TOPOGRAPHIC SURVEY WAS PROVIDED BY RBA DATED 4/10/02. THE BASE SURVEY IS GIVEN ON SHEET C-1 OF THIS DRAWING SET. ALL EXISTING SITE CONDITIONS SHALL BE DETERMINED BY EXAMINATION OF THE SURVEY SHEET.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS GIVEN ON THESE DRAWINGS AS WELL AS STANDARD STATE AND LOCAL SPECIFICATIONS WHICHEVER IS MORE RESTRICTIVE.

3. DEVIATION FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT FROM THE ENGINEER MAY CAUSE THE WORK TO BE UNACCEPTABLE.

4. THE RBA GROUP SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES, UTILIZED BY THE CONTRACTOR . NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND STANDARD CONSTRUCTION PRACTICES.

5. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES WHICH ARE TO REMAIN FREE FROM DAMAG AND MAINTAIN UNINTERRUPTED SERVICE TO ALL USERS. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OR SUBCONTRACTOR'S ACTIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

6. FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH WORK.

7. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST 48 HOURS PRIOR TO BEGINNING ANY WORK ON THE PROJECT:

LOCAL UTILITY LOCATION COMPANY

WATER SERVICE AND SANITARY SEWER PROVIDER: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING DEVELOPMENT ENGINEERING DIVISION 3450 COURTHOUSE DRIVE ELLICOTT CITY, MARYLAND 21043 (410) 313-3362 CONTACT: JEAN REED

STORM DRAIN AND STORM WATER MANAGEMENT PROVIDER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENVIRONMENTAL SERVICES STORM WATER MANAGEMENT DIVISION (410) 313-6444

> ELECTRIC PROVIDER: BALTIMORE GAS AND ELECTRIC 7317 PARKWAY DRIVE SOUTH HANOVER, MD 21076 (410) 291-3776 CONTACT: SALLY HOOVER

TELEPHONE PROVIDER:

VERIZON MARYLAND, INC. 2510 RIVA RD. 6TH FLOOF ANNAPOLIS, MD 21401 (410) 224-1670 (301) 261-8088 (FAX)

ROAD REGULATORY AUTHORITIES

STATE: MARYLAND STATE HIGHWAY ADMINISTRATION 2323 WEST JOPPA ROAD BROOKLANDVILLE, MARYLAND 21022 DESIGN: (410) 841-1008 FLOODPLAIN: (410) 545-8405 TRAFFIC DIVISION (REPORTS): (410) 841-1003

COUNTY: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF HIGHWAYS TRAFFIC ENGINEERING DIVISION 3450 COURTHOUSE DRIVE ELLICOTT CITY, MD 21043 (410) 313-2430 CONTACT: GEORGE FRANGOS

CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS PRIOR to beginning work. He shall verify size and locations of all underground utilities and test pit at proposed tie in locations DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER WELL IN ADVANCE OF CONSTRUCTION START. START OF CONSTRUCTION BY THE CONTRACTOR SHALL CONSTITUTE FULL ACCEPTANCE OF ALL SITE CONDITIONS BY THE CONTRACTOR

9. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR CONSTRUCTION PRIOR TO BEGINNING WORK.

10. ALL UTILITIES ARE TO REMAIN UNLESS DESIGNATED TO BE REMOVED AND ALL APPURTENANCES SHALL BE ADJUSTED TO FINISH GRADE.

11. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL STAKE OUT AND VERIFY LOCATIONS OF ALL IMPROVEMENTS AND UTILITY TIE IN

12. SCALING OF THESE PLANS IS DISCOURAGED UNLESS DIRECTED BY THE ENGINEER. IN THE EVENT OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS, THE FIGURED DIMENSIONS SHALL BE

13. CONTRACTOR SHALL INCLUDE DEMOLITION AND REMOVAL OF CURBING, SIDEWALK, AND PARKING AREAS WITHIN THE WORK AREA AS WELL AS REMOVAL AND CAPPING OF ANY UNDERGROUND UTILITIES SHOWN

14. THE CONTRACTOR SHALL ENSURE THAT CURRENT AS-BUILT RECORDS ARE MAINTAINED DURING CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION, CERTIFIED (i.e. P.E. STAMPED) AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE OWNER.

15. CONTRACTOR SHALL MAINTAIN ALL SEDIMENT CONTROL DEVICES WITHIN THE LIMITS OF THE SITE DURING CONSTRUCTION OF THE SITE IMPROVEMENTS. CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AS MAY BE NECESSARY DURING CONSTRUCTION AND/OR BY GOVERNING AGENCIES.

16. THE SUBJECT PROPERTY IS ZONED NT PER HOWARD COUNTY ZONING MAP #36 ADOPTED OCTOBER 18, 1993.

17. THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BECAUSE DOBBIN COMMERCIAL CENTER DEVELOPMENT PREDATES THE FOREST CONSERVATION REGULATIONS AND HAD PRELIMINARY PLAN APPROVAL PRIOR TO 12/31/92, PER SECTION 16-1202(b)(1)(iii) OF THE SUBDIVISION REGULATIONS

18. ALL ADJACENT PROPERTIES ARE NON-RESIDENTIAL USES.

19. ALL TRAFFIC SIGN AND HANDICAP SIGN POSTS TO BE PAINTED BLACK.

20. ALL LIGHT POLE BASES TO BE RECTANGULAR.

21. THERE ARE NO STREAMS, WETLANDS, OR FLOOD PLAINS LOCATED ON THIS SITE. STEEP SLOPES EXIST ON BOTH THE NORTHEAST AND SOUTHEAST CORNERS OF THE SITE.

22. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$600 FOR 1 SHADE TREE, 2 EVERGREEN TREES AND 0 SHRUBS.

23. OUTDOOR LIGHTING COMPLIES WITH SECTION 134 OF THE HOWARD COUNTY ZONING 24. SCREENING AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH THE

HOWARD COUNTY LANDSCAPE MANUAL

25. ALL SIGNS WILL COMPLY WITH THE HOWARD COUNTY ZONING REGULATIONS

26. THIS SITE DOES NOT LIE WITHIN A FLOODPLAIN. 27. FOR SITE LIGHTING INFORMATION, SEE SHEET C-7.

FOR REVISION 5 ONLY

28. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.

29. SHC ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE.

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: 6/9/17

INDEX

COVER SHEET W/ GENERAL NOTES
BOUNDARY and TOPOGRAPHIC SURVEY

SITE PLAN
GRADING, DRAINAGE AND EROSION CONTROL PLAN

SDP 03-96 | DOBBIN ROAD COMMERCIAL CENTER, PARCEL S-1, CHICK-fil-A RESTAURANT

TITLE

STANDARD CHICK-FIL-A DETAILS STANDARD CHICK-FIL-A DETAILS

LIGHTING AND PHOTOMETRIC PLAN

CONSTRUCTION DETAILS

DEMOLITION PLAN

ANDSCAPE PLAN

LANDSCAPE DETAILS

PLUMBING SITE PLAN

FILE NUMBER: PROJECT SUBDIVISION NAME:

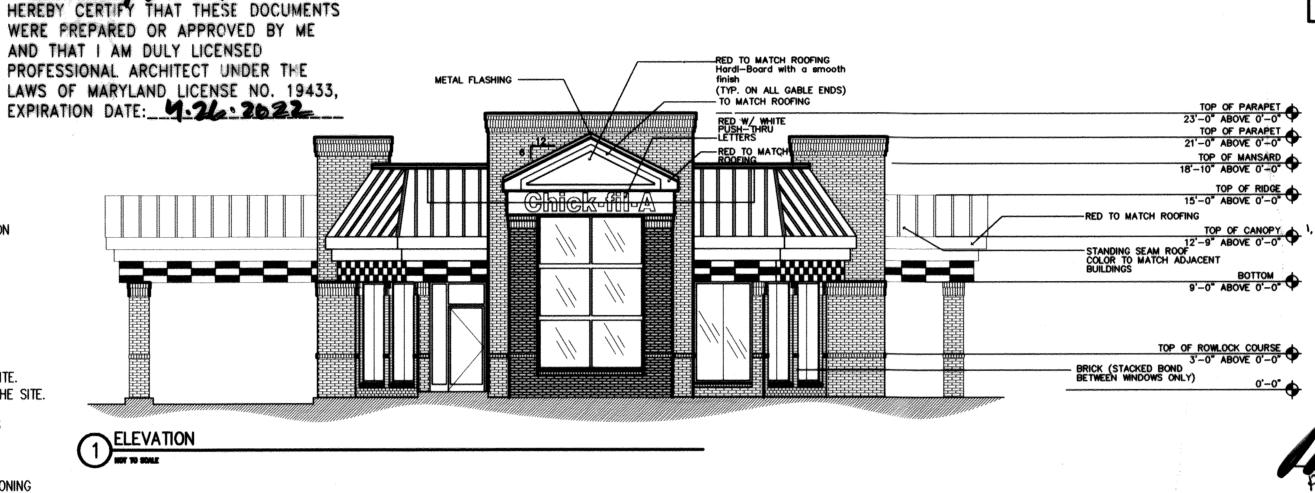
30. FINAL DEVELOPMENT CRITERIA AND SETBACK INFORMATION IS FOUND

IN F.D.P. 132-A-III.

NO.



DOBBIN ROAD, COMMERCIAL CENTER HOWARD COUNTY, MARYLAND



SITE DEVELOPMENT PLANS

PREPARED FOR:

CHICK-FIL-A RESTAURANT, INC.



FAX: 410 - 821 - 7987

REFERENCE

FOREST CONSERVATION DATA SUMMARY

REGULATION SECTION: 16-#202(b)(1)(iii) (PROVIDE REGULATION REFERENCE AND A BRIEF DESCRIPTION OF THE APPLICABLE EXEMPTION OR DO

DOBBIN CENTER DEVELOPMENT PREDATES FOREST CONSERVATION REGULATIONS AND HAD PRELIMINARY PLAN APPROVAL PRIOR TO 12/31/92.

MD@BOHLERENG. COM

5200 BUFFINGTON ROAD ATLANTA, GEORGIA 30349-2998 (404) 765-8000

BOHLER ENGINEERING GOI DULANEY VALLEY RD, SVITE BOI TOWSON, MARYLAND 21204 PHONE: 410-821-7900

PREPARED BY:



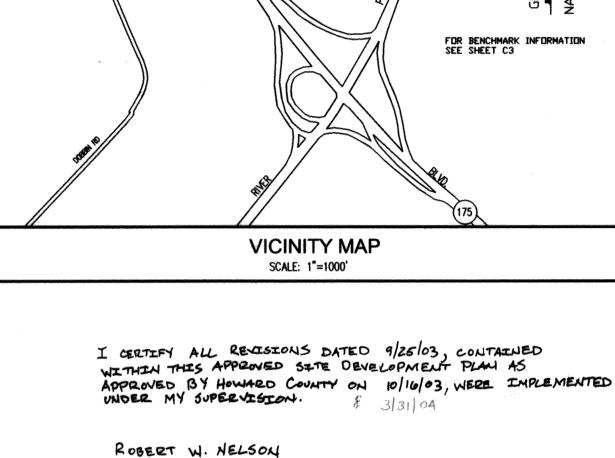
7164 COLUMBIA GATEWAY DRIVE **SUITE 205** COLUMBIA, MARYLAND 21046 (410) 312-0966

> OWNER: CHICK-FIL-A, INC. 5200 BUFFINGTON RD ATLANTA, GEORGIA 30349

ABBREVIATIONS

RCP = REINFORCED CONCRETE PIPE

PVC = POLYVINYL CHLORIDE PIPE S.F. = SQUARE FEET



DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL NGINEER UNDER THE LAWS OF THE STATE OF MARYLAND

DOBBIN S

FOR REVISION 6 ONLY (AS-BUILT INFORMATION)

Before You Dig

"MISS UTILITY"

Service Protection Center

CALL TOLL FREE

1-800-257-7777

PROPOSED 4" PVC

IRRIGATION SLEEVE

ADDAOLITI LOT LITE
EXISTING CURB & GUTTER
EASEMENT LINE
PROPERTY LINE
EXISTING LIGHT/UTILITY POLE
EXISTING FIRE HYDRANT
EXISTING WATER VALVE
EXISTING WATER LINE
EXISTING STORM DRAIN LINE
EXISTING SANITARY LINE
EXISTING GAS LINE
PROPOSED BOLLARD

APPROVED PLANNING BOARD of HOWARD COUNTY DATE May 1, 2003

65,601 SQ. FT. (1.5 AC.)

RESTAURANT

RESTAURANT

(7.6% COVERAGE)

5,032 SQ. FT

3,356.42

21,352.84

1996.03

32,706.11

968.82

EXISTING CONTOUR EXISTING TREE LIMIT OF DISTURBANCE CURB INLET PROTECTION STANDARD INLET PROTECTION C.I.P. / S.I.P.

> FLUSH TO PAVEMENT/ GT PROPOSED GREASE TRAP

PROPOSED ELECTRIC METER PROPOSED GAS METER PROPOSED STORM DRAIN PROPOSED SANITARY SEWER PROPOSED WATER PROPOSED CURB & GUTTER

PROPOSED CONCRETE PAD PROPOSED PERIMETER SITE LIGHTING PROPOSED TRANSFORMER PROPOSED ECX SERIES 50 FOOT POLE PACKAGE, BY APPROVED VENDORS; THE FLAG COMPANY OR ATLAS FLAGS

PROPOSED BUILDING

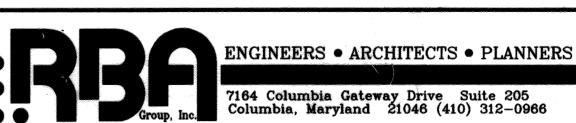
BENCHMARK PROPOSED PARKING STALLS, & NUMBERING

HANDICAPPED PARKING SYMBAL BUILDING SIGN LOCATION (APPROX.)

STABILIZED CONSTRUCTION **FNTRANCE** WITH MOUNTABLE BERM

DETAIL NUMBER X DETAIL CALL-OUT

T' A-6 SITE LIGHTING, SEE SHEET C2



S

OBBIN OMMERC DOD

GENERAL

1 of 17

SDP-03-96

ADDRESS CHART STREET ADDRESS P. S-1 6375 DOBBIN ROAD

PERMIT INFORMATION CHART SUBDIVISION NAME LOTS/PARCELS CENSUS TRACT 6067.03 COMMERCIAL CENTER GRID NO. PLAT NO. TAX MAP ELECTION DISTRICT WATER CODE SEWER CODE 533300

DEPARTMENT OF PLANNING AND ZONING 8/5/07 Hanutra

WATER AND PUBLIC APPROVED: FOR PUBLIC **SEWERAGE SYSTEMS** 8/8/03 Venny Borenstein M. D. M. M. HOWARD COUNTY HEALTH DEPARTMENT

13 BIORETENTION FACILITY

14 UTILITY PROFILES 15 STORMWATER MANAGEMENT DETAILS OPTION 2: EXEMPT / DOI

SDP-83-224C, FDP-132-A-III, F-81-36c, F-82-35, F-83-30, F-04-154

SITE ANALYSIS

A. GROSS SQUARE FOOTAGE (1-STORY): 5.032 SQ. FT.

(INCLUDES 3 HANDICAPPED ACCESSIBLE SPACES)

DINING TABLE SEATS - TOTAL

D. TOTAL PARKING SPACES PROVIDED:

CONCRETE & DRIVE THRU:

DEED REFERENCE: LIBER/FOLIO 307

PLAT REFERENCE: PLAT # 5307

11. TAX MAP: 36, GRID: 18, PARCEL: 396

IN A LETTER DATED JANUARY 10, 2003.

10. ELECTION DISTRICT NO. 2. HOWARD COUNTY MARYLAND

*THIS NUMBER OF PARKING SPACES WAS FOUND ACCPETABLE

BY HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

12. AREA OF DISTURBANCE: 8, 789 S.F. OR 0.20 AC (REVISION 5)

9. RELATED FILES FOR THIS SITE

EXISTING USE:

PROPOSED USE:

5. BUILDING DATA

6. PARKING DATA

A. 9' x 18' SPACES

IMPERVIOUS AREA:

BUILDING:

PAVEMENT:

SIDEWALKS:

G. % COVERAGE:

F. TOTAL COVERAGE

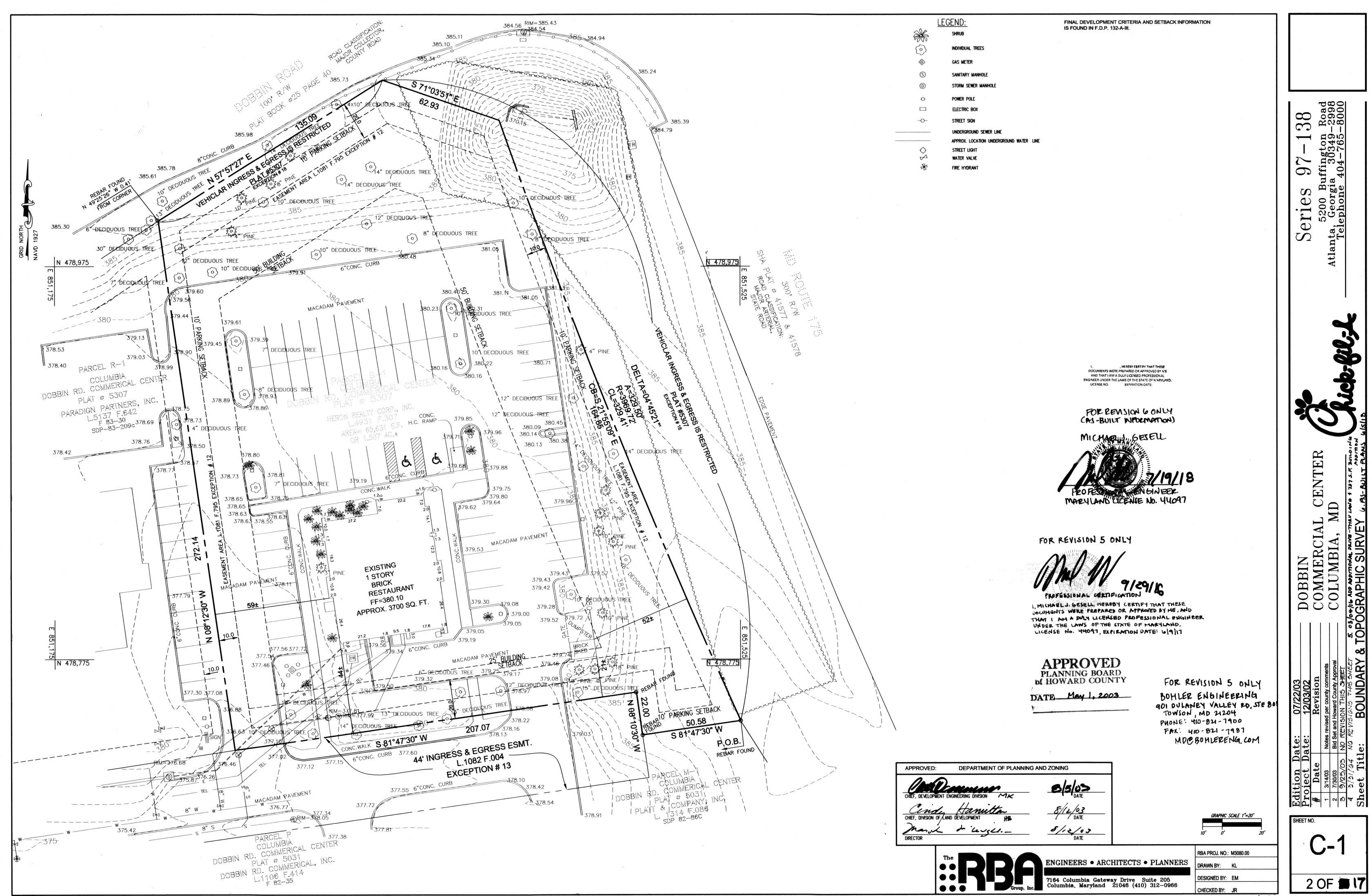
DUMPSTER AREA

C. SPACES REQUIRED:

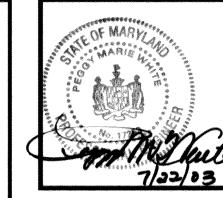
ACCESSIBLE SPACES:

GSF = GROSS SQUARE FEET C.O. = GENERAL CLEAN OUT

RBA PROJ. NO.: M3080.00 RAWN BY: PS DESIGNED BY: EM CHECKED BY: JF



SDP-03-96



977-138 ffington Road 30349-2998 404-765-8000

Series 97-16 5200 Buffington Atlanta, Georgia 30349-

Gieb-fül.

MERCIAL CENTER JMBIA, MD

DOBBIN
COMMERC
COLUMBIA

Revision
, this sheet
Howard County Approval
JON THIS SHEET
510NS THIS SHEET

| ect Date: 12/03/C | Date Revisions this sheet | 2/03/C | No revisions, this sheet | 2/03/C | No revisions, this sheet | 2/03/C | No REVISION THIS &

C-1A

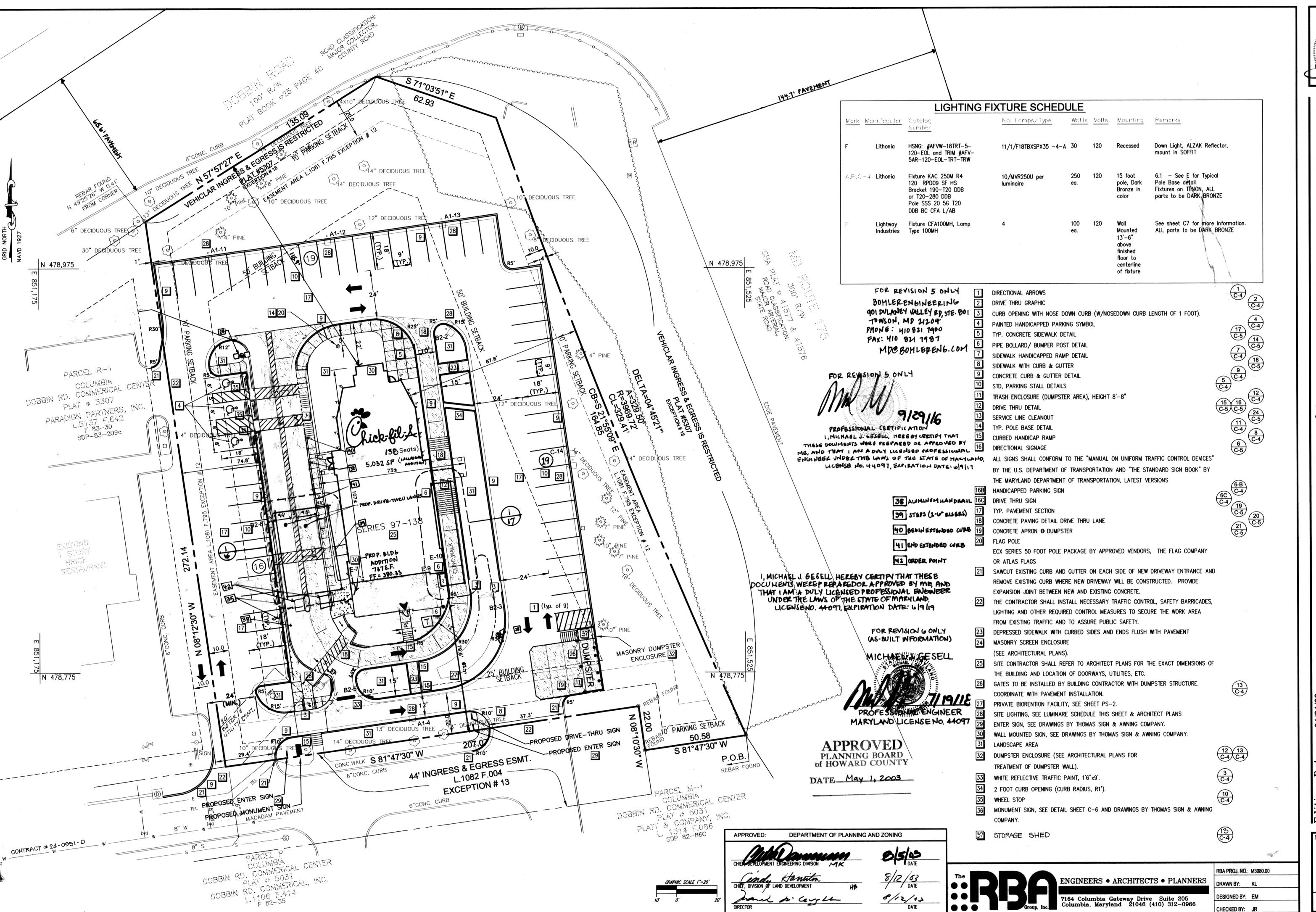
DRAWN BY: KL

DESIGNED BY: EM

CHECKED BY: JR

ENGINEERS • ARCHITECTS • PLANNERS

7164 Columbia Gateway Drive Suite 205 Columbia, Maryland 21046 (410) 312-0966





ington Road 30349-2998 34-765-8000

Series 97-1 5200 Buffington Atlanta, Georgia 30349 Telephone 404-765

OOBBIN COMMERCIAL CENTER COLUMBIA, MD

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1/3/02

on Date: 01/21/03

ect Date: 12/03/02

Date Revision

14/03 Screenwalk, and masony
screenwall revised, lighting added

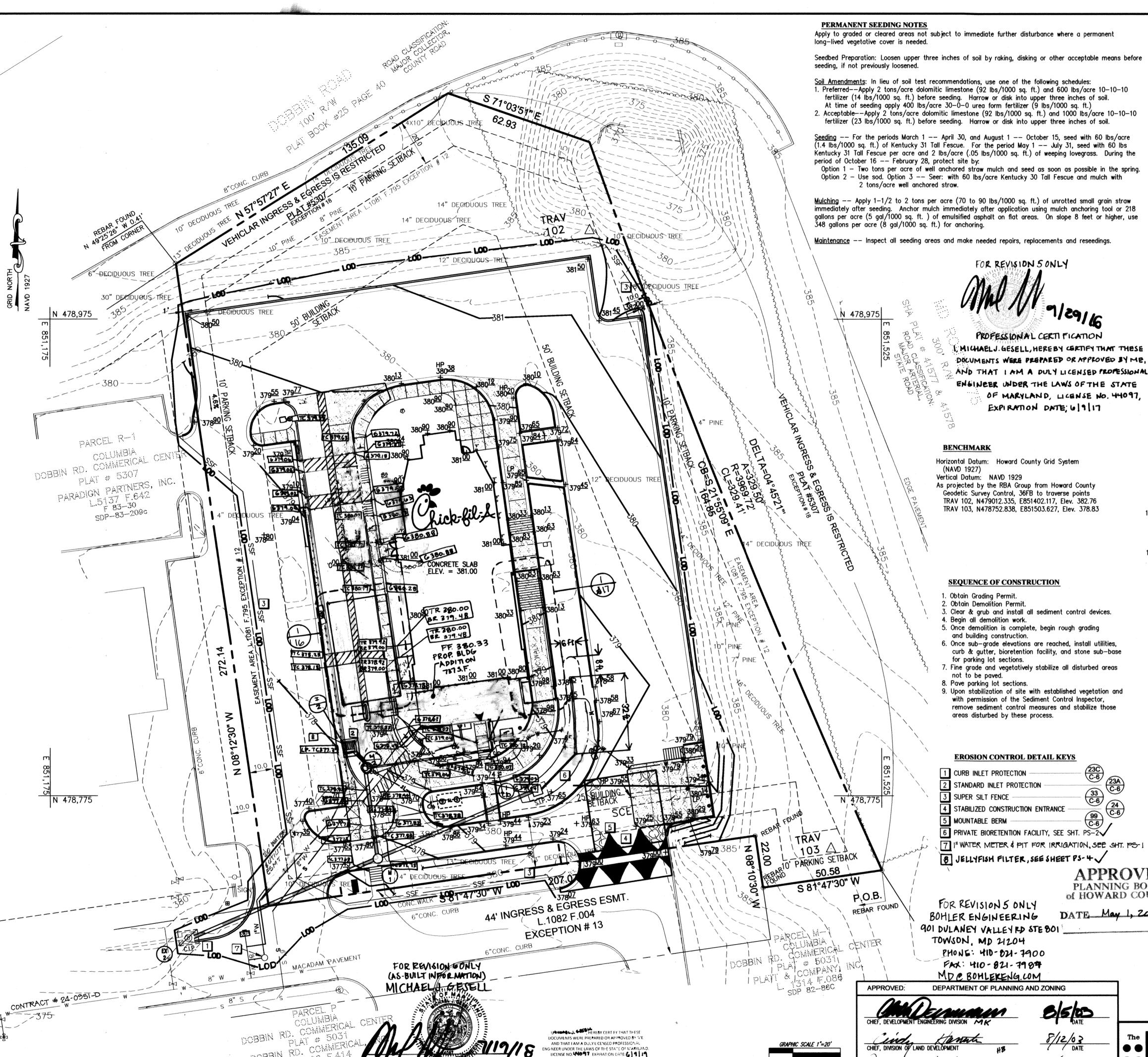
30/03 Bid Set and Howard County Approval

725/03 TRANSFORMER RELOCATION V

Project Date:

Date Curbing, sidewalk 1 3/14/03 sidewalk 2 7/30/03 Bid Set and Howa 2 9/25/03 TRANSFOR 4 3/31/04 SHOW 20'

C-2



MARY LAND LICENSE NO. 44097

TEMPORARY SEEDING NOTES.

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seedbed preparation: -- Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

Seeding: -- For periods March 1 -- April 30 and from August 15 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 — February 28 protect the site by applying 2 tons/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/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

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).
- 2. All vegetative and structural practices are to be installed according to the provisions of these plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- 3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- 4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 5. 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 (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates

AND THAT I AM A DULY LICENSED PROFESSIONAL6. All sediment control structures are to remain in place and are to be in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.

OF MARYLAND, LICENSE NO. 44097, 7. Site Analysis: Total Area of Site Area Disturbed Area to be roofed or paved Area to be vegetatively stabilized 0.34 Acres Total Cut 450 Cu. Yds Total Fill Offsite wast/borrow area location:

do not allow for proper germination and establishment of grasses.

SEDIMENT CONTROL

Thomas A. Nolan
Print name below signature

By the Developer:

- 8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- 10. 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.
- 11. 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 work day, whichever is shorter.

SEQUENCE OF CONSTRUCTION

- 1. Obtain Grading Permit. 2. Obtain Demolition Permit.
- 3. Clear & grub and install all sediment control devices.

FOR REVISION 5 ONLY

PROFESSIONAL CERTIFICATION

EXPIRATION DATE; 6/9/17

- 4. Begin all demolition work. 5. Once demolition is complete, begin rough grading
- and building construction.
- 6. Once sub-grade elevations are reached, install utilities, curb & gutter, bioretention facility, and stone sub-base for parking lot sections.
- 7. Fine grade and vegetatively stabilize all disturbed areas not to be paved.
- 8. Pave parking lot sections.
- 9. Upon stabilization of site with established vegetation and with permission of the Sediment Control Inspector, remove sediment control measures and stabilize those areas disturbed by these process.

EROSION CONTROL DETAIL KEYS

1 CURB INLET PROTECTION 2 STANDARD INLET PROTECTION 3 SUPER SILT FENCE -4 STABILIZED CONSTRUCTION ENTRANCE 5 MOUNTABLE BERM 6 PRIVATE BIORETENTION FACILITY, SEE SHT. PS-2

APPROVED

FOR REVISION 5 ONLY DATE May 1, 2003 BOHLER ENGINEERING 901 DULANEY VALLEY RD STE 801 TOWSON, MD 21204 PHONE: 410-821-7900

PLANNING BOARD of HOWARD COUNTY

DEPARTMENT OF PLANNING AND ZONING

Reviewed for HOWARD SCD and meets Technical Requirements.

USDA-Natural Resources, Conservation Service 8/4/03 This development plan is approved for soil erosion and sediment control by The HOWARD SOIL CONSERVATION DISTRICT.

8/4/03

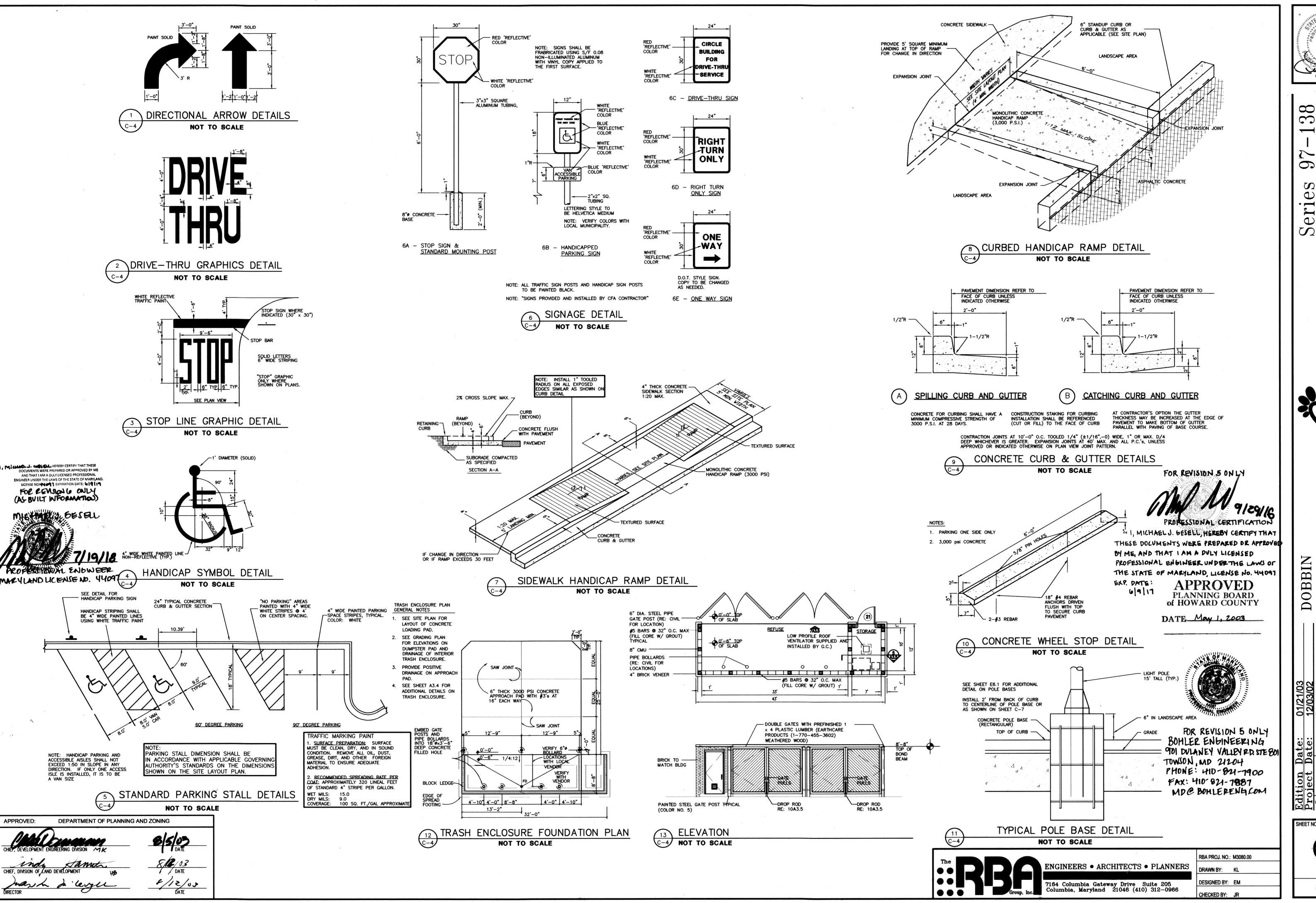
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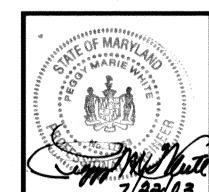
CHECKED BY: JR

ENGINEERS • ARCHITECTS • PLANNERS 7164 Columbia Gateway Drive Suite 205 Columbia, Maryland 21046 (410) 312-0966

RBA PROJ. NO.: M3080.00

SDP-03-96





Buffington Road ia 30349–2998 e 404–765–8000

belief Atlar

DOBBIN COMMERCIAL CENTER COLUMBIA, MD

Revision
Se Detail revised and notes on Trash enclosure revised
Sell pole colors revised
Read County Approval
RON'S THIS SHEET
SOLON'S THIS SHEET
SOLON'S THIS SHEET
SOLON'S THIS SHEET
SOLON'S THIS SHEET

oject Date: 12/03/02

Date Revision
3/14/03

7/30/03

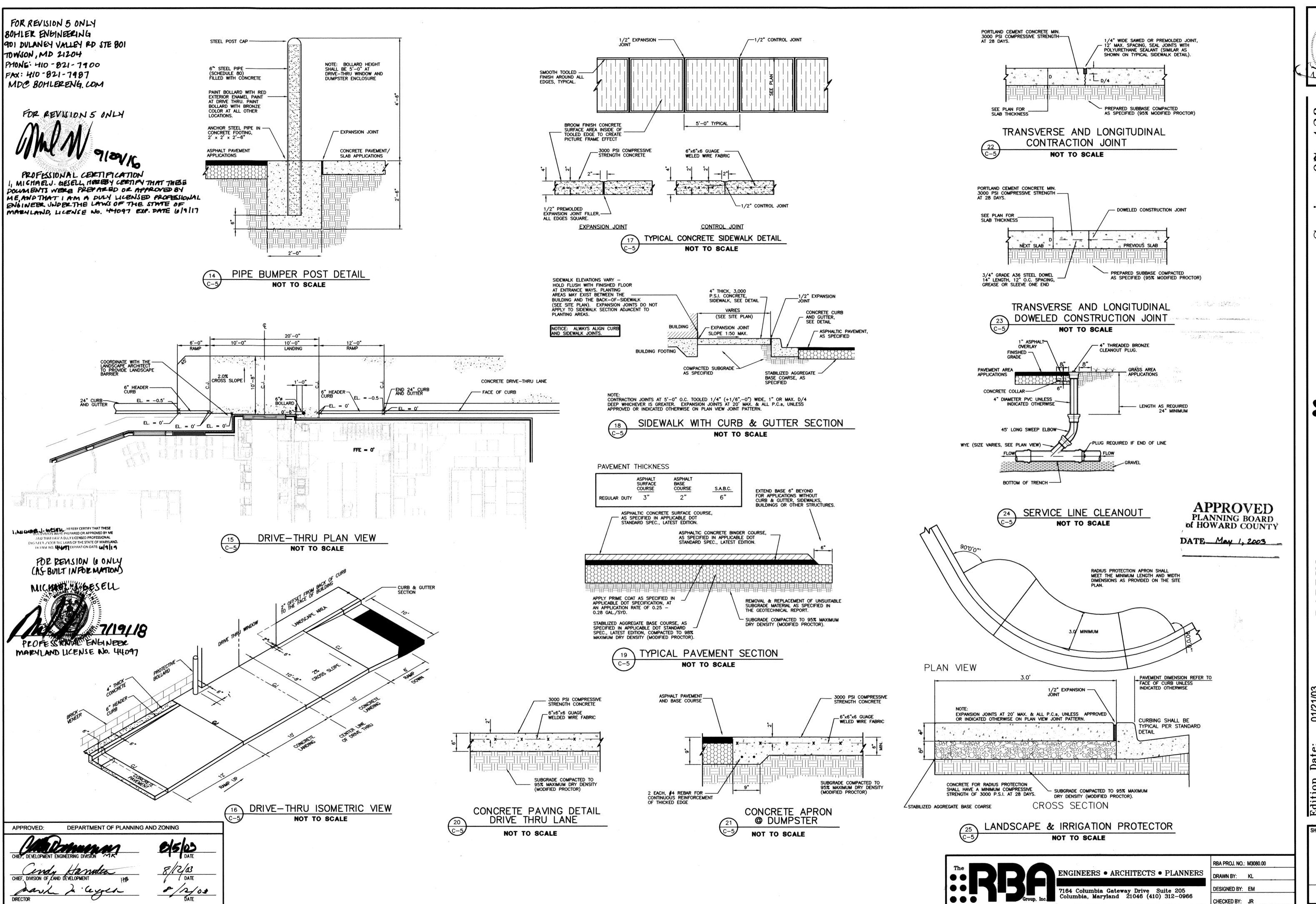
Bid Set and Howard County Approval
9/25/03

NO REVISION'S THIS SHEET
3/31/04

MARKEVISION'S THIS SHEET

Project 4 1/3/14/ DO 1/2/2

6 of **B17**



A syff M. Mule

97-138
fington Road 30349-2998
404-765-8000

Series 97-155200 Buffington
Atlanta, Georgia 30349Telephone 404-765-

Gieb-fürt.

OBBIN OMMERCIAL CENTER OLUMBIA, MD

 01/21/03
 DOBB

 12/03/02
 DOBB

 Revision
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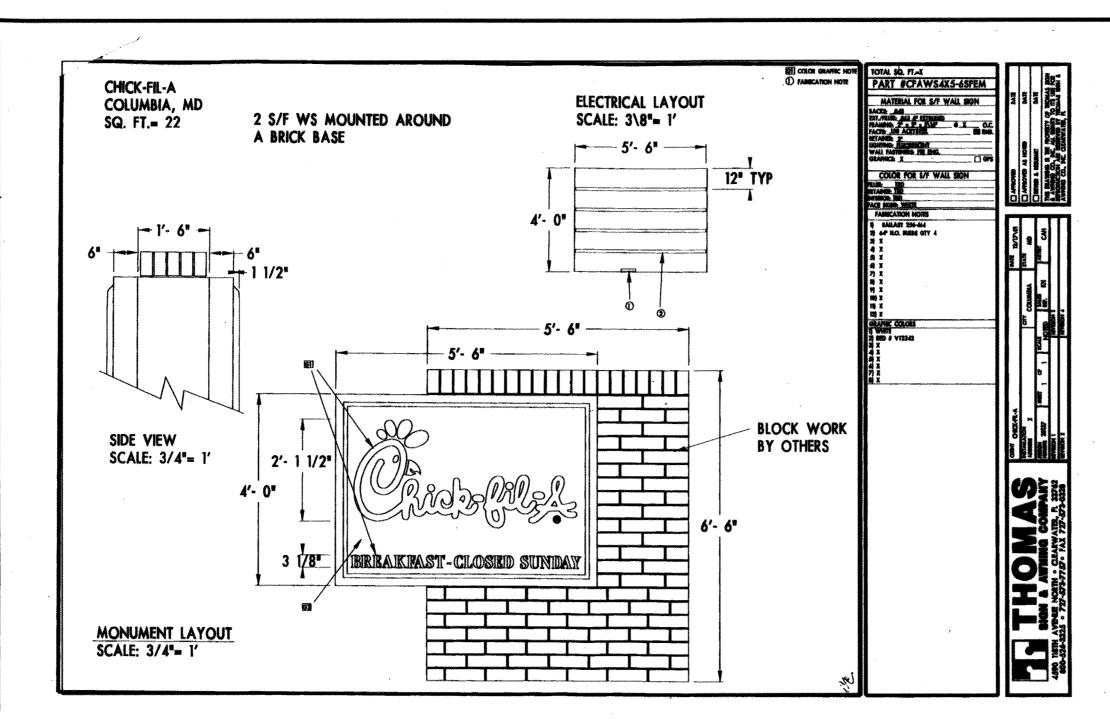
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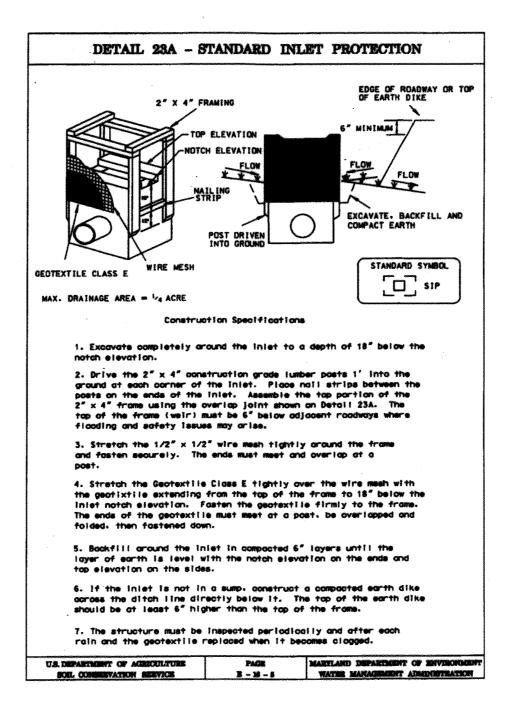
 5 THIS SHEET
 COLU

 STANDARD DETAILS 6. AS-BUIL

| Date | Revision | 3/14/03 | Typical Pavement Section revised | 7/30/03 | Bid Set and Howard County Approval | 9/25/03 | NO REVISIONS THIS SHEET | 3/31/04 | NO REVISIONS THIS SHEET |

EET NO.





DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)

4') to the 2" \times 4" weir (measuring throat length plus 2') as shown on the standard

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" \times 4" weir.

4. Place the assembly against the inlet throat and noil (minimum 2' lengths of $2^n \times 4^n$ to the top of the weir at spacer locations). These $2^n \times 4^n$ anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

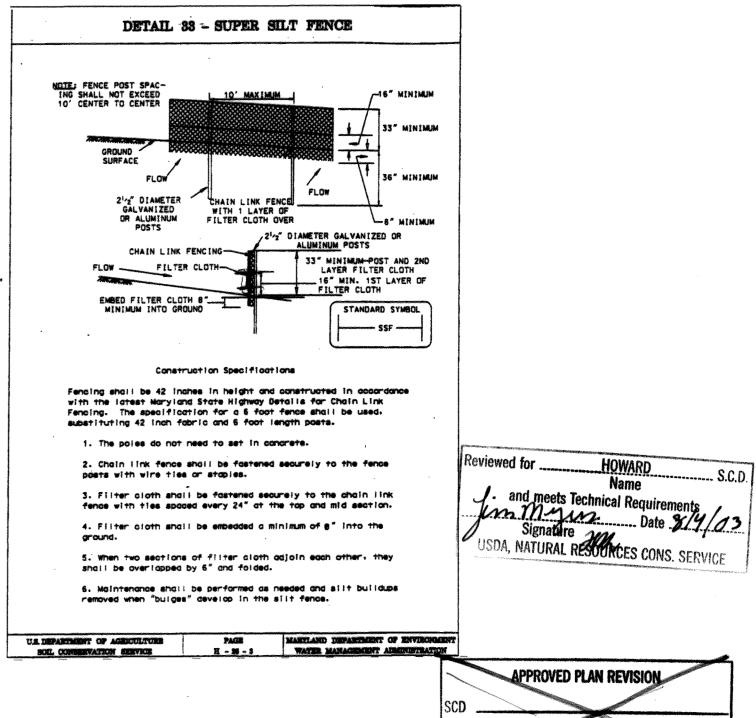
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

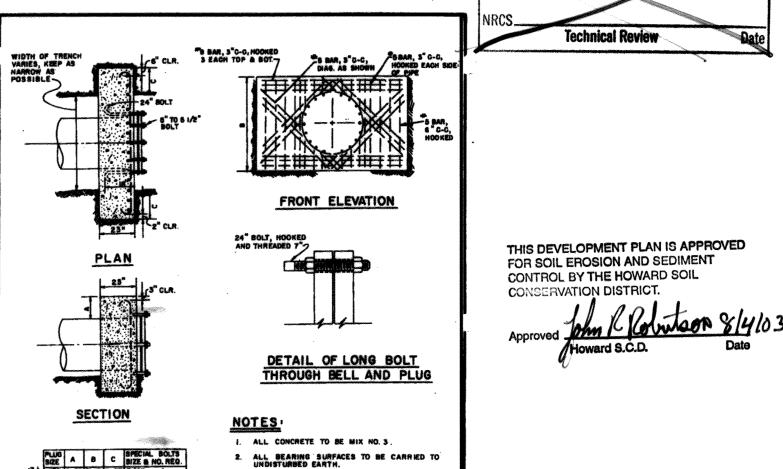
entering the inlet under or around the geotextile.

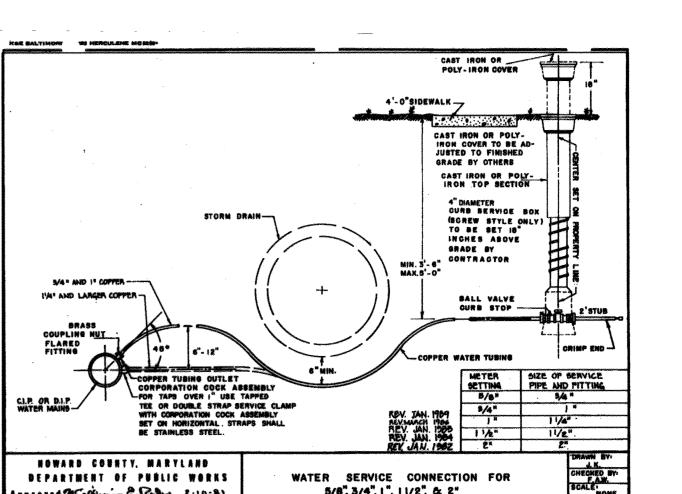
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond

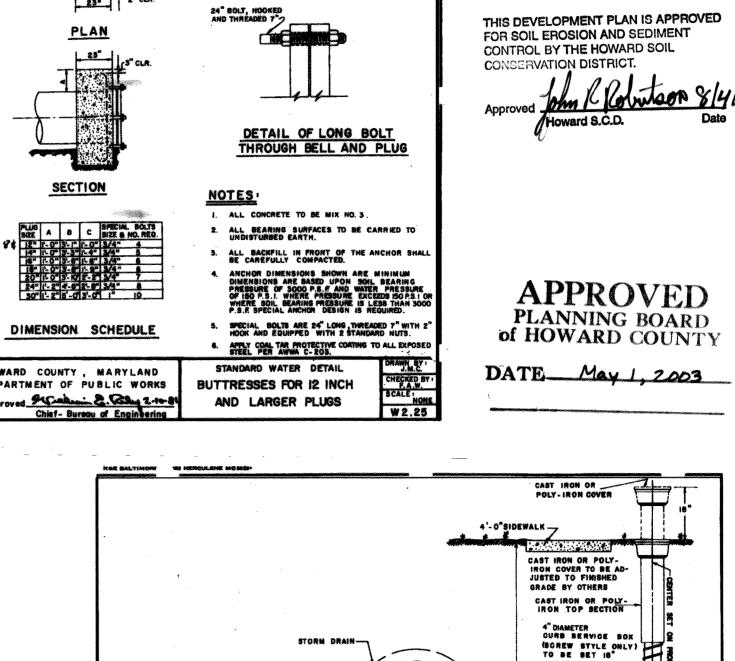
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from

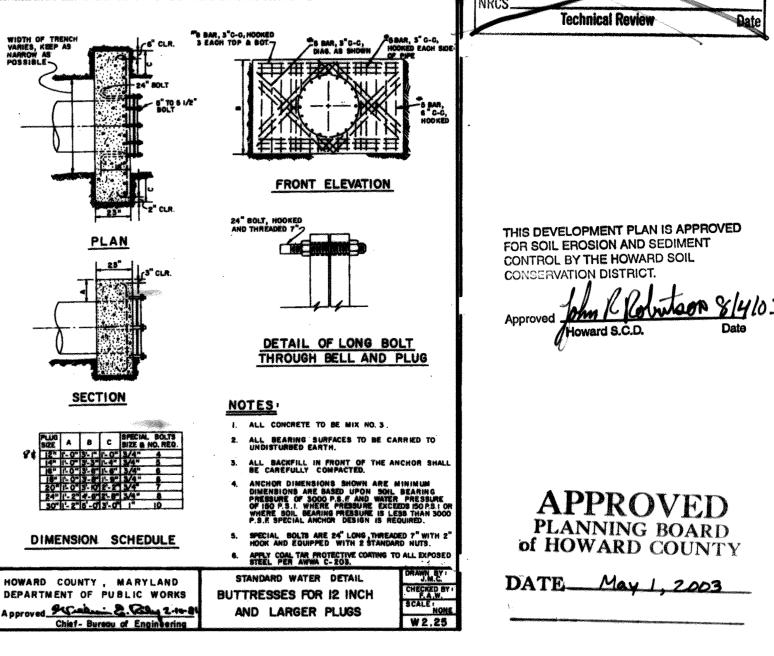
U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SDIL CONSERVATION SERVICE E-16-5B WATER MANAGEMENT ADMINISTRATION

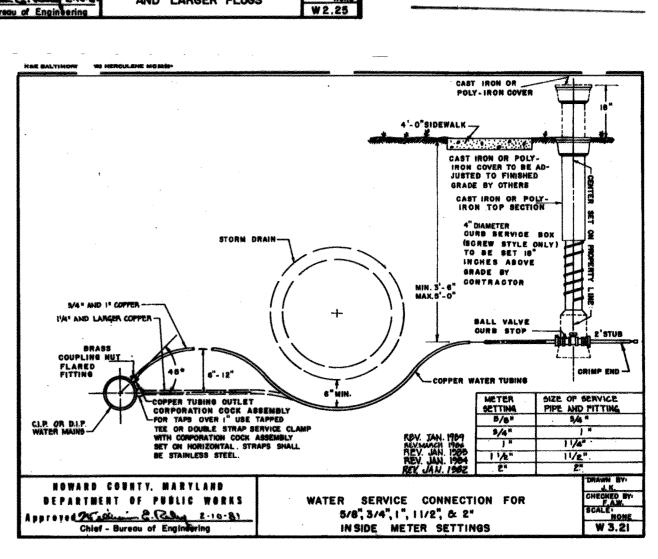


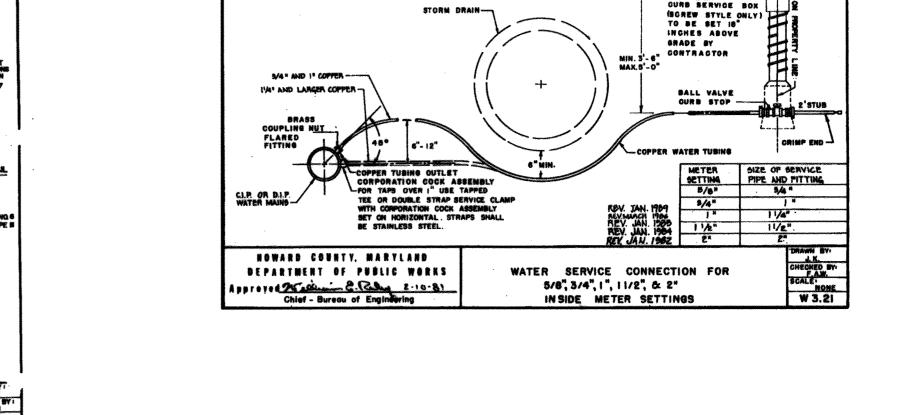


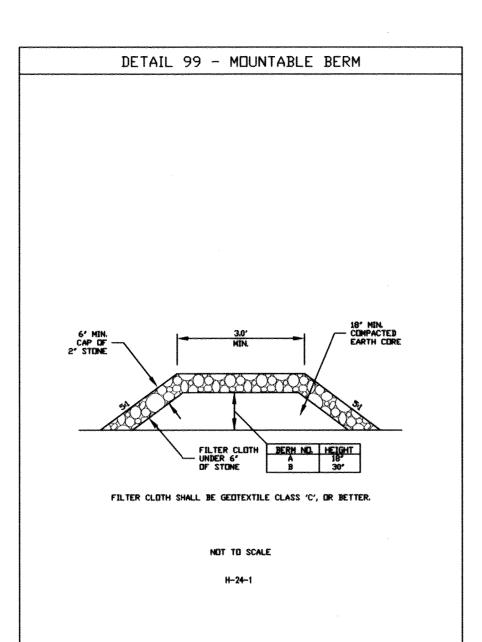


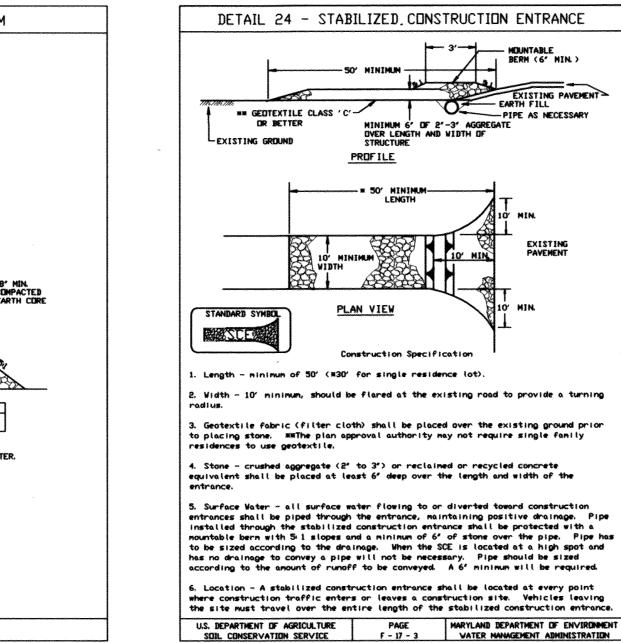


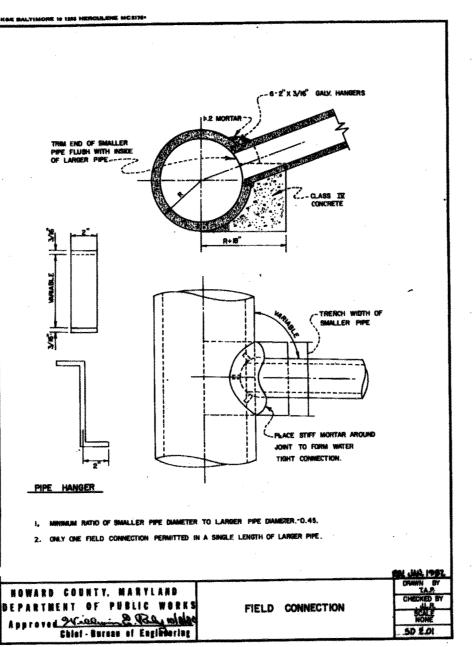


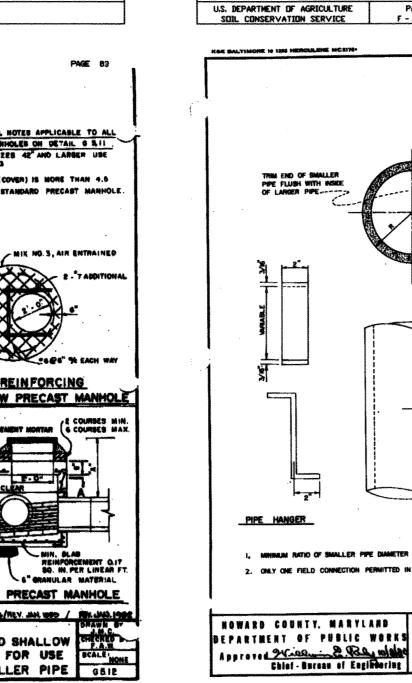


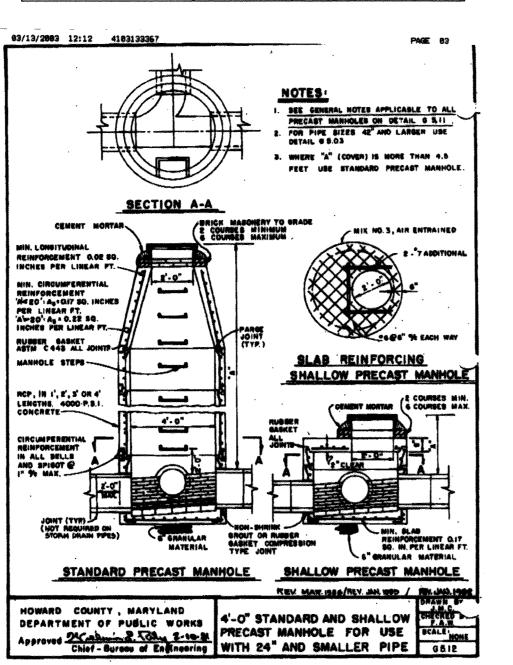


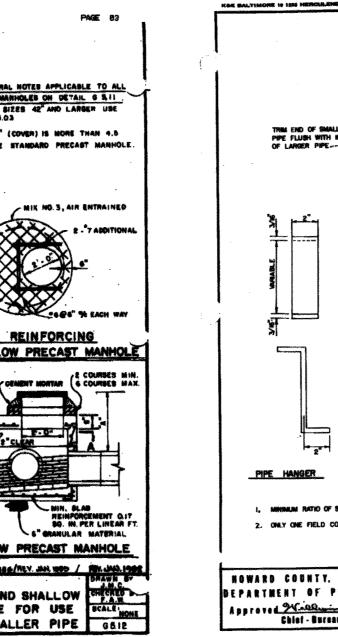


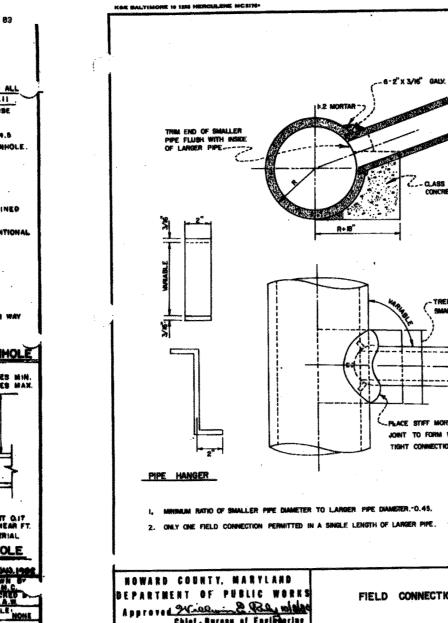


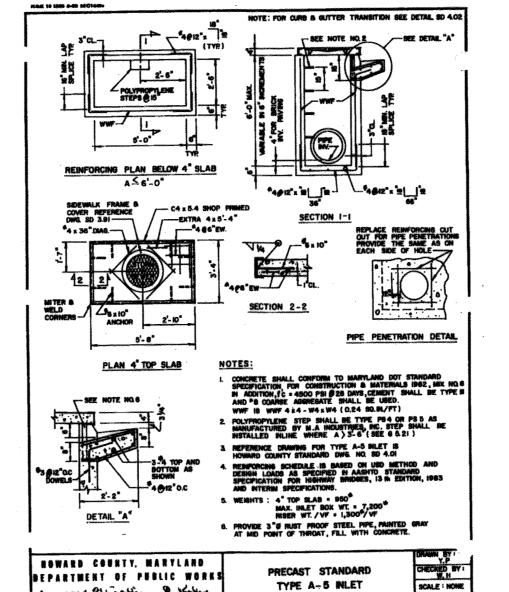












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ENGINEERS • ARCHITECTS • PLANNERS 7164 Columbia Gateway Drive Suite 205 Columbia, Maryland 21046 (410) 312-0966

RBA PROJ. NO.: M3080.00 DESIGNED BY: EM 8 of **17**

SDP-03-96

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ngt(303,4-7)

Chief - Bureau, of Engineering L MI CHA GLA COSCIL., 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

FOR REMSION 6 ONLY (AS-BUILT INFORMATION)

LICENSE NO. 44647 EXPIRATION DATE: 419117

901 DULANEY VALLEY P.D. STE BOI TOWSON, MD 21204 Phone: 410-821-1900 Fax: 410-821-7987 MD@ BOHLERENL COM

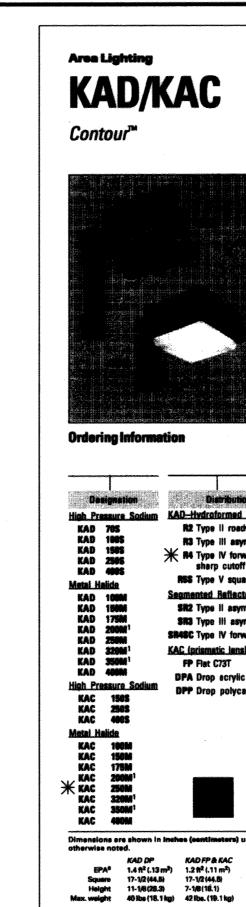
FOR REVISION 5 ONLY

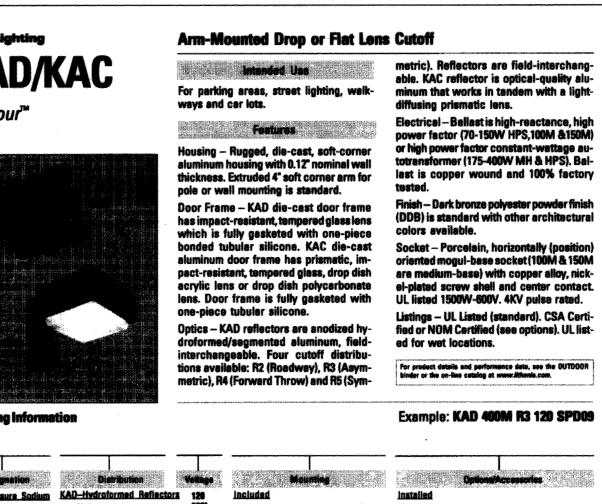
BOHLER ENGINEERING

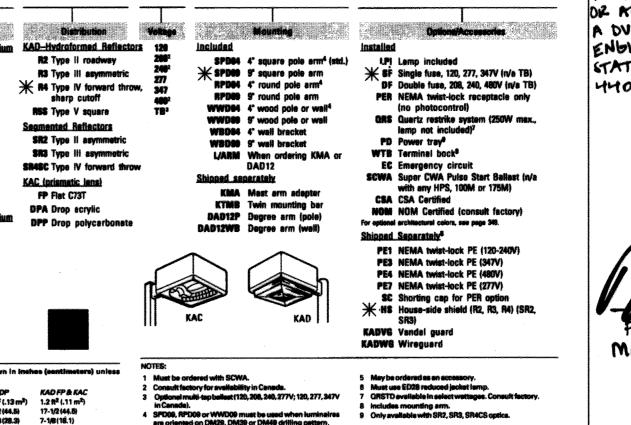
PROPESSIONAL CERTIFICATION

I, MICHAEL J. GESELL, HEREBY CEFTIFY THAT THESE DOCUMENTS WELL PREPARED OF APPROVED BY ME, AND THAT I AM A DULY LICENSED PROPESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44097, EXPIRATION PATE 6/9/17

DEPARTMENT OF PLANNING AND ZONING APPROVED: CHIEF, DIVISION OF/LAND DEVELOPMENT







FOR REVISION 5 ONLY BOHLER ENGINEERING 901 DULANEY VALLEY 20 STE. 801 TOWSON, MD 21204 PHONE: 410-921-7900 FAX: 410-821-7987 MDEBOHLEKENG.COM

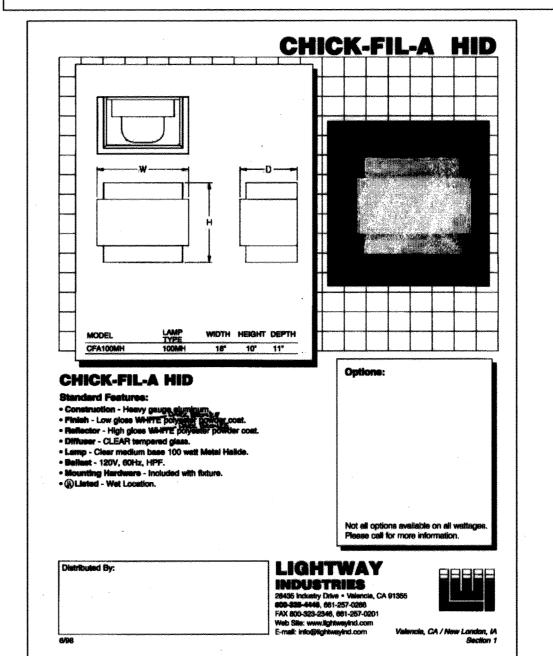
FOR REVISION 5 ONLY

MICHAEL J. GESELL HEREBY CERTIFY THAT THESE DOCUMENTS WE'RE PREPARED OF APPROVED BY ME, AND THAT I AM A DULY LICENSED PROPESSIONAL ENDINGER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44097 EXP. DATE: 6/9/17

> FOR REVISION 6 ONLY (AS-BUILT INFORMATION)

MARYLANDLICENSENO. 44097

ty att um al Gos CL, 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. 4409 2 EXPIRATION DATE:



(LITHONEA LIENT

. All readings are based on a LLF of .72 at grade. Refer to "luminaire locations" for mounting heights.

Readings are shown as footcandles. . All fixtures and poles to be dark bronze.

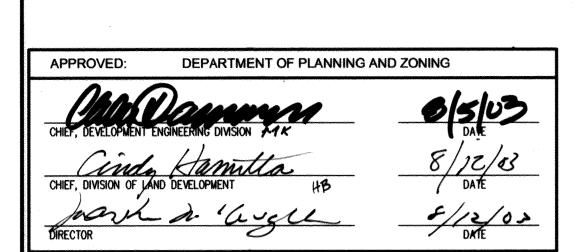
. For pole base detail 11/C-4, sheet C-4. Pole height to be 15 feet.

These lighting calculations are not a substitute for independent engineering analysis of lighting system suitability and safety.

APPROVED PLANNING BOARD of HOWARD COUNTY

DATE May 1, 2003

UMINA	VIRE LOCA	TIONS						* .	The species of the sp	
			Location						Aim	
No.	Label	X	Y	Z	МН	Orientation	Tilt	X	Y	Z
1	B2	65.8	208.0	25.0	25.0	268.5	0.0	;		
2	B2	159.2	205.3	25.0	25.0	90.8	0.0			
3	B2	164.2	59.7	25.0	25.0	89.0	0.0			
4	A1	115.3	14.6	25.0	25.0	0.0	0.0	115.3	17.6	0.0
5	B2	70.6	37.9	25.0	25.0	0.0	0.0			
6	B2	68.8	123.1	25.0	25.0	269.0	0.0			
7	Е	92.5	92.4	14.0	14.0	-90.0	0.0	92.5	92.4	0.0
8	E	98.0	84.6	14.0	14.0	180.0	0.0	98.0	84.6	0.0
9	E	138.4	84.4	14.0	14.0	180.0	0.0	138.4	84.4	0.0
10	E	143.9	92.3	14.0	14.0	90.0	0.0	143.9	92.3	0.0
11	A1	47.8	258.9	25.0	25.0	180.7	0.0	47.7	255.9	0.0
12	A1	107.1	258.9	25.0	25.0	180.0	0.0	107.1	255.9	0.0
13	A1	164.5	259.3	25.0	25.0	180.0	0.0	164.5	256.3	0.0
14	С	211.9	132.7	25.0	25.0	180.0	0.0			-



STATISTICS					
Description	Avg	Мах	Min	Max/Min	Avg/Min
Spill Light Summary	0.9 fc	16.0 fc	0.0 fc	N/A	N/A
Main Lot Parking	2.6 fc	16.0 fc	0.4 fc	40.0:1	6.6:1

Scale 1" = 25'

b.2 b.3 b.3 b.3 b.3 b.3 b.3 b.3 b.2 b.2 b.2 b.2 b.3 b.3 b.3 b.3 b.3 b.3 b.3

(17)

b.0 b.1 b.1 b.1 b.2 b.2 b.4 b.8 b.9 0 1.4 2.2 2.9

0.1 0.1 0.2 0.2 0.4 0.6 1.0 0 1.8 2.2 3.1

1.0 7.8 2.8

2.5 3.5 3.8 3.2 3.8

2.3 1.5

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF
0	A 1	4	KAC 250M R4	AREA LIGHT W/TYPE 4, CUTOFF REFLECTOR, FLAT GLASS LENS.	ONE 250-WATT CLEAR BT-28 METAL HALIDE, HORIZONTAL POSITION.	93042103.IES	20000	0.72
<>	B2	5	KAC 250M R4	AREA LIGHT W/TYPE 4, CUTOFF REFLECTOR, FLAT GLASS LENS.	ONE 250-WATT CLEAR BT-28 METAL HALIDE, HORIZONTAL POSITION.	93042103.IES	20000	0.7
	E	4	CFA100MH	130 WATTS/120V MOUNTED 13'-6" ABOVE F.F. TO CENTERLINE OF FIXTURE	MXR100-U-MED	91102805.IES	19500	0.7
□> □>	С	1	KAC 250M R4	AREA LIGHT W/TYPE 4, CUTOFF REFLECTOR, FLAT GLASS LENS.	ONE 250-WATT CLEAR BT-28 METAL HALIDE, HORIZONTAL POSITION.	93042103.IES	20000	0.7

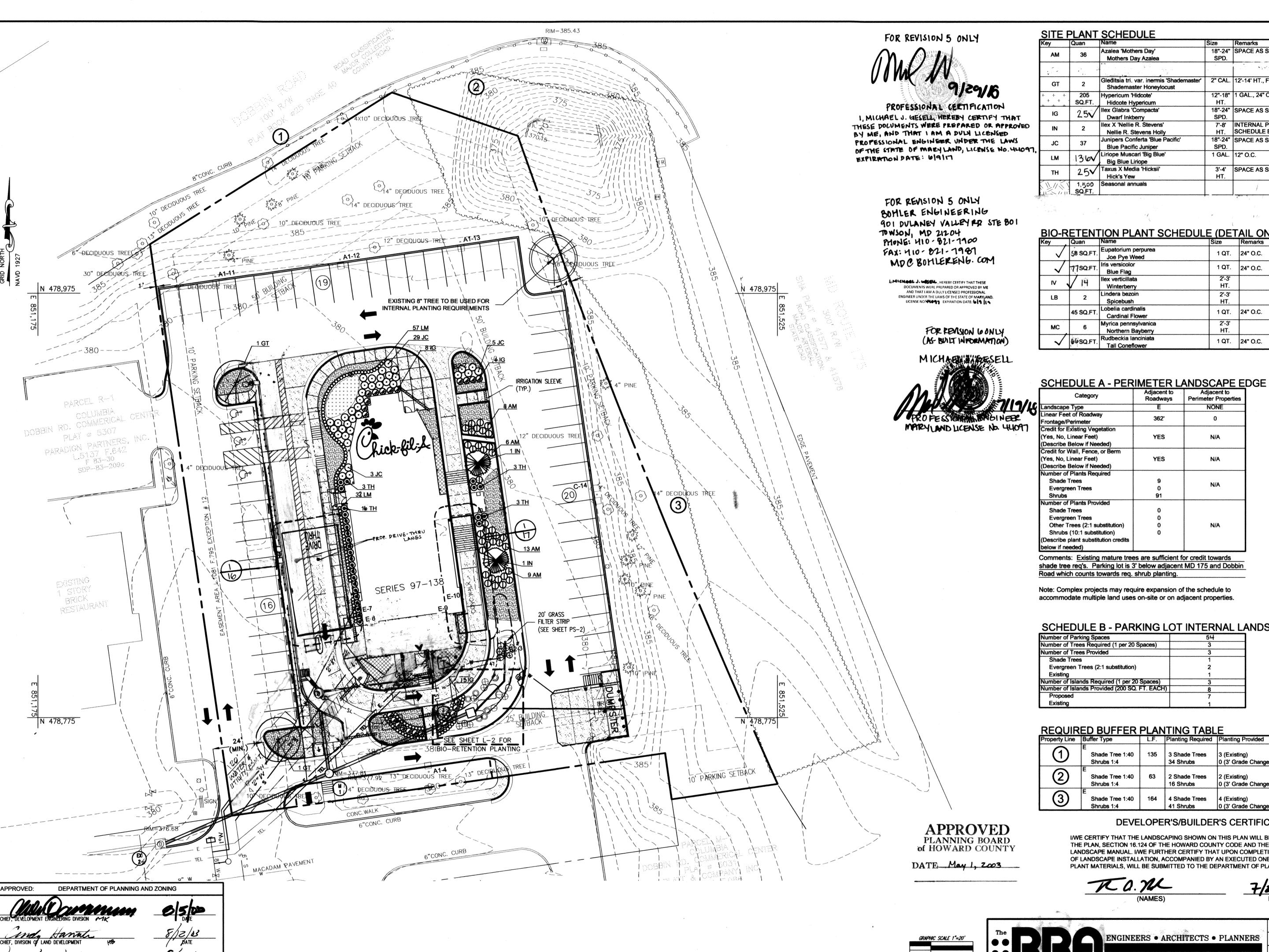
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OMETRIC



SITE PLANT SCHEDULE 18"-24" SPACE AS SHOWN Mothers Day Azalea 2" CAL. 12'-14' HT., FULL 12"-18" | 1 GAL., 24" O.C. Hidcote Hypericum 18"-24" | SPACE AS SHOWN Dwarf Inkberry 7'-8' INTERNAL PARKING REQ'S Nellie R. Stevens Holly HT. SCHEDULE B 18"-24" SPACE AS SHOWN Liriope Muscari 'Big Blue' 1 GAL. 12" O.C. Big Blue Liriope 25 Taxus X Media 'Hicksii' 3'-4' | SPACE AS SHOWN Hick's Yew 1,500 SQ.FT.

BIO-R	BIO-RETENTION PLANT SCHEDULE (DETAIL ON L-2)						
Key	Quan	Name	Size	Remarks			
\checkmark	58 SQ.FT.	Eupatorium perpurea Joe Pye Weed	1 QT.	24" O.C.			
$\sqrt{}$	77SQ.FT.	Iris versicolor Blue Flag		24" O.C.			
IV ,	/ 19	Ilex verticillata Winterberry	2'-3' HT.				
LB	2	Lindera bezoin Spicebush	2'-3' HT.				
	45 SQ.FT.	Lobelia cardinalis Cardinal Flower	1 QT.	24" O.C.			
МС	6	Myrica pennsylvanica Northern Bayberry	2'-3' HT.				
$\overline{}$	66SQ.FT.	Rudbeckia lanciniata Tall Coneflower	1 QT.	24" O.C.			

	Category	Adjacent to Roadways	Adjacent to Perimeter Properties
Ç	Landscape Type	E	NONE
J	Linear Feet of Roadway	362'	0
	Frontage/Perimeter	302	"
	Credit for Existing Vegetation		
	(Yes, No, Linear Feet)	YES	N/A
	(Describe Below if Needed)		
	Credit for Wall, Fence, or Berm	,	
	(Yes, No, Linear Feet)	YES	N/A
	(Describe Below if Needed)		
	Number of Plants Required		
	Shade Trees	9	N/A
	Evergreen Trees	0	N/A
	Shrubs	91	
	Number of Plants Provided		
	Shade Trees	0	

Comments: Existing mature trees are sufficient for credit towards shade tree req's. Parking lot is 3' below adjacent MD 175 and Dobbin Road which counts towards req. shrub planting.

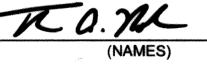
Note: Complex projects may require expansion of the schedule to accommodate multiple land uses on-site or on adjacent properties.

SCHEDULE B - PARKING LO	OT INTERNAL LA	ANDSCAPING
Number of Parking Spaces	54	
Number of Trees Required (1 per 20 Spaces)	3	
Number of Trees Provided	3	
Shade Trees	1	
Evergreen Trees (2:1 substitution)	2	
Existing	1	
Number of Islands Required (1 per 20 Spaces)	3	
Number of Islands Provided (200 SQ. FT. EACH)	8	
Pronosed	~	

REQUIR	REQUIRED BUFFER PLANTING TABLE						
Property Line	Buffer Type	L.F.	Planting Required	Planting Provided			
1	Shade Tree 1:40 Shrubs 1:4	135	3 Shade Trees 34 Shrubs	3 (Existing) 0 (3' Grade Change)			
2	Shade Tree 1:40 Shrubs 1:4	63	2 Shade Trees 16 Shrubs	2 (Existing) 0 (3' Grade Change)			
3	Shade Tree 1:40 Shrubs 1:4	164	4 Shade Trees 41 Shrubs	4 (Existing) 0 (3' Grade Change)			

DEVELOPER'S/BUILDER'S CERTIFICATE

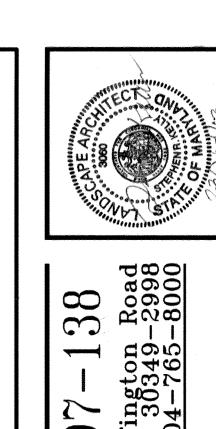
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.



ENGINEERS • ARCHITECTS • PLANNER 7164 Columbia Gateway Drive Suite 205 Columbia, Maryland 21046 (410) 312-0966

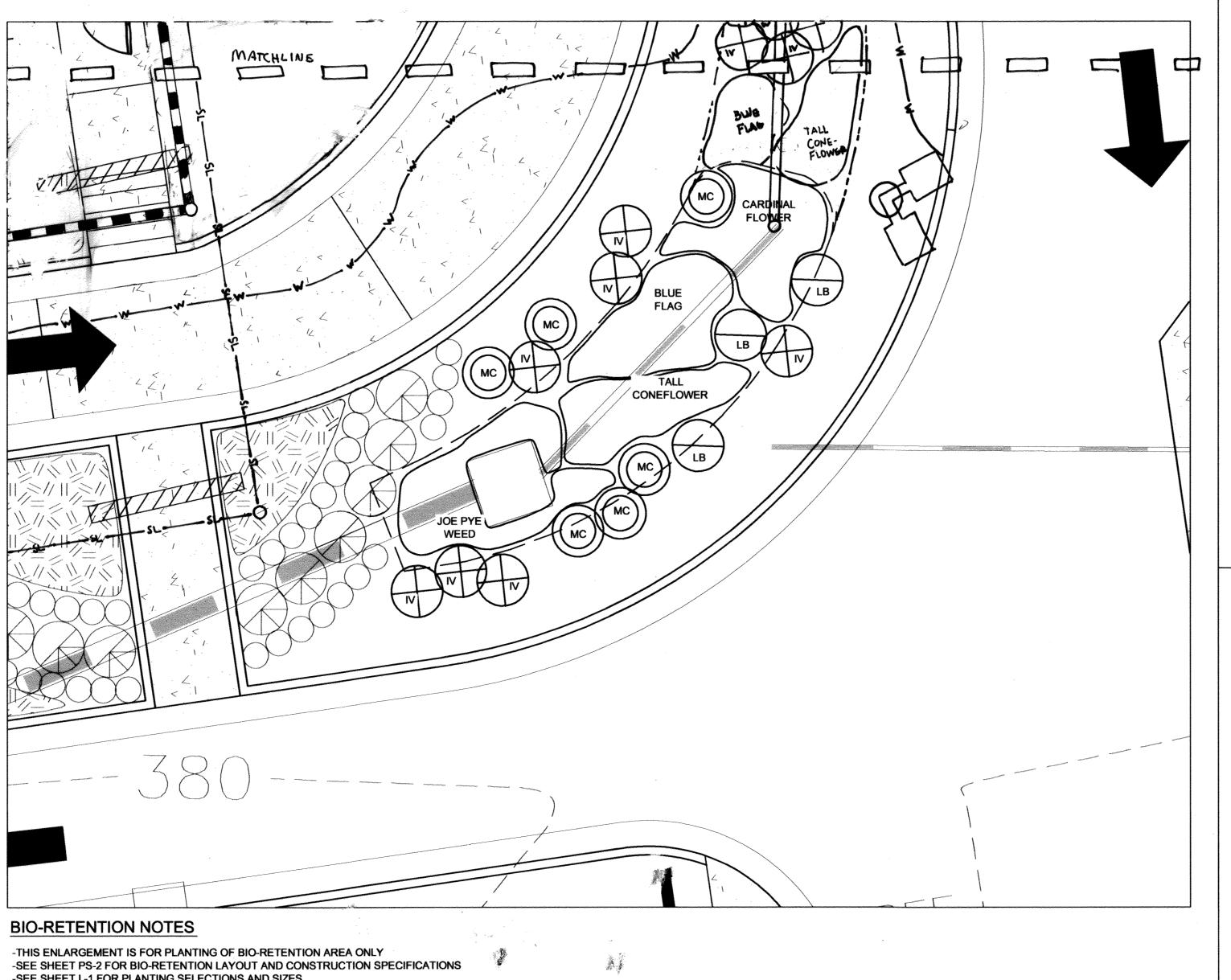
*	RBA PROJ. NO.:	M3080.00
S	DRAWN BY:	JB/PS
	DESIGNED BY:	JB
	CHECKED BY:	SK

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11 of **13**17

RBA PROJ. NO.: M3080.00 **DESIGNED BY:**



-SEE SHEET L-1 FOR PLANTING SELECTIONS AND SIZES

-GUIDELINES SET FORTH REGARDING LANDSCAPE ON THIS SHEET APPLY TO BIO-RETENTION LANDSCAPE ALSO -AREAS SHOWN ON THIS PLAN FOR HERBACEOUS PLANTINGS ARE SCHEMATIC AND ARE PROVIDED AS A GUIDELINE FOR PLANTING -THE NUMBER OF HERBACEOUS PLANTINGS TAKES PRECIDENT OVER ACTUAL PLACEMENT

-THE SPECIFIED HERBACEOUS PLANTING CAN OVERLAP AND SHOULD BLEND INTO EACH OTHER AS TO NOT HAVE APPARENT

DIVISIONS BETWEEN THE GROUPS

TREE SUPPORT SCHEDULE-EVERGREEN & DECIDUOUS

1 1/2 - 2"

1 1/2 - 2"

2 1/2 - 3"

3 - 4"

HARDWOOD STAKES 2" SQ.

REMOVE BURLAP FROM UPPER

8-10'

12-14'

NOTES: 1. 1/6 OF ROOT BALL TO BE SET ABOVE GRADE

2. SCARIFY SIDES OF PIT TO 4".

SEE PLANT LIST

1. REMOVE DEAD OR BROKEN BRANCHES, RETAINING NATURAL SHAPE.

4. STAKES, WIRES & HOSES SHALL BE REMOVED AFTER ONE YEAR.

BACKFILL MIX SEE-

- REMOVE DEGRADABLE BURLAP

FROM TOP 1/3 OF ROOT BALL/

REMOVE CONTAINERS & NON-

MASS SHRUB PLANTING

UNDISTURBED OR HAND

TAMPED SOIL

2. NEVER CUT CENTRAL LEADER.

2" MULCH, AS SPECIFIE

CUT EDGE OF BED

VERTICALLY____

2" SOIL SAUCER

3. SET TREE WITH 1/6 ROOT BALL ABOVE GRADE.

5. SCARIFY SUBSOIL TO A MIN. 4" DEPTH. 6. PLACE STAKES PARALLEL TO WALKS.

TREE PLANTING
SCALE: N.T.S.

DOUBLE #10 GA. WIRE-TWISTED

RUBBER HOSE

OR 2 1/2" DIAMETER 2-3" MULCH AS SPECIFIED 2-3" SAUCER AROUND TREE

1/3 OF ROOT BALL

3. FOR CONTAINER MATERIAL, SLASH ROOT BALL FROM TOP TO BOTTOM,

8" MIN. FOR ROOT BALLS 12" DIA. OR LESS/

12" MIN. FOR ROOT BALLS

4. REMOVE DEAD OR BROKEN BRANCHES, RETAIN NATURAL FORM.

SOIL MIX: SEE SPECS.

TREE CALIPER STAKE

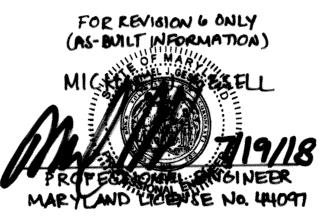
2 @ 5'

3 @ 8'

3 @ 8'

2 @ 7 - 8'

BIO-RETENTION LANDSCAPE



MATCHLINE

PROFESSIONAL CERTIFICATION I, MICHAELJ. GESELL, HEREBY CERTIFY THAT THESE DOLUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENDINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44091, EXPIRATION DATE: 4 9 17

FOR REVISION 5 ONLY BOHLER ENGINEERING 901 DULANEY VALLEY R.P. SVITE 801 TOWSON, MD 21204 phone: 410-821-7900 FAX: 410-821-7987

MDC BONLECENS. COM

GENERAL NOTE:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE

1. CUT PLANT BEDS IN SMOOTH CURVES

AND SPECIFICATIONS

-ALL PLANTS TO BE NURSERY GROWN AND FURNISHED IN ACCORDANCE WITH ASN. "AMERICAN STANDARDS FOR NURSERY STOCK" ANSI 260.1

-ALL TREES TO BRANCH SYMMETRICALLY AROUND CENTRAL LEADER NO

-CONTRACTOR IS VERIFY ALL QUANITIES SHOWN IN PLANT SCHEDULES -ANY SUBSTITUTIONS ARE TO BE OF EQUIVALENT TYPE AND SIZE AND MUST

BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT/ENGINEER

STOCK UPON APPROVAL BY THE LANDSCAPE ARCHITECT/ENGINEER. -THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES FIVE (5) DAYS

ALL AREAS TO BE PLANTED SHOULD BE FINISHED WITH 2 - 3" FINE

-CONTAINER STOCK MAY BE SUBSTITUTED FOR BALLED AND BURLAPPED

-ANY DAMAGE TO EXISTING UTILITIES, BUILDINGS, PAVING, CURB, WALKS,

AND EXISTING VEGETATION SHALL BE REPAIRED TO PREVIOUS CONDITION

TEXTURED, SHREDDED HARDWOOD MULCH UNLESS OTHERWISE NOTED ON ALL AREAS DISTURBED DURING INSTALLATION SHALL BE SEEDED UNLESS

-POTABLE WATER SHALL BE MADE AVAILABLE TO ALL PLANT MATERIALS AS

APPROVED

PLANNING BOARD of HOWARD COUNTY

DATE May 1, 2003

-IF PLANT MATERIAL CANNOT BE INSTALLED IN ACCORDANCE WITH THIS

ARCHITECT/ENGINEER FOR RESOLUTION PRIOR TO INSTALLATION.

PLAN, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE

PLANT BED EDGING
SCALE: N.T.S.

FORKED LEADER STOCK WILL BE ACCEPTED.

PRIOR TO INSTALLATION AND/OR CONSTRUCTION.

OTHERWISE NOTED.

REQUIRED FOR GROWTH.

OR REPLACED BY THE CONTRACTOR AT HIS EXPENSE.

2. CUT EDGE OF SOD VERTIALLY TO CREATE CLEAN EDGE.

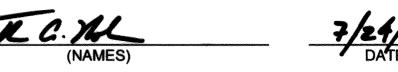
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE ESTIMATED AMOUNT OF \$600.00.

1 SHADE TREE @ \$300.00 = 2 EVERGREEN TREES @ \$150.00 = \$ 300.00 0 SHRUBS @ \$30.00 = \$ 0.00 TOTAL COST ESTIMATE \$ 600.00

3. THE PLANT SIZE SHALL TAKE PRECEDENCE OVER THE CONTAINER SIZE, WHERE BOTH ARE GIVEN.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.





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DEPARTMENT OF PLANNING AND ZONING

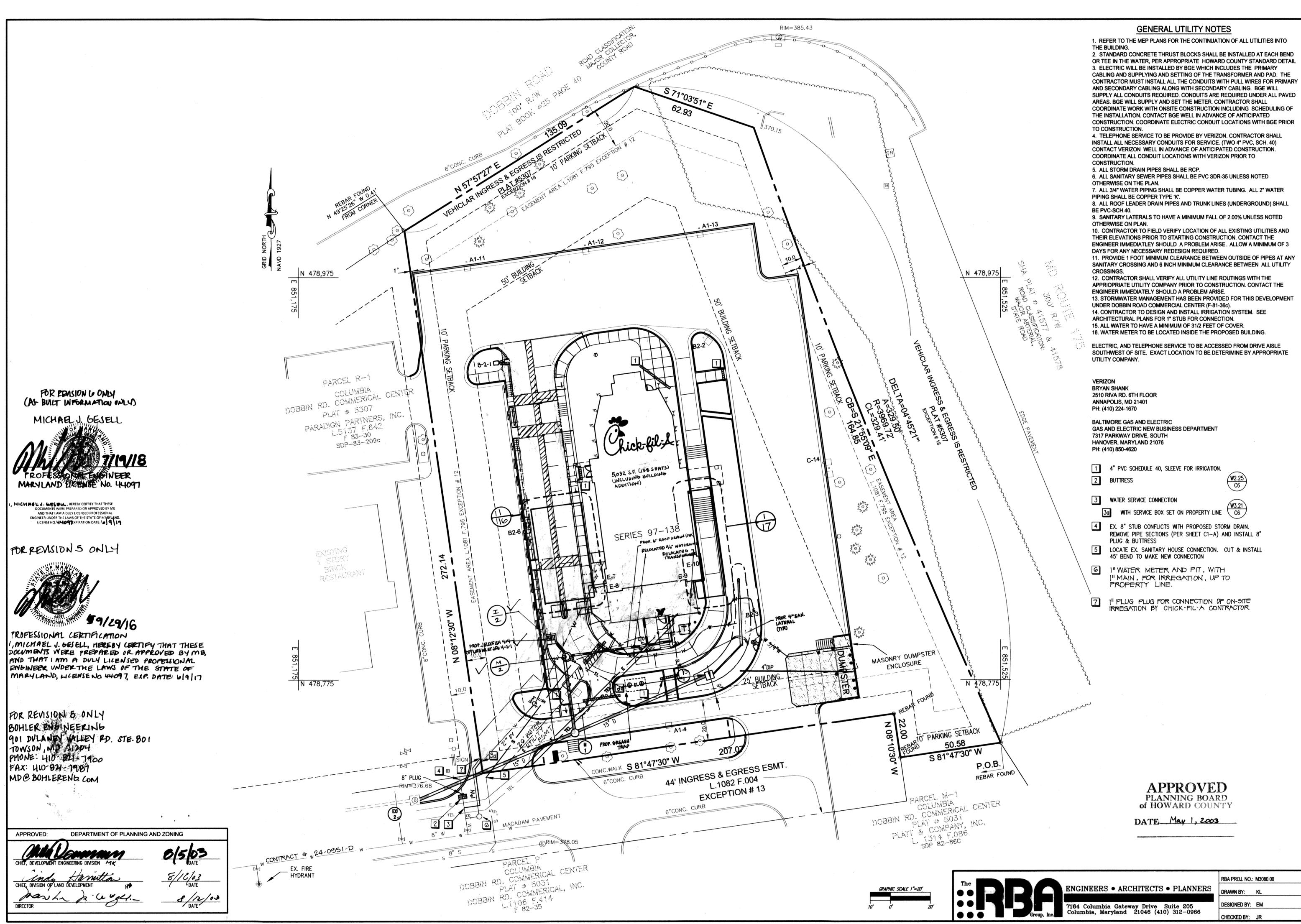
MI HAGLJ. 66 BL., HEREBY CERTIFY THAT THESE OCUMENTS WERE PREPARED OR APPROVED BY MI AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 4464 7 EXPIRATION DATE: 6/4/19

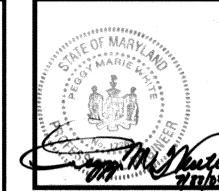
FOR REVISION 5 ONLY

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DOBBIN COMMERC COLUMBIA

LANDSCAPE DETAILS





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BIORETENTION CONSTRUCTION SPECIFICATIONS 1 MATERIALS

A. THE ALLOWABLE MATERIALS TO BE USED IN THE BIORETENTION AREA ARE DETAILED IN TABLE B.3.2..

A. THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

B. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

PH RANGE ORGANIC MATTER 1.5 - 4% (BY WEIGHT) MAGNESIUM 35 LB./AC PHOSPHORUS (PHOSPHATE $-P_2O_5$) 75 LB./AC POTASSIUM (POTASH $- K_20$) 85 LB./AC SOLUBLE SALTS NOT TO EXCEED 500 PPM

C. ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.

D. SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.

E. SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

3. COMPACTION

A. IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES. RUBBER TIRES WITH LARGE LUGS. OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

B. COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

C. ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

D. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL AND INSTALLATION

A. SEE LANDSCAPE PLAN AND SPECIFICATION FOR PLANT MATERIAL.

ACCEPTED MULCH. PINE MULCIA AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER

STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

F. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

TH MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUR PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF

MARYLAND LICENSE NO 44097 THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

6"CAP INV. 373.92

UNDERDRAIN @ 0.5%

40 L.F. OF PERFORATED 6'

WQ ELEV. 377,50

VARIES

6" PONDING HEIGHT

' MULCH LAYER -

377.**00**—

PLANTING MEDIUM

SAND FILTER (6" DEPTH)

8" GRAVEL

- I, MICHEAL J GENELL, HORDBY CERTIFY THAT these documents were perpared or

	TABLE	B.3.2	·	
www.waywayayayayayayayayayayayayayayayay	Materials	Specification	Size	Notes
	Plantings	see Landscape Plan	n/a	plantings as shown on landscape plan
	planting soil (2.5' to 4' deep)	Planting soil small 35 — 60% silt 30— 35% clay 10—25%	n/a	
	mulch	shredded hardwood		aged 6 months, minimum
TOPSOIL IS EUSE EXISTING ABILITY OF L MEETING FOR REVISIONS 5 ONLY END WHEN	geotextile	Class "C" — apparent opening size (ASTM—D—4751), grab tensile strength (ASTM—D— 4632), puncture resistance (ASTM—D—4833)	n/a	for use as necessary beneath underdrains only
	underdrain gravel	AASHTO M-43	0.25" to 0.75"	
PROFESSION AL CERTIFICATION I, MICHEAL J GESELL, HARBY CERTIFY THAT THUSE DOCUMENTS WERE PERFARED OR	sand (1' deep)	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand
MPPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER-THE LAWS OF THE STATE OF	Stone Diaphram (1' Wide, 2' Deep)	Pea Gravel & ASTM-D-448 Ornamental Stone: Washed Cobbles	Pea Gravel: No.6 Stone: 2" to 5"	Use Clean Bank-Run Gravel
MAPULAND, LICENSE NO 44097, EXP. DATE 6/9/17	Underdrain Piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" Rigid Schedule 40 PVC or SD1235	3/8" Perf. @ 6" on Center, 4 holes per Row; Minimum of 3" of Gravel Over Pipes; Not Necessary Underneath Pipes.

APPROVED PLANNING BOARD of HOWARD COUNTY

DATE May 1, 2003

GRASS FILTER STRIP CONSTRUCTION SPECIFICATIONS

A. SITE PREPARATION

1. IF GRADING IS REQUIRED AND TOPSOIL IS SUITABLE FOR USE REMOVE AND STOCKPILE THE TOPSOIL.

NOTE: TOPSOIL SALVAGED FROM THE EXISTING SITE MAY OFTEN BE USED BUT IT SHOULD MEET THE SAME STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. THE DEPTH OF TOPSOIL TO BE SALVAGED SHALL BE 6 INCHES UNLESS THE DEPTH IS DESCRIBED AS A REPRESENTATIVE PROFILE FOR THAT PARTICULAR SOIL TYPE AS DESCRIBED IN THE SOIL SURVEY IS LESS THAN 6 INCHES, IN WHICH CASE THE LESSER DEPTH SHALL BE REMOVED

2. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, ANCHORING AND MAINTENANCE.

3. LIMING: WHERE THE SUBSOIL IS EITHER HIGHLY ACID OR COMPOSED OF HEAVY CLAYS, GROUND DOLOMITE LIMESTONE SHALL BE SPREAD AT THE RATE OF 2 TONS PER ACRE (100 POUNDS PER 1,000 SQUARE FEET). LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

4. TILLING: AFTER THE AREA TO BE TOPSOILED HAS BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO DUMPING AND SPREADING THE TOP-SOIL, THE SUBGRADE SHALL BE LOOSENED BY DISCING OR BY SCARIFYING TO A DEPTH OF AT LEAST 3 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SUBSOIL, PACK BY PASSING A BULLDOZER VERTICALLY TRACKING OVER THE ENTIRE SURFACE AREA OF THE SLOPE TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN THE SLOPE AND RILLING.

B. SOIL PREPARATION AND AMENDENTS MATERIALS: TOPSOIL SHALL BE A LOAMY SAND, SANDY LOAM, LOAM, OR SILT LOAM ONLY AND IN THAT

RESPECTIVE ORDER OF PREFERENCE. IT SHALL NOT HAVE A MIXTURE OF CONTRASTING TEXTURED SUBSOIL AND CONTAIN NO MORE THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENT, GRAVEL, STICKS, ROOTS, TRASH OR OTHER EXTRANEOUS MATERIALS LARGER THAN 1-1/2 INCHES IN DIAMETER, TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS OF BERMUDAGRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, CANADA THISTLE, OR OTHERS AS SPECIFIED. ALL TOPSOIL SHALL BE TESTED BY A RECOGNIZED LABORATORY FOR ORGANIC MATTER CONTENT, PH AND SOLUBLE

SALTS. A PH OF 6.0 TO 7.5 AND AN ORGANIC CONTENT OF NOT LESS THAN 1.5 PERCENT BY WEIGHT IS REQUIRED. IF PH VALUE IS LESS THAN 6.0. LIME SHALL BE APPLIED AND INCORPORATED WITH THE TOPSOIL TO ADJUST THE PH TO 6.5 OR HIGHER. TOPSOIL CONTAINING SOLUBLE SALTS GREATER THAN 500 PARTS PER MILLION SHALL NOT BE

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 TO PERMIT DISSIPATION OF TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS AS APPROVED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST MAY BE USED IN LIEU OF NATURAL TOPSOIL.

2. <u>Grading:</u> The topsoil shall be uniformly distributed and tracked and shall be a minimum COMPACTED DEPTH OF 4 INCHES. 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 AND WATER POCKETS. TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

3. LIME AND FERTILIZE ACCORDING TO SOIL TESTS: LIME AND FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY.

4. IN LIEU OF SOIL TESTS APPLY 1,000 POUNDS 10-10-10 OR EQUIVALENT PER ACRE IF UREA FERTILIZER IS NOT USED, AND 600 POUNDS OF 10-10-10 OR EQUIVALENT PER ACRE IF UREAFORM FERTILIZER IS USED. APPLY THE LIME AND FERTILIZER BEFORE SEEDING AND HARROW OR DISC UNIFORMLY INTO THE SOIL TO A MINIMUM DEPTH OF INCHES ON SLOPES FLATTER THAN 3:1. ON SLOPES STEEPER THAN 3:1 GRADE, THE LIME AND FERTILIZER SHALL BE WORKED IN AS BEST AS POSSIBLE. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR WHEREVER FEASIBLE. NO ATTEMPT SHOULD BE MADE TO DRAG AND DISCED AREA TO MAKE THE SOIL SURFACE VERY SMOOTH AFTER DISCING. WHEN THE 600 POUNDS PER ACRE RATE OF 10-10-10 FERTILIZER RATE IS USED, AT THE TIME OF SEEDING, APPLY 400 POUNDS OF A UREAFORM FERTILIZER OF A GRADE OF AT LEAST 30-0-0

NOTE: THE SLOW RELEASE OF UNIFORM FERTILIZER WILL SUPPLY NITROGEN OVER A LONGER PERIOD OF TIME AND WILL RESULT IN A HEALTHIER GRASS STAND.

1. USE A SEED MIX FROM PERMANENT SEEDING NOTES ON SHEET C3.

2. APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED. MAXIMUM SEEDING DEPTH SHOULD BE 1/4 INCH ON CLAYEY SOILS AND 1/2 INCH ON SANDY SOILS, WHEN USING OTHER THAN HYDROSEEDER METHOD OF APPLICATION.

NOTE: IF HYDROSEEDING IS USED AND THE SEED A SEEDING SHALL BE IMMEDIATE WITHOUT INTERRUPTION IF HYDROSEEDING IS USED AND THE SEED AND FERTILIZER IS MIXED, THEY WILL BE MIXED ON SITE AND

MULCH MATERIALS ARE LISTED IN ORDER OF THEIR EFFECTIVENESS. MULCH MATTINGS ARE NORMALLY ONLY USED ON CRITICAL AREAS SUCH AS WATERWAYS OR STEEP SLOPES.

1. MATERIALS AND AMOUNTS

A. <u>MULCH MATTINGS:</u> JUTE BLANKET SHALL BE STAPLED TO THE SURFACE IN WATERWAYS AND ON STEEP SLOPES LIGHTER MATERIALS OF PAPER, PLASTIC AND COTTON MULCH MATTINGS MAY BE USED WHERE EROSION HAZARD IS NOT SEVERE. IF THE AREA IS TO BE MOWED, DO NOT USE METAL STAPLES.

STRAW: STRAW SHALL BE UNROTTED SMALL GRAIN APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE. OR 70 TO 90 (TWO BALES) POUNDS PER 1.000 SQUARE FOOT. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE FREE OF PROHIBITED NOXIOUS WEEDS SUCH AS: THISTLES, JOHNSONGRASS AND QUACKGRASS. SPREAD UNIFORMLY BY HAND OR MECHANICALLY. FOR UNIFORM DISTRIBUTION OF HAND SPREAD MULCH DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTION AND PLACE 70-90 POUNDS OF MULCH IN EACH

C. WOOD CHIPS: AT THE RATE OF APPROXIMATELY 6 TONS PER ACRE OR 275 POUNDS PER 1,000 SQUARE FEET MAY BE USED WHEN AVAILABLE AND WHEN FEASIBLE. THESE ARE PARTICULARLY WELL-SUITED FOR UTILITY AND ROADS RIGHTS-OF-WAY. IF WOOD CHIPS ARE USED, INCREASE THE APPLICATION RATE OF NITROGEN FERTILIZER BY 20 POUNDS (200 POUNDS 10-10-10 OR 66 POUNDS 30-0-0).

D. WOOD CELLULOSE FIBER: MULCH AT THE RATE OF 1,500 POUNDS PER ACRE OR 35 POUNDS PER 1,000 SQUARE FOOT MAY BE APPLIED BY HYDROSEEDING.

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCEOF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYONF TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE

4. SOIL EROSION® TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

engineers • Architects • Planners 7164 Columbia Gateway Drive Suite 205 Columbia, Maryland 21046 (410) 312-0966

RBA PROJ. NO.: M3080.00 DESIGNED BY: EM / WGZ

DEPARTMENT OF PLANNING AND ZONING

BIORETENTION PLAN VIEW

(SEE SHT. PS-3 FOR PROFILE)

15"RCP INV. 373.08

(SEE SHT. PS-3 FOR PROFILE)

TYPE "D" INLET

4-WEIR OPENINGS -

TOP ELEV.=378.89

GEOTEXTILE FABRIC

BIORETENTION FACILITY SECTION

AT UNDISTURBED AREAS, SUITABLE TOPSOIL IS

SURFACE TOPSOIL AND VERIFY SUITABILITY OF

SPECIFIED REQUIREMENTS AND AMMEND WHEN

EXISTING. AT DISTURBED AREAS, REUSE EXISTING

SURFACE SOIL TO PRODUCE TOPSOIL MEETING FOR REVISION 5 ONLY

SEED AND MULCH -

4" TOPSOIL MINIMUM

EXISTING SUBGRADE

GRASS FILTER STRIP SECTION

ELEV. 378.15

SCALE: 1"=10"

SCALE: N.T.S.

FOR REVISION SONLY

TONSON, MD 21204

PHONE: 40-821-7900

MDC BOHLEREND COM

FAX: 410-821-778

APPROVED:

BOHLER ENDINIEDRING 901 DULANEY WALLEYED STEBOI

FOR REVISION 6 ONLY

(AGBUILT INFORMATION)

CLEANOUT

BIO RETENTION

NOTE:

GRASS FILTER

(1' WIDTH)

SEE SHT. L-2 FOR

OF THIS AREA.

LANDSCAPE DETAILS

5. PLANT INSTALLATION

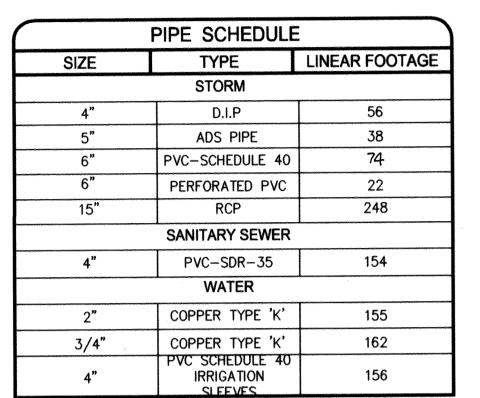
B. MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY

D. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY

E. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND

I, INGMABL J. G SSC LL HERBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME ING NEER UNDER THE LAWS OF THE STATE OF MARYLAN HICENSE NO. 44097 EXPIRATION DATE: 6919 TADIEDOO

5DP-03-96



NOTE: CONTRACTOR SHALL VERIFY ALL QUANTITIES PRIOR TO BID. ALL STRUCTURES ARE HOWARD COUNTY OR MARYLAND DEPT. OF TRANSPORTATION STANDARDS UNLESS NOTED OTHERWISE. REFER TO SHEET C-7 FOR DETAILS. ELEVATIONS ARE GIVEN TO TOP OF CURB FOR CURB INLETS, TOP OF GRATE FOR GRATE INLETS AND TOP OF RIM FOR MANHOLES.

1	ROOF	DRAIN	STUBS	1
ľ	DESCRIP	TION	INVERT	
ľ	RD1		37 8 .50	
ľ	RD2		377.30	

SANITARY SEWER SCHEDULE						
DESCRIPTION	STATION	INVERT	TOP*			
CLEANOUT '#1	1+10	374.04	380.1			
CLEANOUT #2	1+26	374.86	380.6			

			INVE	RT		
NUMBER	TYPE	TOP*	IN	OUT	REMARK	
1-1	'D' INLET	377.55	373.83	373.08	HCSD 4,11	
1-2		377.46	373.71	373.71	HCSD G5.12	: .
M-1		377.78	372.69 372.69	372.59	HCSD 4.11	
M-2	As any	376.85	373.78	373.78	JELLYFISH INLET	1

* FOR 'A'&'D' INLETS, TOP=WEIR, BOTTOM OF THROAT OPENING ELEVATION

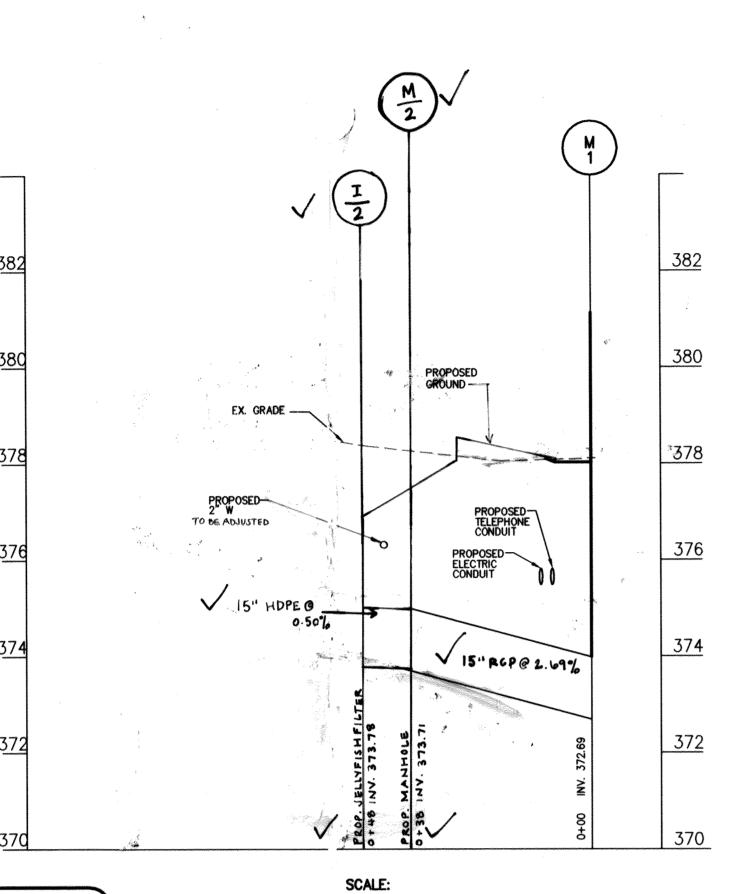
I, MICHAEL J. GESELL, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 44097 EXPIRATION DATE: 619119

FOR REVISION 6 ONLY (NO AS-BUILT INFORMATION)

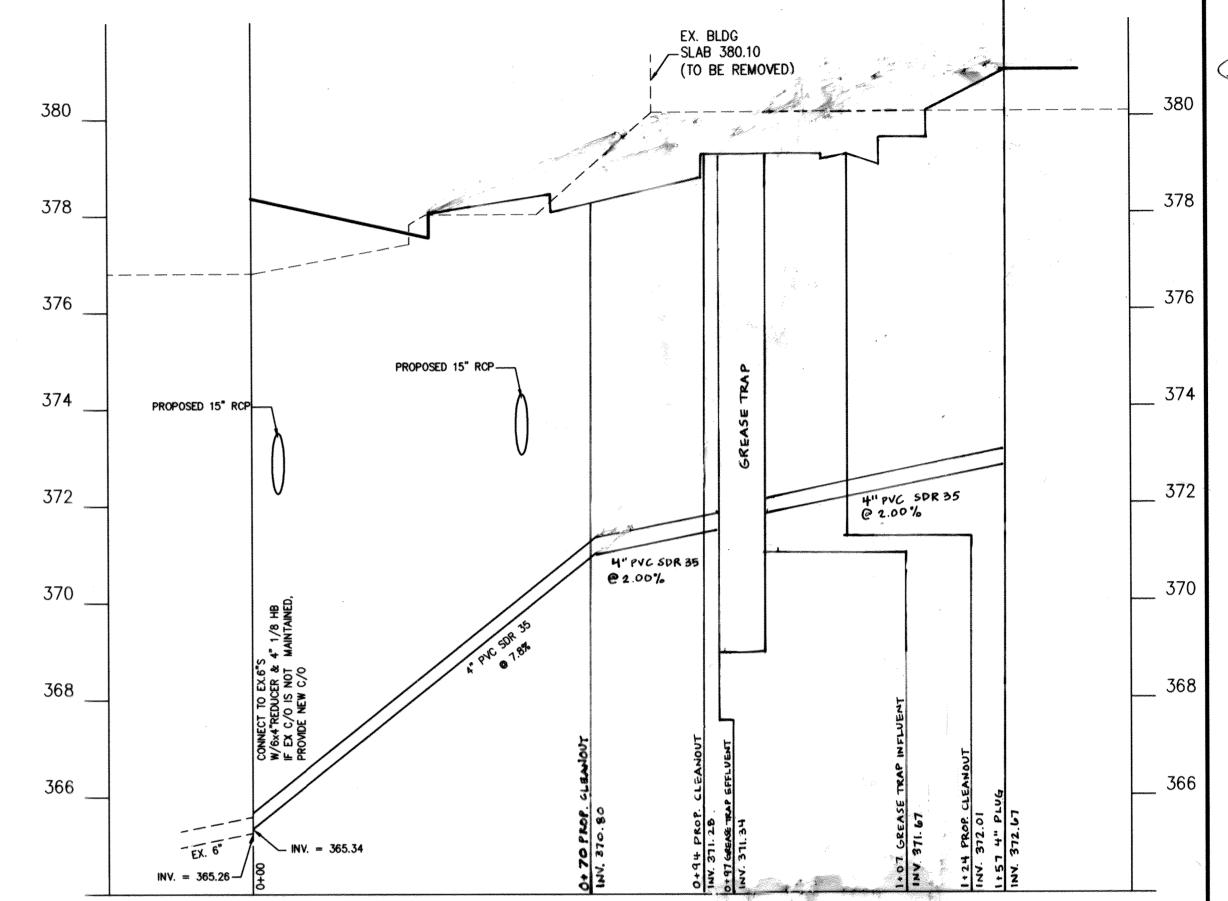
DEPARTMENT OF PLANNING AND ZONING

PROFESSIONAL CERTIFICATION

I, MICHAELI GESELL, HEREBY CERTIFY THAT THESE
DOLUMENTS 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. 44077, EXP. DATE: 6/9/17

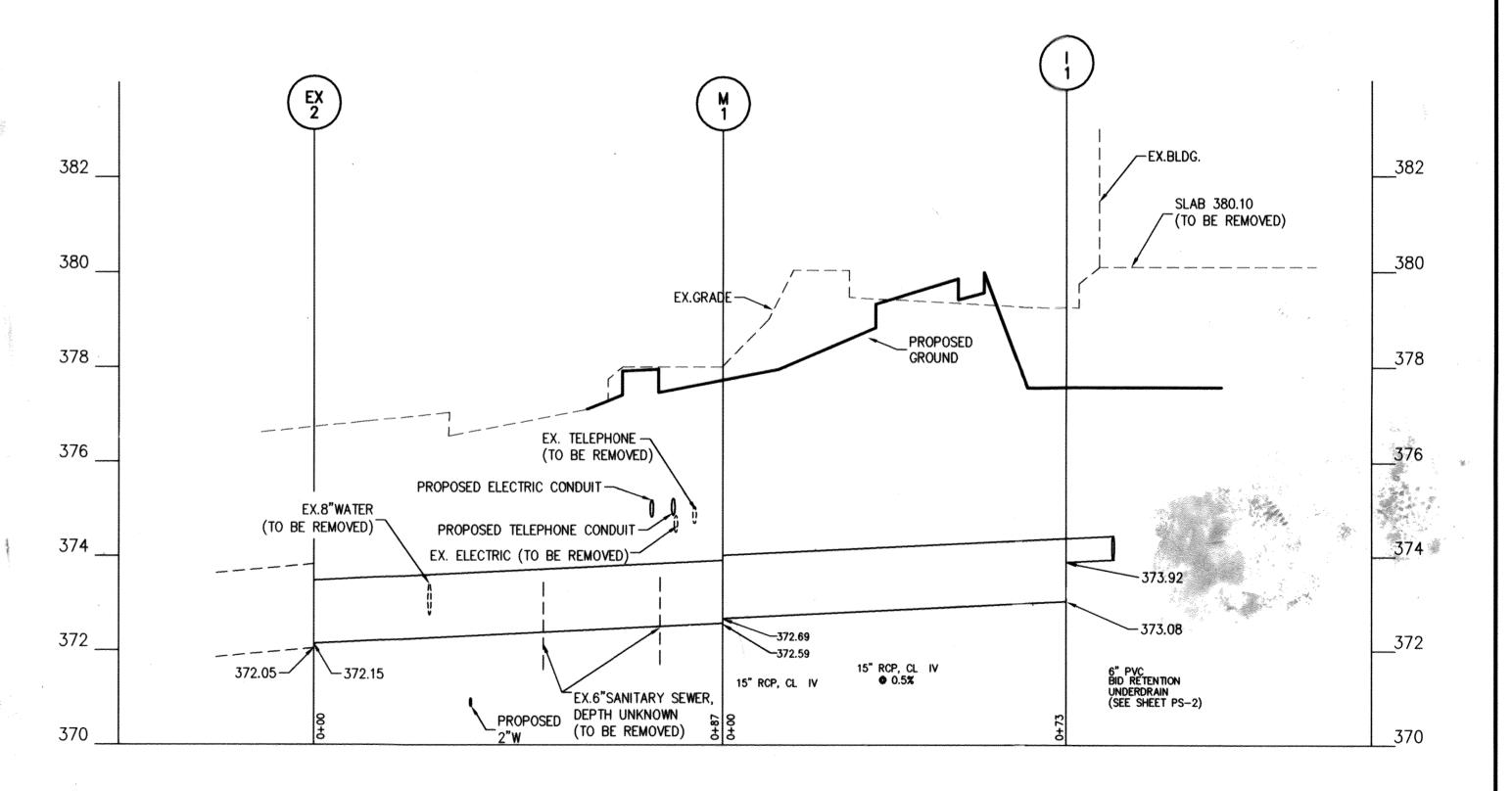


HOR: 1'' = 20'VER: 1" = 2'



SANITARY SEWER

SCALE: HOR: 1" = 20' VER: 1" = 2'



APPROVED
PLANNING BOARD
of HOWARD COUNTY

FOR REVISION 5 ONLY
BOHLER ENGINEERING
901 DULANEY VALUE PD. STE. 801
TOWSON, MD 21204
PHONE: 410-821-1900
FAX: 410-821-1987

MDE BOHLERENG. COM

DATE May 1, 2003

SCALE: HOR: 1" = 20' VER: 1" = 2'

STORM DRAIN

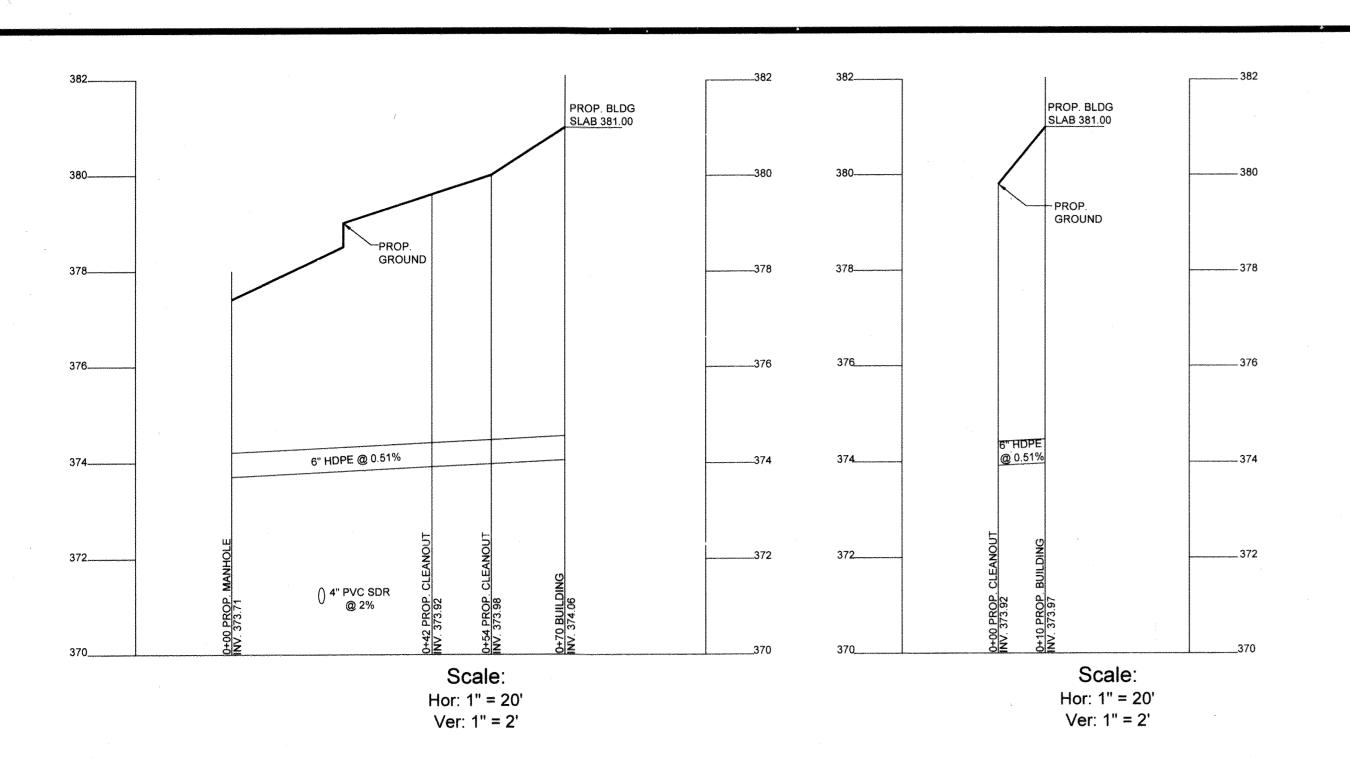


ENGINEERS • ARCHITECTS • PLANNERS 7164 Columbia Gateway Drive Suite 205 Columbia, Maryland 21046 (410) 312-0966

RBA PROJ. NO.: M3080.00 DESIGNED BY:

CENTER

DOBBIN COMMERCIAL COLUMBIA, M



Avoid snagging the cartridge membranes on the recpticle lip when inserting the Jellyfish membrane filtration cartridges into the cartridge receptacles. Use a gentle twisting or sideways motion to clear any potential snag. Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice, Lids with a small orifice are to be inserted into the draindown cartridge receptacles, outside of the backwash Lids with a large orifice are to be inserted into the hi-flo cartridge receptacles within the backwash pool weir.
- Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge To install a cartridge lid, align the cartridge lid male threads with the cartridge receptacle female threads. Firmly twist the cartridge lid clockwise a minimum 110° to seat the filter cartridge snugly in place, with a

3.0 - Inspection and Maintenance Overview

The primary purpose of the Jellyfish Filter is to capture and remove pollutants from stormwater runoff. As with any iltration system, captured pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Maintenance les may be required in the event of an upstream chemical spiil or due to excessive sediment loading from site In or extreme runoff events, it is a good practice to inspect the system after major storm events.

inspection activities are typically conducted from surface observations and include Observe if standing water is present

Observe if there is any physical damage to the deck or cartridge lids

Observe the amount of debris in the Maintenance Access Wall (MAW Maintenance activities typically include:

Removal of collected sediments from manhole sump

Rinsing and re-installing the filter cartridges Replace filter cartridge tentacles, as needed

It is recommended that Jellyfish Filter inspection and maintenance be performed by professionally trained individuals with experience in stormwater maintenance and disposal services. Maintenance procedures may require manned entry into the Jellyfish structure. Only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Procedures, safety and damage prevention procedures and other information, included in these guidelines, should be reviewed and observed prior to all inspection and maintenance activities.

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; or per the approved project stormwater quality documents (if applicable), whichever is more frequent. Post-construction inspection is required prior to putting the Jellyfish Filter into service. All construction debris or construction-related sediment within the device must be removed, and any damage to system components

A minimum of two inspections during the first year of operation to assess the sediment and floatable pollutant

10 Jellyfish* Filter Owner's Manual

a snag occur, do not force the cartridge upward as damage to the tentacles may result. Rotate the cartridge with a slight sideways motion clear the snag and continue removing the cartridge. Thread a rope or cord through the lifting loops and lift the filter cartridge

Caution: Immediately replace and secure the lid on the exposed empty receptacle as a safety precaution. Never expose more than one empty cartridge receptacle. Repeat the filter cartridge removal procedure until all of the cartridges are located at the top surface outside the structure.

Disassemble the tentacles from each filter cartridge by rotating ounter-clockwise. Remove the tentacles from the cartridge hoad plate. Position a receptacle in a plastic tub or garbage can such that the

the tentacle. Rinse until all sediment is removed from the membrane Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane. Turn membrane upside down and pour out any residual rinsewater to ensure center of tentacle is clear of any sediment.

Slip the o-ring over the tentacle nipple and reassemble onto the cartridge head plate; hand-tighten. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement

Lower a rinsed filter cartridge to the cartridge deck. Remove the cartridge lid on a receptacle and carefully lower the filter cartridge into the receptacle until the head plate gasket is seated squarely on the lip of the receptacle. Caution: Should a snag occur when lowering the cartridge into the receptacle, do not force the cartridge downward; damage may occur. Rotate the cartridge with a slight sideways motion to clear the snag and complete the installation.

Replace the cartridge id on the exposed receptacle. Rinse away any accumulated grit from the receptacle threads if needed to get a proper ft. Align the cartridge lid male threads with the cartridge receptacle female threads. Firmly twist the cartridge lid clockwise a minimum 110° to seat the filter cartridge snugly in place, with a proper watertight seal. Repeat cartridge installation until all cartridges are installed

3,2.5 - Vacuum Cleaning Procedure

 Caution: Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening, being careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck. The separator skirt surrounds the filter cartridge zone, and could be torn if contacted by the wand. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result. To remove floatable trash, debris, and oil, lower the vacuum hose into the MAW opening and vacuum floatable pollutants off the surface of the water. Alternatively, floatable solids may be removed by a net or

local regulating authority, or into a separate containment tank. Remove the sediment from the bottom of the unit through the MAW opening. For larger diameter Jellyfish Filter manholes (8-ft, 10-ft, 12-ft diameter), complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the

Using a vacuum hose, remove the water from the lower chamber to the sanitary sewer, if permitted by the After the unit is clean, re-fill the lower chamber with water if required by the local jurisdiction, and re-install Dispose of sediment, floatable trash and debris, oil, spent tentacles, and water according to local regulatory

Jellyfish® Filter Owner's Manual 13 14 Jellyfish® Filter Owner's Manual

first year of operation. Minimum frequency should be once per year. Inspection is recommended after each major storm event Immediately after an upstream oil, fuel or other chemical spill

The following equipment and tools are typically required when performing a Jellyfish Filter inspection:

 Access cover lifting tool Sediment probe (clear hollow tube with check valve) Tape measure

Flashlight Camera

Inspection and maintenance log documentation

Safety cones and caution tape Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

The following procedure is recommended when performing inspections:

Provide traffic control measures as necessary. Inspect the MAW for floatable pollutants such as trash, debris, and

Measure oil and sediment depth by lowering a sediment probe through the MAW opening until contact is made with the floor of the structure. Retrieve the probe, record sediment depth, and presences of any oil layers and repeat in multiple locations within the MAW opening. Sediment depth of 12 inches or greater indicates maintenance is required.

Inspect cartridge lids. Missing or damaged cartridge lids to be Inspect the MAW, cartridge deck, and backwash pool weir for cracks or broken components. If damaged, repair is required.

No standing water und∘r normal operating condition.

Standing water inside the backwash pool, but not outside the backwash pool, this condition indicates that the filter cartridges need to be rinsed. Standing water outside the backwash pool may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream

Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges

Wet weather inspections: observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW

overflowing the backwash pool weir.

18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges are occluded with sediment and need to be rinsed.

3.2.1 - Maintenance Requirements Required maintenance for Jellyfish Filter units is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.

Floatable trash, debris, and oil must be removed. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs first. Replace filter cartridge if rinsing does not remove accumulated sediment from the tentacles, or if tentacles are damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before

Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged by the spill.

3.2.2 - Maintenance Tools and Equipment The following equipment and tools are typically required when performing Jellyfish Filter maintenance:

 Vacuum truck Ladder Garden hose and low pressure sprayer

Rope or cord to lift filter cartridges from the cartridge deck to the surface Adjustable pliers for removing filter cartridge tentacles from cartridge head plate Plastic tub or garbage can for collecting effluent from rinsed filter cartridge tentacles Access cover lifting tool

Sediment probe (clear hollow tube with check valve) Camera

Inspection and maintenance log documentation Safety cones and caution tape

Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers Proper safety equipment for confined space entry Replacement filter cartridge tentacles if required

3.2.3 - Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter: · Provide traffic control measures as necessary.

Open all covers and hatches. Use ventilation equipment as required, according to confined space entry Caution: Dropping objects onto the cartridge deck may cause damage. Perform Inspection Procedure prior to maintenance activity.

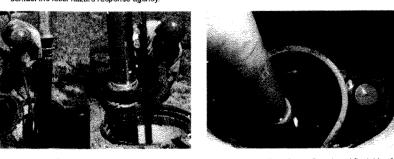
To access the cartridge deck for filter cartridge service, descend the ladder and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. lote that the cartridge deck may be slippery.

3.2.4 - Filter Cartridge Rinsing Procedure Remove a cartridge lid.

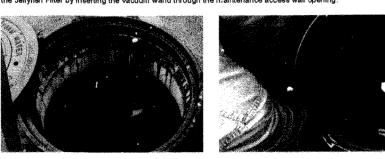
Remove the cartridge from the receptacle using the lifting loops in the cartridge head plate. Caution: Should

Jellyfish* Filter Owner's Manual 11 12 Jellyfish* Filter Owner's Manual

Caution: If a chemical spill has been captured by the Jellyfish Filter, do not attempt maintenance. Immediately



the Jellyfish Filter by inserting the vacuum wand through the maintenance access wall opening.



A view of a Jellyfish Filter cartridge deck from the surface showing all the cartridge lids intact and no standing water on the deck (left image), and inspection of the flexible separator skirt from inside the maintenance access wall



Assembly of a Jellyfish Filter cartridge (left) and installation of a filter cartridge into a cartridge receptacle in the deck (right).

3.3 - Disposal Procedures Disposal requirements for recovered pollutants and spent filtration tentacles may vary depending on local guidelines

Petroleum-based pollutants captured by the Jellyfish Filter, such as oil and fuels, should be removed and disposed of Although the Jellyfish Filter captures virtually all free oil, a sheen may still be present at the MAW. A rainbow or sheen can be visible at oil concentrations of less than 10 mg/L (ppm).

4 - Recommended Safety Procedures

Jobsite safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply. 4.1 - Confined Space/Personal Safety Equipment/Warning and Cautions Please see reference on Page 3.

5 - Jellyfish Filter Replacement Parts Jellyfish membrane filtration cartridges, cartridge components, cartridge lids, other replacement parts can be ordered by contacting Contech Engineered Solutions at:

Phone: 800-338-1122 Email: info@conteches.com

Website: www.ContechES.com 5.1 - Jellyfish Filter Replacement Parts List Note: Jellyfish Cartridges and/or Filtration tentacles are available in the following lengths:

• 15 Inch (381 mm) • 27 Inch (686 mm) • 40 Inch (1,016 mm) • 54 Inch (1,372 mm) Jellyfish Cartridge (specify length). Includes head plate with lifting loops, rim gasket, eleven (11) filtration

tentacles, eleven (11) o-rings, and eleven (11) locking nuts Standard Head plate Blank head plate Rim gasket (for head plate)

Locking nuts (for tentacles) O-rings (for tentacles) Cartridge lids are available with the following orifice sizes: 70mm, 55mm, 45mm, 35mm, 30mm, 25mm, 30mm,

Maintenance Access Wall (MAW) extension (18-inch segment) Volting in this catalog should be construed as an expressed warranty or impsed warranties, including the warranties of marchantability and of less for any particular purpose.

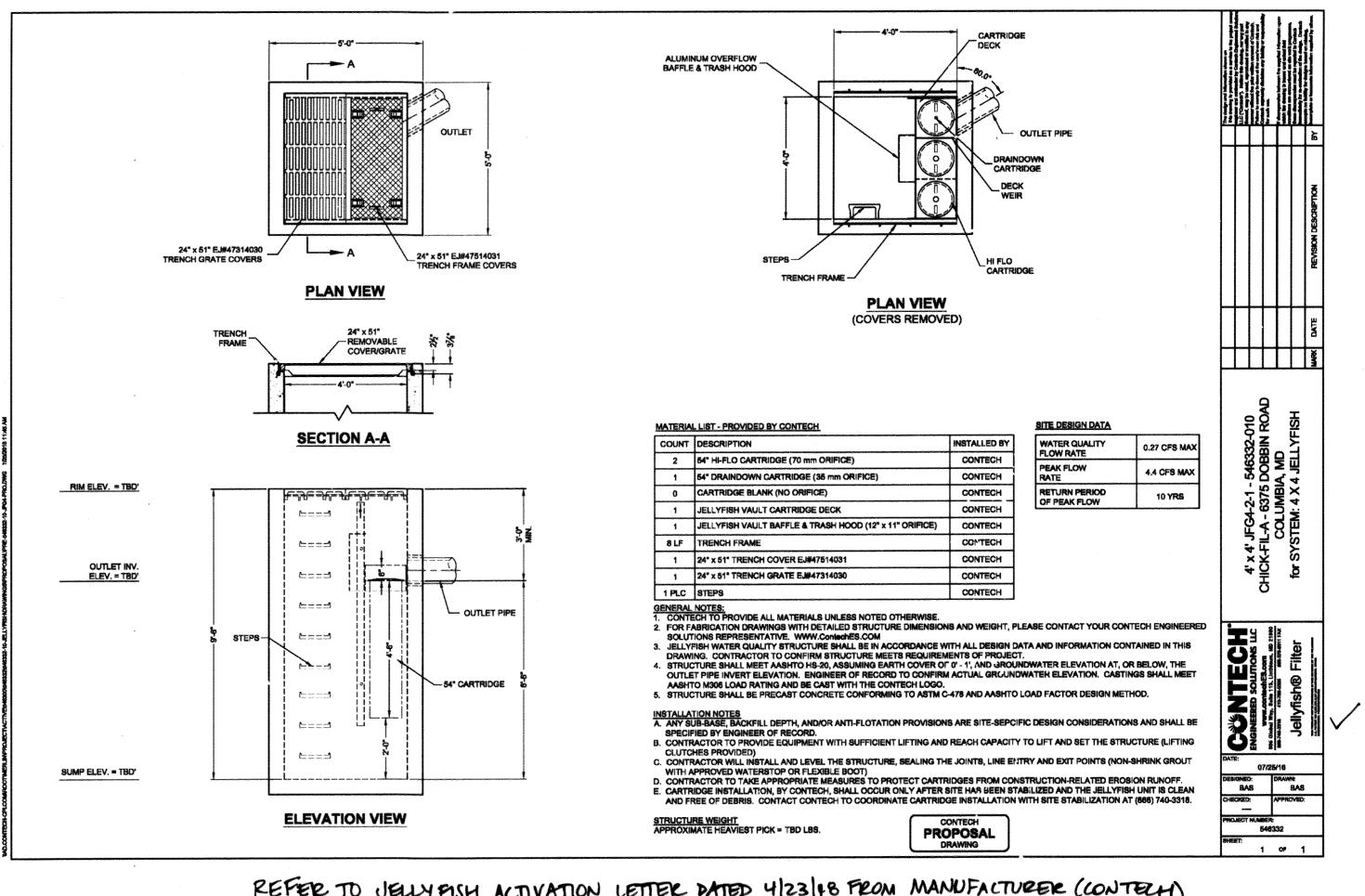
Jellyfish Filter Inspection and Maintenance Log

Jellyfish Model No.: Land Use: Commercial: Industrial: Service Station: Road/Highway: Airport: Residential: Parking Lot:

		_	The state of the s	
Date/Time:				
Inspector:				
Maintenance Contractor:				
fisible Oil Present: (Y/N)				
Quantity Removed				
Floatable Debris Present: (Y/N)				
Floatable Debris removed: (Y/N)				
Water Depth in Backwash Pool				
aindown Cartridges demally rinsed and commissioned: (Y/N)	•			
ew tentacles put on Cartridges: (Y/N)	,			
Hi-Flo certridges ternally rinsed and ommissioned (Y/N):				
ew tentacles put on Flo Cartridges: (Y/N)				
Sediment Depth Measured: (Y/N)				
Sediment Depth (inches or mm):				
ediment Removed: (Y/N)				
artridge Lids intact: (Y/N)				
bserved Damage:				
Comments:	s.			

Jellyfish* Filter Owner's Manual 16 10 Jellyfish* Filter Owner's Manual

JFF_OM_10/14



REFER TO JELLYFISH ACTIVATION LETTER DATED 4/23/18 FROM MANUFACTURER (CONTECH)

ite/Time:						
spector:						
ntenance intractor:						
Oil Present: (Y/N)						
ntity Removed						
able Debris sent: (Y/N)						
able Debris oved: (Y/N)						
er Depth in wash Pool						
wn Cartridges lly rinsed and issioned: (Y/N)		•				
ntacles put on dges: (Y/N)		,				
certridges illy rinsed and issioned (Y/N):						
ntacles put on artridges: (Y/N)						
ment Depth sured: (Y/N)						
ment Depth es or mm):						
nt Removed: (Y/N)						
ge Lids intact: (Y/N)						
/ed Damage:						
enanenta:						
	L	L	L	L	L	

I, MICHAEL U. GESELL 44091

DEVELOPER:

SUBDIVISION NAME: DOBBIN ROAD

COMMERCIAL CENTER
SECTION/AREA: SECTION 1, AREA 1
PLAT # 16667
WATER CODE: G07
SEWER CODE: 533300

FOR REVISION GONLY (AS-BUILT INFORM ATTON)

PARCEL 396, PARCEL S-1 CHICK-FIL-A, INC.

5200 BUFFINGTON ROAD

ATLANTA GA 30328-5641

CONTACT: REX POWELL

PHONE: (404) 765-7623

CHICK-FIL-A, INC.

5200 BUFFINGTON ROAD

ATLANTA, GA 30349 CONTACT: REX POWELL

PHONE: (404) 765-7623

PARCEL: 396, PARCEL S-1, 6TH ELECTION DISTRICT SITE AREA: 1.51 AC DPZ REF.: FDP-132-A-III, F-81-36c, F-82-35, F-83-30, SDP-83-224C, SDP-03-096

> I, MICHAEL J. GESELL, 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: 6/9/17

GRID: 18

BOHLER

901 DULANEY VALLEY ROAD, SUITE 80 TOWSON, MARYLAND 21204 Phone: (410) 821-7900 Fax: (410) 821-7987 MD@BohlerEng.com

REVISIONS

THE FOLLOWING STATES REQUIRE NOTIFICATION BY

ISTURB THE EARTH'S SURFACE ANYWHERE IN THE STAT

IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, A

W 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-

APPROVED FOR

CONSTRUCTION

SITE

DEVELOPMENT

PLAN

6375 DOBBIN ROAD

COLUMBIA, MD 21045

HOWARD COUNTY

DOBBIN COMMERCIAL CENTE

DRAWN BY:

SCALE:

CAD I.D.:

CHECKED BY:

MD146512

AVATORS DESIGNERS OR ANY PERSON PREPARING

6 615118 AS-BUILT PLANS

REV DATE

COMMENT

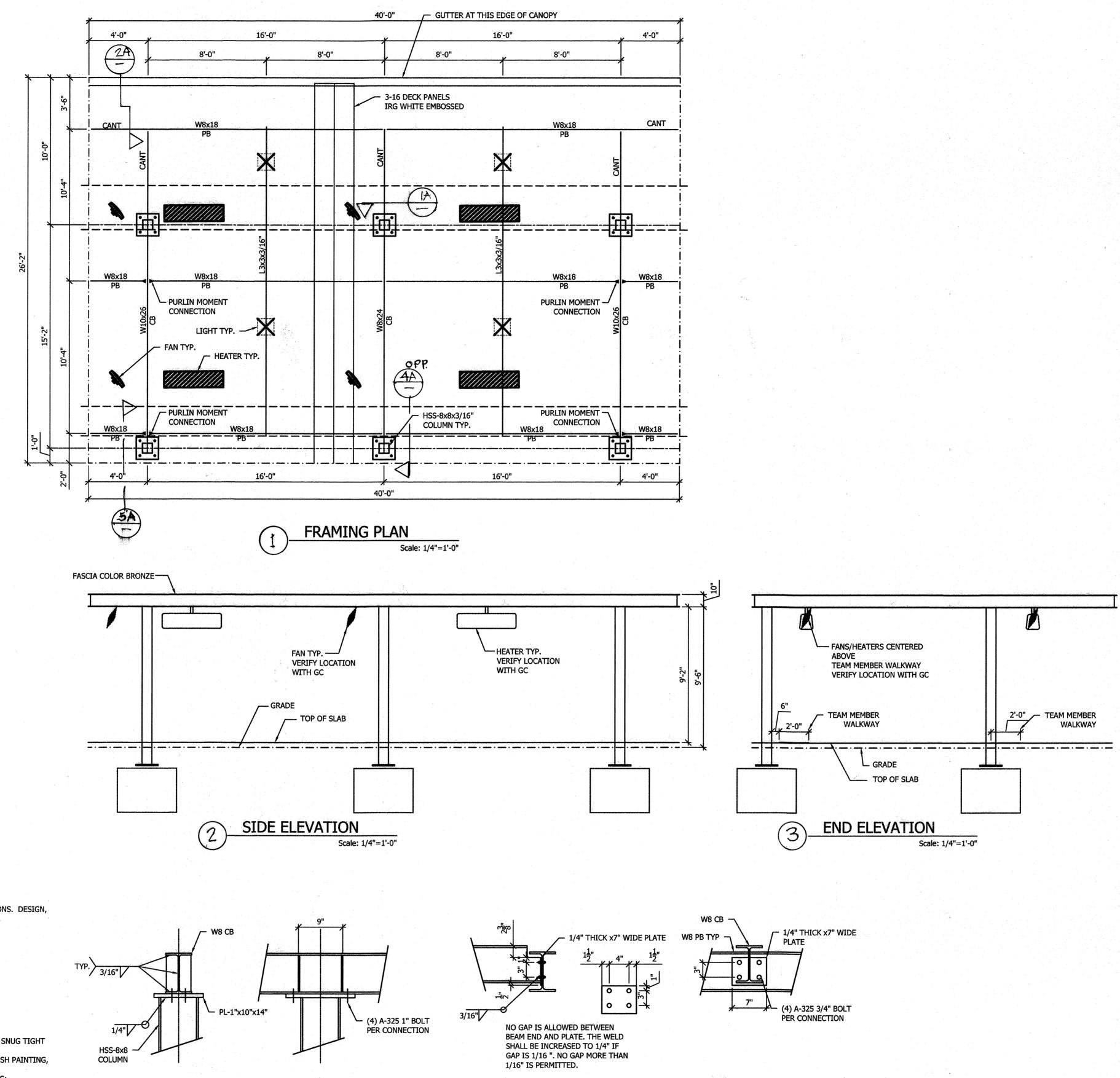
7/29/16

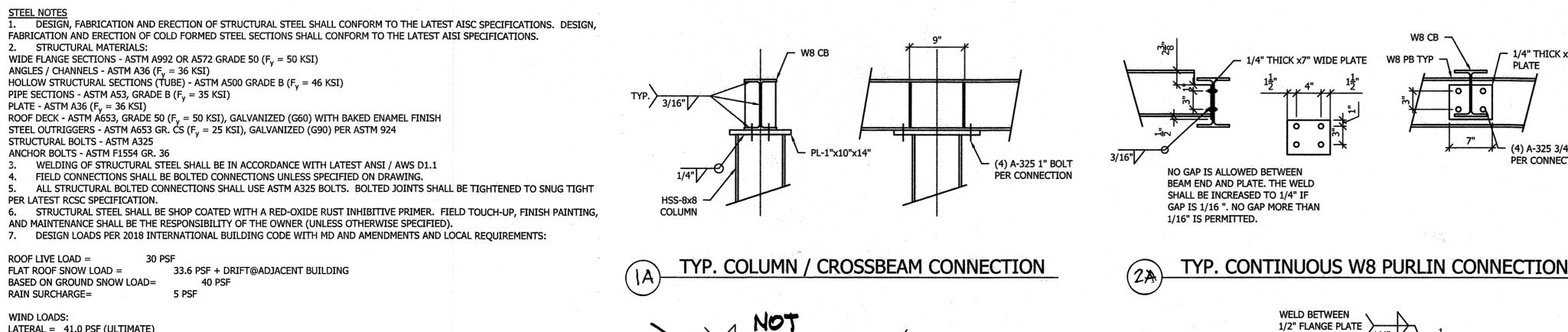
STORMWATER MANAGEMENT DETAIL

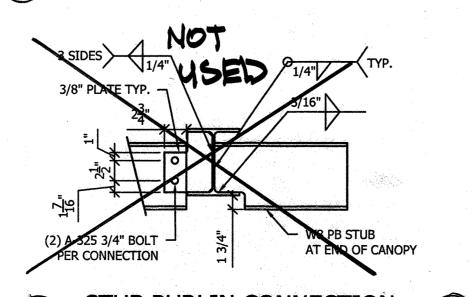
EF-DIVISION OF LAND DEVELOPMENT

H-12014IMD143512IDRAWINGSIPLAN SETSIREDLINED SDP:REDLINED-SDP-091916.DWG PRINTED BY: VLOCKETT 9.19.16 @ 3:24 PM LAST SAVED BY: VLOCKETT

15 OF 17 SDP-03-96







2. STRUCTURAL MATERIALS:

PLATE - ASTM A36 ($F_v = 36 \text{ KSI}$)

STRUCTURAL BOLTS - ASTM A325

PER LATEST RCSC SPECIFICATION.

ROOF LIVE LOAD =

RAIN SURCHARGE=

RISK CATEGORY II

SEISMIC LOADS:

Cs = 0.106

DEAD LOADS:

WIND LOADS:

FLAT ROOF SNOW LOAD =

BASED ON GROUND SNOW LOAD=

LATERAL = 41.0 PSF (ULTIMATE)

UPLIFT = 18.8 PSF (ULTIMATE)

DECK / GUTTER / LIGHTS - 4.5 PSF

FASCIA - 4.5 PSF (PER DESIGN)

STRUCTURAL STEEL - SELF WT

CONCRETE - 150 PCF

ANCHOR BOLTS - ASTM F1554 GR. 36

PIPE SECTIONS - ASTM A53, GRADE B ($F_y = 35 \text{ KSI}$)

WIDE FLANGE SECTIONS - ASTM A992 OR A572 GRADE 50 ($F_y = 50 \text{ KSI}$)

ANGLES / CHANNELS - ASTM A36 (F_y = 36 KSI) HOLLOW STRUCTURAL SECTIONS (TUBE) - ASTM A500 GRADE B (F_y = 46 KSI)

ROOF DECK - ASTM A653, GRADE 50 ($F_v = 50$ KSI), GALVANIZED (G60) WITH BAKED ENAMEL FINISH

WELDING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH LATEST ANSI / AWS D1.1

FIELD CONNECTIONS SHALL BE BOLTED CONNECTIONS UNLESS SPECIFIED ON DRAWING.

AND MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER (UNLESS OTHERWISE SPECIFIED).

33.6 PSF + DRIFT@ADJACENT BUILDING

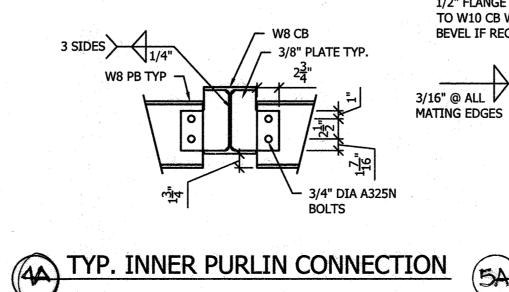
STEEL OUTRIGGERS - ASTM A653 GR. CS ($F_v = 25$ KSI), GALVANIZED (G90) PER ASTM 924

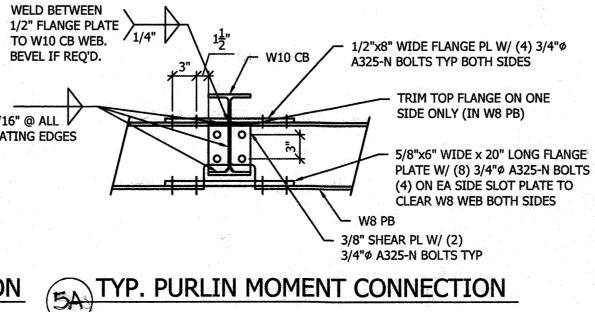
BASED ON 115 MPH 3 SECOND GUST WIND SPEED AND EXPOSURE 'B' PER ASCE 7-10.

SEISMIC RISK CATEGORY II, SITE CLASS "D" ASSUMED, SEISMIC DESIGN CATEGORY "B"

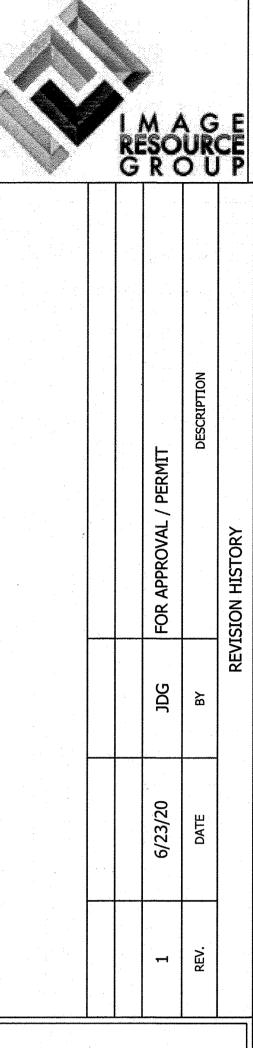
SEISMIC RESISTING SYSTEM - ORDINARY CANTILEVERED COLUMN SYSTEM, R = 1.25

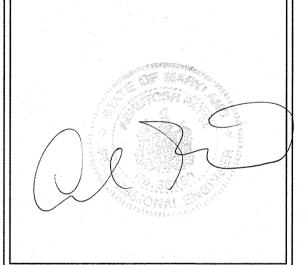
 $S_{ds} = 0.132g$ ($S_s = 0.124g$, $F_a = 1.60$), $S_{d1} = 0.082g$ ($S_1 = 0.051g$, $F_V = 2.40$)





(ha) Pha le	4.29.21
Chief, Development Engineering Division	Date
7-	<u>ક્રીલીય</u>
Chief, Division of Land Development	Date







1019 E. North Street Ottawa, Kansas 66067 Phone: 785.242.8111 Fax: 785.242.2022

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CHICK-FIL-A #1454 6375 DOBBIN RD COLUMBIA, MD

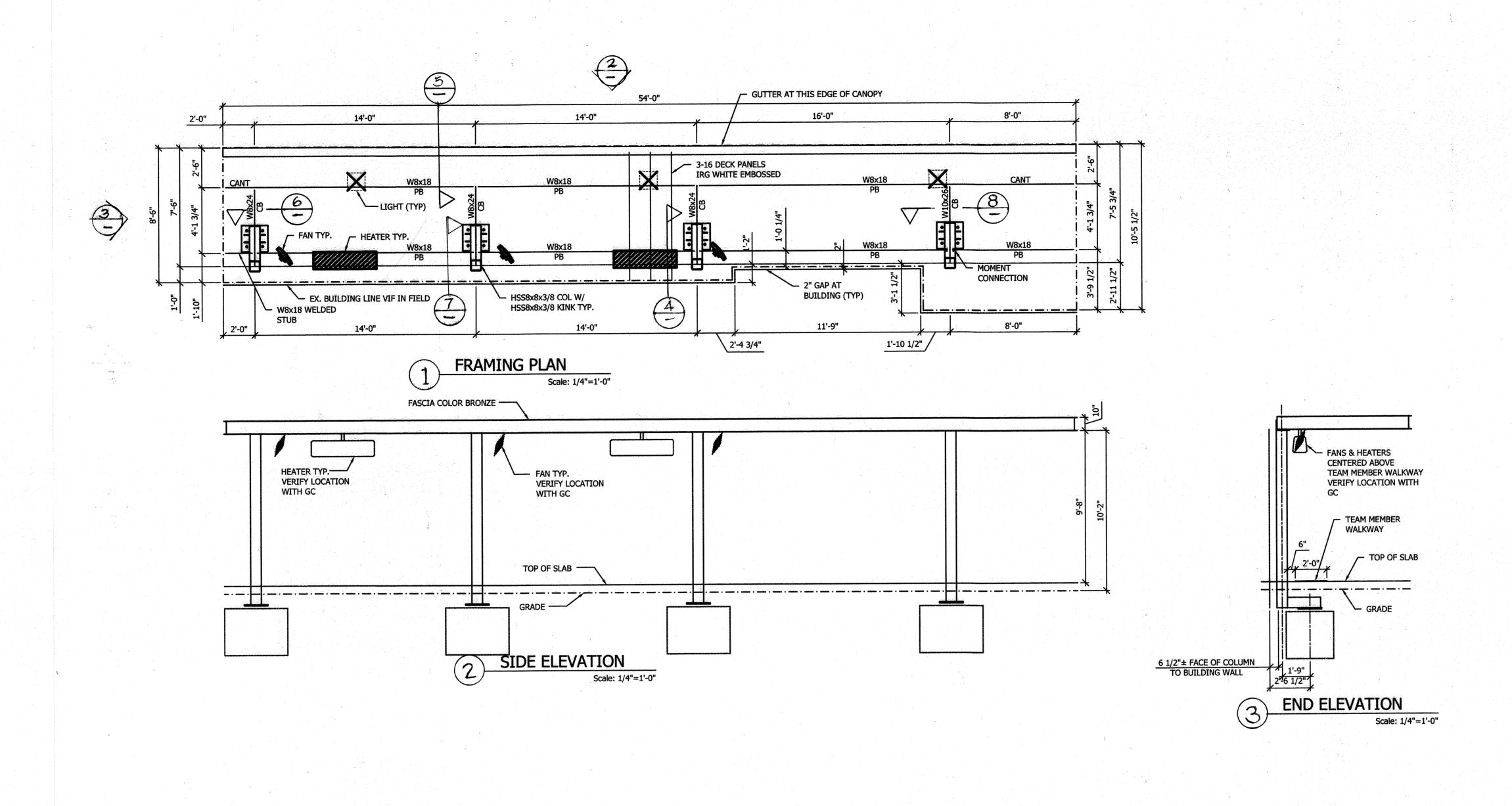
(6) COLUMN CANOPY F2F CANOPY

SCALE: DRAWN BY: CHECKED BY: AS SHOWN

JOB NUMBER: 66375 SHEET TITLE

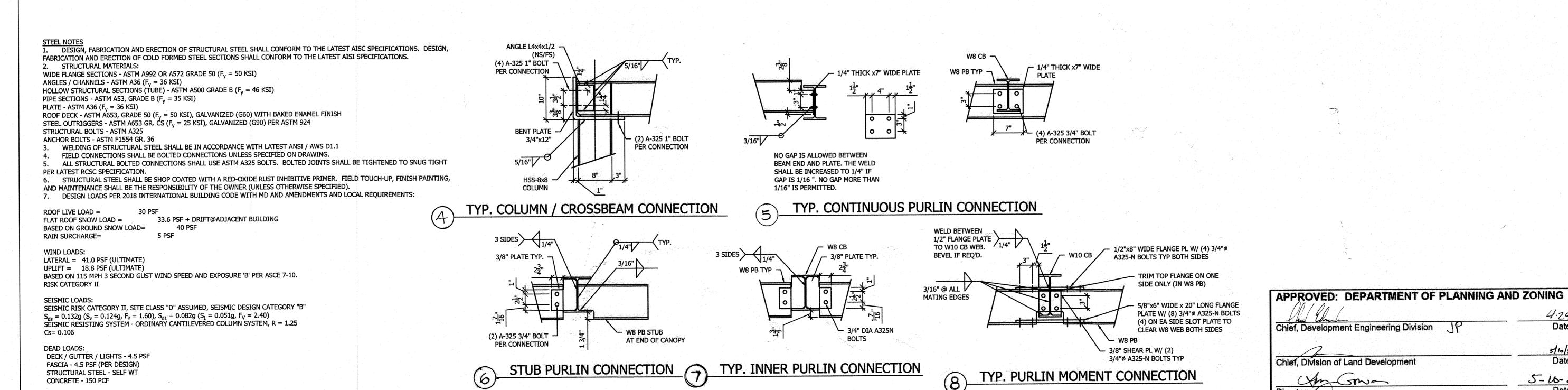
FRAMING PLAN SHEET NUMBER:

16 OF 17



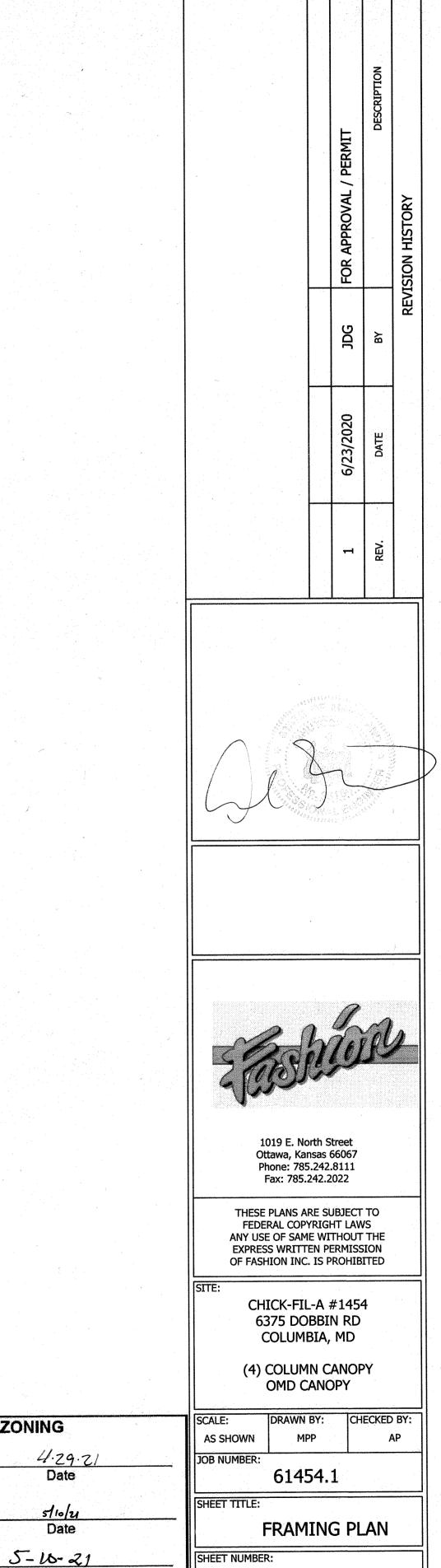
TYP. PURLIN MOMENT CONNECTION

Am Sma



STRUCTURAL STEEL - SELF WT

CONCRETE - 150 PCF



17 OF 17