVATED TRENCH MATERIALS SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- IMMEDIATELY FOLLOWING PIPE INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY.
- FULL TRENCH COMPACTION IS REQUIRED.
- MULCHING TO HOWARD SCD SPECIFICATIONS OF ALL DISTURBED AREAS AND DAILY ON BACKFILL WILL BE REQUIRED.
- SUPER SILT FENCE OR STRAW BALE DIKES SHALL BE INSTALLED TEMPORARILY IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED LONGER THAN ONE (1) WORKING DAY.
- STAGING AREAS FOR EQUIPMENT AND SUPPLIES SHALL BE PROTECTED WITH SILT FENCE.
- ANY SEDIMENT CONTROL PRACTICES WHICH ARE DISTURBED DURING UTILITY CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT THE END OF EACH WORKING DAY.
- ANY DITCHES OR DRAINAGE WAYS DISTURBED DURING CONSTRUCTION WILL BE RESTORED TO ORIGINAL CONDITION.

PROFESSIONAL CERTIFICATION
I, MICHAEL J. GEZEL, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED AND APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44091, EXPIRES DATE: 6/9/15



PERMANENT SEEDING SUMMARY

NO.	SPECIES	SEED MIXTURE (HARDNESS ZONE 8b) (FROM TABLE 25)		SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-10-10)			LIME RATE
		RATE (LBS./AC.)	APPLICATION			N	P205	K20	
1	85% TALL FESCUE 10% PER. RYEGRASS 5% KENT. BLUEGRASS	125 15 10		3/1-5/15 5/16-8/14 8/15-11/15	---				
2	83% TALL FESCUE 2% WEEPING LOVEGRASS 15% SERICIA LESPEDEZA	110 3 20		3/1-5/15 5/16-8/14 8/15-11/15	---	90 LBS./AC. (2.0 LBS./1,000 S.F.)	175 LBS./AC. (4.0 LBS./1,000 S.F.)	175 LBS./AC. (4.0 LBS./1,000 S.F.)	2 TONS/AC. (100 LBS./1,000 S.F.)
3	17% WEEPING LOVEGRASS 83% SERICIA LESPEDEZA	4 20		3/1-5/15 5/16-8/14	---				

TEMPORARY SEEDING SUMMARY

NO.	SPECIES	SEED MIXTURE (HARDNESS ZONE 8b) (FROM TABLE 26)		SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-10-10)	LIME RATE
		RATE (LBS./AC.)	APPLICATION				
1	RYE PLUS BARLEY	150		YEAR ROUND	1"	600 LBS./AC. (15 LB./1,000 S.F.)	2 TONS/AC. (100 LB./1,000 S.F.)
2	WEEPING LOVEGRASS	4		5/1-8/14	1/4"-1/2"		
3	ANNUAL RYEGRASS	50		8/15-11/15	1/4"-1/2"		

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF-DEVELOPMENT ENGINEERING DIVISION 7/5/07 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT 7/16/07 DATE
DIRECTOR 7/17/07 DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

APPROVED: COUNTY HEALTH OFFICER 7/15/07 DATE
HOWARD COUNTY HEALTH DEPARTMENT 60

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE: 2-08-07

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE HOUSE BUILDING
10275 LITTLE PATENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6000

PROJECT: PHENIX EAST
PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 57 GRID PARCEL U & ZONED NEW TOWN
BEISON EAST
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

BOHLER ENGINEERING, P.C.
PROFESSIONAL ENGINEERING SERVICES •
22630 DAVIS DRIVE, SUITE 300 STERLING, VIRGINIA 20166 •
CONTACT: LLOYD B. BOHLER, P.E. (703) 709-9501 • WWW.BE-INC.COM

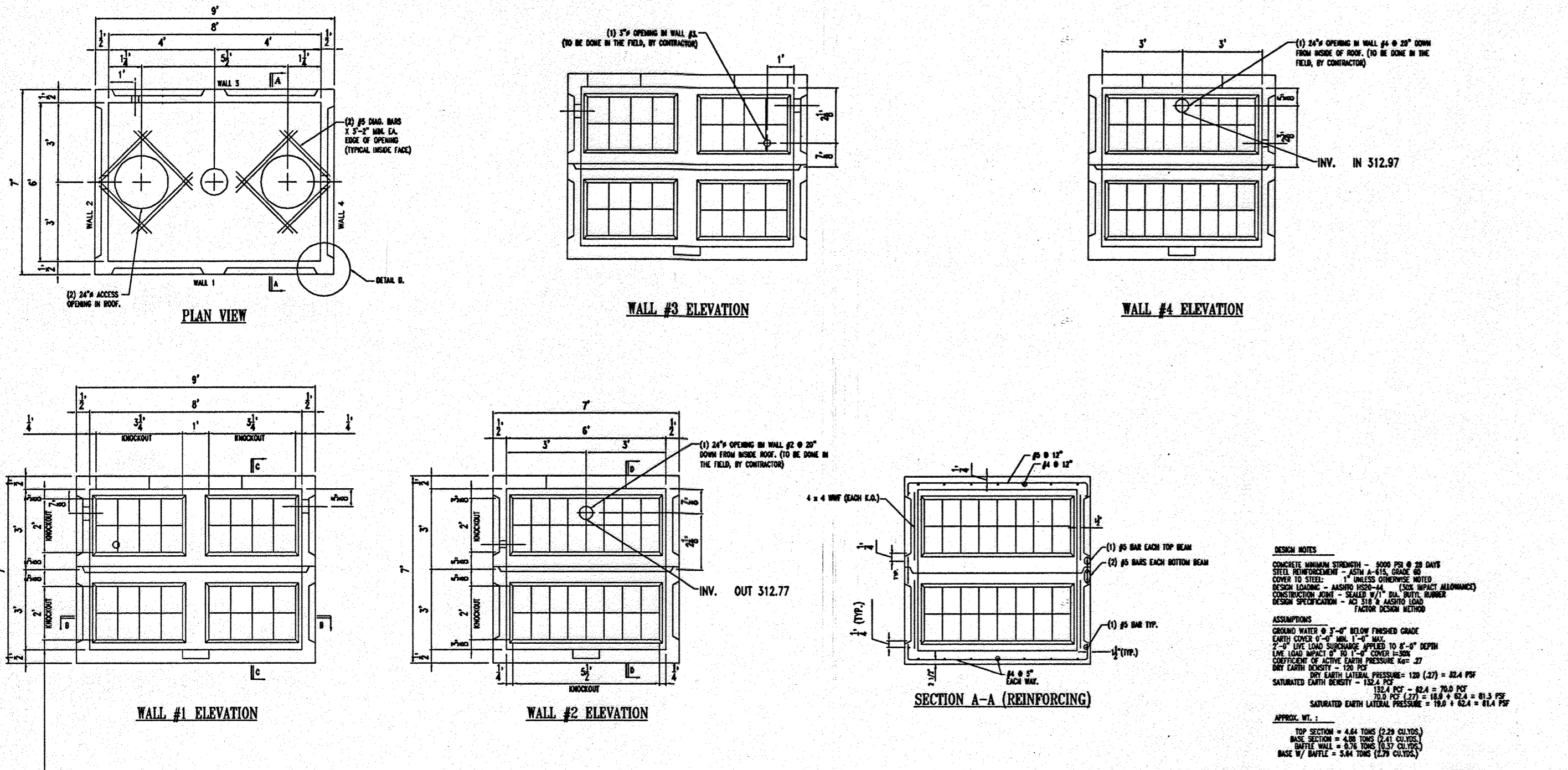
DESIGNED BY: J.A.D.
DRAWN BY: R.F.G.
PROJECT NO.: SD40011.01
DATE: 6/25/07
SCALE: AS SHOWN
DRAWING NO.: 15 OF 28

BEFORE YOU DIG CALL 800-367-7777 GIVE TWO WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPURTENANT.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

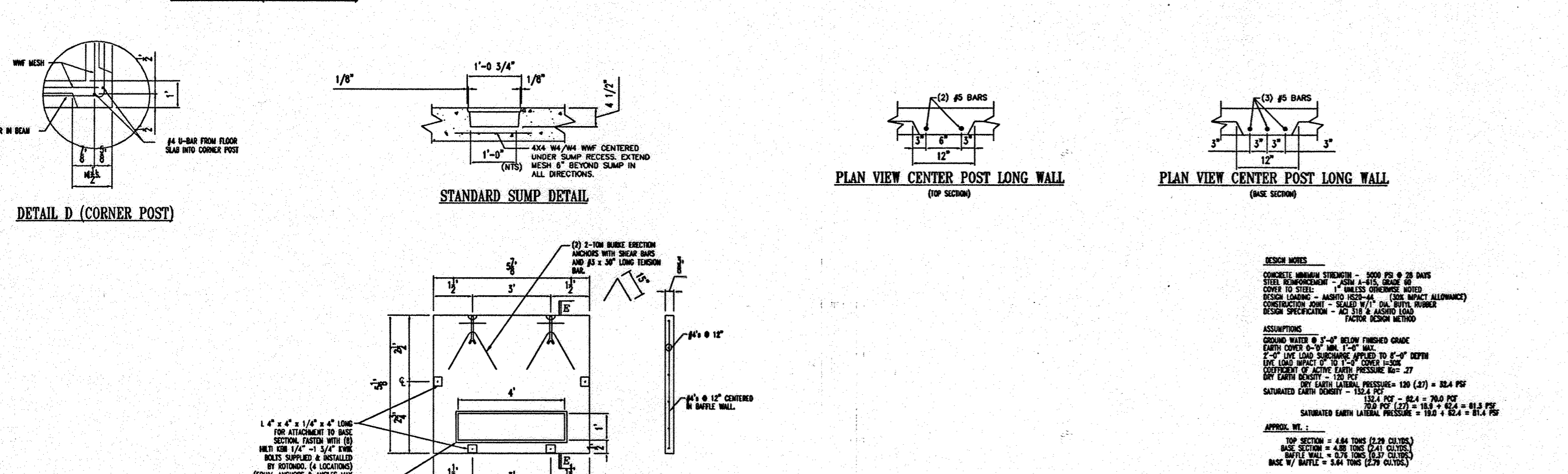
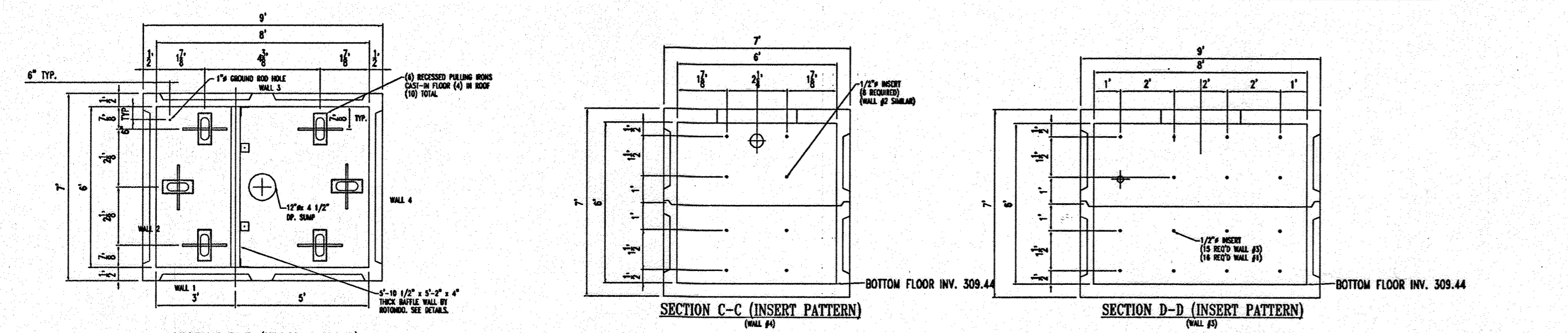
ADAM J. VOLANTH
PROFESSIONAL ENGINEER NO. 2134



6'-0" x 8'-0" x 6'-0" PRECAST CONCRETE MODIFIED KNOCKOUT MANHOLE
 SEE 6&8-G-DETAILS FOR BAFFLE WALL AND SECTION DETAILS
 (1 STRUCTURE REQUIRED)

ROTONDO PRECAST A DIVISION OF OLDCASTLE PRECAST
 MANUFACTURERS OF QUALITY PRE-CAST CONCRETE PRODUCTS
 2115 MAUNSELL DRIVE RD. FREDERICKSBURG, VA. 22407

DATE: 03/22/02
 SCALE: 1/4"=1'-0"
 PROJECT: 8'-0" x 8'-0" x 6'-0" PRECAST CONCRETE TANK (1) COMPLETE STRUCTURE REQUIRED
 DRAWN BY: J.M.C.
 CHECKED BY: J.L.R.
 SCALE: NONE
 SD-4.22



6'-0" x 8'-0" x 6'-0" PRECAST CONCRETE MODIFIED KNOCKOUT MANHOLE DETAILS

ROTONDO PRECAST A DIVISION OF OLDCASTLE PRECAST
 MANUFACTURERS OF QUALITY PRE-CAST CONCRETE PRODUCTS
 2115 MAUNSELL DRIVE RD. FREDERICKSBURG, VA. 22407

DATE: 03/22/02
 SCALE: 1/4"=1'-0"
 PROJECT: 8'-0" x 8'-0" x 6'-0" PRECAST CONCRETE TANK (1) COMPLETE STRUCTURE REQUIRED
 DRAWN BY: J.M.C.
 CHECKED BY: J.L.R.
 SCALE: NONE
 SD-4.22

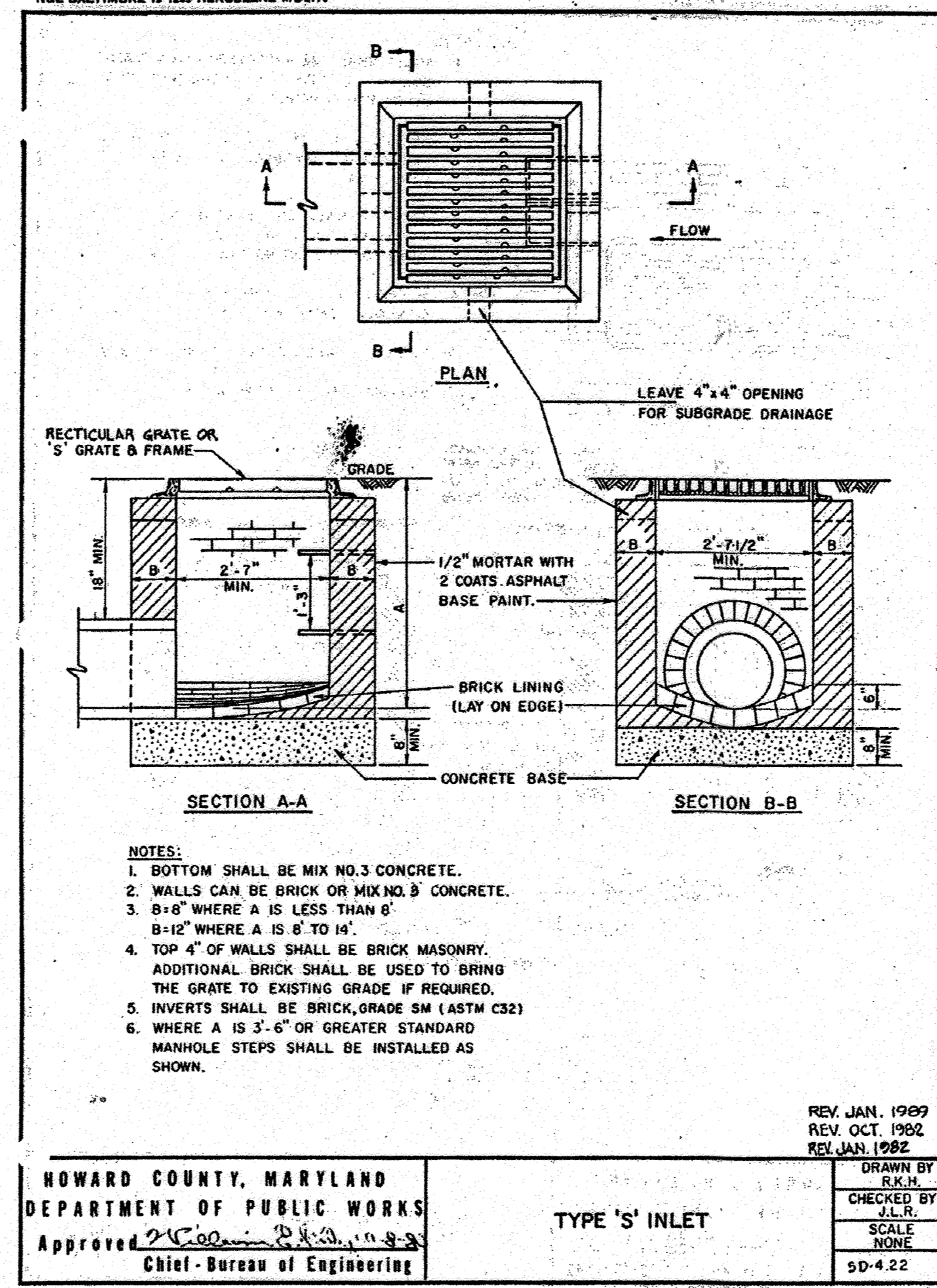
PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief-Development Engineering Division
 DATE: 7/15/07

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICE
 DATE: 7/13/07

APPROVED PLANNING BOARD OF HOWARD COUNTY
 DATE: 2-08-07

OIL/WATER SEPARATOR DETAIL
 NOT TO SCALE
 CONTRACTOR IS RESPONSIBLE FOR ENSURING THE CONCRETE FOOTING AND REINFORCING MATERIAL ARE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.

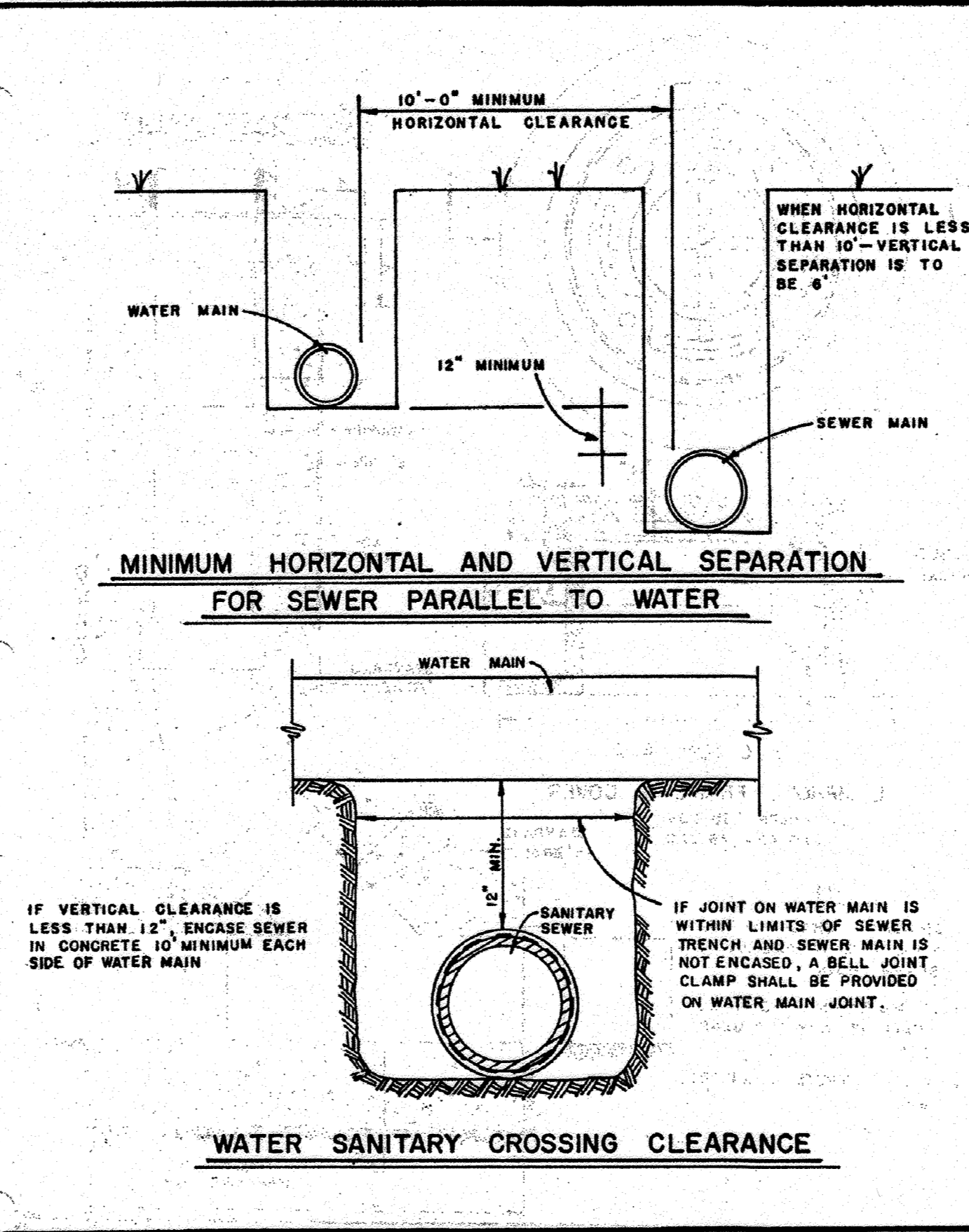


HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
 Approved: Chief - Bureau of Engineering

TYPE 'S' INLET

REV. JAN. 1989
 REV. OCT. 1982
 REV. JAN. 1982

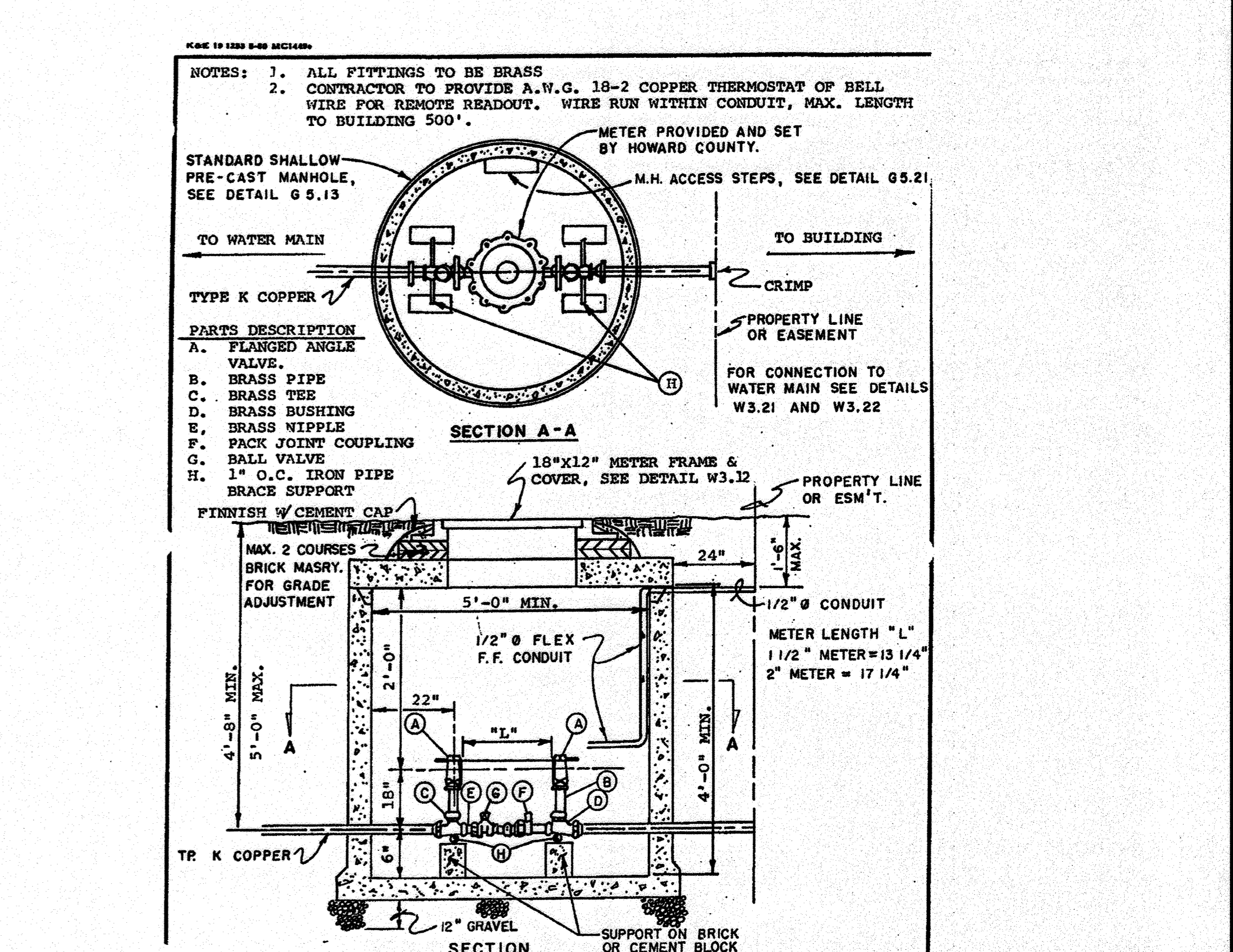
DRAWN BY: R.H.H.
 CHECKED BY: J.L.R.
 SCALE: NONE
 SD-4.22



HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
 Approved: Chief - Bureau of Engineering

STANDARD SANITARY SEWER DETAILS WATER SEWER CLEARANCE REQUIREMENTS

DRAWN BY: G.A.B.
 CHECKED BY: F.A.W.
 SCALE: NONE
 S 3.13

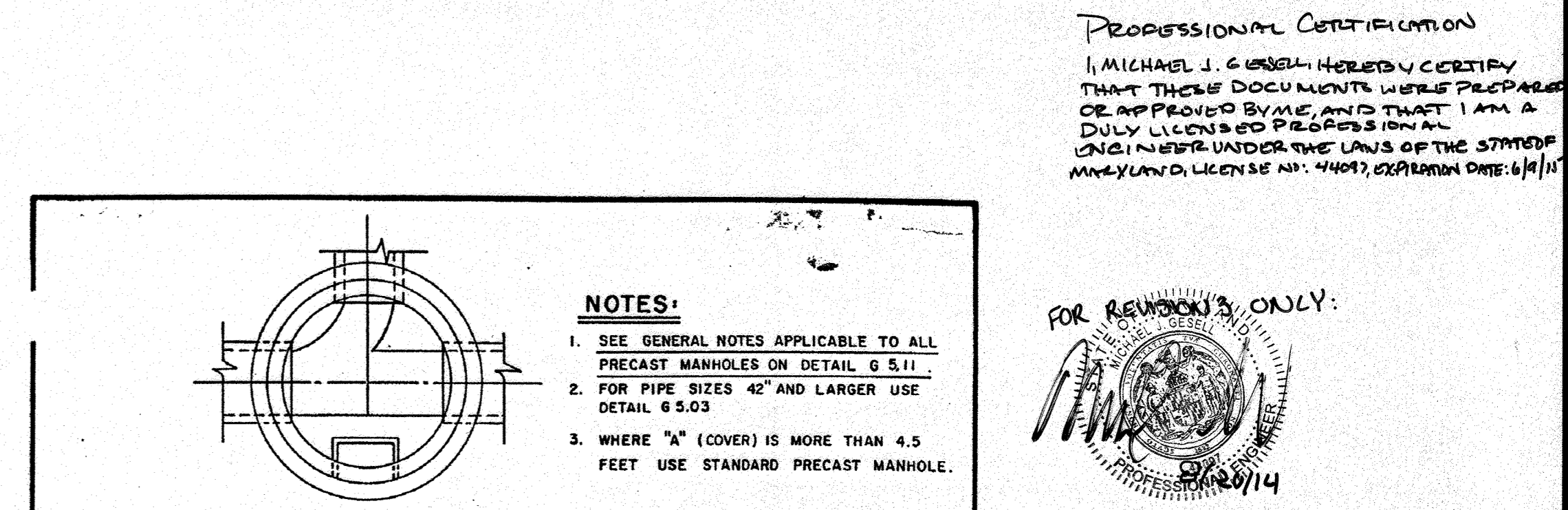


HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
 Approved: Chief - Bureau of Engineering

STANDARD WATER DETAILS STANDARD INSTALLATION FOR 1 1/2" AND 2" OUTSIDE METER SETTINGS

REV. JAN. 1988

DRAWN BY: W.W.
 CHK'D BY: Y.P.
 NO SCALE
 W3.34



STANDARD PRECAST MANHOLE SHALLOW PRECAST MANHOLE

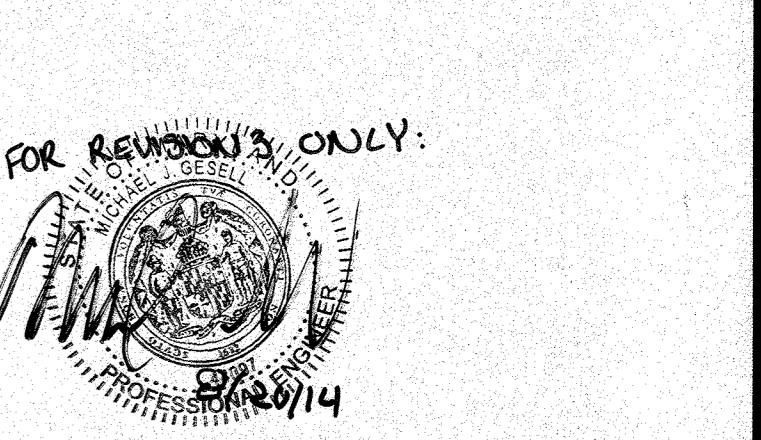
REV. MAR. 1986 / REV. JAN. 1985 / REV. JAN. 1982

DRAWN BY: J.M.C.
 CHECKED BY: F.A.W.
 SCALE: NONE
 G 5.12

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22630 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA 20166
 CONTACT: LARRY B. BOHLER
 (703) 709-9600 FAX: (703) 709-9501

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: 5040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 16 OF 28

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. GIBSON, 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. 44097, EXPIRATION DATE: 6/30/11



FOR REVISIONS ONLY:

REV.	DATE	DESCRIPTION	BY
1	12/01/04	REVISED TO SHOW NEW PAVING CONSTRUCTION	J.M.C.

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE HOUSE BUILDING
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

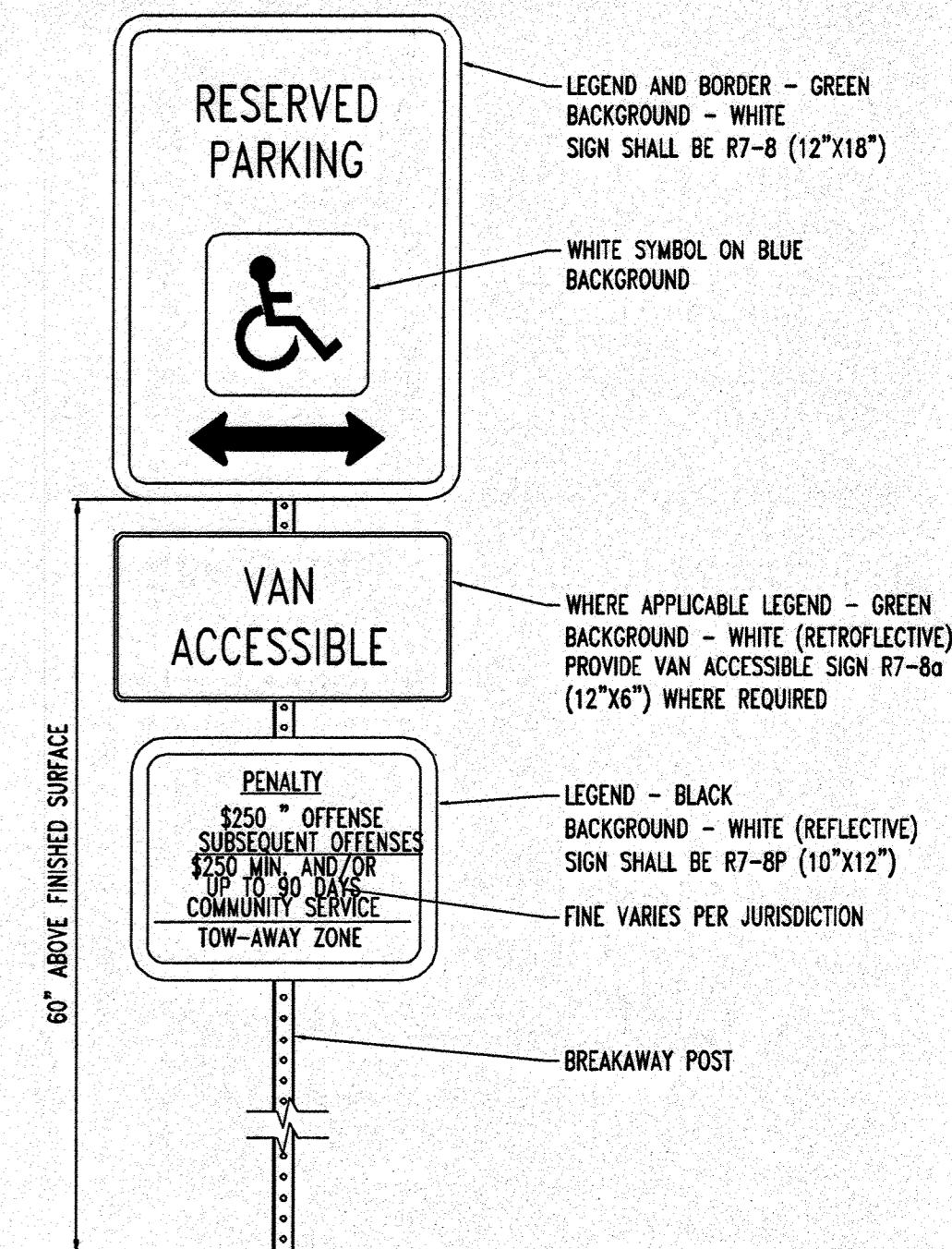
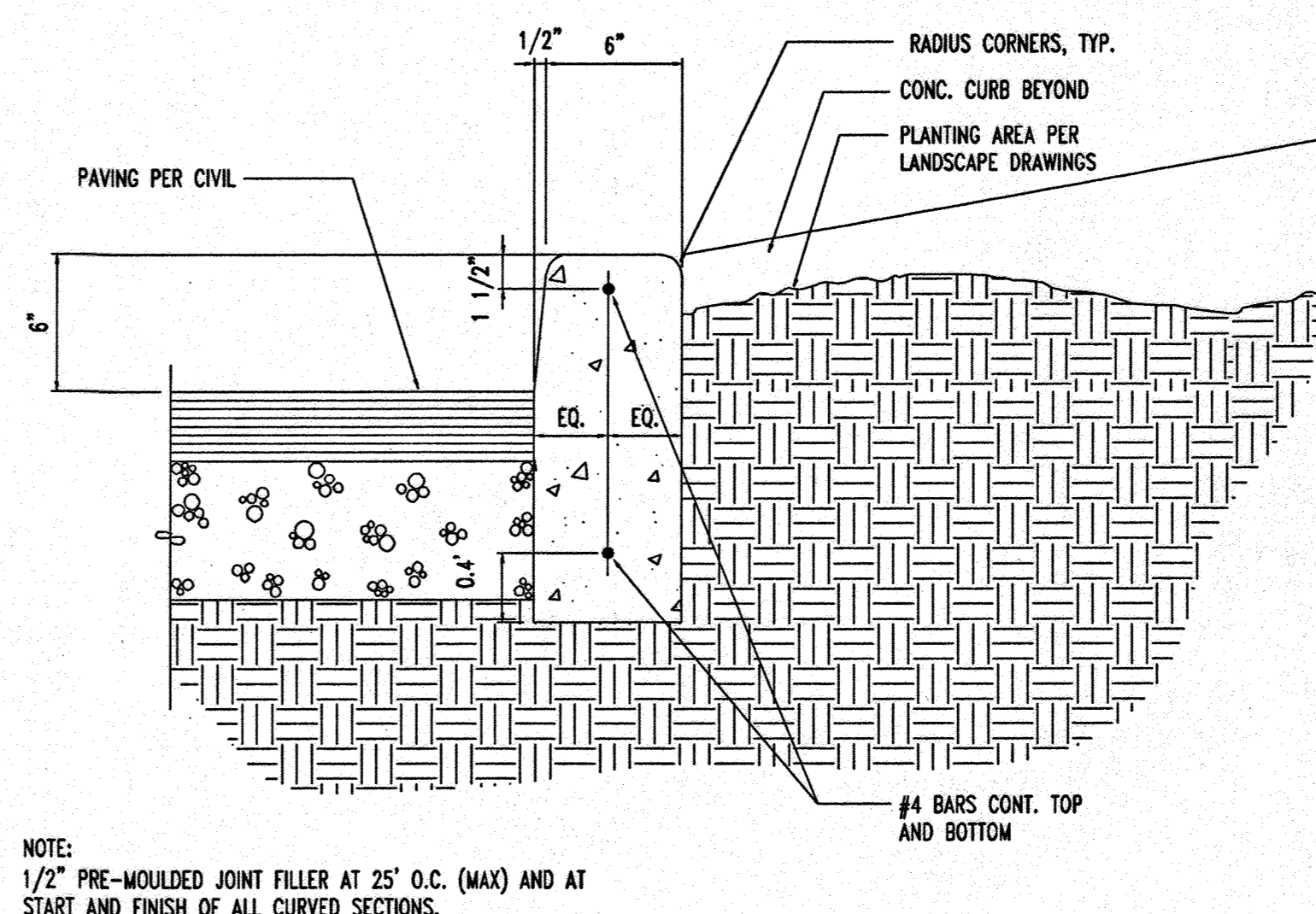
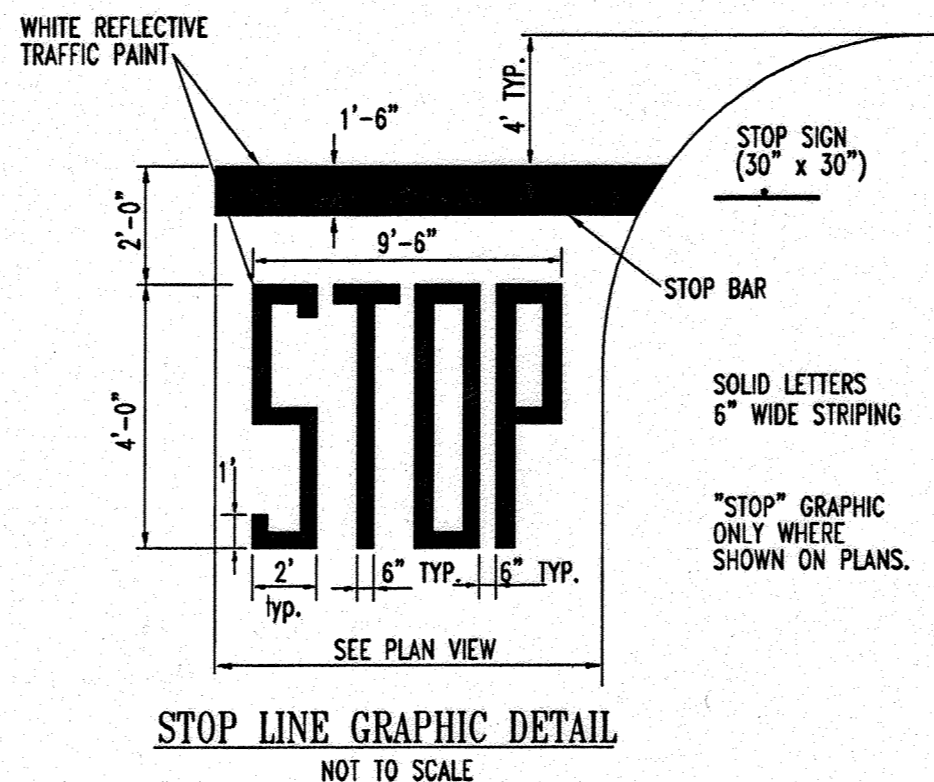
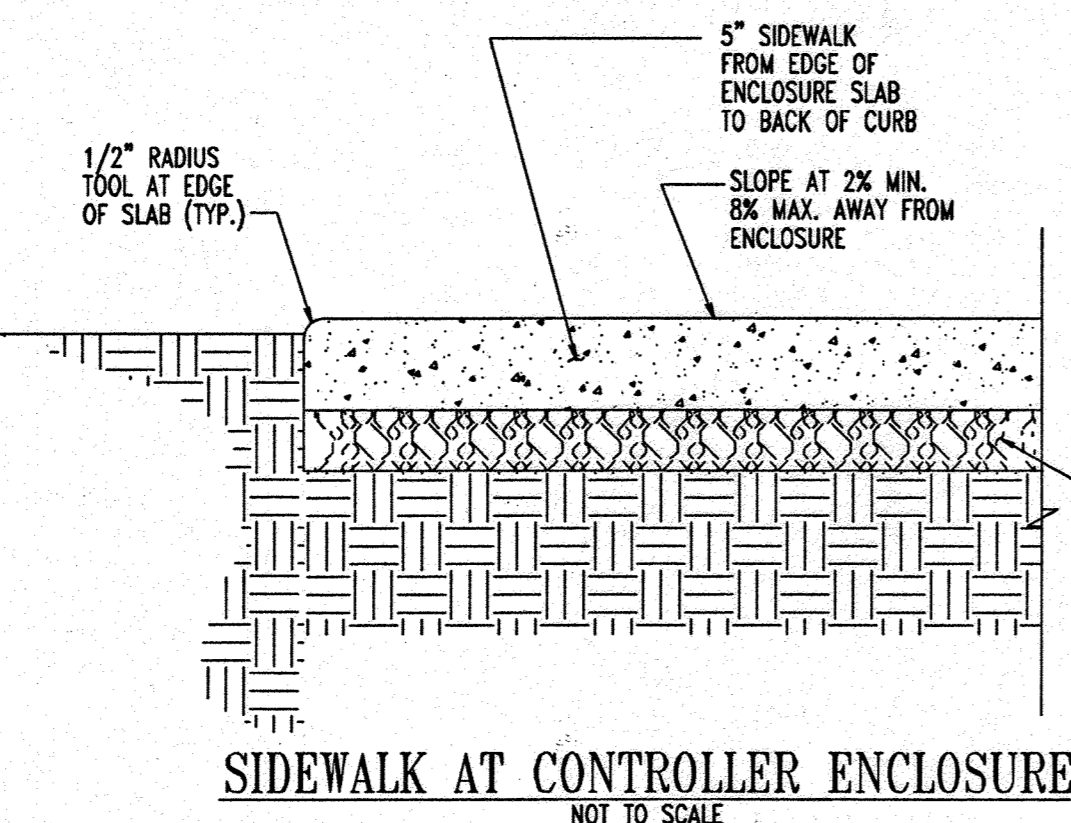
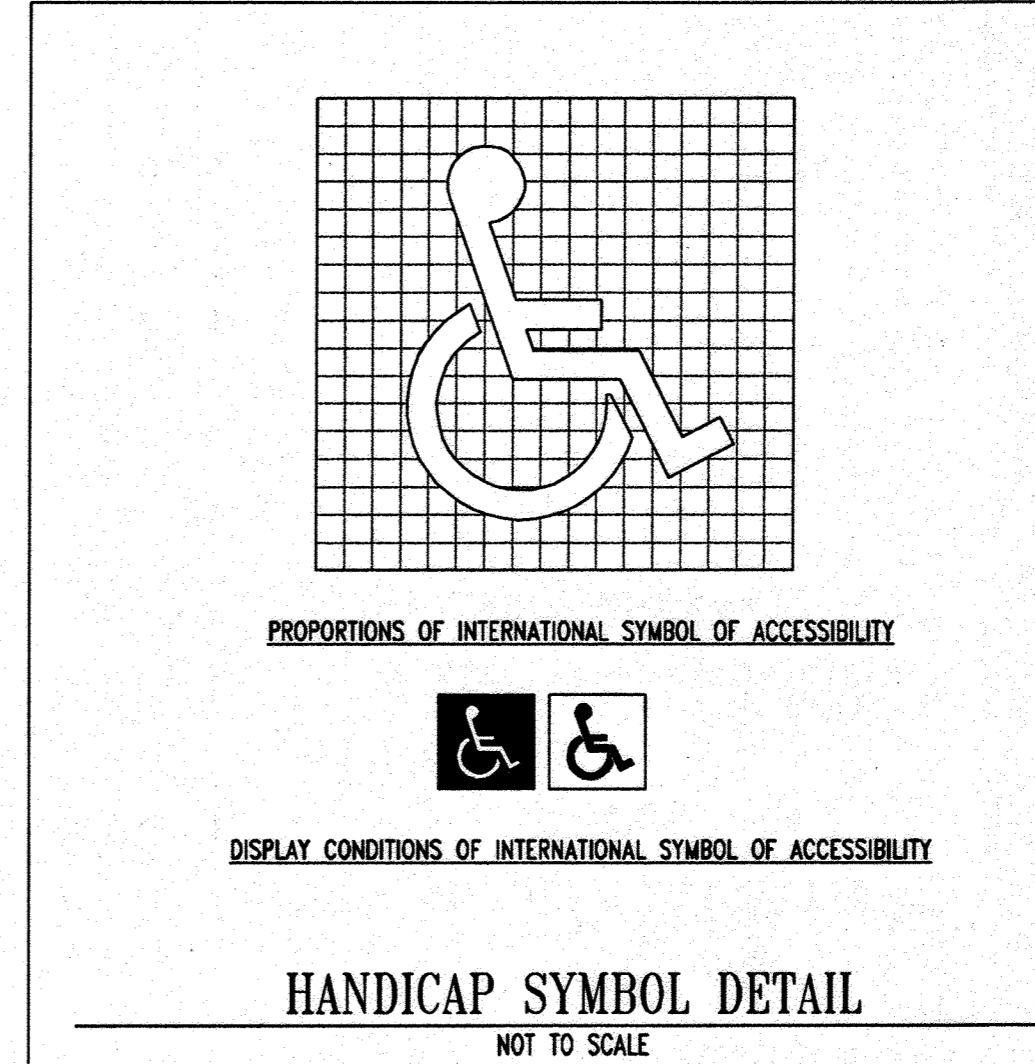
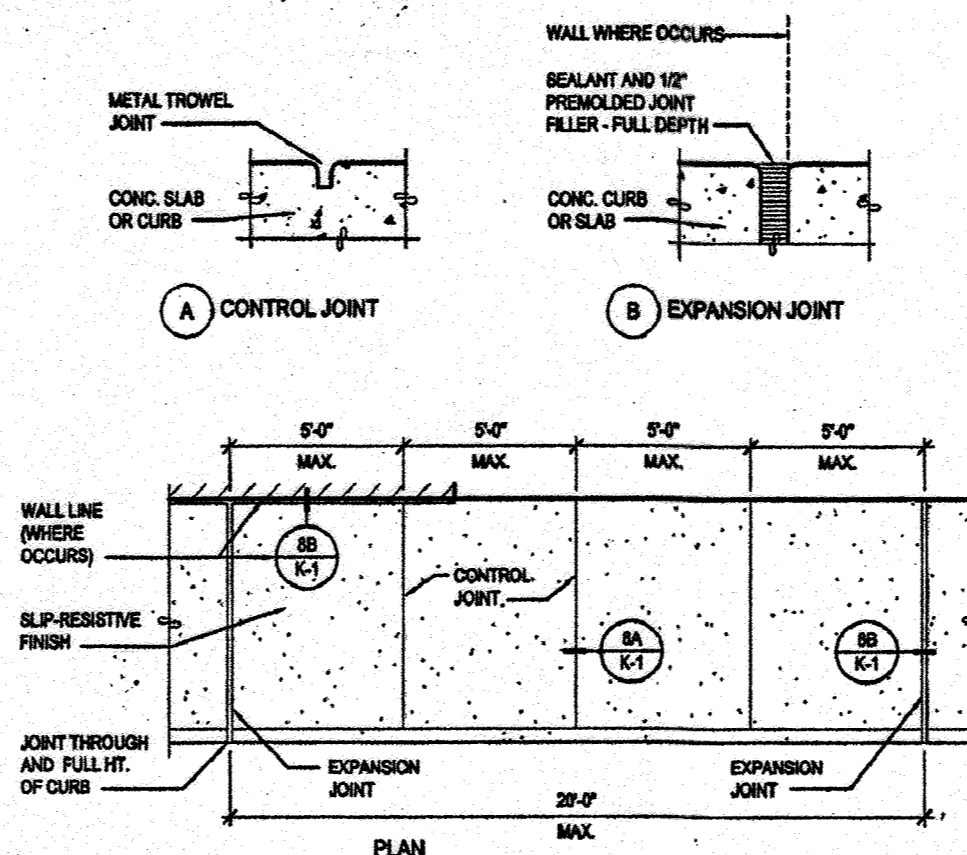
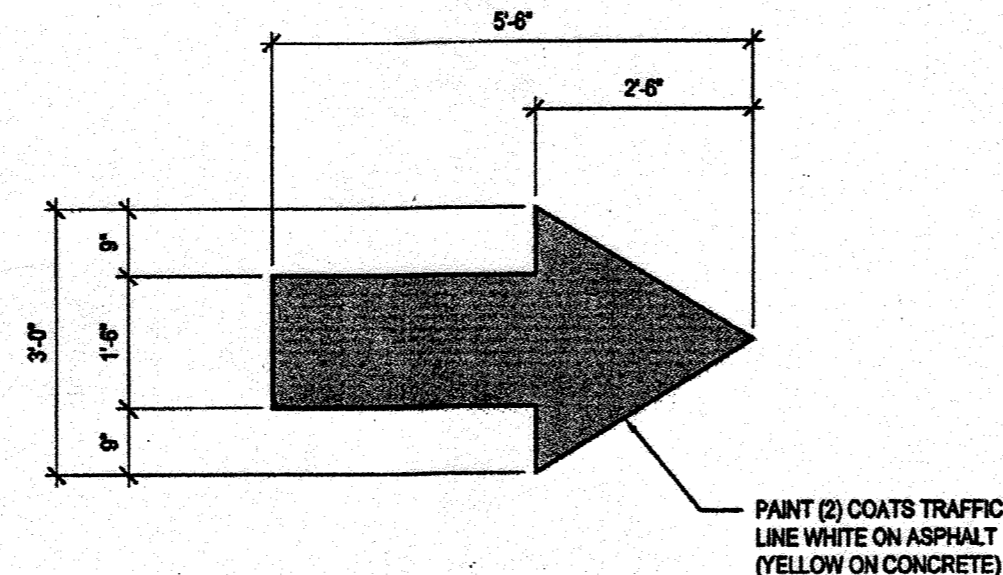
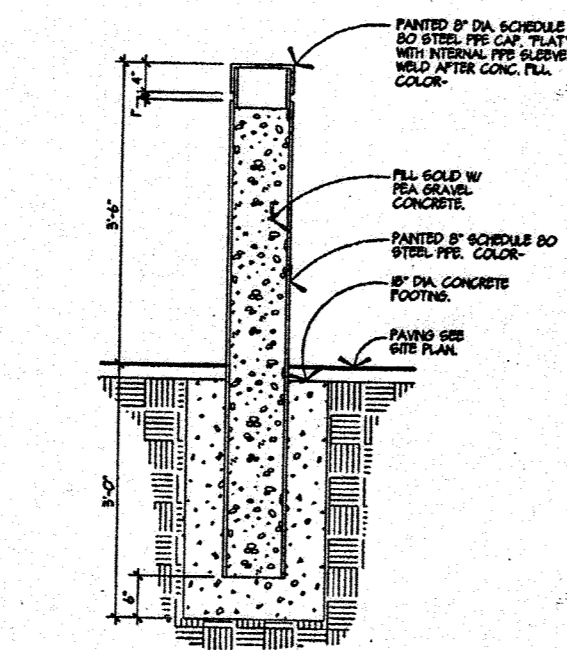
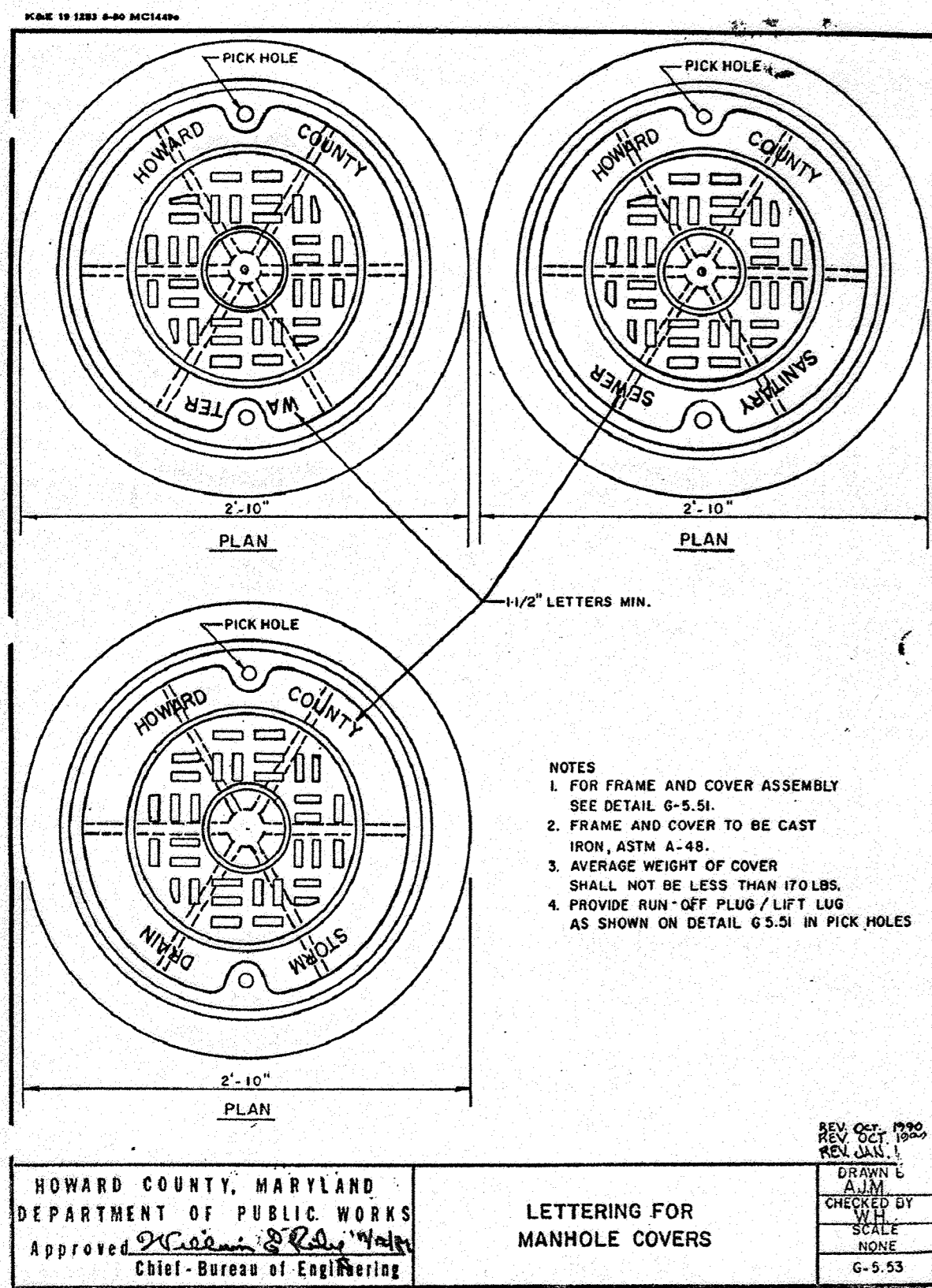
PROJECT: BENSON EAST
 PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 PARCEL 1 & 2 ZONED NEW TOWN

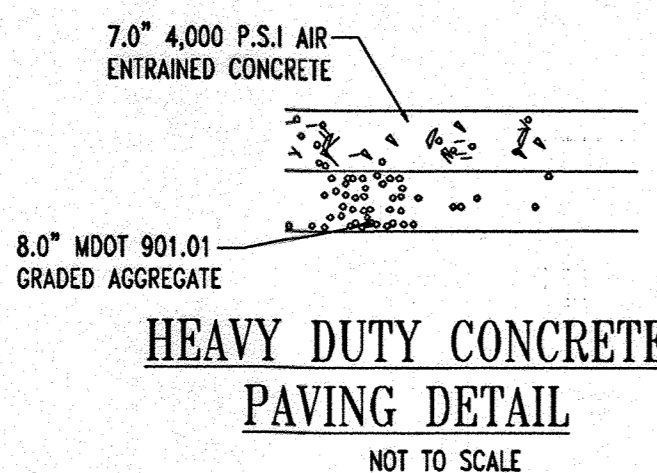
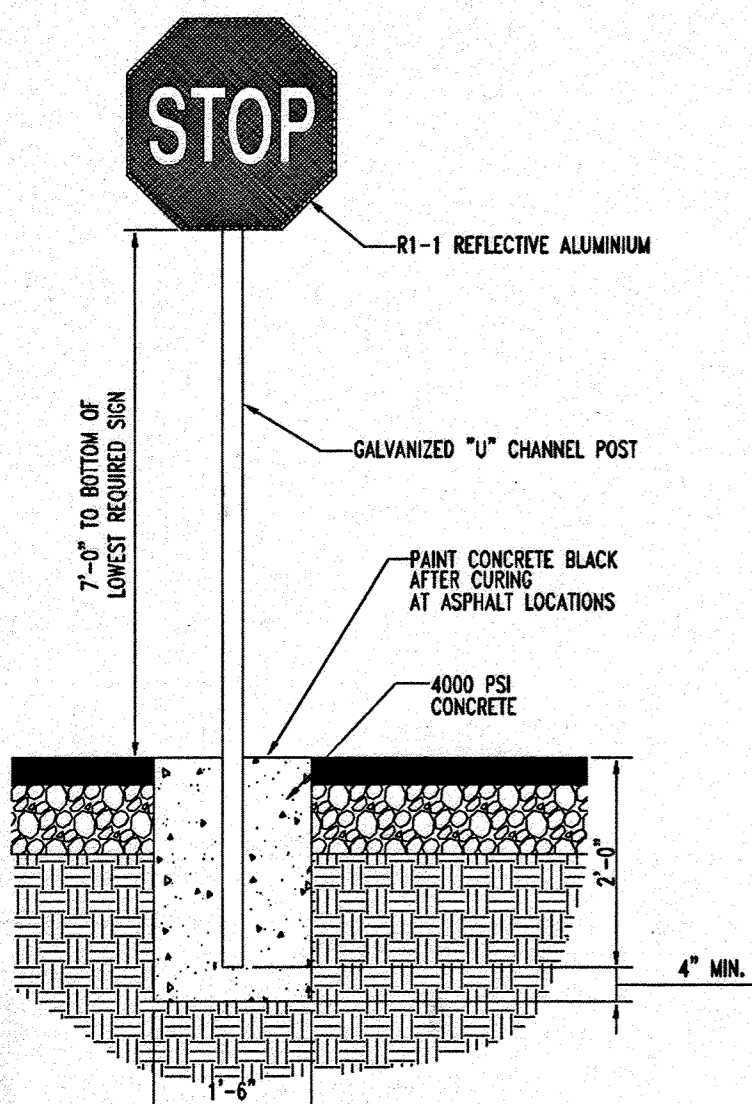
TITLE: CONSTRUCTION DETAILS

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22630 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA 20166
 CONTACT: LARRY B. BOHLER
 (703) 709-9600 FAX: (703) 709-9501

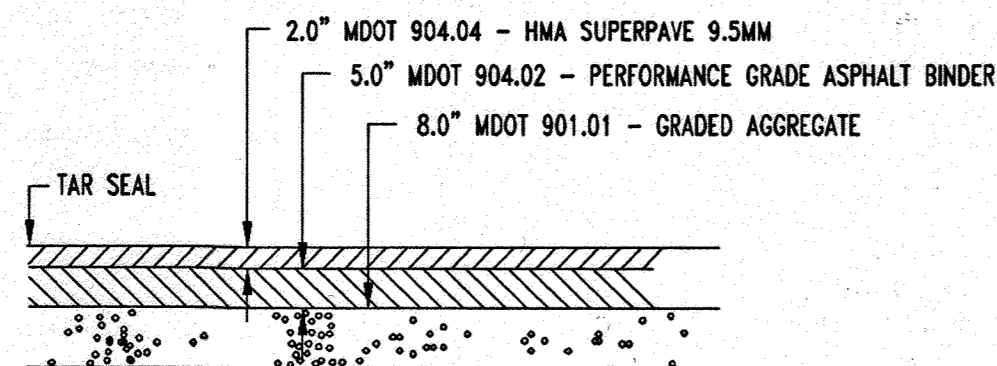
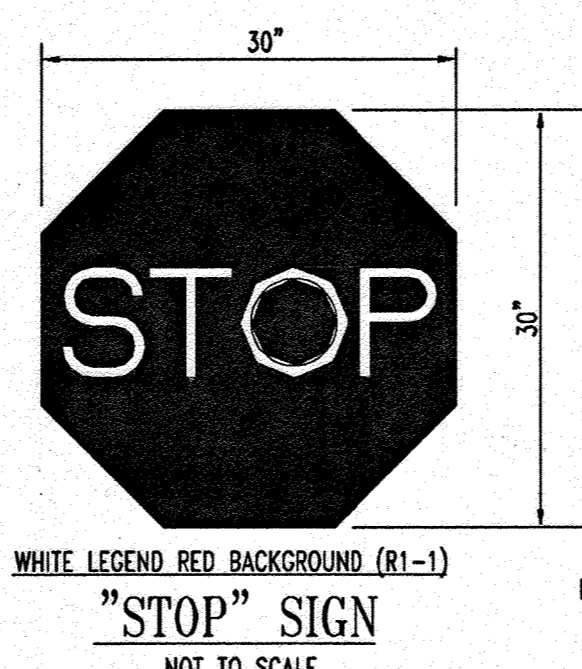
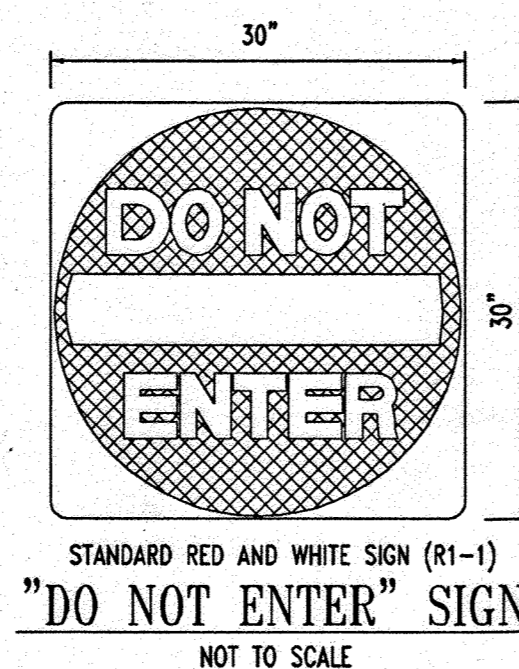
DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 16 OF 28



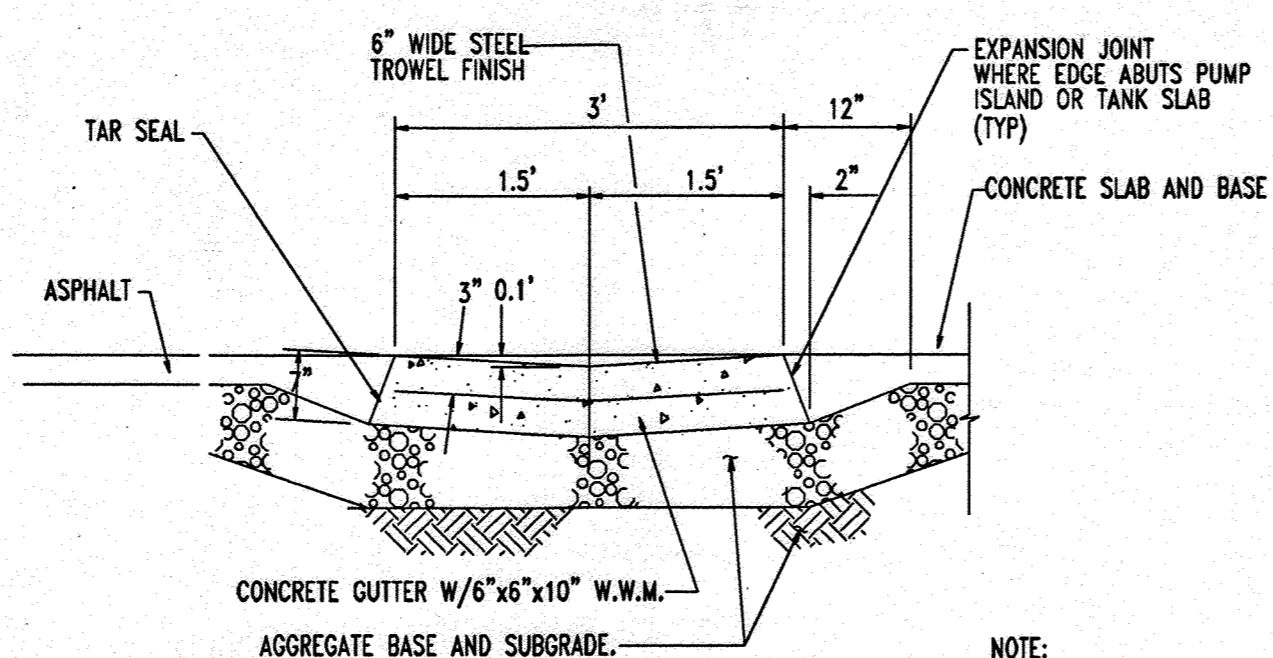
NOTE:
 1. SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 2. SIGNS ATTACHED WITH ACORN NUT TYPE FASTENERS.



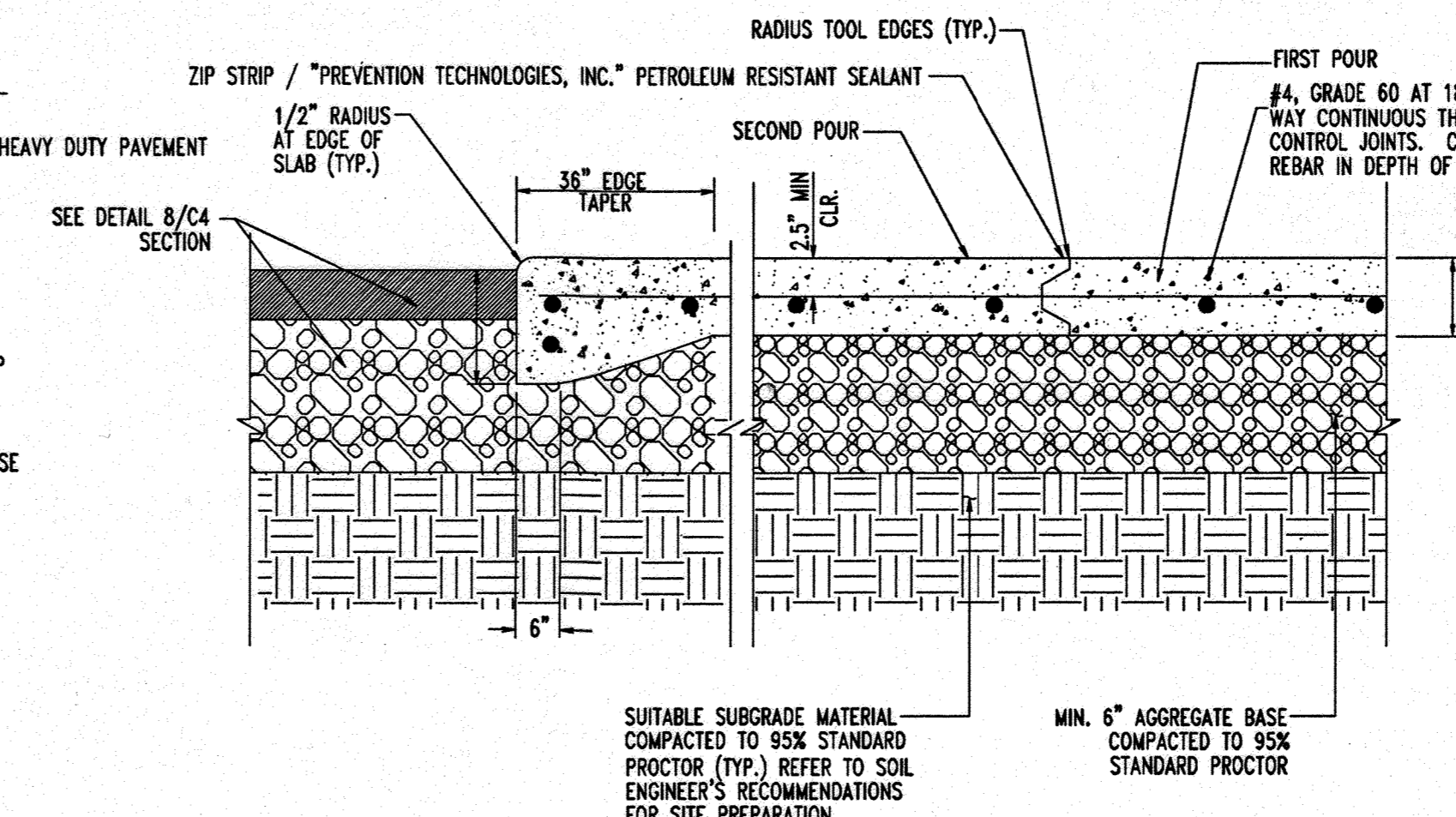
NOTES: REFER TO GEOTECHNICAL REPORT PREPARED BY WHITESTONE ASSOCIATES, INC. ENTITLED: "COSTCO WHOLESALE SITE, MARYLAND INTERSTATE I-95 AND LITTLE PATUXENT PARKWAY, COLUMBIA, HOWARD COUNTY, MARYLAND" DATED 10/20/05, PROJECT NO. WPOS-7961.
 PRELIMINARY PAVEMENT DESIGN BASED ON AS ESTIMATED CBR VALUE OF 3.0. FINAL PAVEMENT DESIGN WILL BE DETERMINED ONCE ACTUAL CBR TEST RESULTS FOR SUB BASE ARE MADE AVAILABLE.



NOTES: REFER TO GEOTECHNICAL REPORT PREPARED BY WHITESTONE ASSOCIATES, INC. ENTITLED: "COSTCO WHOLESALE SITE, MARYLAND INTERSTATE I-95 AND LITTLE PATUXENT PARKWAY, COLUMBIA, HOWARD COUNTY, MARYLAND" DATED 10/20/05, PROJECT NO. WPOS-7961.
 PRELIMINARY PAVEMENT DESIGN BASED ON AS ESTIMATED CBR VALUE OF 3.0. FINAL PAVEMENT DESIGN WILL BE DETERMINED ONCE ACTUAL CBR TEST RESULTS FOR SUB BASE ARE MADE AVAILABLE.



NOTE: INSTALL EXPANSION JOINTS AT 20'-0" O.C. MAX.



SUITABLE SUBGRADE MATERIAL COMPACTED TO 95% STANDARD PROCTOR (TYP.) REFER TO SOIL ENGINEER'S RECOMMENDATIONS FOR SITE PREPARATION.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. BOHLER, 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. 44097, EXPIRATION DATE: 6/1/14

FOR REVISIONS ONLY:



MISS UTILITY



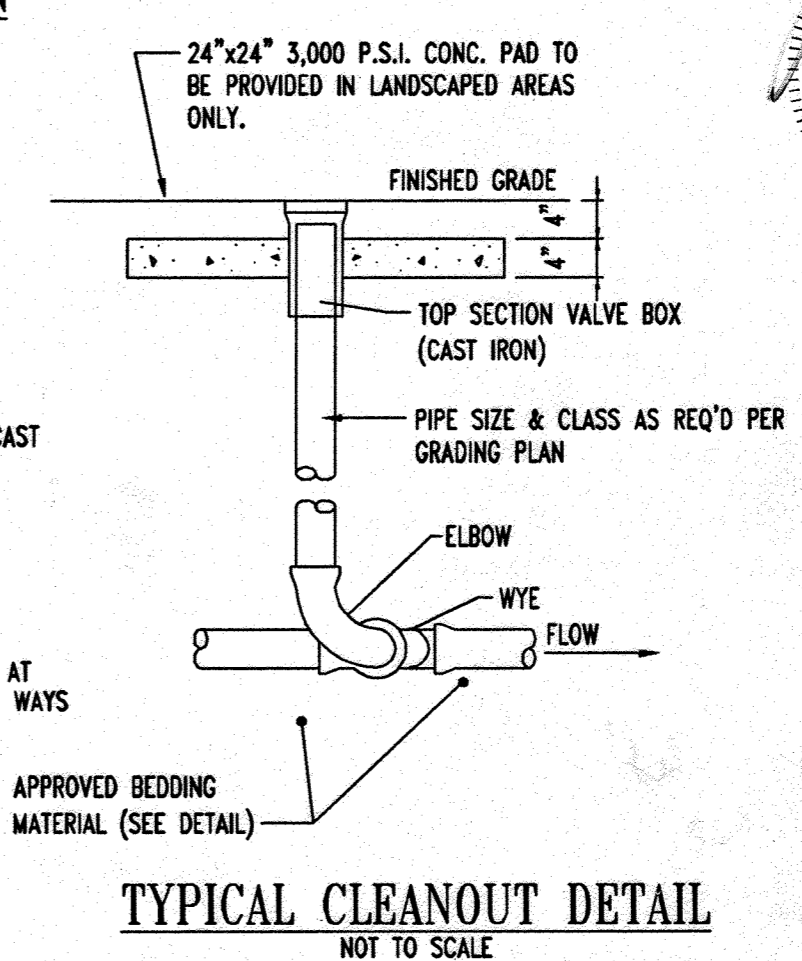
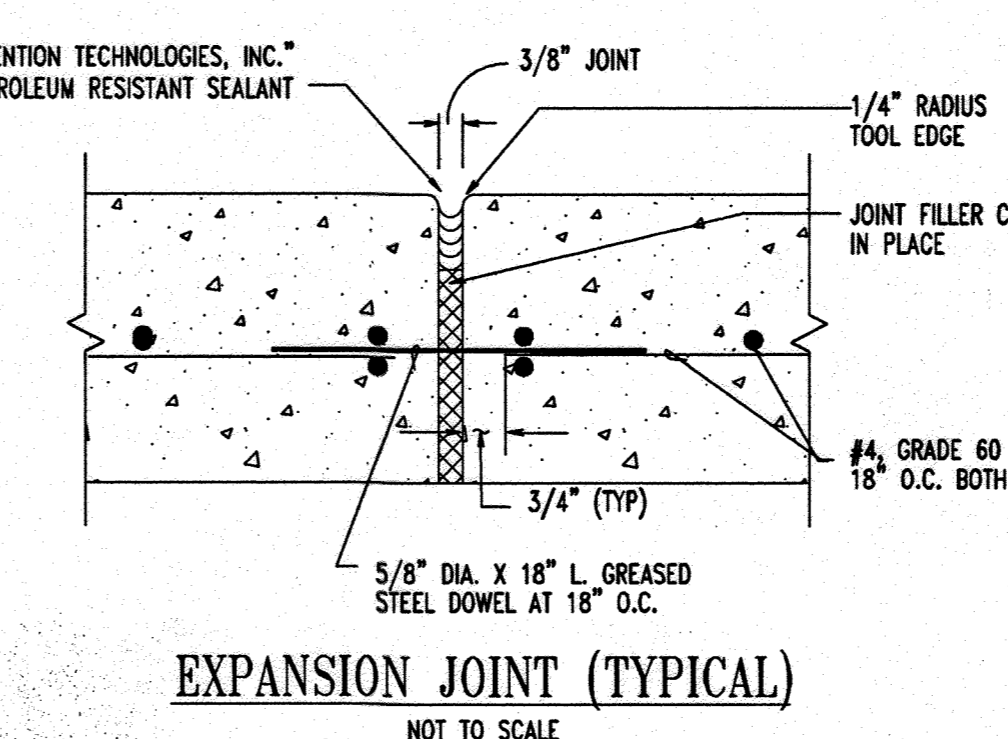
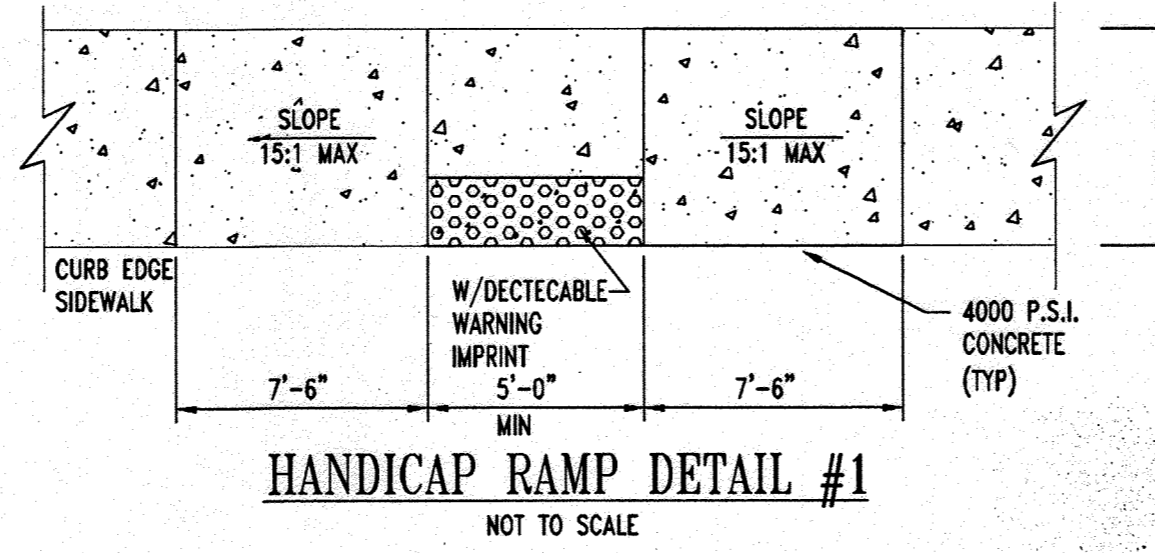
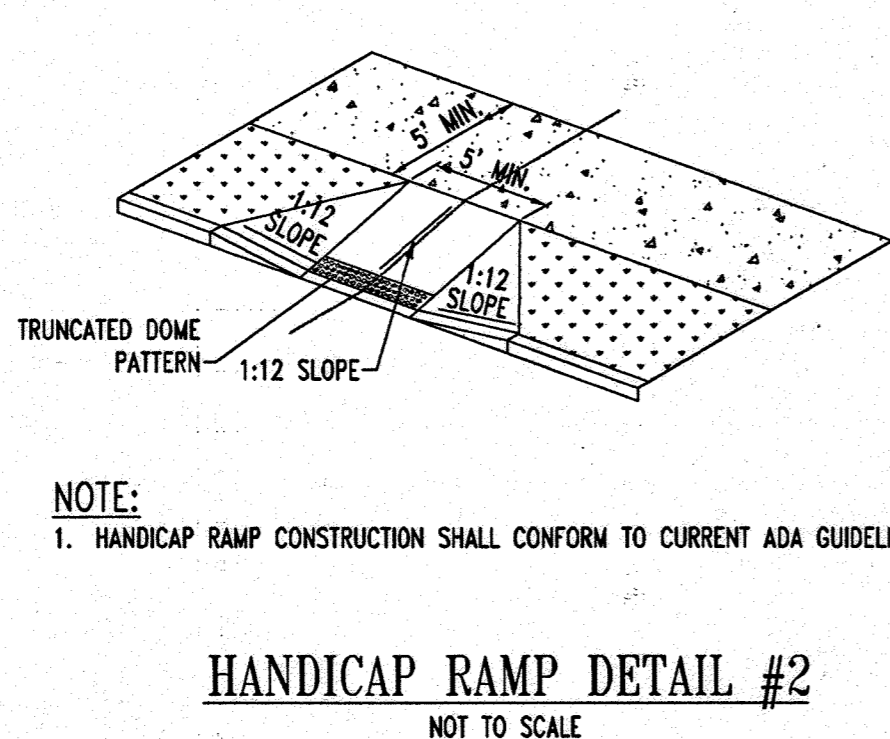
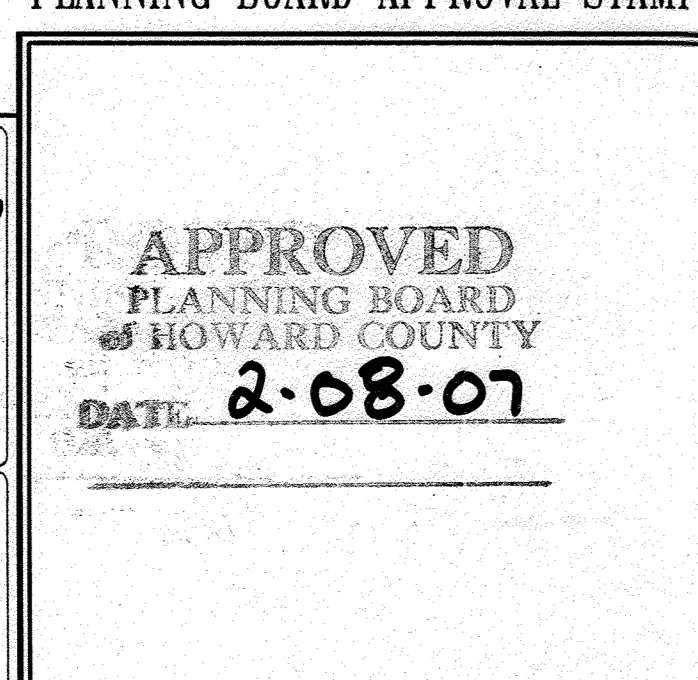
BEFORE YOU DIG CALL 1-800-977-7779 PROTECT YOURSELF - GIVE TWO WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREOF APPROPRIATE.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

REV. NO.	DATE	DESCRIPTION	BY
3	11/04/14	REVISION: LAYOUT NEW PUMP & CONTROL BUILDING	
OWNER/DEVELOPER: HRD LAND HOLDINGS, INC. HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 PHONE: (410) 992-6000			
PROJECT: BENSON EAST PARCEL U: GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER			
AREA: TAX MAP 57 GRID 1 & 2 ZONED NEW TOWN			
TITLE: CONSTRUCTION DETAILS			
BOHLER ENGINEERING, P.C. PROFESSIONAL ENGINEERING SERVICES 222830 Davis Drive, Suite 200 Sterling, Virginia, 20164 CONTACT: DAVID B. NEMESICKI (703) 709-9500 FAX: (703) 709-9501			
DATE:	DESIGNED BY:	J.A.D.	
6/26/07	DRAWN BY:	R.F.G.	
	PROJECT NO.:	SD04011.01	
	DATE:	6/25/07	
	SCALE:	AS SHOWN	
	DRAWING NO.:	17 OF 28	
ADAM J. VOLANTH PROFESSIONAL ENGINEER NO. 21342			

PLANNING BOARD APPROVAL STAMP



COMPLIANCE CHART:

SCHEDULE A PERIMETER LANDSCAPE EDGE - NORTH PROPERTY LINE	
CATEGORY	ADJACENT TO ROADWAYS ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE:	C REAR
LINEAR FEET OF PROPERTY LINE:	107 LF.
CREDIT FOR EXISTING VEGETATION	NO
CREDIT FOR WALL, FENCE, OR BERM	NO
NUMBER OF PLANTS REQUIRED:	
SHADE TREE(S): 1:40	3
EVERGREEN TREE(S): 1:20	6
SHRUB(S):	0
NUMBER OF PLANTS PROVIDED:	
SHADE TREE(S):	3
EVERGREEN TREE(S):	6
OTHER TREE(S): (2:1 SUBSTITUTION)	0
SHRUB(S): (10:1 SUBSTITUTION)	0

*- INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT

SCHEDULE A PERIMETER LANDSCAPE EDGE - SOUTH PROPERTY LINE	
CATEGORY	ADJACENT TO ROADWAYS ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE:	C REAR
LINEAR FEET OF PROPERTY LINE:	120 LF.
CREDIT FOR EXISTING VEGETATION	NO
CREDIT FOR WALL, FENCE, OR BERM	NO
NUMBER OF PLANTS REQUIRED:	
SHADE TREE(S): 1:40	3
EVERGREEN TREE(S): 1:20	6
SHRUB(S):	0
NUMBER OF PLANTS PROVIDED:	
SHADE TREE(S):	2
EVERGREEN TREE(S):	6
OTHER TREE(S): (2:1 SUBSTITUTION)	2
SHRUB(S): (10:1 SUBSTITUTION)	0

COMMENTS: TWO (2) UNDERSTORY TREES PROPOSED IN LIEU OF THREE (1) SHADE TREES.
** INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT

SCHEDULE A PERIMETER LANDSCAPE EDGE - WEST PROPERTY LINE	
CATEGORY	ADJACENT TO ROADWAYS ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE:	A PARKING LOT
LINEAR FEET OF ROADWAY FRONTAGE:	224 LF.
CREDIT FOR EXISTING VEGETATION	NO
CREDIT FOR WALL, FENCE, OR BERM	NO
NUMBER OF PLANTS REQUIRED:	
SHADE TREE(S): 1:60	4
EVERGREEN TREE(S):	0
SHRUB(S):	0
NUMBER OF PLANTS PROVIDED:	
SHADE TREE(S):	2
EVERGREEN TREE(S):	4
OTHER TREE(S): (2:1 SUBSTITUTION)	0
SHRUB(S): (10:1 SUBSTITUTION)	0

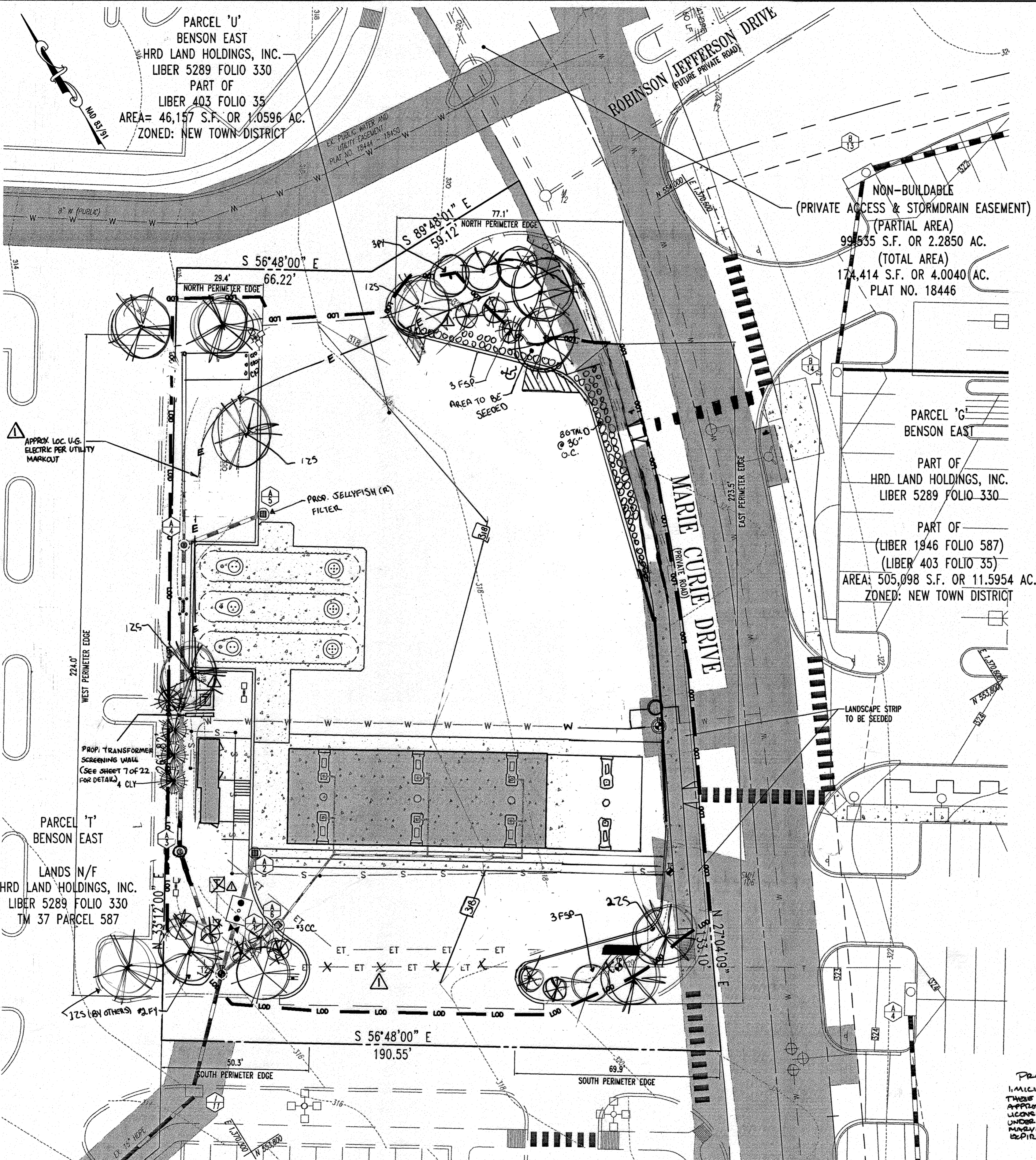
COMMENTS: NONE
** INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT

SCHEDULE A PERIMETER LANDSCAPE EDGE - EAST PROPERTY LINE	
CATEGORY	ADJACENT TO ROADWAYS ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE:	B FRONT/SIDE
LINEAR FEET OF ROADWAY FRONTAGE:	224
CREDIT FOR EXISTING VEGETATION	NO
CREDIT FOR WALL, FENCE, OR BERM	NO
NUMBER OF PLANTS REQUIRED:	
SHADE TREE(S): 1:50	5
EVERGREEN TREE(S): 1:40	6
SHRUB(S):	0
NUMBER OF PLANTS PROVIDED:	
SHADE TREE(S):	4
EVERGREEN TREE(S):	6
OTHER TREE(S): (2:1 SUBSTITUTION)	2
SHRUB(S): (10:1 SUBSTITUTION)	0

COMMENTS: NONE
** INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT

PLANNING BOARD APPROVAL STAMP

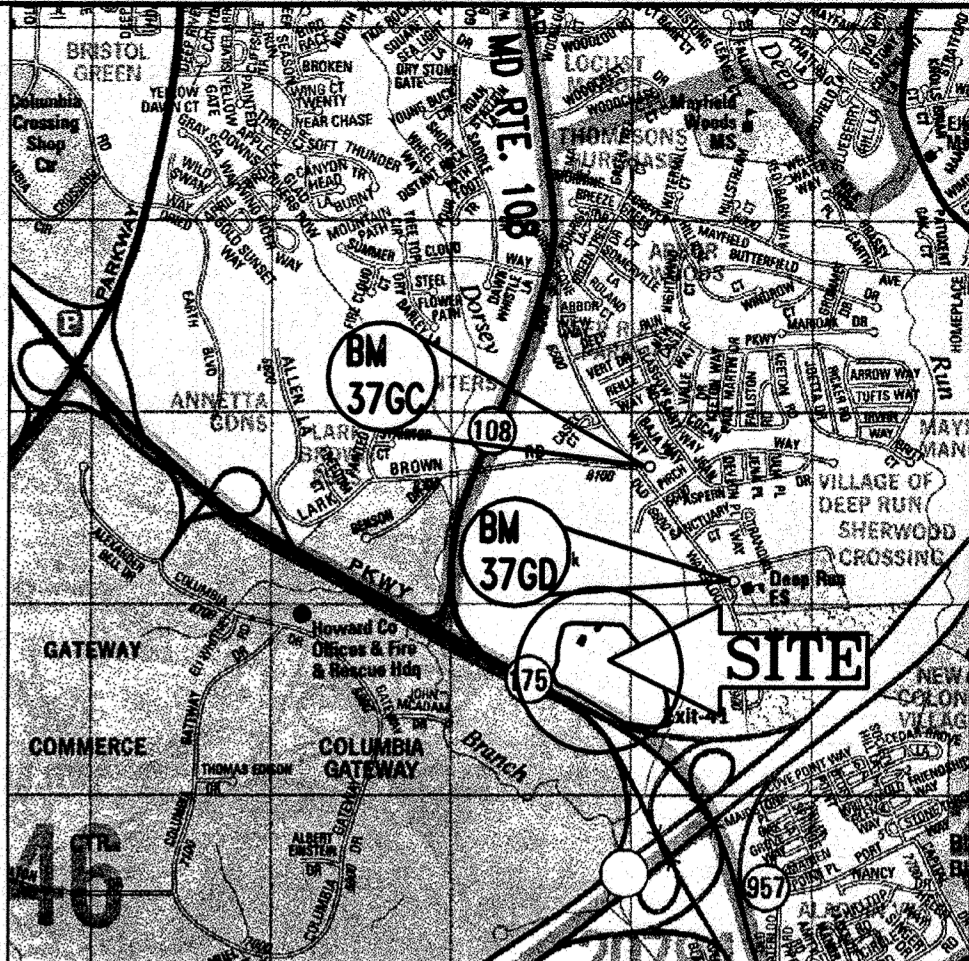
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE 7/5/07
 APPROVED: PLANNING BOARD OF HOWARD COUNTY
 DATE 2-08-07
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER DATE 7/13/07
 HOWARD COUNTY HEALTH DEPARTMENT



GATEWAY OVERLOOK DESIGN AND DEVELOPMENT CRITERIA

V. LANDSCAPE DESIGN CRITERIA
 BASED UPON THE GATEWAY OVERLOOK DESIGN AND DEVELOPMENT CRITERIA THE SUBSTITUTION OF TWO (2) FLOWERING TREES OR TWO (2) EVERGREEN TREES FOR EACH "SHADE TREE" IS REQUIRED FOR 25% TO 50% OF THE REQUIRED NUMBER OF SHADE TREES SHOWN IN THE TABLE.
 TOTAL NUMBER OF SHADE TREES REQUIRED: 15
 15 X .25 = AT LEAST 4 SHADE TREES MUST BE SUBSTITUTED WITH FLOWERING OR EVERGREEN TREES AT A 2:1 RATIO.
 TOTAL NUMBER OF FLOWERING OR EVERGREEN TREES REQUIRED: 8
 TOTAL NUMBER OF FLOWERING OR EVERGREEN TREES PROVIDED: 8

NOTES:
 1. PERIMETER LANDSCAPING HAS BEEN PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL, SURETY IN THE AMOUNT OF \$7,200.00 FOR 11 SHADE AND 4 ORNAMENTAL TREES AND 22 EVERGREENS SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SITE PLAN, SDP 07-36.



- NOTE**
- THIS LANDSCAPE PLAN IS PREPARED TO BE IN CONFORMANCE WITH THE LANDSCAPE DESIGN CRITERIA OF THE GATEWAY OVERLOOK SHOPPING CENTER DESIGN AND DEVELOPMENT CRITERIA.
 - THIS LANDSCAPE PLAN IS BASED ON THE APPROVED CONCEPTUAL LANDSCAPE PLAN FOR THE GATEWAY OVERLOOK SHOPPING CENTER PREPARED BY SLATER ASSOCIATES, INC. DATED 05/18/05 AND A LANDSCAPE PLAN PREPARED BY PATTON, HARRIS, RUST, AND ASSOCIATES, P.C. DATED 08/03/04 (REFERENCE #SDP-04-163).

BENCHMARK

GEODETIC SURVEY CONTROL #37GD
 N 553,237.204
 E 1,372,353.605
 ELEV. 290.931'
 LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL

GEODETIC SURVEY CONTROL #37GC
 N 553,250.781
 E 1,370,946.348
 ELEV. 331.855'
 LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

REV.	DATE	DESCRIPTION	BY
3	11/20/04	REVISION 1: GATEWAY OVERLOOK SHOPPING CENTER	WJG
1	9/2/07	ELEC. LINE & TRANSFORMER, POP. SCREEN WALL	Bahler
1	9/12/07	IRRIGATION WATERLINE AND METER	Bahler

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 392-6000

PROJECT: BENSON EAST
 PARCEL U, GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER

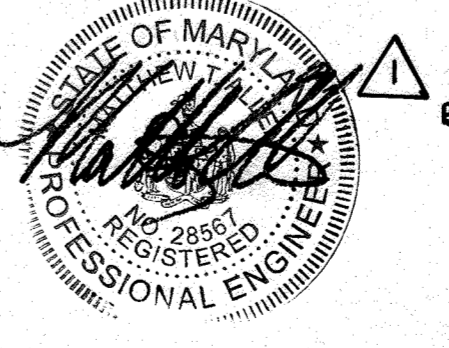
AREA: TAX MAP 37
 PARCELS 1 & 2
 ZONED NEW TOWN
 BENSON EAST
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22630 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA 20164
 CONTACT: DAVID B. BOHLER
 (703) 708-0800 FAX: (703) 708-9501

DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S04001.101
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 18 OF 28
 ADAM J. VOLANTH
 PROFESSIONAL ENGINEER NO. 21342

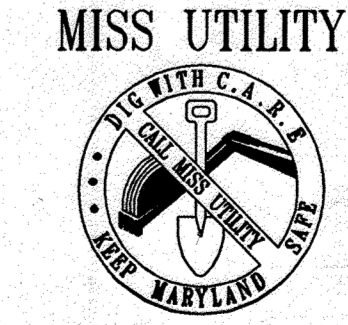
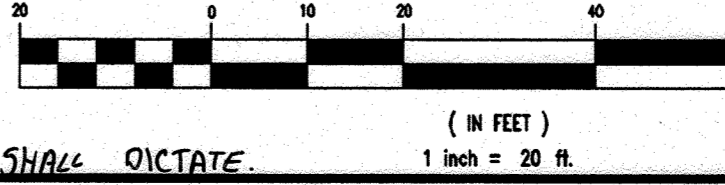
LANDSCAPE SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
ZS	4	ZELICOVA SERRATA	GREEN VASE ZELCOWA	2 1/2"-3" CAL.	B+B
CC	5	CERCIS CANADENSIS	EASTERN REDBUD	2-2 1/2" CAL.	B+B
PY	5/10	PAUNUS X YEDOROS	YOSHAWADO CHERRY	2 1/2"-3" CAL.	B+B
EXF	3	ILEX X FOSTERI	FOSTER'S HOLLY	5-6'	B+B
TND	52/55	TAXUS X MEDIA (DENSIFORMIS)	DECAISFORIAS TOW	24-30'	B+B



FOR REVISION 1
 BOHLER ENGINEERING, P.C.

GRAPHIC SCALE



MISS UTILITY
 BEFORE YOU DIG CALL
 1-800-357-7772
 PROJECT YOURSELF, ONE TWO WORKING DAYS NOTICE

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THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SOILING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS:
A. GENERAL - ALL HORTICULTURAL MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FERTILE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOODS, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAMN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SOILED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.

D. LAMN SEED MIXTURES SHALL BE FRESH, CLEAN AND PROPERLY MIXED.

E. SOIL SHALL BE STRONGLY ROOTED, WEED AND DISEASE/FEST FREE WITH A UNIFORM THICKNESS. 500 INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PECEDED TO HOLD 500 IN PLACE.

D. MULCH - ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

F. FERTILIZER
I. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
II. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

G. PLANT MATERIAL
I. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
II. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
III. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES OR VARIETY THROUGHOUT THE FINAL INSPECTION.
IV. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISCOLORATION OR FRESH CUTS OF LIMBS OVER 1/4", WHICH HAVE NOT BEEN COMPLETELY CALLEDUS, SHALL BE REJECTED.
V. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
VI. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH; WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
VII. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
VIII. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
IX. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

H. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THROUGHOUT:
I. 1 PART PEAT MOSS
II. 3 PARTS TOPSOIL BY VOLUME
III. 2 TABLETS PER 1 GALLON PLANT
IV. 2 TABLETS PER 1/2 GALLON PLANT
V. 4 TABLETS PER 1/4 GALLON PLANT
VI. LARGER PLANTS: 2 TABLETS PER 1/2" CALIPER OF TRUNK

I. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

J. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

K. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GROUND.

L. GROUND COVER AREAS SHALL RECEIVE A 1" LAYER OF HAWKS BARKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEDED AND TREATED WITH A PEST-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

M. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

N. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

O. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (BRIER REQUIREMENTS)
A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.
B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.
C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.
D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.
E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.
F. IF TRANSPLANTS (E.G. SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH) SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING
A. NEW PLANTINGS OR LAMN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.
B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.
C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. SUBSTITUTION
A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.
B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.
C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

13. CLEANUP
A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.
B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

14. MAINTENANCE (ALTERNATE BID)
A. A 90 DAY MAINTENANCE PERIOD SHALL COMMENCE AT THE END OF ALL LANDSCAPE INSTALLATION OPERATIONS. THE 90 DAY MAINTENANCE PERIOD ENDS WITH THE OWNER/OPERATOR THAT THE NEWLY INSTALLED LANDSCAPING HAS BEEN MAINTAINED AS SPECIFIED ON THE APPROVED LANDSCAPE PLAN. ONCE THE INITIAL 90 DAY MAINTENANCE PERIOD HAS EXPIRED, THE OWNER/OPERATOR MAY REQUEST THAT BIDDERS SUBMIT AN ALTERNATE MAINTENANCE BID FOR A MONTHLY MAINTENANCE CONTRACT. THE ALTERNATE MAINTENANCE CONTRACT WILL ENCOMPASS ANY WORK THAT IS CONSIDERED APPROPRIATE TO ENSURE THAT PLANT AND LAMN AREAS ARE HEALTHY AND MAINTAINED TO THE APPROVAL OF THE OWNER/OPERATOR.

GATEWAY OVERLOOK

PLANTING SPECIFICATIONS
A. PLANT MATERIALS
THE LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL AND/OR DIG, BALL, BURLAP AND TRANSPORT ALL OF THE PLANT MATERIALS CALL FOR ON DRAWINGS AND/OR LISTED IN THE PLANT SCHEDULE.

1. PLANT NAMES
PLANT NAMES USED IN THE PLANT SCHEDULE SHALL CONFORM TO "STANDARDIZED PLANT NAMES," LATEST EDITION.

2. PLANT STANDARDS
ALL PLANT MATERIAL SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK" LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HERE-AFTER REFERRED TO AS AM STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH AND SHALL BE FREE QUALITY, SOUND, VIGOROUS, WELL-BRANCHED AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEM. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES.

3. PLANT MEASUREMENTS
ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATE CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEEL-IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

4. CALIPER MEASUREMENTS
ALL PLANT MATERIAL SHALL CONFORM TO THE MEASURES SPECIFIED IN THE PLANT SCHEDULE AS APPROVED BY THE ARC.
a. CALIPER MEASUREMENTS SHALL BE TAKEN SIX INCHES (6") ABOVE GRADE FOR TREES UNDER FOUR-INCH (4") CALIPER AND TWELVE INCHES (12") ABOVE GRADE FOR TREES FOUR INCHES (4") IN CALIPER AND OVER.
b. MINIMUM BRANCHING HEIGHT FOR ALL TREES SHALL BE SIX FEET (6') MAXIMUM EIGHT FEET (8').
c. MINIMUM SIZE FOR PLANTING SHADE TREES SHALL BE 3" - 3 1/2" CALIPER, 14" - 16" IN HEIGHT.
d. MINIMUM SIZE FOR PLANTING MINOR OR INTERMEDIATE FOCUS TREES (PINES, CYPRESS, ETC.) SHALL BE 3" - 3 1/2" CALIPER, 10" - 12" IN HEIGHT.
e. MINIMUM SIZE FOR PLANTING SHRUBS SHALL BE 18" - 24" FOCUS TREES UNLESS NOTED OTHERWISE.

5. CALIPER, HEIGHT, SPREAD AND SIZE OF BALL SHALL BE GENERALLY AS FOLLOWS:

CALIPER	HEIGHT	SPREAD	SIZE OF BALL
3" - 3 1/2"	14" - 16"	6" - 8"	32" DIAMETER
3 1/2" - 4"	14" - 16"	8" - 10"	36" DIAMETER
4" - 4 1/2"	16" - 18"	8" - 10"	40" DIAMETER
4 1/2" - 5"	16" - 17"	10" - 12"	40" DIAMETER
5" - 5 1/2"	16" - 20"	10" - 12"	40" DIAMETER
5 1/2" - 6"	18" - 20"	12" - 14"	52" DIAMETER

6. PLANT IDENTIFICATION
LEGIBLE LABELS SHALL BE ATTACHED TO ALL SHADE TREES, MINOR TREES, SPECIMEN SHRUBS AND BUNDLES OR BOXES OF OTHER PLANT MATERIAL CARRYING THE BOTANICAL AND COMMON NAMES, SIZE AND QUANTITY OF EACH. EACH SHIPMENT OF PLANTS SHALL BEAR CERTIFICATES OF INSPECTION AS REQUIRED BY FEDERAL, STATE AND COUNTY AUTHORITIES.

7. PLANT INSPECTION
THE ARC MAY, UPON REQUEST BY THE BUILDER OR DEVELOPER, AT LEAST TEN (10) DAYS PRIOR TO THE INSTALLATION OF ANY PROPOSED PLANT MATERIAL AT THE SOURCE OF GROUND.

8. PLANTING METHODS
ALL PROPOSED PLANT MATERIALS THAT MEET THE SPECIFICATIONS IN SECTION A (PRECEDING PAGE) ARE TO BE PLANTED IN ACCORDANCE WITH THE FOLLOWING PLANTING METHODS DURING THE PROPER PLANTING SEASONS AS DESCRIBED IN THE FOLLOWING:

1. PLANTING SEASONS
THE PLANTING OF DECIDUOUS TREES, SHRUBS AND VINES SHALL BE FROM MARCH 1ST TO JUNE 15TH AND FROM SEPTEMBER 15TH TO DECEMBER 15TH. PLANTING OF EVERGREEN MATERIAL MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDING THERE IS NO FROST IN THE GROUND AND FROST-FREE TOPSOIL PLANTING ARE USED.

2. DIGGING
THE PLANTING OF EVERGREEN MATERIAL SHALL BE FROM MARCH 15TH TO JUNE 15TH AND FROM AUGUST 15TH TO DECEMBER 15TH. NO PLANTING SHALL BE DONE WHEN THE GROUND IS FROZEN OR EXCESSIVELY MOIST. NO FROZEN OR WET TOPSOIL SHALL BE USED AT ANY TIME.

3. EXCAVATION OF PLANT PITS
THE LANDSCAPING CONTRACTOR SHALL EXCAVATE ALL PLANT PITS, VINE PITS, HEDGE TRENCHES AND SHRUB BEDS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
a. LOCATIONS OF ALL PROPOSED PLANT MATERIAL SHALL BE STAKED AND APPROVED IN THE FIELD BY THE LANDSCAPE ARCHITECT BEFORE ANY OF THE PROPOSED PLANT MATERIAL IS INSTALLED BY THE LANDSCAPE CONTRACTOR.
b. ALL PITS SHALL BE GENERALLY CIRCULAR IN OUTLINE. VERTICAL SIDES; DEPTH SHALL NOT BE LESS THAN 6" DEEPER THAN THE ROOT BALL, DIAMETER SHALL NOT BE LESS THAN TWO TIMES THE DIAMETER OF THE ROOT BALL AS SET FORTH IN THE FOLLOWING SCHEDULE.
c. IF AREAS ARE DESIGNATED AS SHRUB BEDS OR HEDGE TRENCHES, THEY SHALL BE EXCAVATED TO AT LEAST 18" DEPTH MINIMUM. AREAS DESIGNATED FOR GROUND COVERS AND VINES SHALL BE EXCAVATED TO AT LEAST 12" IN DEPTH MINIMUM.
d. DIAMETER AND DEPTH OF TREE PITS SHALL GENERALLY BE AS FOLLOWS:

PIT PLANT SIZE	PIT ROOT BALL	DIAMETER	DEPTH
3" - 3 1/2" cal.	32"	64"	28"
3 1/2" - 4" cal.	36"	72"	32"
4" - 4 1/2" cal.	40"	80"	36"
4 1/2" - 5" cal.	44"	88"	40"
5" - 5 1/2" cal.	48"	96"	44"
5 1/2" - 6" cal.	52"	104"	48"

4. STAKING, CUTTING AND WRAPPING
ALL PLANT MATERIAL SHALL BE STAKED OR GUYED, AND WRAPPED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
a. STAKES: SHALL BE SOUND WOOD 2" x 2" ROUGH SAWN OAK OR SIMILAR DURABLE WOODS, OR LENGTHS, MINIMUM 7' - 0" FOR MAJOR TREES AND 5' - 0" MINIMUM FOR MINOR TREES.
b. WIRE AND CABLE: WIRE SHALL BE #10 GA. GALVANIZED OR BETHANIZED ANNEALED STEEL WIRE. FOR TREES OVER 3" CALIPER, PROVIDE 5/16" TURN BUCKLES, EYE AND EYE WITH 4" TACKLE. FOR TREES OVER 5" CALIPER PROVIDE 3/4" 7 STRAND CABLE COLUMBIAN PLATED STEEL, WITH GALVANIZED "EXT" THIMBLES OF WIRE AND HOSE ON TREES UP TO 3" IN CALIPER.
c. HOSE: SHALL BE NEW, 2 PLY REINFORCED RUBBER HOSE, MINIMUM 1/2" I.D. "PLASTIC LOCK TIES" OR "PAUL'S TREES BRACES" MAY BE USED IN PLACE OF WIRE AND HOSE ON TREES UP TO 3" IN CALIPER.
d. ALL TREES UNDER 3" IN CALIPER ARE TO BE PLANTED AND STAKED IN ACCORDANCE WITH THE ATTACHED "TYPICAL TREE STAKING DETAIL". ALL TREES OVER 3" IN CALIPER ARE TO BE PLANTED AND GUYED IN ACCORDANCE WITH THE ATTACHED "TYPICAL TREE GUYING DETAIL".

5. PLANTING PRUNING, EDGING AND MULCHING
a. EACH TREE, SHRUB OR VINE SHALL BE PRUNED IN AN APPROPRIATE MANNER TO ITS PARTICULAR REQUIREMENTS, IN ACCORDANCE WITH ACCEPTED STANDARD PRACTICE. BROKEN OR BRUISED BRANCHES SHALL BE REMOVED WITH CLEAN CUTS FLUSH WITH THE ADJACENT TRUNK OR BRANCHES. ALL CUTS OVER 1" IN DIAMETER SHALL BE PAINTED WITH AN APPROVED ANTISEPTIC TREE WOUND DRESSING.
b. ALL TRENCHES AND SHRUB BEDS SHALL BE EDGED AND CULTIVATED TO THE LINES SHOWN ON THE DRAWING. THE AREAS AROUND ISOLATED PLANTS SHALL BE EDGED AND CULTIVATED TO THE FULL DIAMETER OF THE PIT. SOIL WHICH HAS BEEN REMOVED AND STACKED SHALL BE USED TO TRIM THE EDGES OF ALL EXCAVATED AREAS TO THE NEAR LINES OF THE PLANT PIT SAUCERS, THE EDGES OF SHRUB AREAS, HEDGE TRENCHES AND VINE POCKETS.
c. AFTER CULTIVATION, ALL PLANT MATERIALS SHALL BE MULCHED WITH A 2" LAYER OF FINE, SHREDED PINE BARK, PEAT MOSS, OR ANOTHER APPROVED MATERIAL OVER THE ENTIRE AREA OF THE BED OR SAUCER.
d. PLANT INSPECTION AND ACCEPTANCE
THE ARC SHALL BE RESPONSIBLE FOR INSPECTING ALL PLANTING PROJECTS ON A PERIODIC BASIS TO ASSURE THAT ALL WORK IS PROCEEDING IN ACCORDANCE WITH THE APPROVED PLANTING SPECIFICATIONS.
e. FOR THIS PURPOSE, THE "GROWING SEASON" SHALL BE THAT PERIOD BETWEEN THE END OF THE "SPRING" PLANTING SEASON, AND THE COMMENCEMENT OF THE "FALL" PLANTING SEASON.
f. GUARANTEE FOR PLANTING PERFORMED AFTER THE SPECIFIED END OF THE "SPRING" PLANTING SEASON, SHALL BE EXTENDED THROUGH THE END OF THE NEXT FOLLOWING "SPRING" PLANTING SEASON.

6. PLANT INSPECTION AND ACCEPTANCE
THE ARC SHALL BE RESPONSIBLE FOR INSPECTING ALL PLANTING PROJECTS ON A PERIODIC BASIS TO ASSURE THAT ALL WORK IS PROCEEDING IN ACCORDANCE WITH THE APPROVED PLANTING SPECIFICATIONS.
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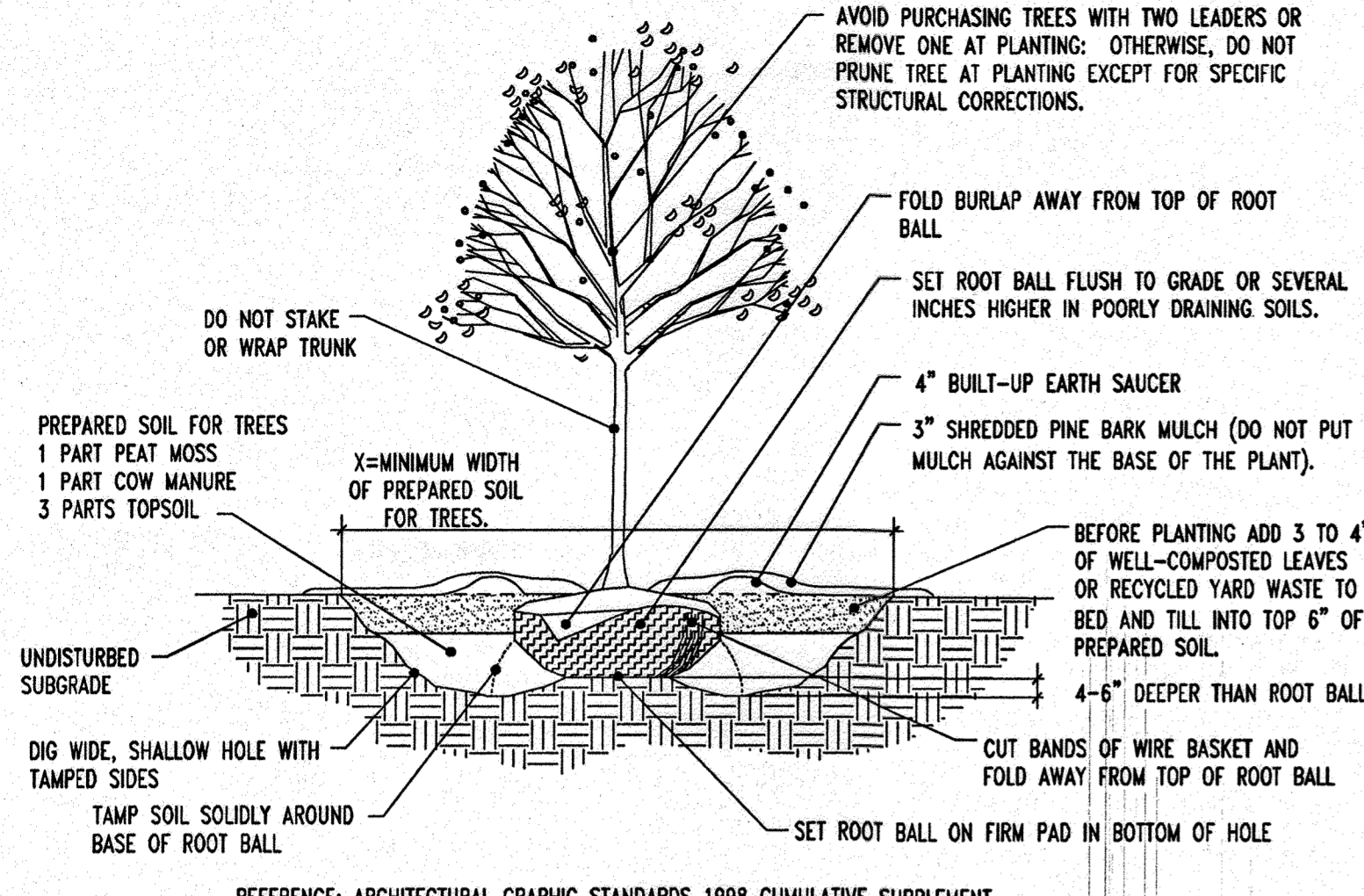
IRRIGATION NOTE:

CONTRACTOR TO PROVIDE AN IRRIGATION DESIGN FOR BOTH LAMN & BED AREAS. DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR TO VERIFY STATIC PRESSURE PRIOR TO DESIGN. CONTRACTOR IS ALSO RESPONSIBLE FOR ANY PRESSURE REDUCING DEVICES REQUIRED TO MEET MAXIMUM PRESSURE REQUIREMENT. SYSTEM DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACK FLOW PREVENTION, METERS AND CONTROLLERS. ALL SLEEVES IN PAVEMENT AREAS MUST BE SHOWN.

SEEDING SPECIFICATIONS

- PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.
- PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
- SEEDING RATES:

FENOBENAL GRASS	1/2 LB/1,000 SQ FT
KENTUCKY BLUEGRASS	1 LB/1,000 SQ FT
RED FESCUE	1 1/2 LBS/1,000 SQ FT
SPREADING SEED	1 1/2 LBS/1,000 SQ FT
FERTILIZER (20-10-10)	14 LBS/1,000 SQ FT
MULCH	90 LBS/1,000 SQ FT
- SEEDING RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDER AREA UNTIL AN ACCEPTABLE STAND OF COVER IS ESTABLISHED BY OWNER.

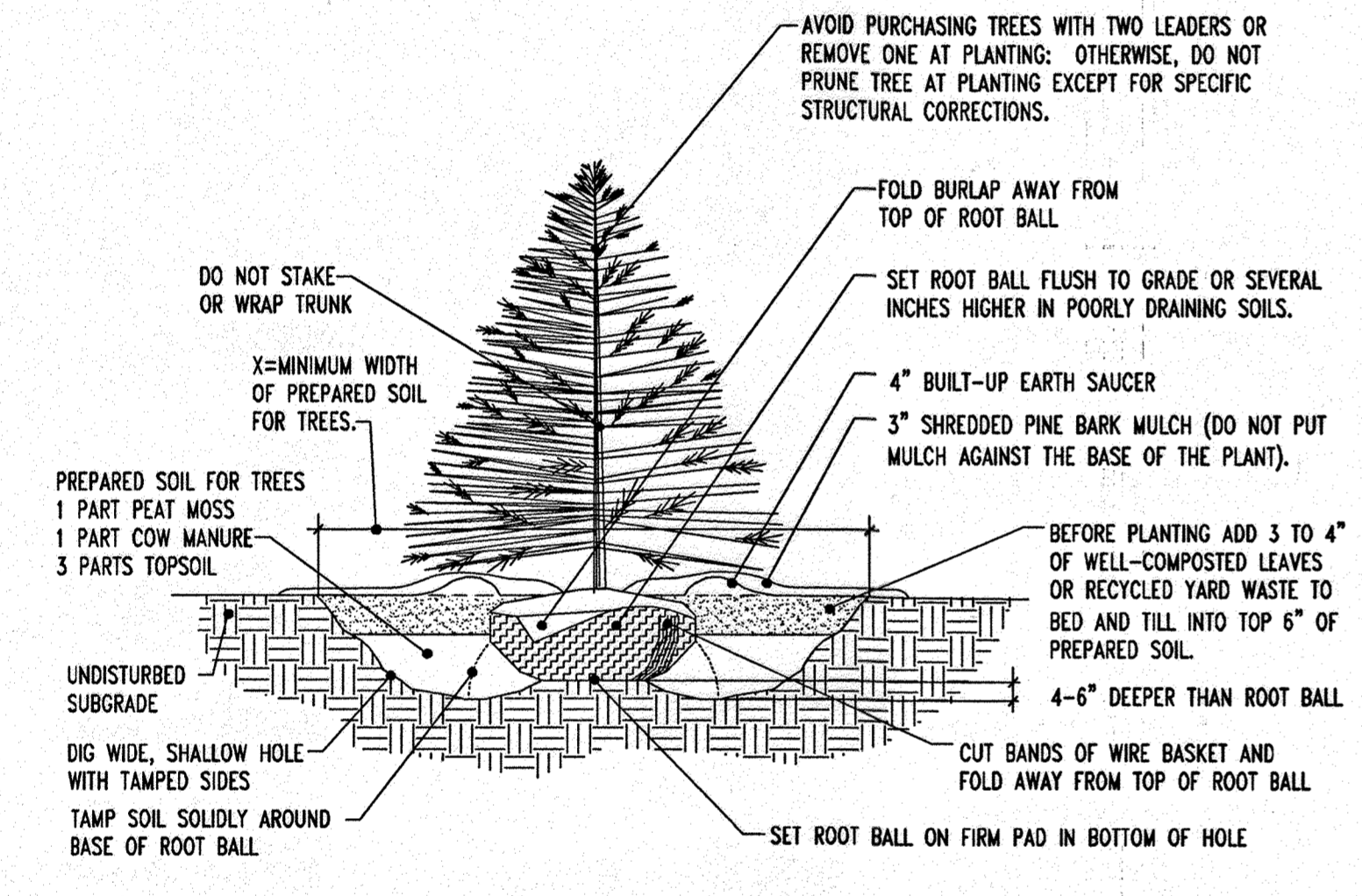


DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

NOTES FOR DECIDUOUS AND EVERGREEN TREE PLANTINGS:

- NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
- REMOVE ALL ROPE FROM TRUNK & TOP OF ROOT BALL. FOLD BURLAP BACK 1/3 FROM TOP OF ROOT BALL.
- PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY.
- THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
- THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE ROUGH TO AVOID MATTING OF SOIL LAYERS AS NEW SOIL IS ADDED. IT IS PREFERABLE TO TILL THE FIRST LIFT (2 TO 3 IN.) OF PLANTING SOIL INTO THE SUBSOIL.



EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/5/07

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF-DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/07

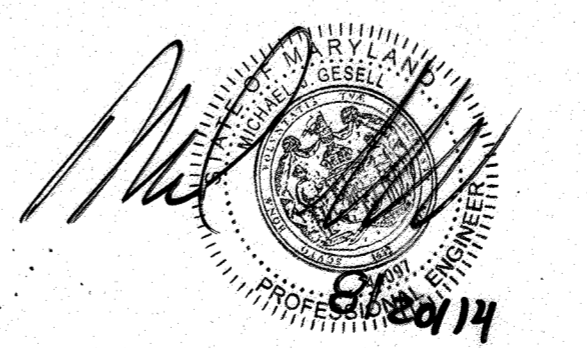
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT
 DATE: 7/13/07

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 2-08-07

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. LOVELL, 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: 44073, EXPIRATION DATE: 6/1/15

FOR REVISION 3 ONLY:



NOTE

- THIS PROPERTY IS LOCATED WITHIN THE GATEWAY OVERLOOK STOPPING CENTER.
- HOWARD COUNTY REFERENCE NUMBERS:
SITE PLAN DOCUMENT PREPARED BY:
PATTON, HARRIS, RUST AND ASSOCIATES, P.C.
DATED: APRIL 22, 2005
WATER AND SEWER PLANS PREPARED BY:
PATTON, HARRIS, RUST AND ASSOCIATES, P.C.
DATED: 6/8/05 REVISED 4/6/06
SDP-04-163
ROADWAY AND STORM DRAIN PLANS PREPARED BY:
PATTON, HARRIS, RUST AND ASSOCIATES, P.C.
DATED: 6/18/05 REVISED 4/20/06
SDP-04-163
REFER TO THE COVER SHEET FOR THE LEGEND.
4. REFER TO GENERAL NOTES SHEET FOR STANDARD GRADING NOTES.
5. REFER TO GENERAL NOTES SHEET FOR STORMDRAIN STRUCTURE SCHEDULE.

BENCHMARK

GEODETIC SURVEY CONTROL #376D
 N 553,237.204
 E 1,372,353.605
 ELEV. 290.931'
 LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL

GEODETIC SURVEY CONTROL #376C
 N 553,250.791
 E 1,370,946.348
 ELEV. 331.855'
 LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

NO.	REVISION	DATE	DESCRIPTION	BY
3	REVISED	6/22/07	NEW BENCHMARK LOCATION	MSJ

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE HOUSE BUILDING
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 932-6000

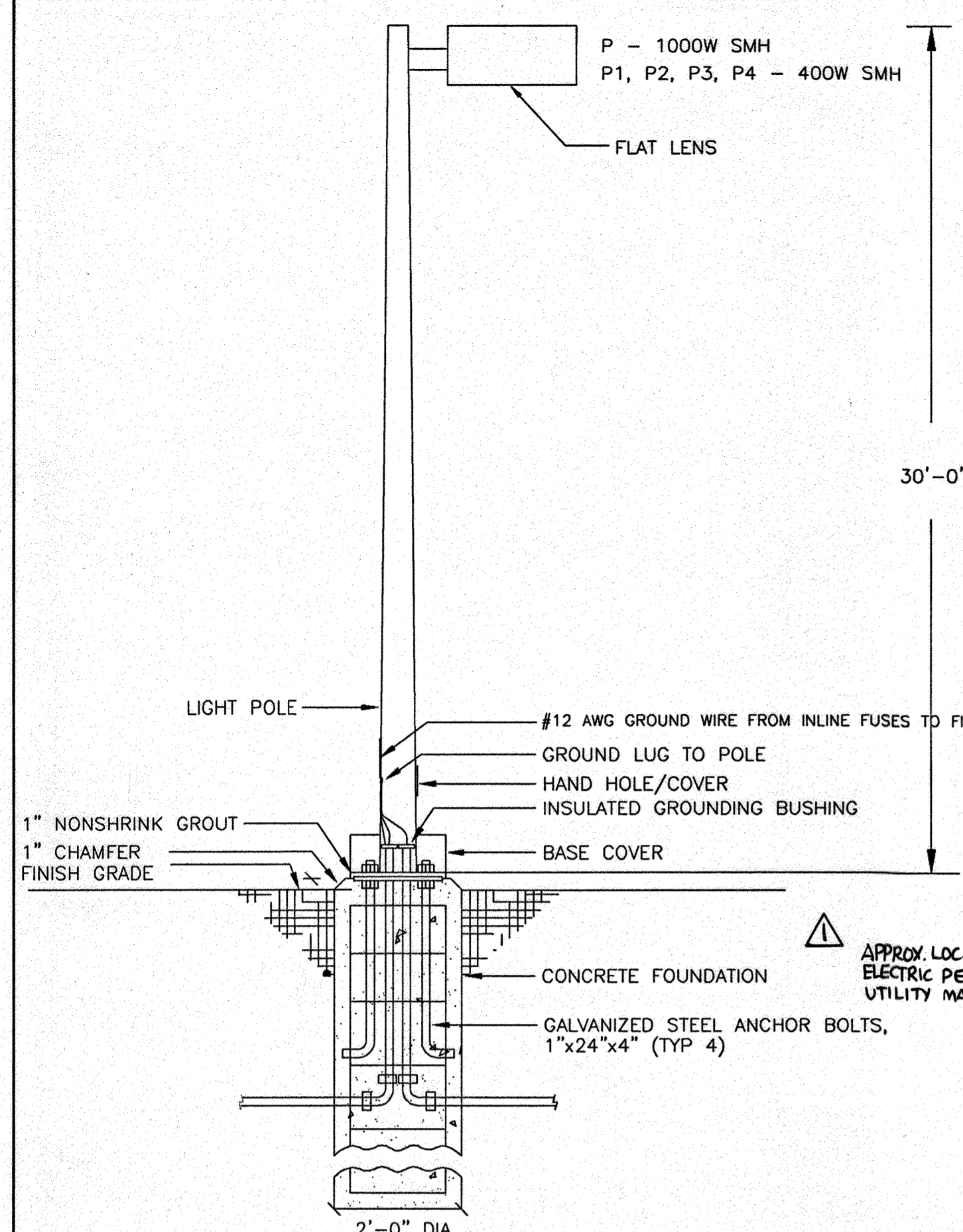
PROJECT: BENSON EAST
 PARCEL U; GASOLINE STATION WITH KOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
 BENSON EAST
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

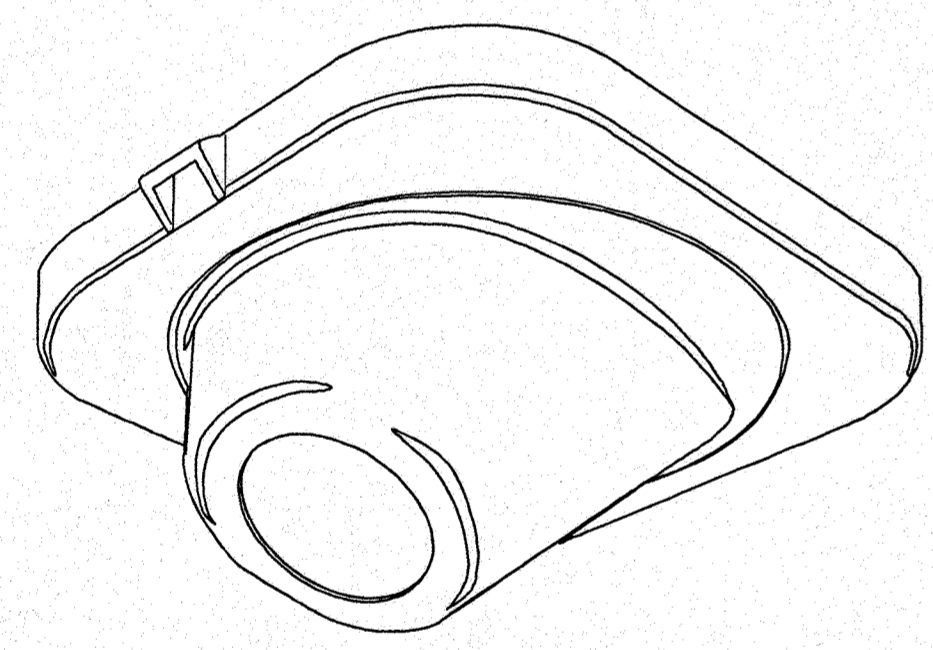
LANDSCAPE NOTES AND DETAILS

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22630 Davis Drive, Suite 200 Sterling, Virginia, 20166
 CONTACT: DAVID B. BOHLER
 (703) 709-9600 FAX: (703) 709-9601 | www.bohlereng.com

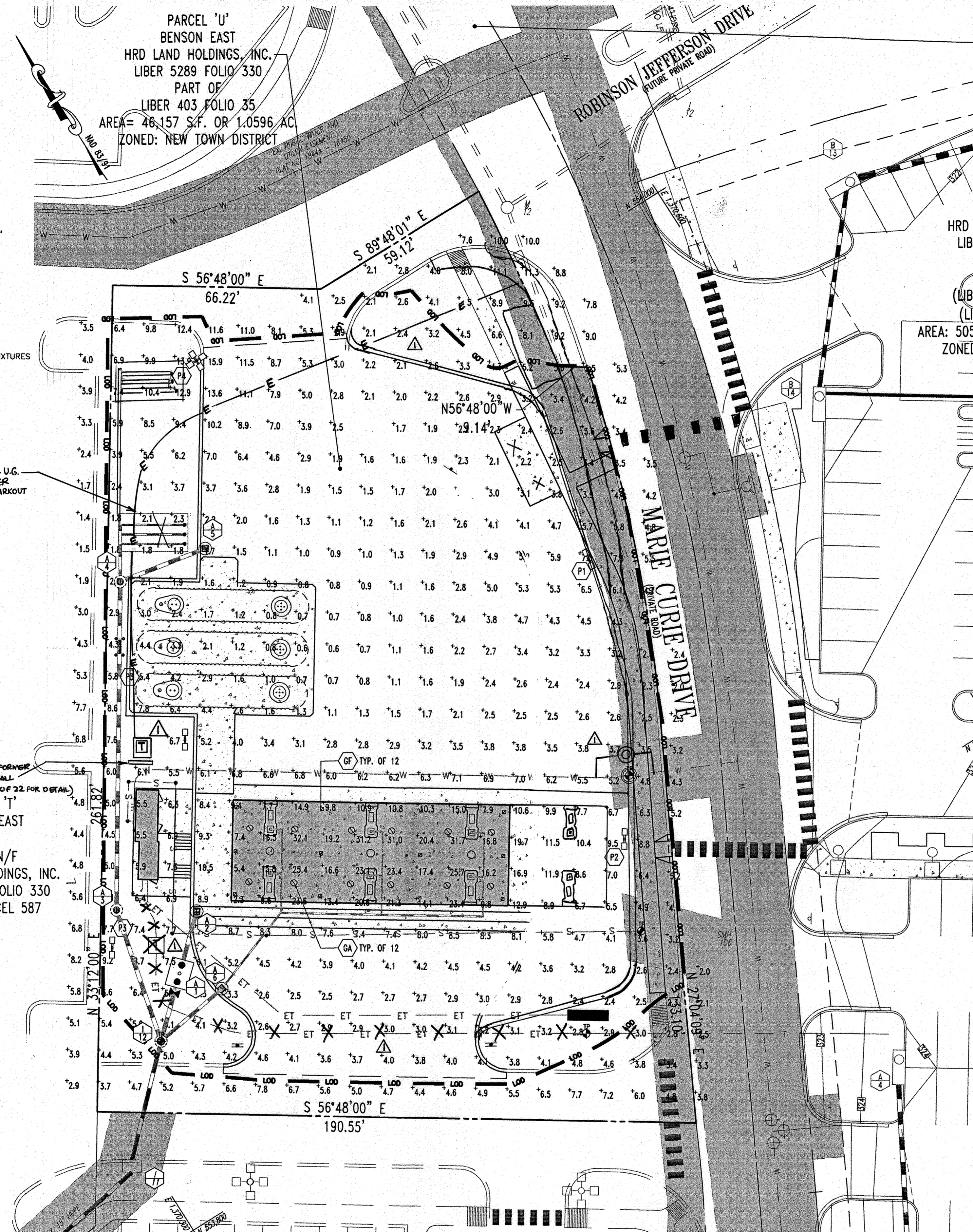
DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: SD40011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 19 of 28



NOTE: PROVIDE CONCRETE J-BOX AS REQUIRED.
THIS DETAIL IS FOR ELECTRICAL CONDUITS ROUTING ONLY.
SEE STRUCTURAL DRAWINGS FOR CONSTRUCTION DETAIL.
POLE BASE DETAIL
NO SCALE



FUEL STATION FOCUS LIGHT - GA
NO SCALE



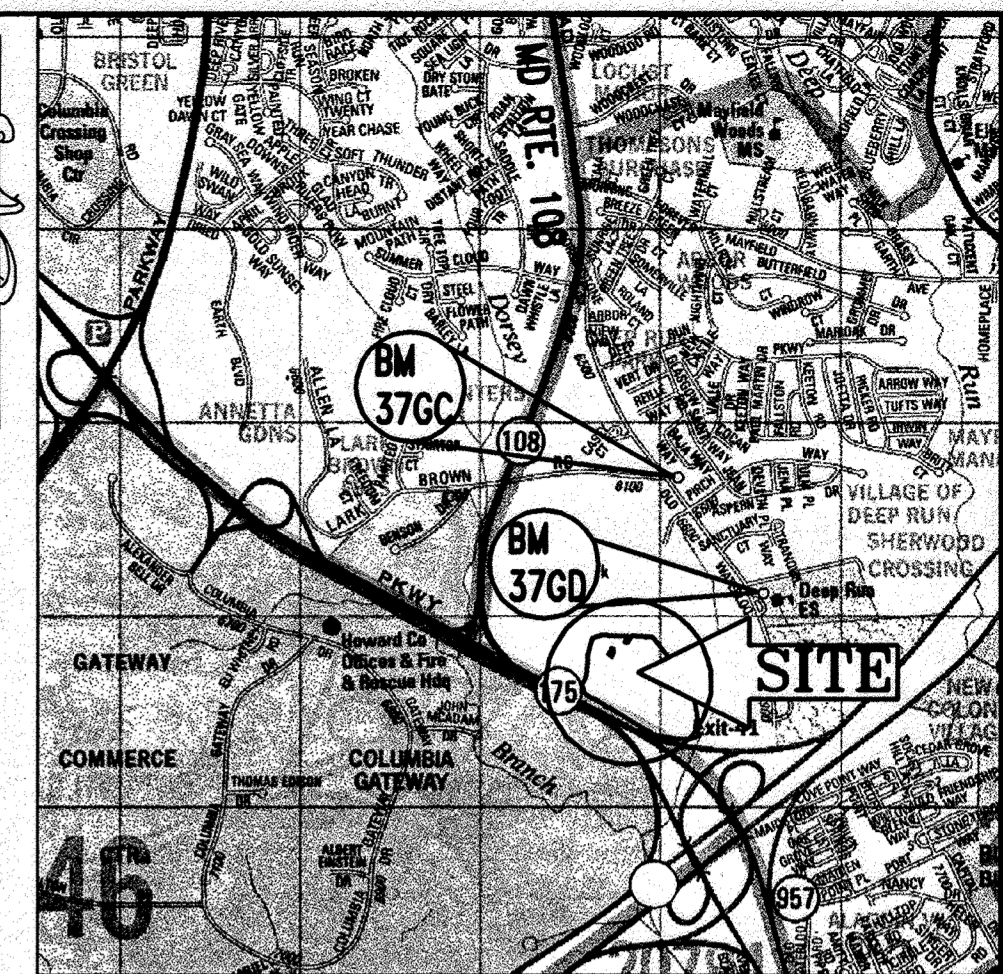
**NON-BUILDABLE
(PRIVATE ACCESS & STORMDRAIN EASEMENT)
(PARTIAL AREA)**
99,535 S.F. OR 2.2850 AC.
(TOTAL AREA)
174,414 S.F. OR 4.0040 AC.
PLAT NO. 18446

**PARCEL 'G'
BENSON EAST**
PART OF
HRD LAND HOLDINGS, INC.
LIBER 5289 FOLIO 330

PART OF
(LIBER 1946 FOLIO 587)
(LIBER 403 FOLIO 35)
AREA: 505,098 S.F. OR 11.5954 AC.
ZONED: NEW TOWN DISTRICT

LIGHTING FIXTURE SCHEDULE							DEVELOPER
TYPE	MANUFACTURER	NUMBER	LAMPS	MOUNT	WATT	REMARKS	REF. NUMBER
P	EMCO*	ECA-231-3H-1000MH-480V-SC/PTF-3-EC23-DM1-SC/KWI RTSP30-8.0-11-xx-3.5-BC	1-1000W MH	30' POLE	1070	ROUND TAPERED STEEL EPOXY ENAMEL POLE TO MATCH FIXTURE. NUMBER OF HEADS SHALL BE PER PLAN. SEE SHEET SE-1. FIXTURE SHALL BE POWDER PAINTED. ELECTRO-STATIC APPLICATION. PROVIDE POLE BASE COVER. ROTATE OPTICS PER ARROW ON PLAN. POLE AND FIXTURES SHALL BE COLOR SW 6255 'MORNING FOG'	P1-1-30
P1	EMCO*	ECA-182-QH-400MH-480V-SC/PTF-3-EC18-DM2180-SC/KWI RTSP30-8.0-11-xx-3.5-BC	1-400W MH	30' POLE	455		P4-2A-30
P2	EMCO*	ECA-182-3H-400MH-480V-SC/PTF-3-EC18-DM2180-SC/KWI RTSP30-8.0-11-xx-3.5-BC	1-400W MH	30' POLE	455		P4-2B-30
P3	EMCO*	ECA-182-3H-400MH-480V-SC/PTF-3-EC18-DM2180-SC/KWI RTSP30-8.0-11-xx-3.5-BC	1-400W MH	30' POLE	455		P4-2C-30
P4	EMCO*	ECA-184-3H-400MH-480V-SC/PTF-3-EC18-DM4090-SC/KWI RTSP30-8.0-11-xx-3.5-BC	1-400W MH	30' POLE	455		P4-4C-30
GA	LSI	EC-SP-100P-38-F0	1-100W PSMV BU	RECESS	130		
GF	LSI	ECA-S-320-PSMV-MT-F	1-320W PSMV-CLEAR BU	RECESS	375		

*VERIFY POLES & FIXTURES MATCH DEVELOPMENT 'CENTER STANDARD'.



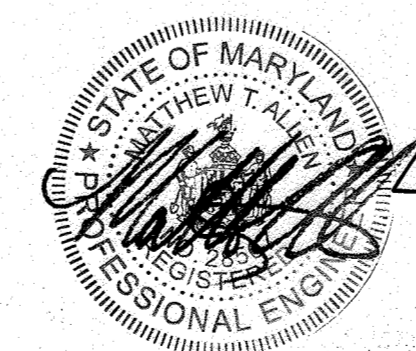
LOCATION MAP
COPYRIGHT 2007 THE MAP PEOPLE
PERMIT USE NO. 20602153-5
SCALE: 1"=2000'

PLANNING BOARD APPROVAL STAMP

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/5/07
CHIEF-DEVELOPMENT ENGINEERING DIVISION
7/16/07
CHIEF-DIVISION OF LAND DEVELOPMENT
7/17/07
DIRECTOR
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
7/17/07
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

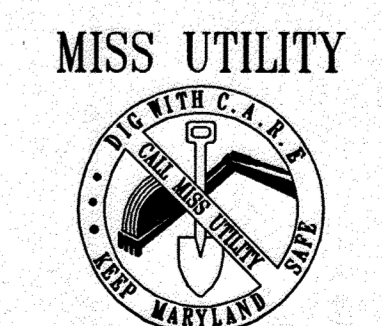
APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE: **2-08-07**

GENERAL NOTE:
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FOR REVISION 1
BOHLER ENGINEERING, P.C.

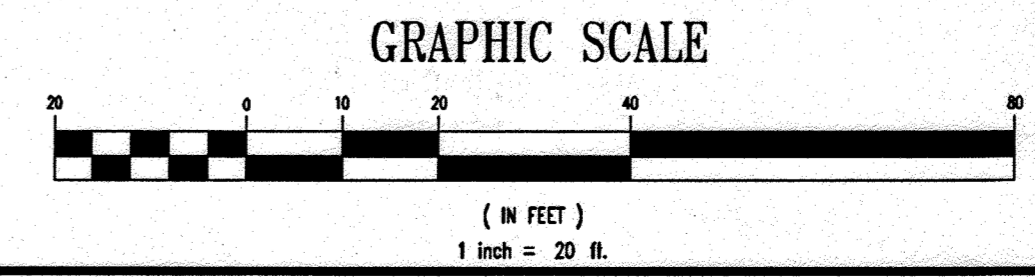
PROFESSIONAL CERTIFICATION
I, MICHAEL J. CASELLI, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44091, EXPIRATION DATE 1/1/15.



BEFORE YOU DIG CALL
1-800-953-7777
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREO APPURTENANT.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.



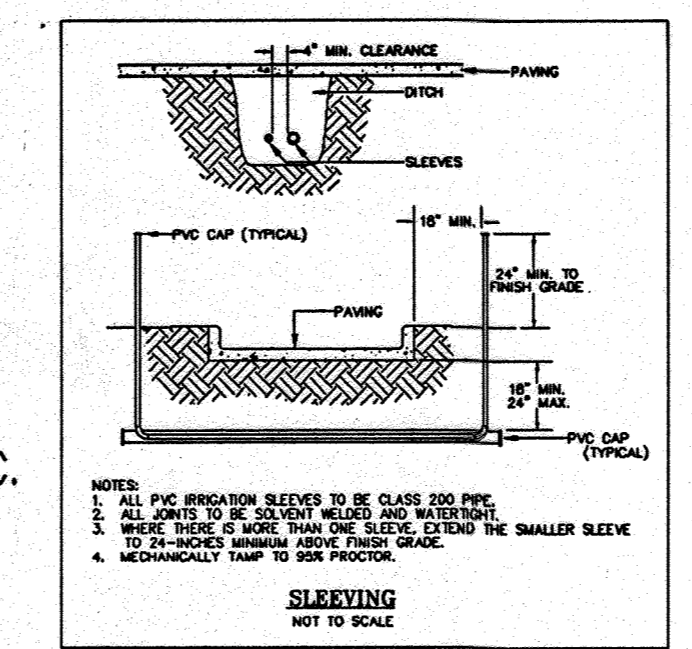
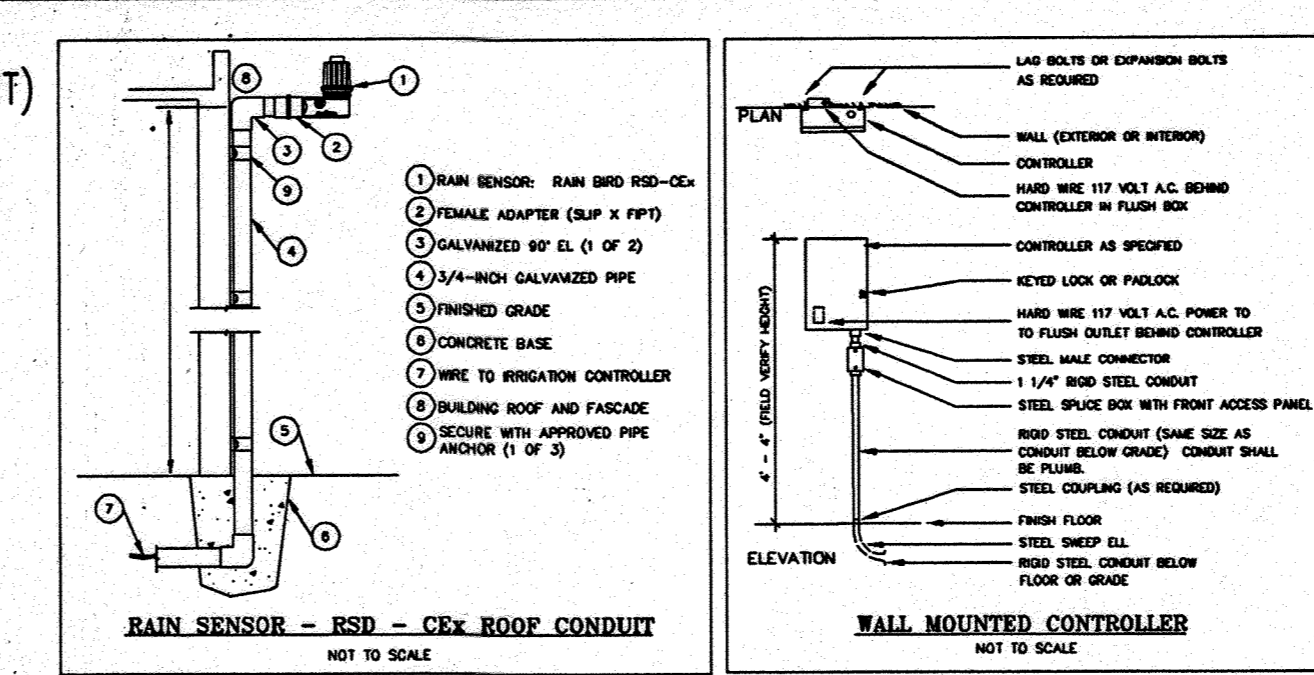
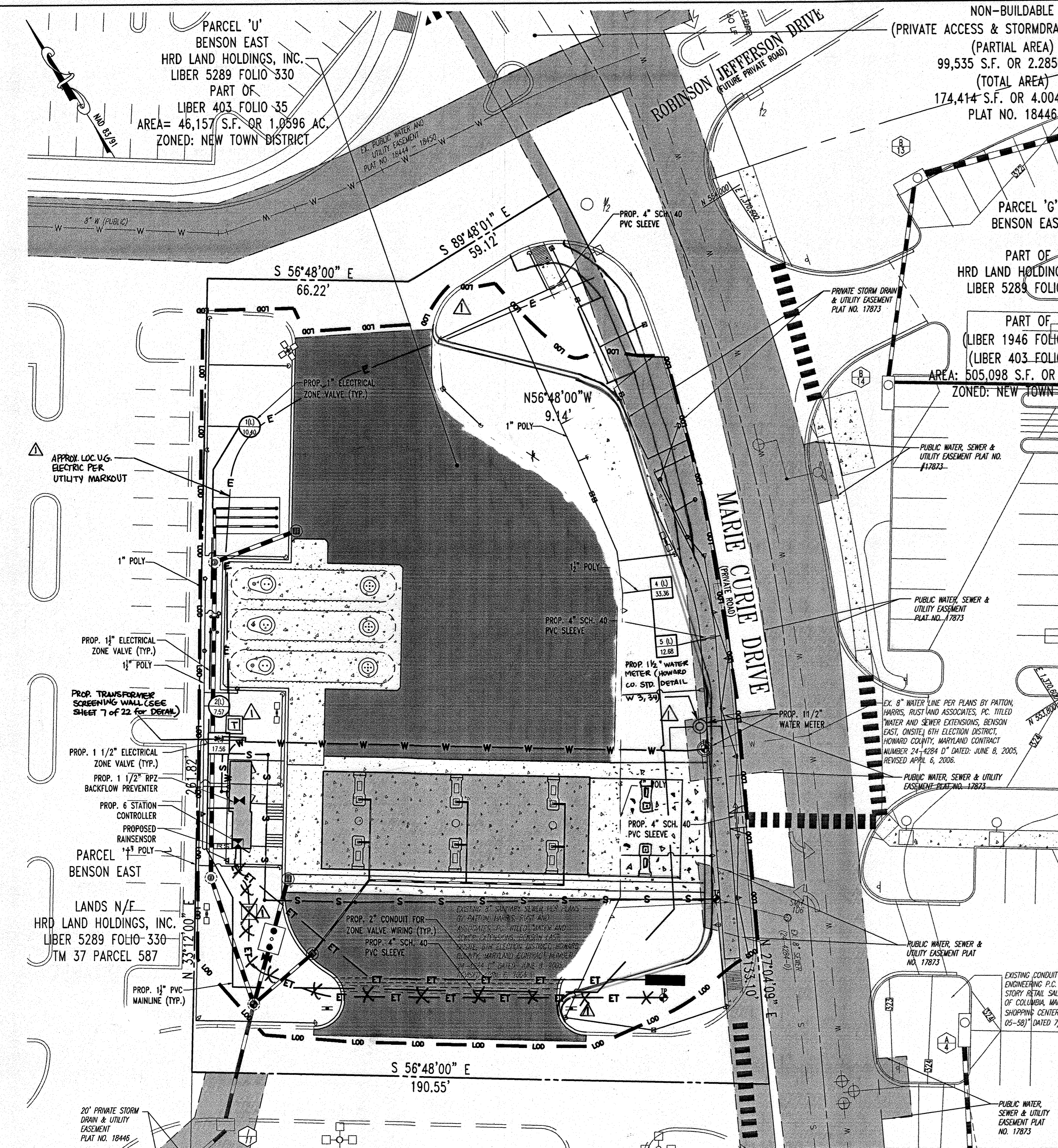
BENCHMARK
GEODETIC SURVEY CONTROL #376D
N 553,237.204
E 1,372,353.605
ELEV. 290.931'
LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL
GEODETIC SURVEY CONTROL #376C
N 553,250.791
E 1,370,946.348
ELEV. 331.855'
LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

REV.	DATE	DESCRIPTION	BY
3	1/20/14	REUSE OF EXISTING WATER MAIN AND METER	MSG
1	9/12/07	EX. EXEC. LINE TRANSFORMER, PROP. SCREEN WALL	MSG
1	9/12/07	IRRIGATION WATERLINE AND METER	MSG

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE HOUSE BUILDING
10275 LITTLE PATRICK PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6000
PROJECT: BENSON EAST
PARCEL U; GASOLINE STATION WITH KIOSK (COSTCO GASOLINE); GATEWAY OVERLOOK SHOPPING CENTER
AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
PARCEL 1 & 2
BENSON EAST
8TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **LIGHTING PLAN**

BOHLER ENGINEERING, P.C.
PROFESSIONAL ENGINEERING SERVICES
22830 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA, 20164
CONTACT: DAVID B. NUMBERG
(703) 709-0900 FAX: (703) 709-9501
DESIGNED BY: J.A.D.
DATE: 6/25/07
DRAWN BY: R.F.G.
PROJECT NO.: SO40011.01
SCALE: AS SHOWN
DRAWING NO.: 20 OF 28
ADAM J. VOLANTINI
PROFESSIONAL ENGINEER NO. 21342



IRRIGATION SCHEDULE

QUANTITY	SYMBOL	DESCRIPTION
1	[Symbol]	RAINBIRD INDOOR 6 STATION CONTROLLER (ESP-6LXI PLUS)
1	[Symbol]	WILKINS REDUCED PRESSURE 1 1/2" RPZ BACKFLOW PREVENTER (975XL)
1	[Symbol]	1 1/2" COUNTY APPROVED WATER METER
1	[Symbol]	RAINBIRD RAINSENSOR W/ROOF CONDUIT (RSO-CeX)
1	[Symbol]	1" RAINBIRD ELECTRIC ZONE VALVE WITH FLOW CONTROL (100-PEB-PRS-D)
2	[Symbol]	1 1/2" RAINBIRD ELECTRIC ZONE VALVE WITH FLOW CONTROL (150-PEB-PRS-D)
640 ±L.F.	[Symbol]	1 1/2" PVC MAINLINE CLASS 200 IPS PLASTIC PIPE
20 ±L.F.	[Symbol]	4" SCHEDULE 40 PVC SLEEVE
20 ±L.F.	[Symbol]	2" SCHEDULE 40 PVC CONDUIT
		POLYETHYLENE SDR-PRESSURE RATED TUBE (SIZE AS NOTED)
2	[Symbol]	RAINBIRD MPR SERIES POP UP SPRAY HEAD - 8" RADIUS (1804-80)
1	[Symbol]	RAINBIRD MPR SERIES POP UP SPRAY HEAD - 8" RADIUS (1804-8H)
2	[Symbol]	RAINBIRD MPR SERIES POP UP SPRAY HEAD - 15" RADIUS (1804-15H)
6	[Symbol]	RAINBIRD 3500 SERIES ROTOR - NOZZLE .75/17" RADIUS (3504-PC)
1	[Symbol]	RAINBIRD 3500 SERIES ROTOR - NOZZLE 1.0/21" RADIUS (3504-PC)
5	[Symbol]	RAINBIRD 3500 SERIES ROTOR - NOZZLE 1.5/23" RADIUS (3504-PC)
1	[Symbol]	RAINBIRD 3500 SERIES ROTOR - NOZZLE 2.0/27" RADIUS (3504-PC)
14	[Symbol]	RAINBIRD 3500 SERIES ROTOR - NOZZLE 3.0/31" RADIUS (3504-PC)
2	[Symbol]	RAINBIRD 3500 SERIES ROTOR - NOZZLE 4.0/33" RADIUS (3504-PC)

IRRIGATION SPECIFICATIONS

- PART 1 - GENERAL**
- 1.01 SUMMARY
- 1.01.1 IRRIGATION SYSTEM
 - 1.01.2 IRRIGATION CONTROLLER
 - 1.01.3 IRRIGATION PIPING
 - 1.01.4 IRRIGATION HEADS
- 1.02 APPLICABLE STANDARDS
- A. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Socket, Schedule 40
 - B. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Threaded, Schedule 40
 - C. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - D. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - E. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - F. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - G. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - H. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - I. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - J. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - K. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - L. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - M. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - N. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - O. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - P. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - Q. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - R. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - S. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - T. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - U. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - V. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - W. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - X. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - Y. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
 - Z. ASTM - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Flange, Schedule 40
- 1.03 MAINTENANCE AND WARRANTY
- A. Materials and workmanship shall be fully guaranteed for one (1) year after final acceptance.
 - B. Provide maintenance of system, including raising and lowering of heads to compensate for soil growth, clearing and adjustment of heads, raising and lowering of heads to compensate for shrub growth, for one (1) year after completion of installation.
 - C. Contractor shall maintain, close and open the system once during the guarantee system. Guarantee is limited to repair and replacement of defective materials or workmanship, including repair of backfill settlement.
- 1.04 SUBMITTALS
- A. Use of materials differing in quality, size, or performance from those specified will only be allowed with approval of Owner/Landscape Architect. The submitter shall be based on comparative ability of material or article to perform fully all purposes of the specification and design consistent in its maximum allowable operating conditions. Submitter desiring to make a substitution for specified materials shall submit manufacturer's catalog sheet showing full specification of each type of material proposed as a substitute. Submitter shall also submit a written statement of the submitter's approval of substitute materials and shall not require Contractor's approval. Contractor shall demonstrate that final installed irrigation system will operate according to intent of originally designed and specified system. If irrigation Contractor notes any problems in head spacing or potential coverage, it is his responsibility to notify the Landscape Architect in writing, before proceeding with work. Irrigation Contractor guarantees 100% coverage of all areas to be irrigated.
 - B. Contractor to furnish an as-built drawing of entire system for review prior to acceptance.
- 1.05 TESTING
- A. Perform testing required with other trades, including earthwork, paving, and plumbing, to ensure necessary cutting, painting and boring.
- 1.06 COORDINATION
- A. Coordinate installation with other trades, including earthwork, paving, and plumbing, to avoid unnecessary cutting, painting and boring.
- PART 2 - PRODUCTS**
- 2.01 GENERAL
- A. Irrigation Material: Sprinkler heads are that portion of piping from water source to operating valves. This portion of piping is subject to surges, being a closed portion of irrigation system. Headset that is part of surge protection system. Lateral piping is that portion of piping from operating valve to sprinkler head. This portion of piping is not subject to surges, being an "open end" portion of irrigation system.
- 2.02 POLY VINYL CHLORIDE PIPE (PVC)
- A. PVC pipe shall be manufactured in accordance with commercial standards noted herein.
 - B. Marking and identification: PVC pipe shall be continuously and permanently marked with the following information: manufacturer's name, pipe size, type of pipe, and resin, size number, product standard number, and the NSF (National Sanitation Foundation) mark.
 - C. PVC Pipe Fittings: Shall be of the same material as the PVC pipe specified and shall be compatible with PVC pipe fittings.
- 2.03 POLYETHYLENE PIPE
- A. Polyethylene pipe to be manufactured and supplied in accordance with commercial standards by a reputable dealer.
- 2.04 COPPER TUBING
- A. Hard, straight, lengths of domestic manufacture only. No copper tube of foreign extraction or any so-called irrigation tubing (thin wall) shall be used.
- 2.05 COPPER TUBE FITTINGS
- A. Cast brass or wrought copper, sweat-solder type.
- 2.06 WIRE
- A. Type UF with 6-64" insulation which is Underwriters Laboratory approved for direct underground burial when used in a National Electric Code Class II Circuit (30 volts AC or less).
- 2.07 SCHEDULE 80 PVC NIPPLES
- A. Composed of Standard Schedule 80 PVC Fittings and PVC Nipples noted standards. No copper or wire may be used. Nipples for brass pipe, brass fittings, where applicable, to be minimum one-half (1/2") inch diameter by eight (8") inches long.

GENERAL IRRIGATION NOTES

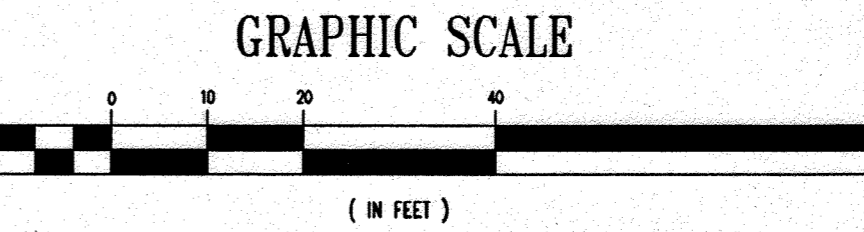
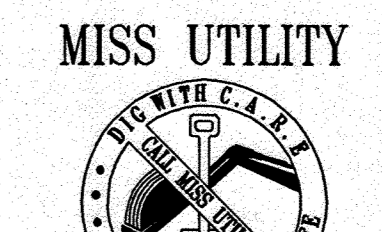
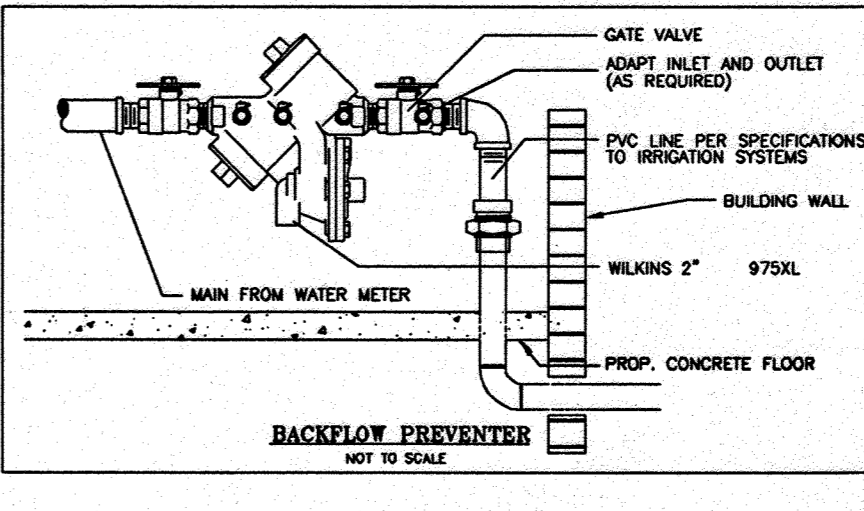
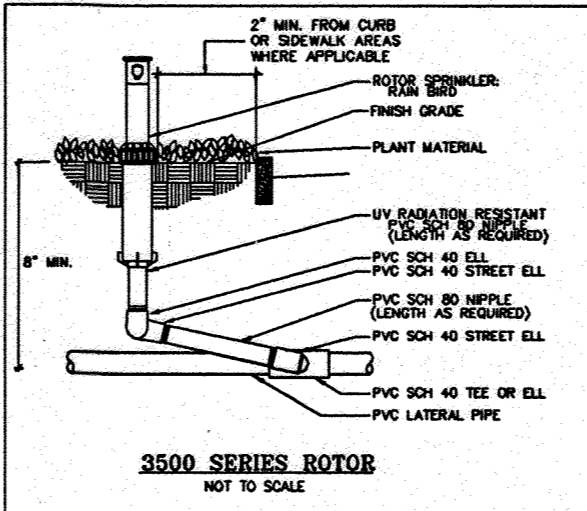
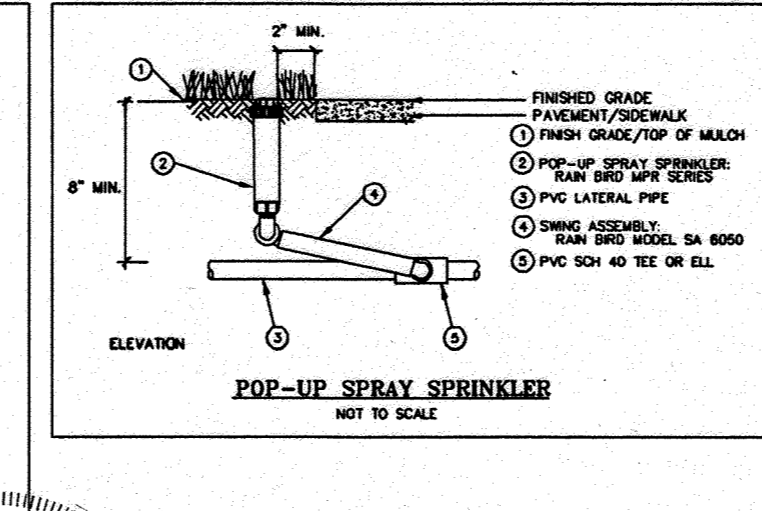
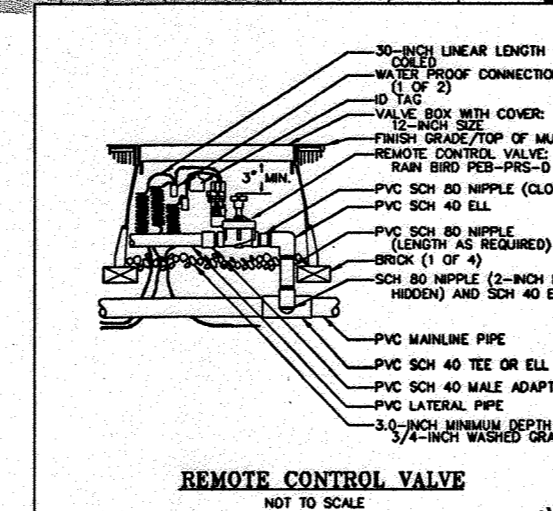
- ADJUST HEIGHTS OF 4" TALL RAINBIRD MPR SERIES POP UP SPRAY HEADS IN CORRELATION WITH INSTALLED PLANT MATERIAL AND FIELD CONDITIONS.
- ALL PVC SLEEVING SHALL EXTEND 18" INTO PERVIOUS LANDSCAPE AREAS.
- DICTION OF ELECTRIC ZONE VALVES, PVC MAINLINE, AND POLYETHYLENE LATERAL LINES ARE SHOWN SCHEMATIC FOR CLARITY PURPOSES. VALVES AND PIPING SHALL BE INSTALLED WITHIN THE LIMIT OF DISTANCE FOR OTHER WORK AND IN CORRELATION WITH FIELD CONDITIONS.
- IRRIGATION CONTRACTOR TO ENSURE ADEQUATE COVER OVER ALL PIPING.
- IRRIGATION SYSTEM REQUIRE A MINIMUM OF 85 PSI TO FUNCTION PROPERLY. IF THERE IS INSUFFICIENT PRESSURE AT THE POINT OF CONNECTION, A BOOSTER PUMP MAY BE REQUIRED.
- LOCATION OF IRRIGATION COMPONENTS WITHIN THE BUILDING ARE SHOWN SCHEMATIC AND SHOULD CORRELATE WITH ARCHITECTURAL PLAN SET.
- THE WATER USED FOR SITE IRRIGATION SHALL BE METERED ON SITE.

PROFESSIONAL CERTIFICATION
 I, MICHAEL J. BOHLER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY APPROVED ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 44097, EXPIRATION DATE: 6/19/15

FOR REVISION 3 ONLY:

DATE: 6/25/07

THIS PLAN TO BE UTILIZED FOR IRRIGATION PURPOSES ONLY



MISS UTILITY

BEFORE YOU DIG CALL 1-800-257-7777 TO PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE.

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREO APPURTENANT.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

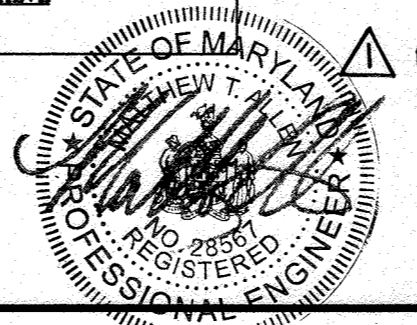
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief-Development Engineering Division
 Chief-Division of Land Development
 Director

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE: 2-08-07

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.



FOR REVISION 1
 BOHLER ENGINEERING, P.C.

BENCHMARK

GEODETIC SURVEY CONTROL #376D
 N 553,237.204
 E 1,372,353.605
 ELEV. 290.331
 LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL

GEODETIC SURVEY CONTROL #376C
 N 553,250.791
 E 1,370,946.348
 ELEV. 331.855'
 LOCATED ON THE SOUTH SIDE OF WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

REV.	DATE	DESCRIPTION	BY
3	11/21/07	REVISIONS TO IRRIGATION PLAN	MB
1	9/12/07	EX. ELEC. LINES TRANSFERRED FROM SCREEN WALL TO UNDERLOOK SHOPPING CENTER	MB
1	9/12/07	IRRIGATION WATERLINE AND METER	MB

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6000

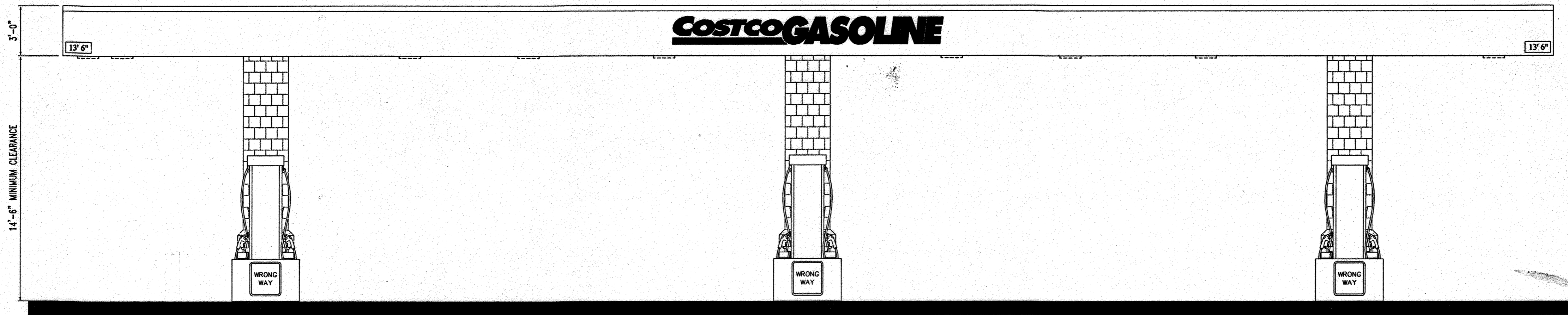
PROJECT: BENSON EAST
 PARCEL U: GASOLINE STATION WITH KIOSK (COSTCO GASOLINE), GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN

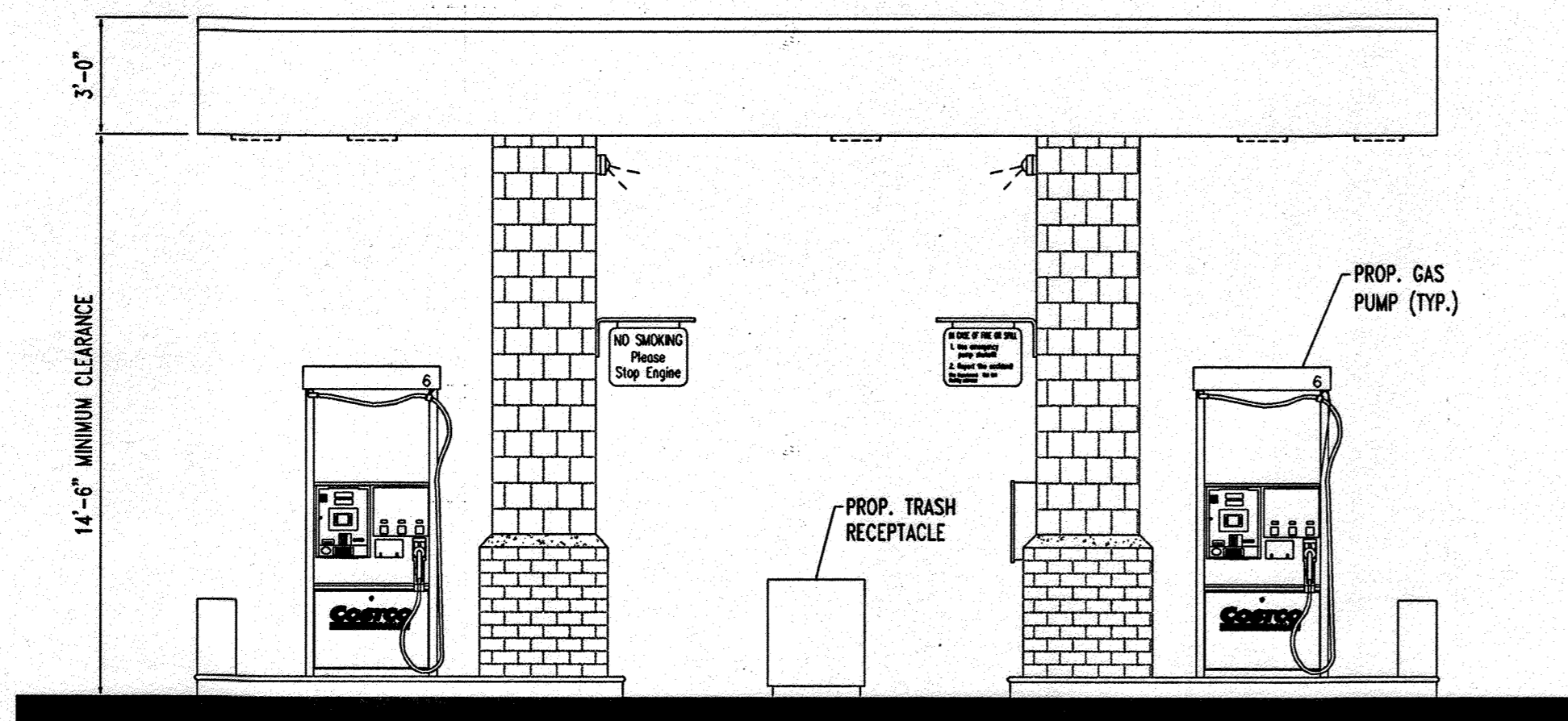
TITLE: IRRIGATION PLAN

BOHLER ENGINEERING, P.C.
 PROFESSIONAL ENGINEERING SERVICES
 22230 Davis Drive, Suite 300 Sterling, Virginia, 20164
 CONTACT: DAVID B. BOHLER
 (703) 709-9500 FAX: (703) 709-9501

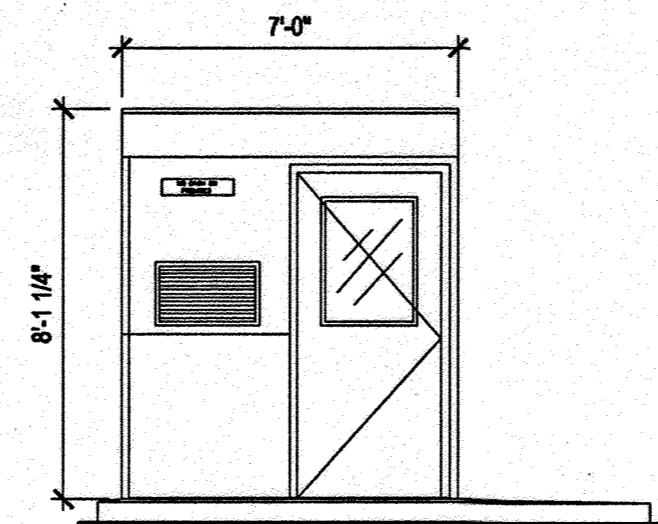
DESIGNED BY: J.A.D.
 DRAWN BY: R.F.G.
 PROJECT NO.: S040011.01
 DATE: 6/25/07
 SCALE: AS SHOWN
 DRAWING NO.: 21 of 28



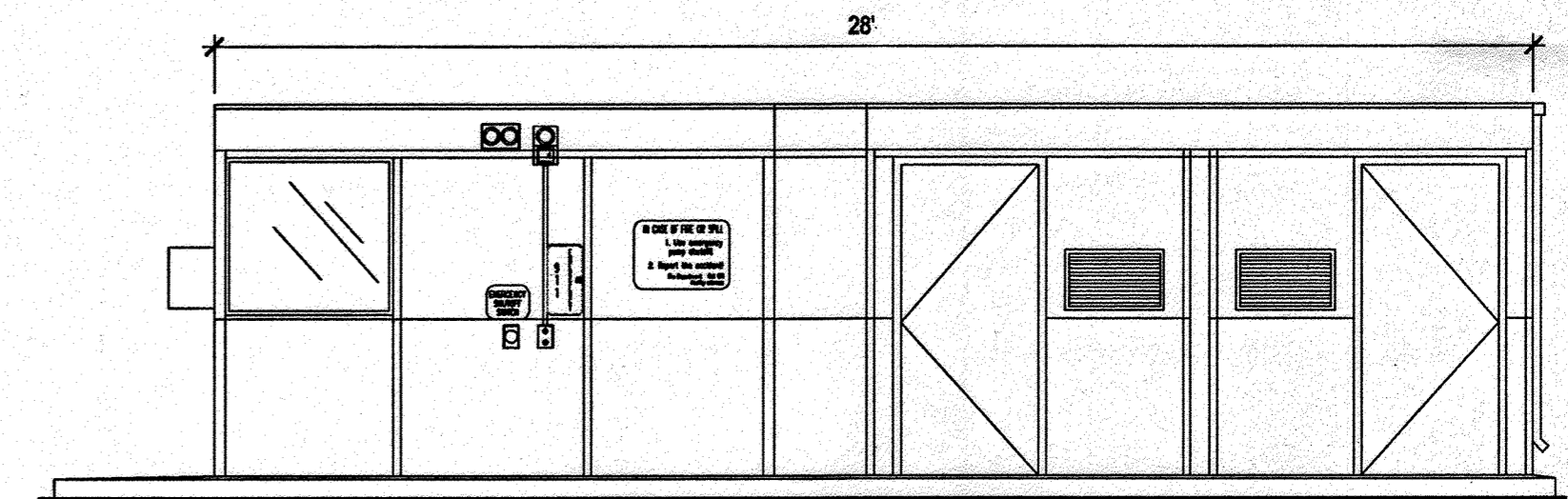
SOUTH ELEVATION (NORTH ELEVATION SIMILAR)
NOT TO SCALE



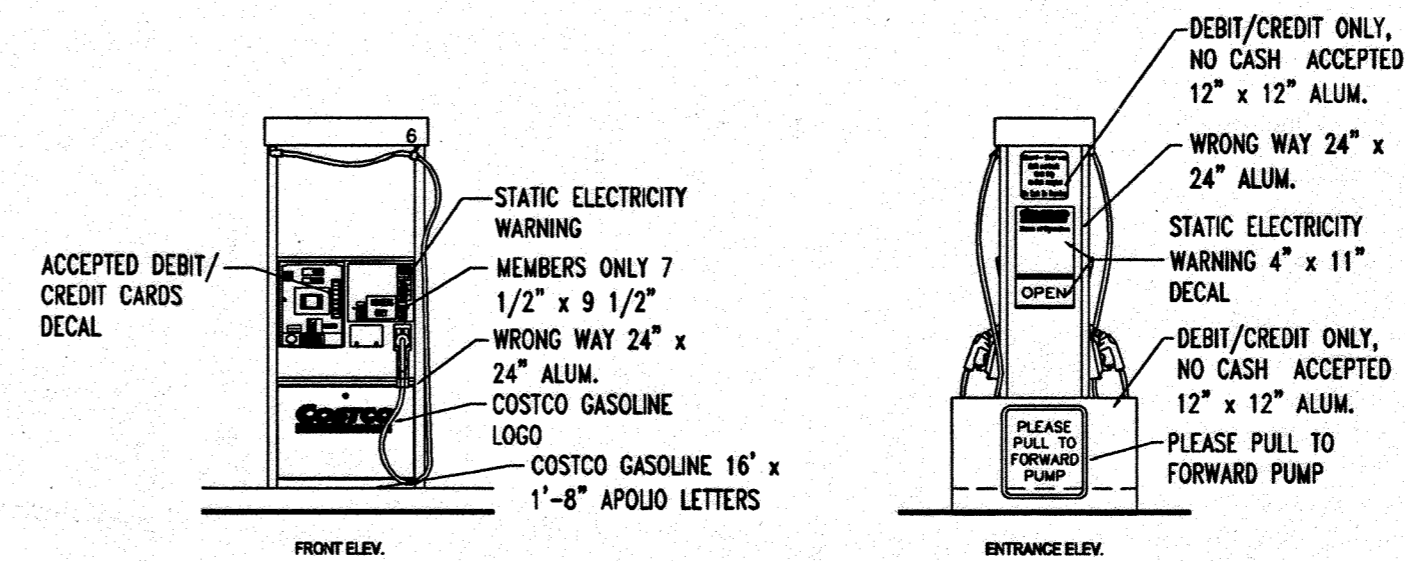
EAST ELEVATION (WEST ELEVATION SIMILAR)
NOT TO SCALE



FRONT ELEVATION
NOT TO SCALE



SIDE ELEVATION
NOT TO SCALE



TYPICAL GAS PUMP DETAIL
NOT TO SCALE

PROFESSIONAL CERTIFICATION
I, MICHAEL J. GOSSEL, 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: 44097, EXPIRATION DATE: 6/31/15

FOR REVISIONS 3 ONLY:

6/26/07
M. J. Gosnell
PROFESSIONAL ENGINEER

MISS UTILITY



BEFORE YOU DIG CALL 888-997-7777
PROTECT YOURSELF. GIVE TWO WORKING DAYS NOTICE.

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREOF APPLICABLE.

THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

REV.	DATE	DESCRIPTION	BY
3	1/20/14	REVISED LAYOUT, SEE DRAWING 1005 REGARDING STA. 1+00.00, UTILITY MARK.	

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE HOUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6000

PROJECT: BENSON EAST
PARCEL U: GASOLINE STATION WITH KIOSK (COSTCO GASOLINE) GATEWAY OVERLOOK SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
PARCEL U
BENSON EAST
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: ARCHITECTURAL ELEVATIONS

BOHLER ENGINEERING, P.C.
PROFESSIONAL ENGINEERING SERVICES
22250 DAVIS DRIVE SUITE 200 STERLING, VIRGINIA 20154
CONTACT: LARRY B. BOHLER
(703) 709-9000 FAX: (703) 709-9501 | WWW.BOHLER.COM

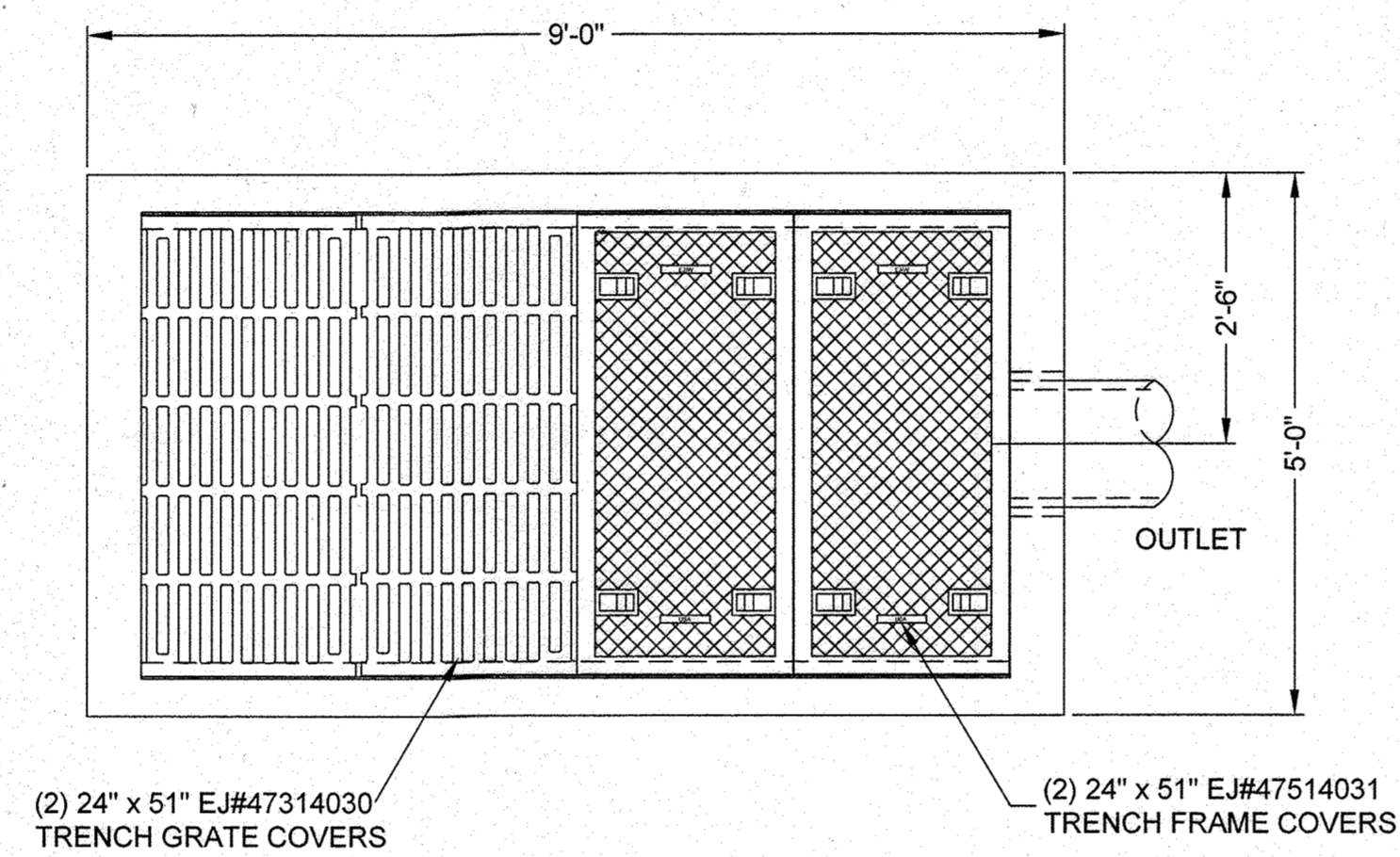
DATE: 6/26/07
DESIGNED BY: J.A.D.
DRAWN BY: R.F.G.
PROJECT NO.: S040011.01
DATE: 6/25/07
SCALE: AS SHOWN
DRAWING NO.: 22 OF 28
ADAM J. VOLANTH
PROFESSIONAL ENGINEER NO. 21342

PLANNING BOARD APPROVAL STAMP

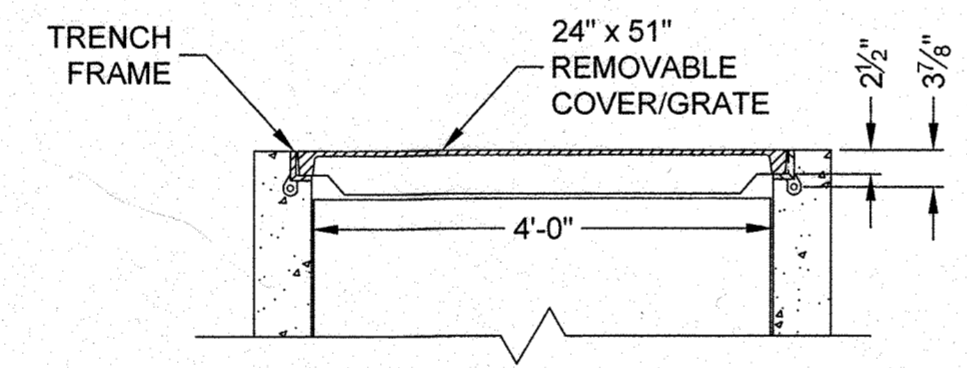
APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE: 2-08-07

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY BOHLER ENGINEERING, P.C. IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY BOHLER ENGINEERING, P.C. SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

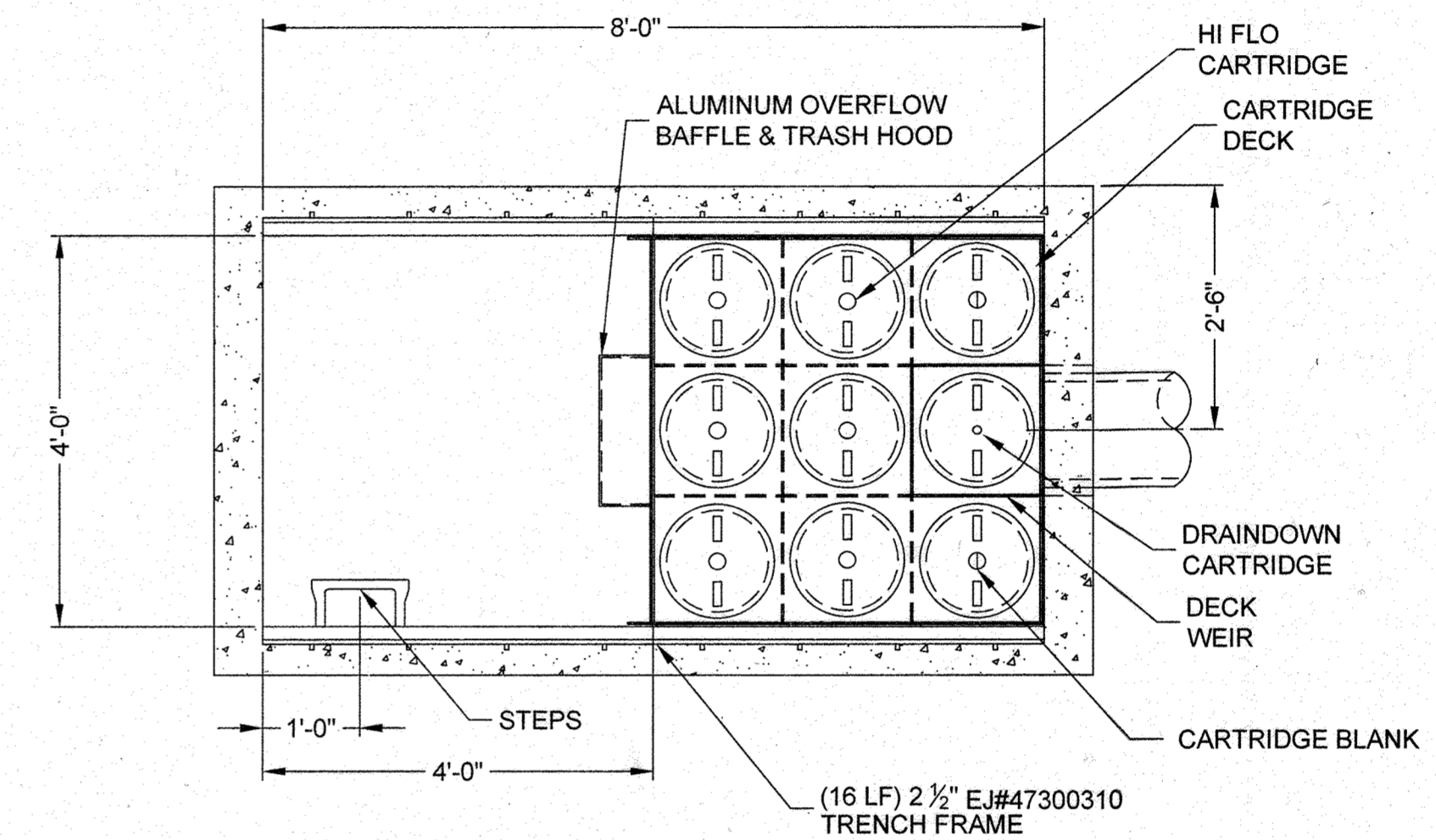
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF-DEVELOPMENT ENGINEERING DIVISION
DATE: 2/6/07
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
DATE: 3/12/07
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT



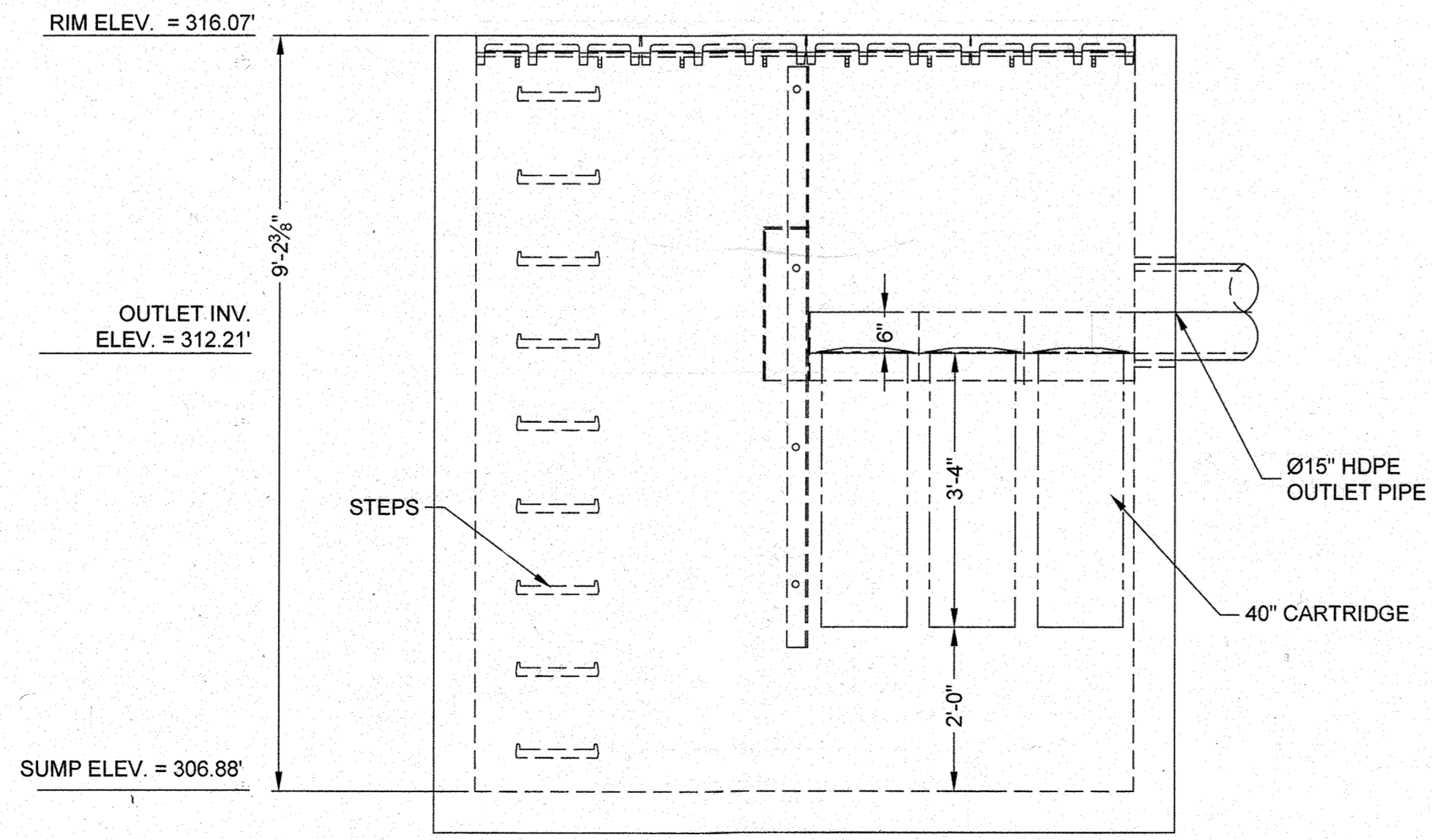
PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN VIEW
(COVERS REMOVED)
NOT TO SCALE



ELEVATION VIEW
NOT TO SCALE

Owner:
Costco Wholesale
45940 Horseshoe Drive, Suite 150
Sterling, VA 21066
ATT: Erich Brann

PROFESSIONAL CERTIFICATION
I, MICHAEL J. GESELY, 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. 44097, EXPIRATION DATE: 6/19/15

MATERIAL LIST - PROVIDED BY CONTECH			SITE DESIGN DATA	
COUNT	DESCRIPTION	INSTALLED BY	WATER QUALITY FLOW RATE	0.81 CFS
6	40" HI-FLO CARTRIDGE (80 mm ORIFICE)	CONTECH	PEAK FLOW RATE	4.4 CFS MAX
1	40" HI-FLO CARTRIDGE (80 mm ORIFICE)	CONTECH	RETURN PERIOD OF PEAK FLOW	10 YRS
2	CARTRIDGE BLANK (NO ORIFICE)	CONTECH		
1	JELLYFISH VAULT CARTRIDGE DECK	CONTECH		
1	JELLYFISH VAULT BAFFLE & TRASH HOOD (12" x 11" ORIFICE)	CONTECH		
16 LF	2 1/2" TRENCH FRAME EJ#47300310	CONTECH		
2	24" x 51" TRENCH COVER EJ#47514031	CONTECH		
2	24" x 51" TRENCH GRATE EJ#47314030	CONTECH		
1 PLC	STEPS	CONTECH		

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. WWW.CONTECH.COM
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 1' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M88 LOAD PATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES:
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR SHALL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = TBD LBS.

PLANNING BOARD APPROVAL STAMP

APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE: 8/21/14

APPROVED: DEPARTMENT OF PLANNING AND ZONING
9-23-14
CHIEF-DEVELOPMENT ENGINEERING DIVISION
APPROVED: 9-24-14
CHIEF-DIVISION OF LAND DEVELOPMENT
APPROVED: 9/24/14
DIRECTOR
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

REV.	DATE	DESCRIPTION	BY
3	8/21/14	REVISED LAYOUT, NEW PUMPS AND CARTRIDGE, RELOCATED BUS STOP AND SIDEWALK AND UTILITY UPDATES	MJG

OWNER/DEVELOPER: HRD LAND HOLDINGS, INC.
HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE HOUSE BUILDING
10275 LITTLE PATUXENT-PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6000

PROJECT: BENSON EAST
PARCEL U, GASOLINE STATION WITH WORK
(COSTCO GASOLINE) GATEWAY OVERLOOK
SHOPPING CENTER

AREA: TAX MAP 37 GRID 1 & 2 ZONED NEW TOWN
PARCEL U
BENSON EAST
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: JELLYFISH FILTER STORMWATER DETAIL

BOHLER ENGINEERING, P.C.
PROFESSIONAL ENGINEERING SERVICES
22630 DAVIS DRIVE, SUITE 200 STERLING, VIRGINIA, 20164
CONTACT: DAVID B. BOHLER
(703) 709-9500 FAX: (703) 709-9501 | WWW.BEPCON.COM

DESIGNED BY: MJG
DRAWN BY: MDD
PROJECT NO.: MD130004
DATE: 7/24/14
SCALE:
DRAWING NO.: 23 OF 28

8/21/14 MICHAEL GESELY
PROFESSIONAL ENGINEER NO. 44097

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION
USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE
TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES
ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION, SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING, SEEDING AND MULCHING, TEMPORARY STABILIZATION, AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY
STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSISTING IN THE RECHARGE OF GROUNDWATER THROUGH THE ROOT ZONE.

SEEDING CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT
INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUND COVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUND COVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUND COVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION
ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE
TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES
ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA

1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY DIKES/SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
 - b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
 - c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDBED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

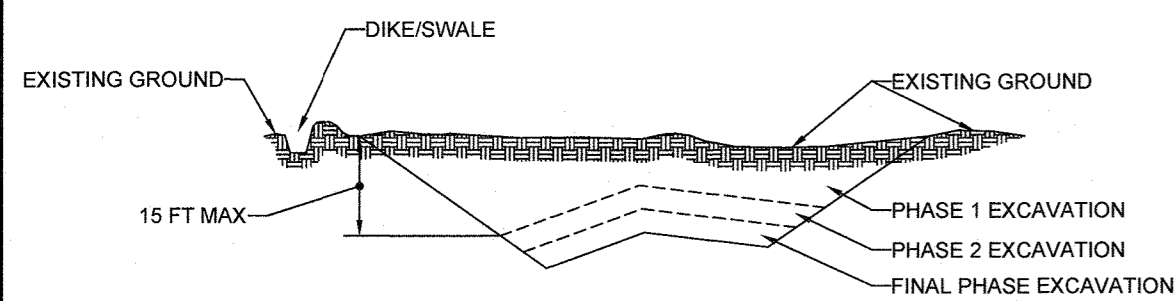


FIGURE B.1: INCREMENTAL STABILIZATION - CUT

B-4-2 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION - FILL SLOPES

1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
2. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
3. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY DIKES/SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON THE DOWN-SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
 - c. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
 - d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
 - e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDBED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

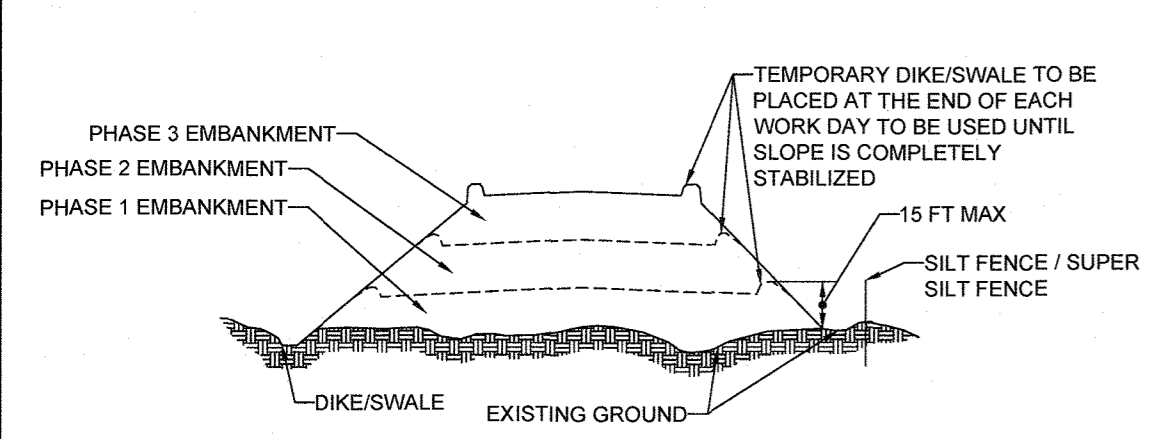


FIGURE B.2: INCREMENTAL STABILIZATION - FILL

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

1. SOIL PREPARATION
 1. TEMPORARY STABILIZATION
 - a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

2. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - i. SOIL PH BETWEEN 6.0 AND 7.0.
 - ii. SOIL NUTRIENTS LESS THAN 500 PARTS PER MILLION (PPM).
 - iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 20 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
3. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CRITERIA.
 - a. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSEN TO A DEPTH OF 3 TO 5 INCHES.
 - b. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - c. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBSTACLES LIKE TONS AND BRANCHES AND READY TO APPLY FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 2 INCHES OF SOIL LOOSE AND FRABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

4. APPLICATION
 - a. APPLY MULCH TO ALL SEEDBED AREAS IMMEDIATELY AFTER SEEDING.
 - b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDBED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED WHEN USING A MULCH ANCHORING TOOL. INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 - c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 100 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
5. ANCHORING
 - a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THIS TOOL IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.
 - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A RATIO OF 1:1 TO 1:2.5 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAIL II, TERRA TACK, OR OTHER APPROVED EQUIPMENT MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CURVES OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

6. TOPSOILING
 1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AND APPROVAL BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED IN THE FEDERAL REGISTER.
 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - 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. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
 - d. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
 4. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - a. TOPSOIL MUST BE LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
 - b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NET SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - c. 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.
 5. TOPSOIL APPLICATION
 - a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO 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 TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - c. TOPSOIL MUST NOT BE PLACED IF THE 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.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

1. SEEDING
 - a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING SEED QUALITY. SEED MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS PROTECTED BY AN APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - c. INOCULANTS: ARE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES. INOCULANTS ARE PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - d. SOIL OR SEED MUST NOT 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.
2. APPLICATION
 - a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1. PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF GROUND COVER IN EACH DIRECTION. ROLL THE SEEDBED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - b. DRILL OR CULTPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - i. CULTPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN, P2O5 (PHOSPHORUS), 200 POUNDS PER ACRE, K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - ii. LIME: USE ONLY GOOD AGRICULTURAL LIMESTONE UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING. NORMALLY, NOT MORE THAN 7 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
3. MULCHING
 1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY NUTTY. DO NOT USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS SEEDING.
 - b. WOOD CELLULOSE FIBER MULCH (WFCM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

4. WFCM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMITY OF SPRAYING.
5. WFCM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
6. WFCM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION. BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A SLURRY WITH GROUND COVER ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS PLUS CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
7. WFCM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
8. WFCM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 0.2 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

9. APPLICATION
 - a. APPLY MULCH TO ALL SEEDBED AREAS IMMEDIATELY AFTER SEEDING.
 - b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDBED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED WHEN USING A MULCH ANCHORING TOOL. INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 - c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 100 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
10. ANCHORING
 - a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THIS TOOL IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.
 - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A RATIO OF 1:1 TO 1:2.5 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAIL II, TERRA TACK, OR OTHER APPROVED EQUIPMENT MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CURVES OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE
TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUBSTITUTION IS NOT SUBMITTED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY						
HARDNESS ZONE (from Figure B.3): ZONE 6-B				FERTILIZER RATE (10-20-20)		LIME RATE
NO.	SPECIES	APPLICATION RATE (LBS/AC)	SEEDING DATES	SEEDING DEPTHS		
COOL SEASON GRASSES						
1	ANNUAL RYEGRASS	40	3/1 - 5/15	0.5"		
2	BARLEY	96	3/1 - 5/15	1"		
3	OATS	72	3/1 - 5/15	1"	436 LBS/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
4	WHEAT	120	3/1 - 5/15	1"		
5	CEREAL RYE	112	3/1 - 5/15	1"		
WARM SEASON GRASSES						
6	FOXTAIL MILLET	30	5/16 - 7/31	0.5"	436 LBS/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
7	PEARL MILLET	20	5/16 - 7/31	0.5"		

B-4-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE
TO USE LONG-LEAF PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

1. SEED MIXTURES
 - a. GENERAL USE
 - i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - ii. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
 - b. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
 - c. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
2. TURFGRASS MIXTURES
 - a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - ii. KENTUCKY BLUEGRASS: FULL SUN MIXTURE. FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - iii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE. FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY. SITE SURFACE WILL BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

PERMANENT SEEDING SUMMARY

HARDNESS ZONE (from Figure B.3): ZONE 6-B				FERTILIZER RATE (10-20-20)		LIME RATE
NO.	SPECIES	APPLICATION RATE (LBS/AC)	SEEDING DATES	SEEDING DEPTHS		
9	TALL FESCUE	60	3/1 - 5/15	1/4" - 1/2"		
	KENTUCKY BLUEGRASS	40	3/1 - 10/15	1/4" - 1/2"		
	PERENNIAL RYE GRASS	20	8/1 - 10/15	1/4" - 1/2"		
5	HARD FESCUE	20	3/1 - 5/15	1/4" - 1/2"	45 LBS/AC (1.0 LB/1000 SF)	90 LBS/AC (2.0 LB/1000 SF)
	PERENNIAL RYE GRASS	10	8/1 - 10/15	1/4" - 1/2"		
	FLAT PEA	15				
1	SWITCH GRASS	10	3/1 - 6/15	1/4" - 1/2"		
	CREeping RED FESCUE	4				
	PARTRIDGE PEA	4				

* FOR THE PERIOD 5/1 - 8/14 ADD EITHER FOXTAIL OR PEARL MILLET - 6 LBS/AC. TO MIX NO. 9: 2.25 LBS/AC. TO MIX NO. 5: 2.25 LBS/AC.

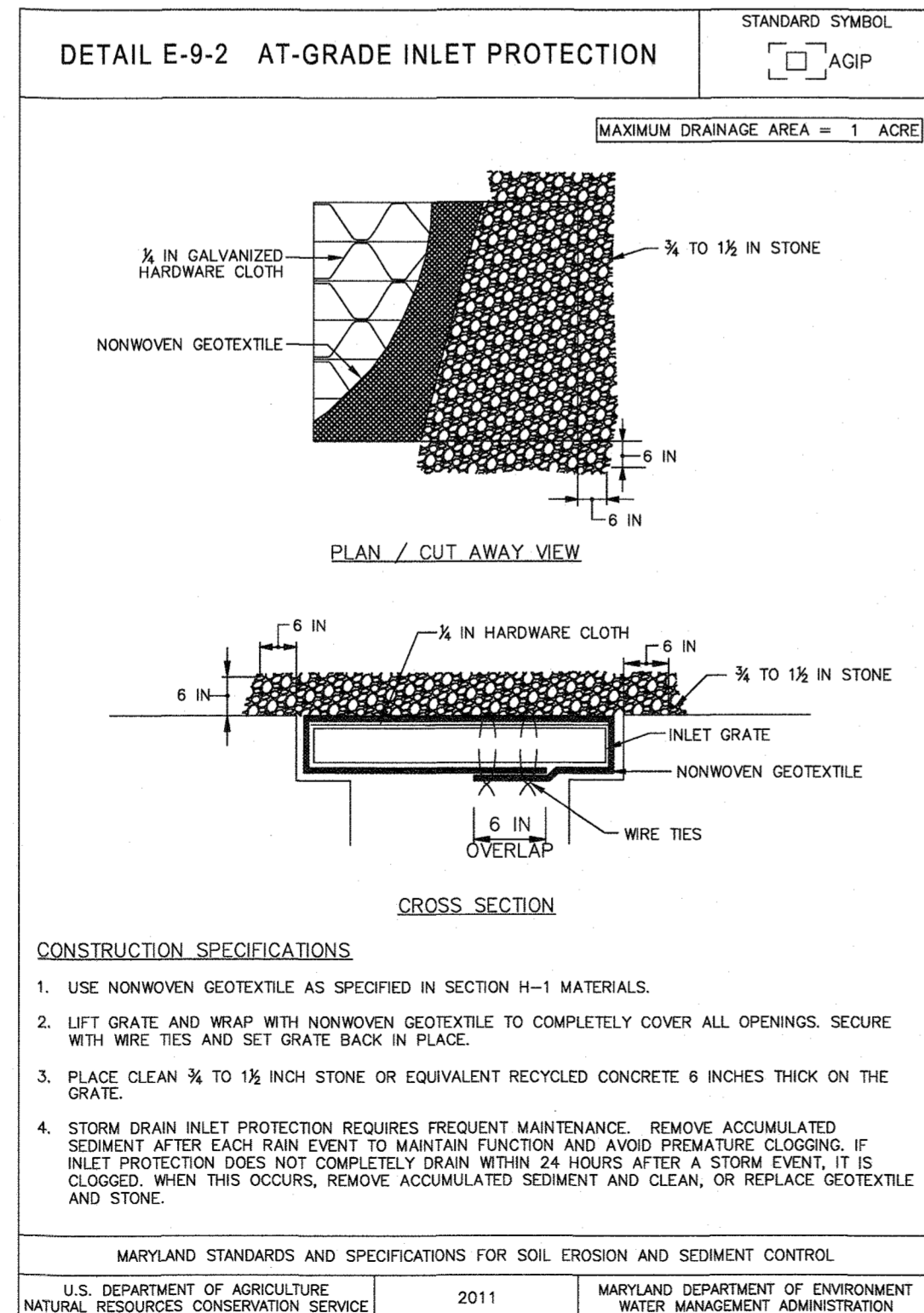
3. SOIL TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).
 - a. GENERAL SPECIFICATIONS
 - i. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
 - ii. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 1/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROWN FIBER FRAYS AND TOP OR LOWER EDGES WILL NOT BE ACCEPTABLE.
 - iii. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER TO PERCENT OF THE SECTION.
 - iv. SOD MUST NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - v. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN A

**HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES**

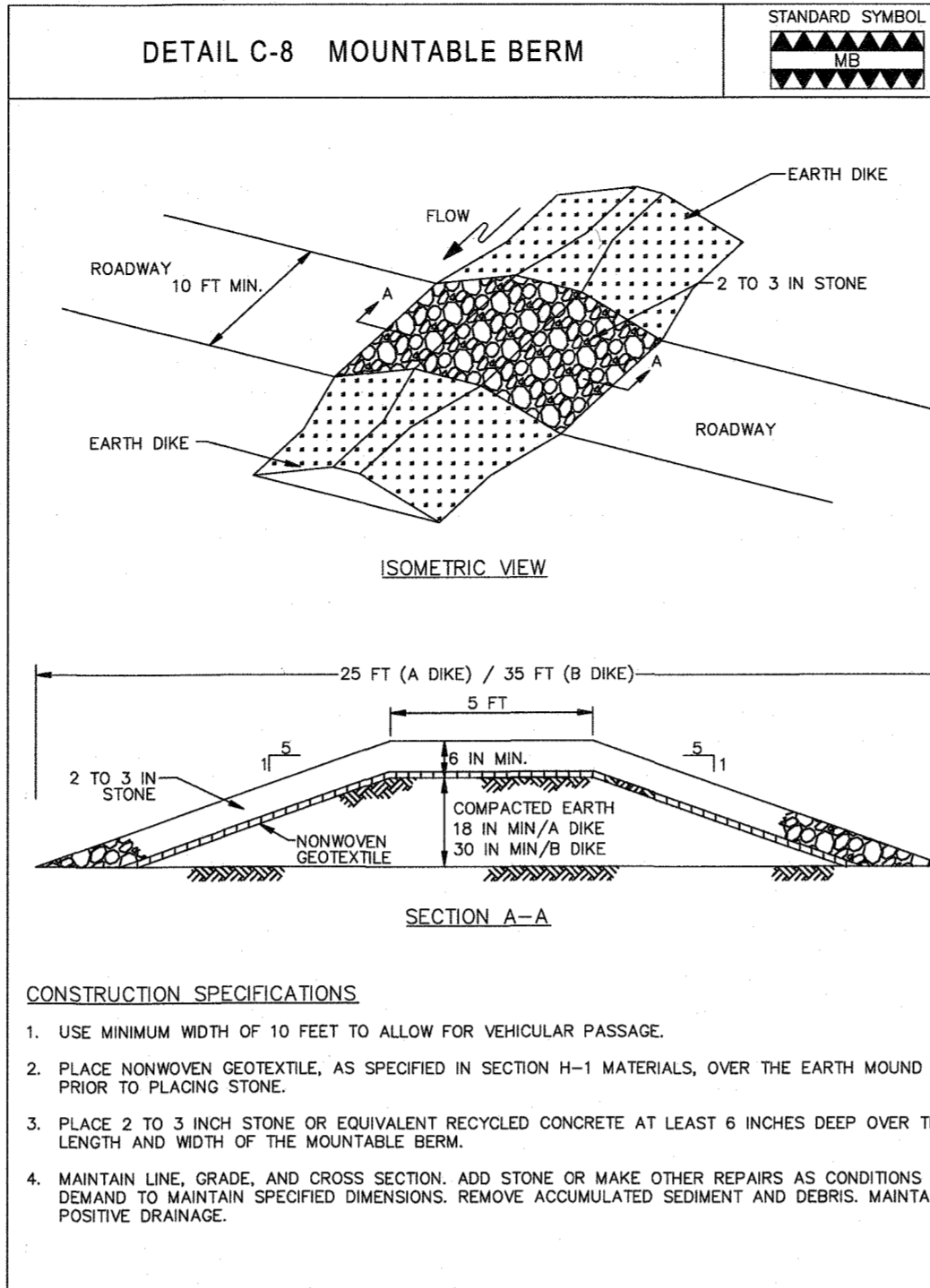
- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:**
TOTAL AREA OF SITE: 36.758 ACRES
AREA DISTURBED: 0.33 ACRES
AREA TO BE ROOFED OR PAVED: 0.32 ACRES
AREA TO BE VEGETATIVELY STABILIZED: 0.01 ACRES
TOTAL CUT: 1.15 CU. YDS.
TOTAL FILL: 120.60 CU. YDS.
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 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 CONTROLS, 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
- A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

SEQUENCE OF CONSTRUCTION

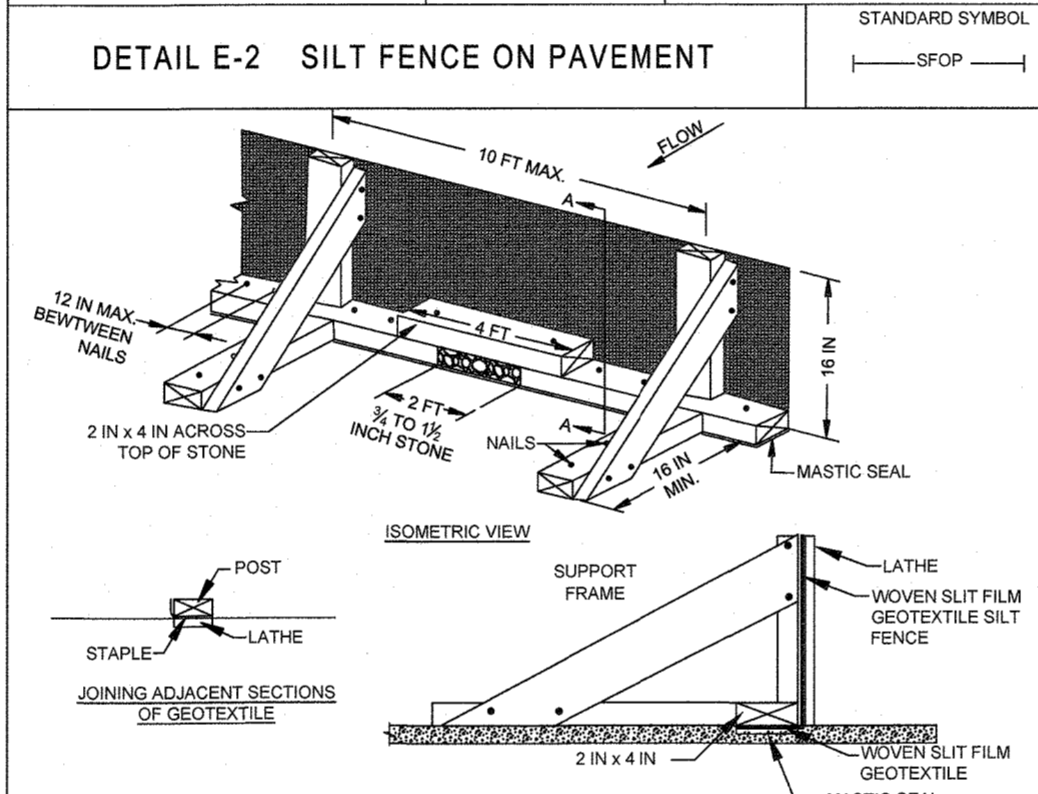
- NOTIFY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. (2 DAYS)
- THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION MANAGER AND THE HOWARD COUNTY EROSION AND SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES. (1 DAY)
- CLEARLY MARK LIMITS OF DISTURBANCE IN THE FIELD PRIOR TO CONSTRUCTION. PERMANENTLY OR TEMPORARILY STABILIZE DISTURBED AREAS ON SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED WITHIN:
 - A. THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
 - B. SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE AND AT-GRADE INLET PROTECTION FOR EROSION AND SEDIMENT CONTROL. (5 DAYS)
- ONCE THE SEDIMENT CONTROL DEVICES ARE INSTALLED, THE PERMITEE MUST OBTAIN WRITTEN APPROVAL FROM THE INSPECTOR BEFORE PROCEEDING WITH ANY ADDITIONAL CLEARING, GRUBBING, OR GRADING. (1 DAY)
- WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, BEGIN REMOVAL OF FEATURES THAT ARE TO BE RELOCATED. (5 DAYS)
- FINE GRADE ALL DISTURBED AREAS AND STABILIZE THE SITE. (5 DAYS)
- INSTALL SITE FEATURES THAT ARE TO BE RELOCATED AND JELLYFISH FILTER. (5 DAYS)
- INSTALL LANDSCAPING. (5 DAYS)
- STABILIZE ALL ADDITIONAL DISTURBED AREAS AS REQUIRED AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES. (2 DAYS)



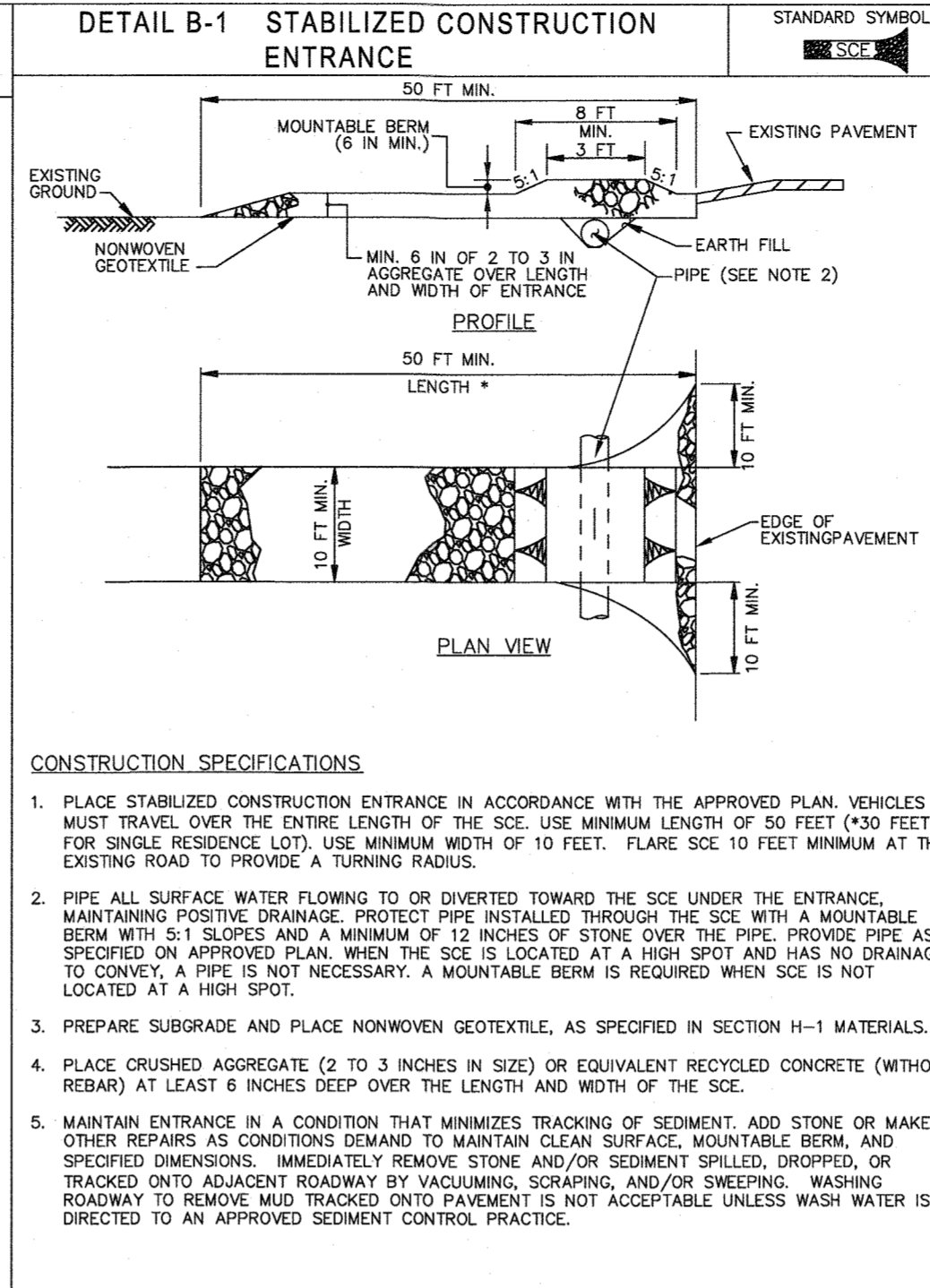
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
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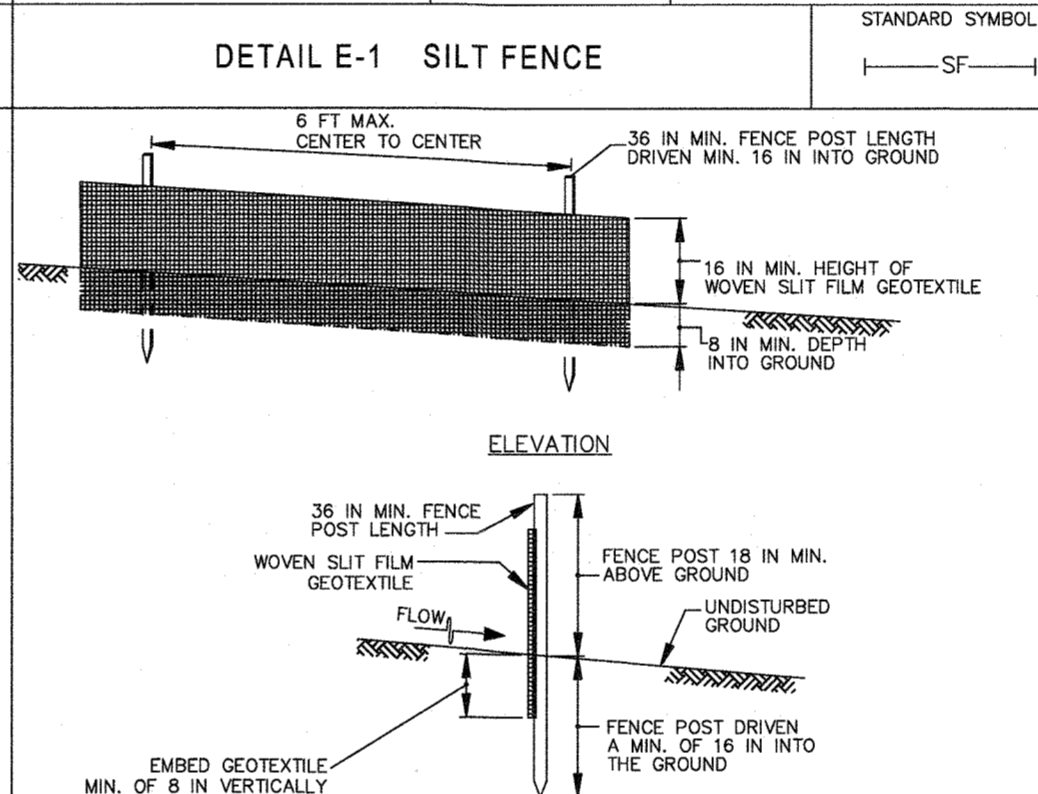
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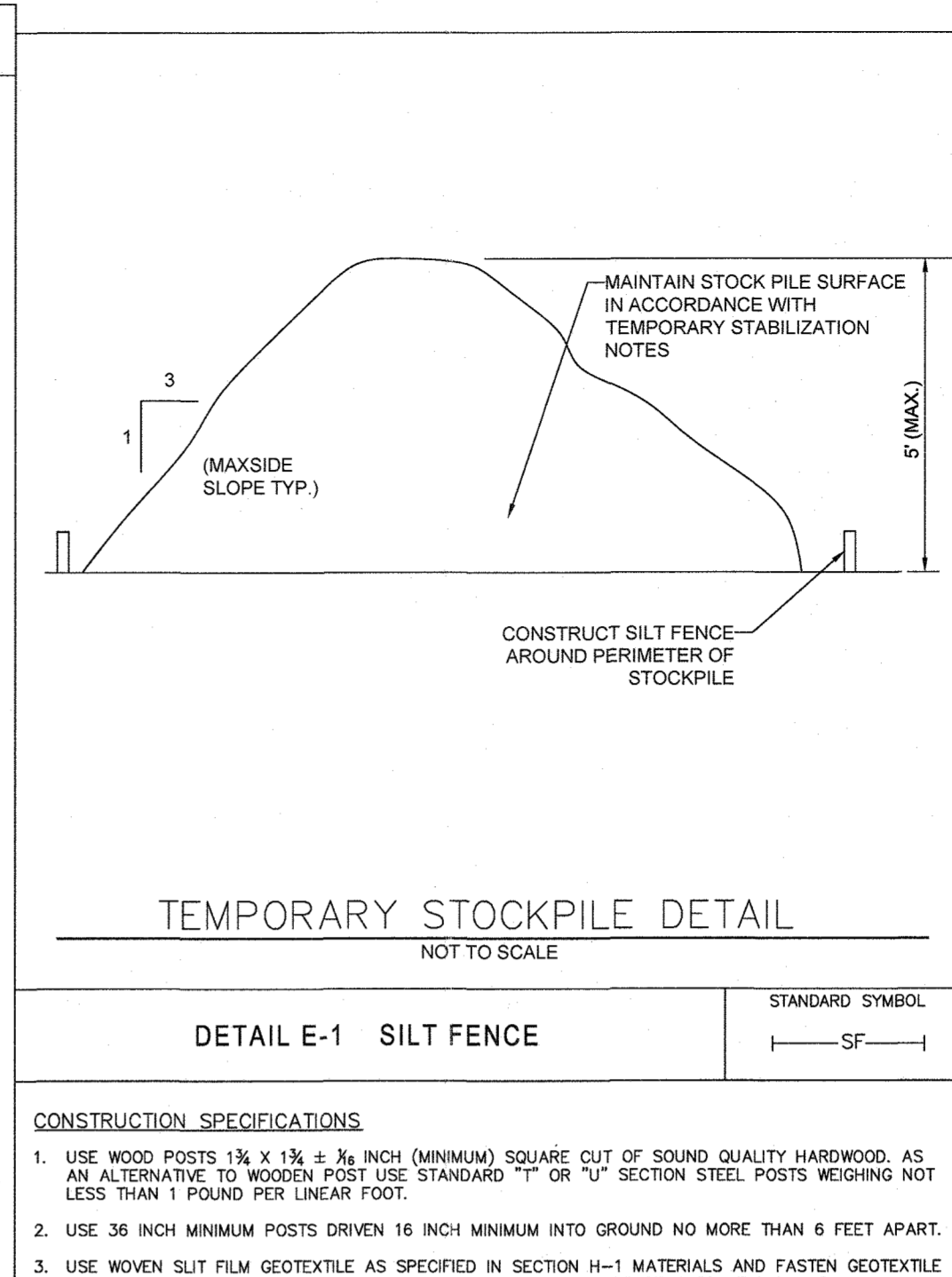
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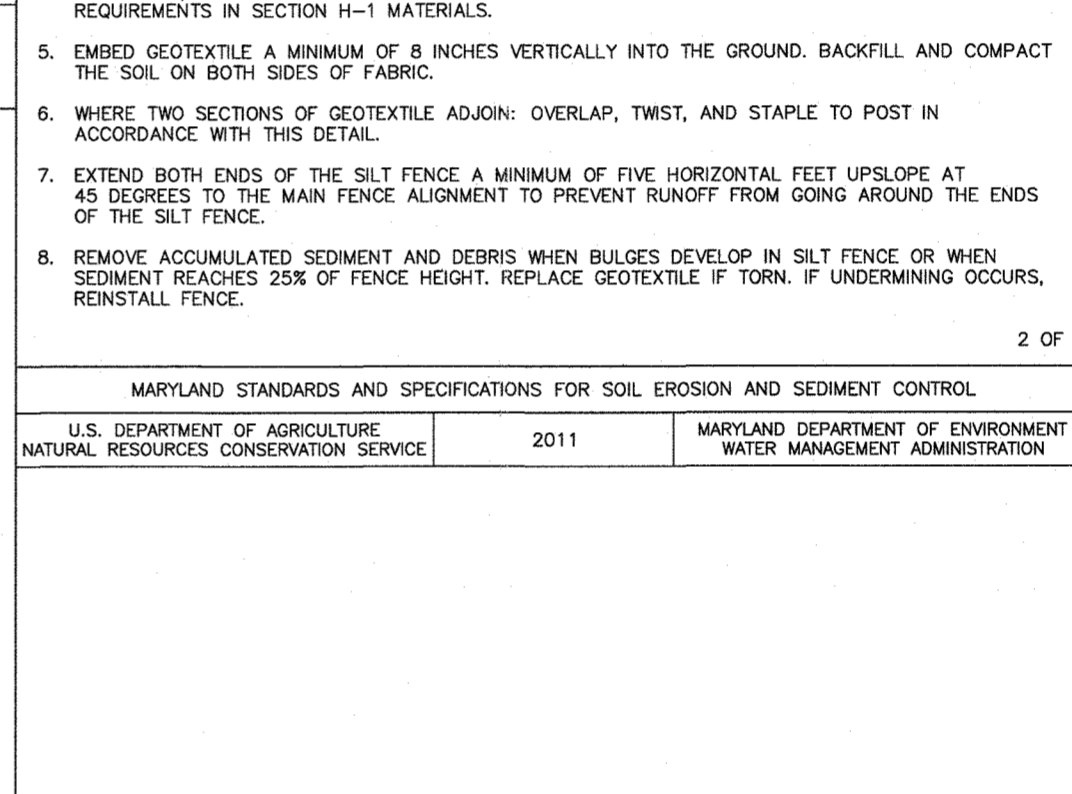
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SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY
4	8/23/2023	TO UPDATE THE NUMBER OF GAS PUMPS FROM 10 TO 12 AND ASSOCIATED PIPE IMPROVEMENTS	SBF	JCB

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PROJECT No.:	MD210003
DRAWN BY:	LJW
CHECKED BY:	DH
DATE:	5/24/2023
CAD I.D.:	SECP-EROD-1

PROJECT: **BENSON EAST
PARCEL U; GASOLINE
STATION WITH KIOSK
(COSTCO GASOLINE);
GATEWAY OVERLOOK
SHOPPING CENTER**

COSTCO WHOLESALE

LOCATION OF SITE
6670 MARIE CURIE DRIVE
ELKRIDGE, MD 21075
TM: 37 20 382
BENSON EAST, PARCEL U
HOWARD COUNTY
2ND ELECTION DISTRICT

BOHLER //

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

D.S. HANEY
STATE OF MARYLAND
PROFESSIONAL ENGINEER
LICENSE NO. 24512
EXPIRES 08/21/2023

I, DANIEL HANEY, HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 24512, EXPIRATION DATE: 08/21/2023

SHEET TITLE:
**EROSION AND
SEDIMENT
CONTROL NOTES
AND DETAILS**

SHEET NUMBER:
28 OF 28

ORG. DATE - 8/23/2023

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 8/23/23
CHIEF-DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF LAND DEVELOPMENT
DATE: 8/23/23
DIRECTOR

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE: Dec. 1, 2023