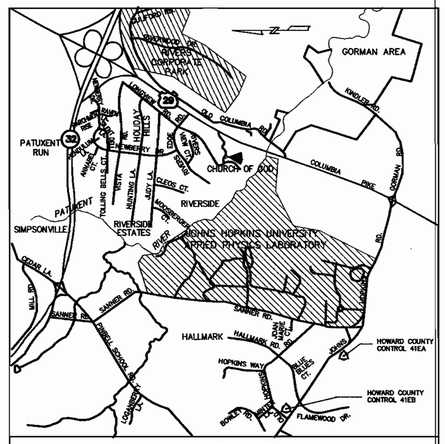
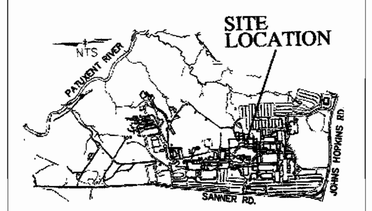
BUILDING 21

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
LOCATED SOUTHEAST OF INTERSECTION OF ROUTE 29 & 32
HOWARD COUNTY, MD



VICINITY MAP
SCALE: 1"=2000'

KEY LEGEND



SCALE: NTS

DEVELOPER & ENGINEER CERTIFICATES

1) BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONAL 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. AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DIRSTICT.

James E Loesch — SIGNATURE OF DEVELOPER — DATE 6/10/05

2) BY THE ENGINEER:

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

R E Burgoyne — DESIGN ENGINEER SIGNATURE — DATE June 14, 2005

R E Burgoyne — PRINTED NAME — REGISTRATION NUMBER 20906

3) CERTIFICATION BY PROFESSIONAL:

THERE ARE NO WETLANDS ON THE SITE THAT WILL BE DISTURBED. THEREFORE, THE REQUIREMENT OF 401 AND 404 WETLANDS PERMITS FORM THE STATE OF MARYLAND AND CORPS OF ENGINEERS ARE NOT NEEDED.

R E Burgoyne — PROFESSIONAL SIGNATURE — DATE June 14, 2005

R E BURGOYNE — PRINTED NAME

( ) THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.

Lisa Myers — USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/16/05

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

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — DATE 6/16/05

SITE ANALYSIS TOTAL APL PROPERTY:

A. AREA OF PARCEL/LOT = 361+/- ACRES PLAN SUBMISSION/DISTURBED AREA = 4.4 ACRES

B. PRESENT ZONING = PEC

C. PARKING TABULATION: EXISTING PARKING SPACES = 4,798
TOTAL SPACES REQUIRED = 2,850

D. EXISTING BUILDING COVERAGE:
COVERAGE = 25.5 ACRES
= 7.1%
BUILDING DEMOLITION = 1.6 ACRES

E. PROPOSED BUILDING COVERAGE:
BUILDING 21 GROSS FLOOR AREA = 6.5 ACRES
BUILDING 43 GROSS FLOOR AREA = 0.05 ACRES
BUILDING 21 COVERAGE = 1.05 ACRES
BUILDING 43 COVERAGE = 0.05 ACRES
= 0.03%

F. TOTAL PROPOSED BUILDING COVERAGE:
COVERAGE = 25.0 ACRES
= 6.9%

G. PROPOSED BUILDINGS DISTURBED AREA = 4.4 ACRES

H. PROPOSED USE = EDUCATION/RESEARCH

I. FLOOR SPACE USE = EDUCATION/RESEARCH

J. MAXIMUM NUMBER OF EMPLOYEES = 4,600

K. NO LOT SUBDIVISION IS ANTICIPATED.

L. CASE NUMBERS APPLICABLE: WAIVER PRELIMINARY PLAN, #WP-01-80, F-02-40, SDP-02-88, F-04-188, F-05-140, SDP-04-133 AND SDP 05-50

M. SANITARY SEWER / WATER SERVICE SEE GENERAL NOTES.

N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING AND BUILDINGS)= 278.2 ACRES, 77.1 % OF TOTAL LOT AREA.

O. PROPOSED OPEN SPACE AREA = 277.55 ACRES, 76.9% OF TOTAL LOT (PROPOSED BUILDINGS = 1.05 ACRE)

GENERAL NOTES:

1. WATER IS PUBLIC (HOWARD COUNTY)
2. SEWER IS PUBLIC (HOWARD COUNTY)
3. THE FLOOD PLAIN LIMITS FOR THIS PROJECT WERE TAKEN FROM HOWARD COUNTY STUDY. THERE IS NO FLOOD PLAIN WITHIN THE LIMITS OF THIS PLAN.
4. DIMENSION TO NEW STRUCTURES ARE PERPENDICULAR TO PROPERTY LINE.
5. THE PURPOSE OF THIS SDP PLAN IS TO REPRESENT A NEW BUILDING AND ASSOCIATED UTILITIES INCLUDING STORMWATER MANAGEMENT WATER QUALITY STRUCTURE. THE NEW BUILDING WILL BE FOR LABORATORY OPERATION AND RESEARCH.
6. ALL EXISTING UTILITIES WITHIN THE FOOTPRINT OF THE NEW BUILDING ARE TO BE RELOCATED OUTSIDE THE BUILDING FOOTPRINT AS SHOWN.
7. SOIL MAP USED SHEET NO.29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
8. FOREST CONSERVATION OBLIGATION ADDRESSED WITH F-02-040.
9. STORMWATER MANAGEMENT POND IS PRIVATELY OWNED AND MAINTAINED. IN ACCORDANCE WITH F-02-40.

GENERAL NOTES CONTINUE ON SHEET C-02

DRAWING INDEX:

APL NO.	COUNTY NO.	TITLE
C-01	1	COVER SHEET & VICINITY MAP
C-02	2	GENERAL NOTES & LEGEND
C-03	3	BUILDING SETBACK DIMENSIONS
C-04	4	TEMPORARY SECURITY FENCE & CONSTRUCTION STAGING
C-100	5	EXISTING CONDITIONS & SOIL MAP
C-101	6	BUILDING DEMOLITION PLAN
C-102	7	PART 2 DEMOLITATION PLAN
C-103	8	UTILITY DEMOLITION PLAN
C-104	9	SITE PLAN
C-105	10	LAYOUT PLAN
C-106	11	UTILITY PLAN
C-107	12	GRADING PLAN
C-108	13	DRAINAGE CALCULATIONS
C-201	14	DETAILS
C-202	15	SEWER DETAILS
C-203	16	STORM DRAIN AND WATER DETAILS
C-204	17	WATER LINE DETAILS
C-205	18	ELECTRICAL MANHOLE DETAILS
C-300	19	PROFILES
C-301	20	PROFILES
C-302	21	PROFILES
C-303	22	PROFILES
C-304	23	RETAINING WALL PROFILES
L-100	24	LANDSCAPE PLANTING PLAN
L-200	25	LANDSCAPE DETAILS
ES-01	26	EROSION & SEDIMENT CONTROL NOTES
ES-02	27	EROSION & SEDIMENT CONTROL PHASE I
ES-03	28	EROSION & SEDIMENT CONTROL PHASE II
ES-04	29	EROSION & SEDIMENT CONTROL DETAILS
ES-05	30	EROSION & SEDIMENT CONTROL DETAILS
ES-06	31	EROSION & SEDIMENT CONTROL DETAILS
A-1	32	SOUTH AND WEST ELEVATION
A-2	33	NORTH AND EAST ELEVATION

CONTACT PERSON FOR OWNER: J. E. LOESCH
TELEPHONE: 443-778-5134
FAX: 443-778-6122

ADDRESS CHART

LOT/PARCEL #	STREET ADDRESS
1	11100 JOHNS HOPKINS ROAD, LAUREL MD 20723, CONTACT J.E. LOESCH 443-778-5134

ADDRESS CHART

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL NO
J.H.U. APPLIED PHYSICS LAB	N/A	PARCEL 1

PLAT# OR L/F	GRID#	ZONING	TAX MAP NO	ELECT DISTR	CENSUS TRACT
17042 THRU 17046	16	PEC	41	5	6051.02

WATER CODE	SEWER CODE
E-21	6480000

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/24/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/15/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com

© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
COVER SHEET &
VICINITY MAP
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-01

COUNTY SHEET NO. 1 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-01.dwg Jun 09, 2005 - 7:09am

GENERAL NOTES: (CONT.)

10. THE SUBJECT PROPERTY IS ZONED PEC PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN.

11. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. NO LANDSCAPE PLANTINGS ARE REQUIRED FOR THIS PLAN SINCE NO PROPOSED IMPROVEMENTS ARE ADJACENT TO PUBLIC ROAD OR ADJOINING PROPERTY. PLANTINGS ARE NOT REQUIRED, THEREFORE NO SURETY IS REQUIRED.

12. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN, WAS OBTAINED FROM FIELD SURVEYS PERFORMED BY WHITMAN, REQUARDT AND ASSOCIATES (TOPOGRAPHY), AVAILABLE RECORDS AND APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS IN EARLY 2004 AND MAY NOT REFLECT EXACT CONDITIONS. WHILE EVERY EFFORT HAS BEEN MADE TO ENSURE THE ACCURACY OF THESE DRAWINGS IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION. THE CONTRACTOR MUST FIELD VERIFIED EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR MUST TEST PIT TO DETERMINE THE EXACT LOCATION AT ALL CROSSINGS IN ADVANCE OF CONSTRUCTION.

13. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.

14. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER.

15. ACCESS TO THE SECURE AREA OF THE APPLIED PHYSICS LABORATORY (WITHIN THE FENCED ENCLOSURE) MUST BE ARRANGED IN ADVANCE BY CONTACTING JHU/APL PLANT FACILITIES OFFICE (443) 778-4777.

16. SECURITY MUST BE MAINTAINED WITHIN THE CONSTRUCTION AREA. ALL REQUIRED FENCE CONSTRUCTION AND RELOCATION SHALL BE BY THE CONTRACTOR WHO SHALL BE RESPONSIBLE TO COORDINATE WITH JHU-APL AS TO WHEN SUCH WORK IS REQUIRED.

17. THE CONTRACTOR SHALL CONTACT MR. WILLIAM KOZAK (443) 778-5137 AT LEAST FIVE DAYS BEFORE STARTING WORK, UTILITY WORK, OR NEEDING TO SHUT DOWN ANY UTILITIES. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEMS.

18. THE CONTRACTOR SHALL SHUT DOWN EXISTING UTILITIES ONLY AFTER NORMAL WORKING HOURS AT JHU-APL. WORK MUST BE SCHEDULE ACCORDINGLY THROUGH JHU-APL. NORMAL WORKING HOURS ARE 8:30 A.M. TO 5:00 P.M., MONDAY THROUGH FRIDAY.

19. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION, 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK, AT (410) 313-1880.

20. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.

21. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.

22. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED.

23. THE AREA SHOWN IS LOCATED ON TAX MAP #41.

24. ALL SITE UTILITIES ARE THE PROPERTY OF APL. APL WILL HORIZONTALLY LOCATE ALL ACTIVE UTILITIES FOR THE CONTRACTOR.

25. TRAFFIC SHALL BE MAINTAINED BY THE CONTRACTOR ALONG EXISTING ROADWAYS DURING PROPOSED WORK, AT ALL TIMES. THE PAVED DRIVE EAST OF THE BUILDING 21 SITE SHALL BE MAINTAINED AT LEAST 22 FEET WIDE.

26. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.

27. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES.

28. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY CHANGES MADE WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

29. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.

30. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES INDICATED TO BE SAVED DURING CONSTRUCTION.

31. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL MEET CURRENT HOWARD COUNTY SCD, DILP, & CID STANDARDS AND DIRECTIVES.

32. EXISTING SIGNS, GUARDRAILS AND OTHER MINOR SITE FEATURES IN THE WAY OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

33. CONTRACTOR SHALL CONTACT JHU-APPLIED PHYSICS LAB PLANT FACILITIES OFFICE (443) 778-4777, 48 HOURS PRIOR START OF THE EXCAVATION AND MUST NOTIFY ALL PUBLIC UTILITY COMPANIES AND THE OWNER OF UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.

34. TRENCH AND INSTALLATION OF NEW UTILITIES SHALL BE SCHEDULED SO THAT ALL TRENCHES WILL BE BACK FILLED OR COVERED WITH STEEL PLATES AT THE END OF EACH DAY. NO TRENCHES WILL BE ALLOWED TO BE OPEN AT THE END OF EACH WORK DAY. TRENCH AREAS SHALL BE MULCHED AND TEMPORARY SEEDED IN NON-PAVED AREA, AND TRAFFIC BEARING TEMPORARY SURFACE SHALL BE INSTALLED IN PAVED AREAS.

35. CONTRACTOR SHALL PREPARE CONSTRUCTION SHOP DRAWING FOR THE NEW UTILITIES AND RETAINING WALLS. SHOP DRAWINGS SHALL SHOW IN SECTIONS AND PLANS THE VERTICAL AND HORIZONTAL LOCATION FOR ALL PIPES, CONDUITS, MANHOLES, DUCTBANKS AND RETAINING WALL. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY APL BEFORE START OF WORK IN THIS AREA.

36. CONTRACTOR SHALL MAINTAIN CONTINUOUS FLOW IN THE STORM DRAIN PIPES DURING CONSTRUCTION.

37. HANDICAPPED PARKING PROVIDED ON THIS PROJECT IS ASSIGNED TO STAFF AS NEEDED. PUBLIC ACCESS HANDICAPPED PARKING IS ADJACENT TO BUILDING 26.

38. THESE PLANS REFERENCE HOWARD COUNTY CONTROL MONUMENT 41EA.

39. THERE ARE NO EXISTING OR NEW EASEMENTS, WITHIN THE AREA OF THIS DEVELOPMENT PLAN.

40. THE OUTDOOR LIGHTING WILL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS IN ACCORDANCE WITH SECTION 134 OF THE ZONING REGULATIONS.

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

STORMWATER MANAGEMENT DRAINAGE AREA
"A" BASIN DEVELOPMENT ACCOUNTING

DATE: 10-27-04

	FINAL PLAN "A" HoCo APPROVED	B17 AND B20 DEVELOPMENT	PRE SI's DEMOLITION	SYSTEMS INTEGRATION BUILDINGS CONCLUSION 12 & 15	PRE BUILDING 21 DEMOLITION CONCLUSION	BUILDING 21	POST SI's CONSTRUCTION DEMOLITION
AS OF DATE	2/28/2002	MARCH 2004					
	(ACRES)	(ACRES)	(ACRES)	(ACRES)	(ACRES)	(ACRES)	(ACRES)
DRAINAGE AREA	43.2	43.2	43.2	42.4	42.4	42.4	42.4
EXISTING IMPERVIOUS DRAINAGE AREA – PRE 1984	27.2	27.2	27.0	27.2	24.4	24.4	24.4
PROPOSED IMPERVIOUS DRAINAGE AREA – POST 1984	11.7	1.4	0.6	4.0		2.2	
TOTAL IMPERVIOUS AREA	38.9	28.6	27.6	31.2	28.4	30.6	30.6
IMPERVIOUS DRAINAGE AREA MAXIMUM ALLOWABLE IMPERVIOUS AREA (38.9 AC.) AVAILABLE	0.0	10.3	11.3	7.7	10.5	8.3	8.3

FLOOR SPACE USAGE

BUILDING 21	Rooftop	Penthouse	5th Floor	4th Floor	3rd Floor	2nd Floor	1st Floor	Basement	Bridges	Total
B-Business	0	2,600	40,100	42,000	37,350	42,000	40,615	38,250	0	242,915
A-3 Assembly	0	0	0	0	4,350	0	0	4,350	0	8,700
S-2 Storage	0	0	0	0	300	0	0	0	0	300
S-2 MEP Equip	0	21,250	0	0	0	0	5,035	0	0	26,285
IBC 3104 Pedestrian Walkway	0	0	0	0	0	0	0	0	4,800	4,800
Total Floor Area GSF	0	23,850	40,100	42,000	42,000	42,000	45,650	42,600	4,800	283,000
BUILDING 43										
S-2 LOW HAZARD STORAGE							2,400			2,400

LEGEND

EXISTING		NEW
8"SAN	SANITARY SEWER	6" SAN
MH-018	SANITARY SEWER MANHOLE	S
CO	SANITARY SEWER CLEANOUT	CO
8"SD	STORM DRAIN	12" SD
DR-46	STORM DRAIN MANHOLE	D
	DROP INLET	
	YARD INLET	
CO	STORM SEWER CLEANOUT	CO
	ROOF DRAIN	RD
HW / EW	HEADWALL, ENDWALL	
8"STM	STEAM LINE	
MV	STEAM VALVE	
	STEAM MANHOLE	
8"W	WATER MAIN, BUILDING SERVICE	10" W
WV	WATER VALVE	WV
FPI / PIV	POST INDICATOR VALVE	PIV
	FIRE HYDRANT WITH SHUTOFF VALVE	
	FIRE HYDRANT	FH
	FIRE DEPARTMENT CONNECTION	FD
TR.367	DECIDUOUS TREE	
TR243	EVERGREEN TREE	
	RIPRAP	
	TREELINE	
	SHRUBS	
420	INDEX CONTOUR	405
	INTERMEDIATE CONTOUR	399
	EDGE OF WATER	400.36x
428.7	SPOT ELEVATION	
CA10	SURVEY CONTROL POINT NO. CA10 BENCHMARK ELEVATION = 429.70 FT.	
276.86' N85°57'00"E	PROPERTY BOUNDARY	
	CONCRETE SIDEWALK	
	HANDICAP RAMP	
	STAIRS	
	RETAINING WALL	398.66x
	HANDRAIL	
	CURB AND GUTTER	
	TRANSITION CURB AND GUTTER	
	DEPRESSED CURB AND GUTTER	
	ASPHALT PAVEMENT	
	PARKING STRIPE	
FP	FLAGPOLE	FP
	BUILDING	
	UTILITY TUNNEL AND ACCESS OPENING	
	TRAFFIC SIGN	
B-2	SOIL BORING	
	ABANDON EXISTING UNDERGROUND LINE	
	LIMIT OF DISTURBANCE	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 10/25/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
GENERAL NOTES & LEGEND
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

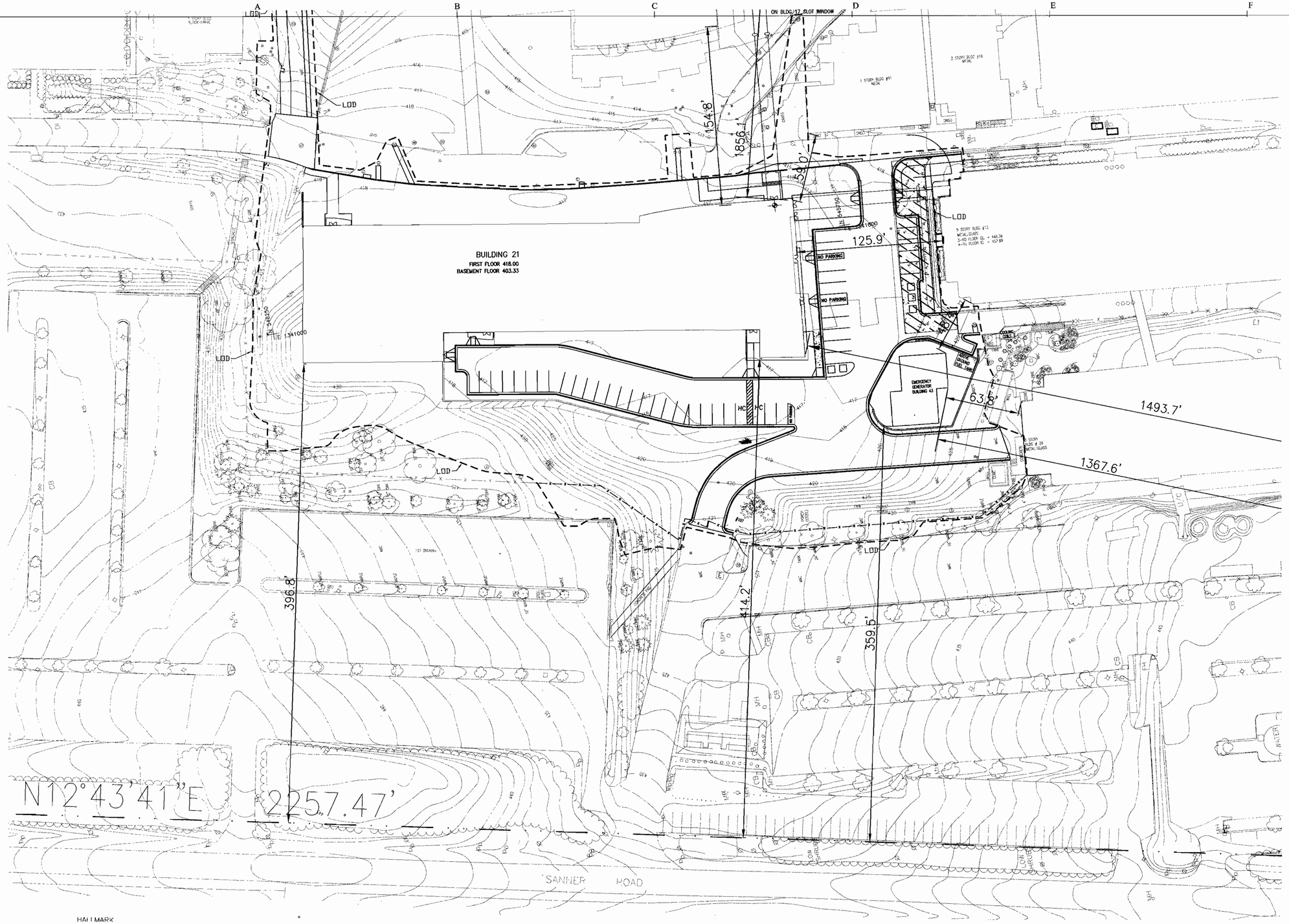
SCALE AS SHOWN

APL SHEET NO. C-02

COUNTY SHEET NO. 2 of 23

SDP-03-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-02.dwg Jun 08, 2005 - 8:23pm



NOTES:

1. THIS DRAWING IS PROVIDED FOR SDP AND ZONING USE. THE CONSTRUCTOR SHALL LAYOUT THE BUILDING FROM THE CIVIL LAYOUT PLAN.
2. DIMENTIONS ARE TO ADJACENT BUILDINGS OR PERPENDICULAR TO THE PROPERTY LINE.

GRAPHIC SCALE

0 40 80 120

1"= 40'

HAI I MARK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/25/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
BUILDING SETBACK DIMENSIONS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

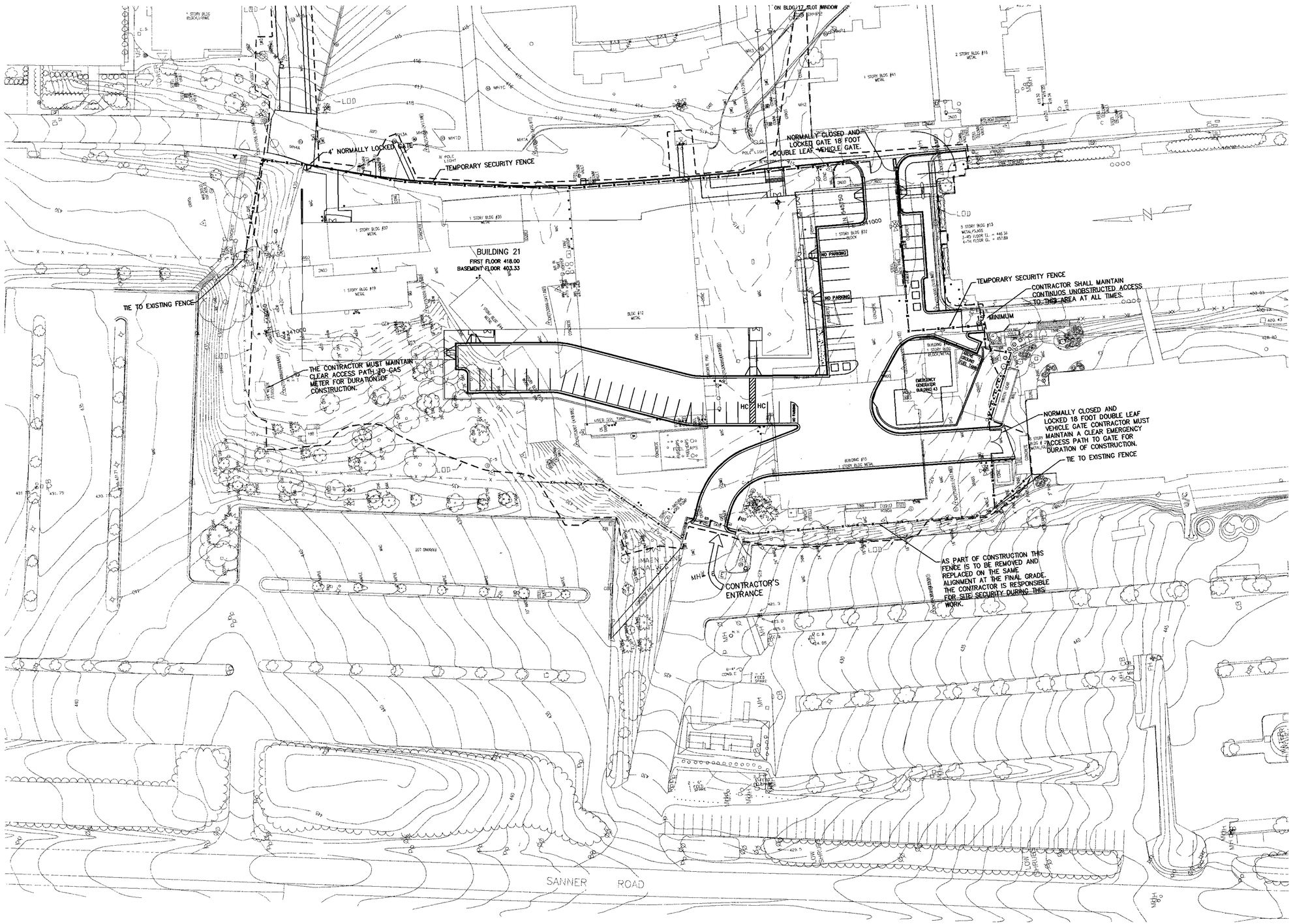
SCALE AS SHOWN

APL SHEET NO. C-03

COUNTY SHEET NO. 3 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-03.dwg Jun 08, 2005 - 8:24pm



NOTES:

1. PRIOR TO THE BEGINNING OF CONSTRUCTION THE CONTRACTOR SHALL ASSUME CUSTODY OF THE SECURITY/ CONSTRUCTION FENCE CONSTRUCTED BY OTHERS APPROXIMATELY AS SHOWN. ALL GATES NEW AND EXISTING SHALL BE CONTROLLED BY JHU/APL SECURITY. THE CONTRACTOR ENTRANCE SHALL BE MANNED AND CONTROLLED BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF AND CLEANLINESS OF THE AREA DEFINED BY THE EXISTING AND TEMPORARY FENCING.
3. THE CONTRACTOR OR ANY CONTRACTOR PERSONNEL SHALL NOT PARK IN THE PARKING AREAS WITHIN THE PROJECT SITE. CONTRACTOR PARKING IS LOCATED AT LOT M. LOT M IS AT THE NORTH END OF THE CAMPUS. THE CONTRACTOR SHALL PROVIDE TRANSPORTATION BETWEEN THE PARKING AREA AND THIS PROJECT SITE AS REQUIRED.
4. AT THE END OF THE PROJECT THE CONTRACTOR SHALL REMOVE THE TEMPORARY FENCE AND RESTORE ANY DAMAGED OR DISTURBED SITE IMPROVEMENTS TO THEIR ORIGINAL CONDITION. ANY TEMPORARY INSTALLED SECURITY LIGHT SHALL BE TURNED OVER TO JHU/APL.
5. RELOCATION OF THE TEMPORARY SECURITY FENCE AND ALL WORK OUTSIDE OF THIS FENCE SHALL BE COORDINATED WITH AND APPROVED BY JHU/APL SECURITY PRIOR TO EXECUTION.
6. THE FENCE SHALL BE CONSTRUCTED OF CHAIN LINK FABRIC 8 FEET HIGH WITH THREE STRANDS OF BARB WIRE MOUNTED ON TOP. THE FENCE SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS.
7. THE CONTRACTOR SHALL INSTALL TEMPORARY LIGHTS AS SHOWN ALONG THE TEMPORARY FENCE LINE DURING THE LIFE OF THE PROJECT, THEY SHALL BE REMOVED AT THE END OF THE PROJECT.
8. THE CONTRACTOR SHALL RELOCATE THE FENCE AS NECESSARY AS PART OF THE BID TO ALLOW FOR THE COMPLETION OF THE CONSTRUCTION.
9. ALL WORK REQUIRED INSIDE OF THE SECURE AREA (NOT IN THE PROJECT FENCED AREA) WILL REQUIRE ALL INVOLVED PERSONNEL TO BE CLEARED IN ACCORDANCE WITH JHU/APL REQUIREMENTS.
10. THE CONTRACTOR SHALL MAN AND CONTROL THE EXISTING GATE TO BE USED AS THE CONTRACTORS ENTRANCE FOR THE DURATION OF THE PROJECT. THE EXISTING GATE OPENERS, AND ASSOCIATED EQUIPMENT WILL NOT BE MAINTAINED BY JHU/APL DURING THE LIFE OF THE CONSTRUCTION PROJECT. AT THE COMPLETION OF THE PROJECT THESE GATES ARE TO BE REPLACED BY NEW MANUAL GATES.

GRAPHIC SCALE

0 40 80 120

1"= 40'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 10/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
TEMPORARY SECURITY FENCE

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-04

COUNTY SHEET NO. 4 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-04.dwg Jun 09, 2005 - 6:34am

NOTES:

1. THIS DRAWING IS ASSEMBLED FROM FIELD SURVEY COMPLETED BY WHITMAN, REQUARDT AND ASSOCIATES, LLP IN EARLY 2004, UTILITY RECORDS FROM JHU/APL AND ASBUILT RECORDS FOR NEW UTILITIES AS PROVIDED BY JACCOBS ENGINEERING. THE UNDERGROUND UTILITIES HAVE BEEN ADJUSTED TO REFLECT THE SURFACE FEATURES RECORDED IN THE FIELD SURVEY.

2. THE SIDEWALKS, CURB, DRAINAGE AND PATIO TO THE WEST OF BUILDING 17 IS FROM THE DESIGN DRAWING. AT THE TIME OF FIELD SURVEY THESE ITEMS WHERE NOT YET CONSTRUCTED.

3. THE SOILS TYPE INFORMATION IS FROM THE HOWARD COUNTY SOILS MAP.

4. THE SOIL BORING LOCATIONS ARE APPROXIMATE.

N

GRAPHIC SCALE

0 30 60 90

1"= 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EXISTING CONDITIONS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-100

COUNTY SHEET NO. 5/33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-100.dwg | Jun 08, 2005 - 8:46pm

DEMO LEGEND:

1. REMOVE EXISTING BUILDING
2. REMOVE CURB AND GUTTER
3. REMOVE EXISTING CONCRETE PAVEMENT
4. EXISTING UNDERGROUND FUEL TANKS, PIPING, PUMPS, ETC TO BE REMOVED BY OTHERS
5. REMOVE EXISTING TREE
6. REMOVE EXISTING ASPHALT PAVEMENT (SAW CUT FULL DEPTH)
7. REMOVE EXISTING SHED
8. REMOVE EXISTING POWER GATE
9. EXISTING NATURAL GAS PUMP TO BE REMOVED BY OTHERS.
10. REMOVE EXISTING CHAIN LINK FENCE

NOTES:

1. THE CONTRACTOR SHALL MAINTAIN VEHICLE ACCESS ACROSS THE SITE DURING CONSTRUCTION.
2. ALL CONSTRUCTION AND DEMOLITION DEBRIS SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF AT A LEGAL DISPOSAL FACILITY.
3. EXCESS CLEAN SOIL AND EARTH SHALL BE DISPOSED OF ON THE JHU/APL CAMPUS AS PERMITTED IN SDP-04-133 AND DIRECTED BY THE PROJECT COORDINATOR.
4. THE DEMOLITION OUTSIDE OF THE SECURITY FENCE WILL BE COMPLETED ON AN AGREED UPON SCHEDULE BETWEEN THE CONTRACTOR AND JHU/APL AFTER NEW ROADS AND ACCESS PATHS HAVE BEEN CONSTRUCTED.
5. THE BUILDING DEMOLITION SHALL INCLUDE THE REMOVAL OF UTILITIES TO 3 FEET BELOW GRADE. ALL ABANDON UTILITIES SHALL BE PLUGED.

EXIST. BUILDING	AREA (S.F.)	TYPE
GUARD SHED	167	CMU
WELL HOUSE	163	CMU
BLDG. #15	15111	METAL BUILDING
BLDG. #21	1720	METAL / BLOCK
BLDG. #12	26824	METAL / BLOCK
BLDG. #12A	2046	METAL / BLOCK
BLDG. #19	3624	METAL / BLOCK
BLDG. #22	10144	METAL / BLOCK
BLDG. #35	2672	METAL / BLOCK
BLDG. #37	3562	METAL / BLOCK
BLDG. #44	2172	METAL / BLOCK
BLDG. #19B	122	WOOD
BLDG. #107	163	CMU
BLDG. #W2	166	CMU

PAVEMENT	AREA (S.F.)	TYPE
EX. PAVEMENT	58,494	AS INDICATED

GRAPHIC SCALE
0 30 60 90
1"= 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05
DIRECTOR — DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

STATE OF MARYLAND — RICHARD A. RAMOS

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
BUILDING DEMOLITION PLAN

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

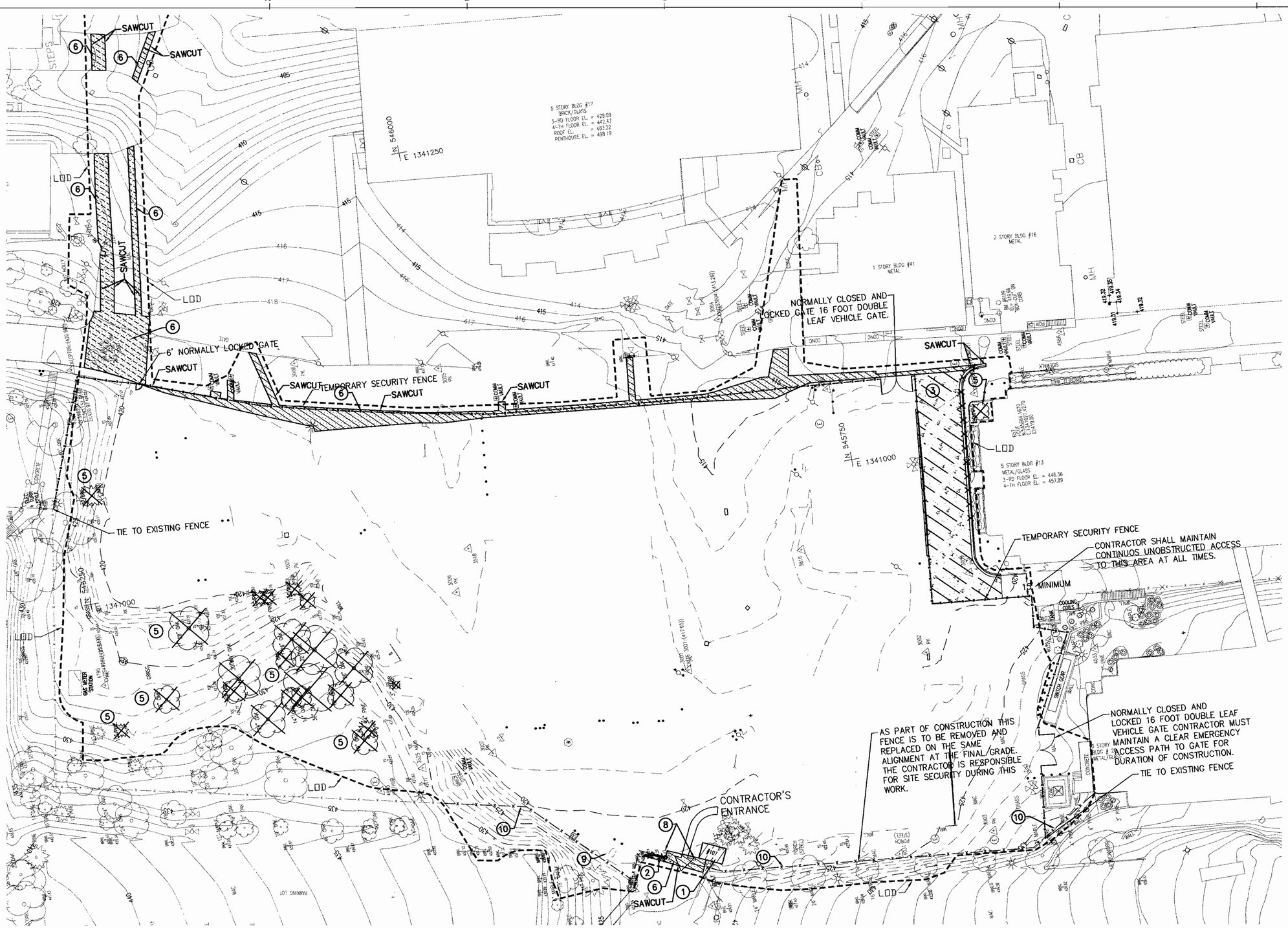
SCALE AS SHOWN

APL SHEET NO. C-101

COUNTY SHEET NO. 6 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-101.dwg | Jun 09, 2005 - 6:54am



DEMO LEGEND:

1. REMOVE EXISTING BUILDING
2. REMOVE CURB AND GUTTER
3. REMOVE EXISTING CONCRETE PAVEMENT
4. EXISTING UNDERGROUND FUEL TANKS, PIPING, PUMPS, ETC TO BE REMOVED BY OTHERS
5. REMOVE EXISTING TREE
6. REMOVE EXISTING ASPHALT PAVEMENT (SAW CUT FULL DEPTH)
7. REMOVE EXISTING SHED
8. REMOVE EXISTING POWER GATE
9. EXISTING NATURAL GAS PUMP TO BE REMOVED BY OTHERS.
10. REMOVE EXISTING CHAIN LINK FENCE

NOTES:

1. THE CONTRACTOR SHALL MAINTAIN VEHICLE ACCESS ACROSS THE SITE DURING CONSTRUCTION.
2. ALL CONSTRUCTION AND DEMOLITION DEBRIS SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF AT A LEGAL DISPOSAL FACILITY.
3. EXCESS CLEAN SOIL AND EARTH SHALL BE DISPOSED OF ON THE JHU/APL CAMPUS AS DIRECTED BY THE PROJECT COORDINATOR.
4. THE DEMOLITION OUTSIDE OF THE SECURITY FENCE WILL BE COMPLETED ON AN AGREED UPON SCHEDULE BETWEEN THE CONTRACTOR AND JHU/APL AFTER NEW ROADS AND ACCESS PATHS HAVE BEEN CONSTRUCTED.
5. THE NEW BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEMOLITION SHOWN ON THIS PLAN.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
PART 2 DEMOLITION PLAN

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

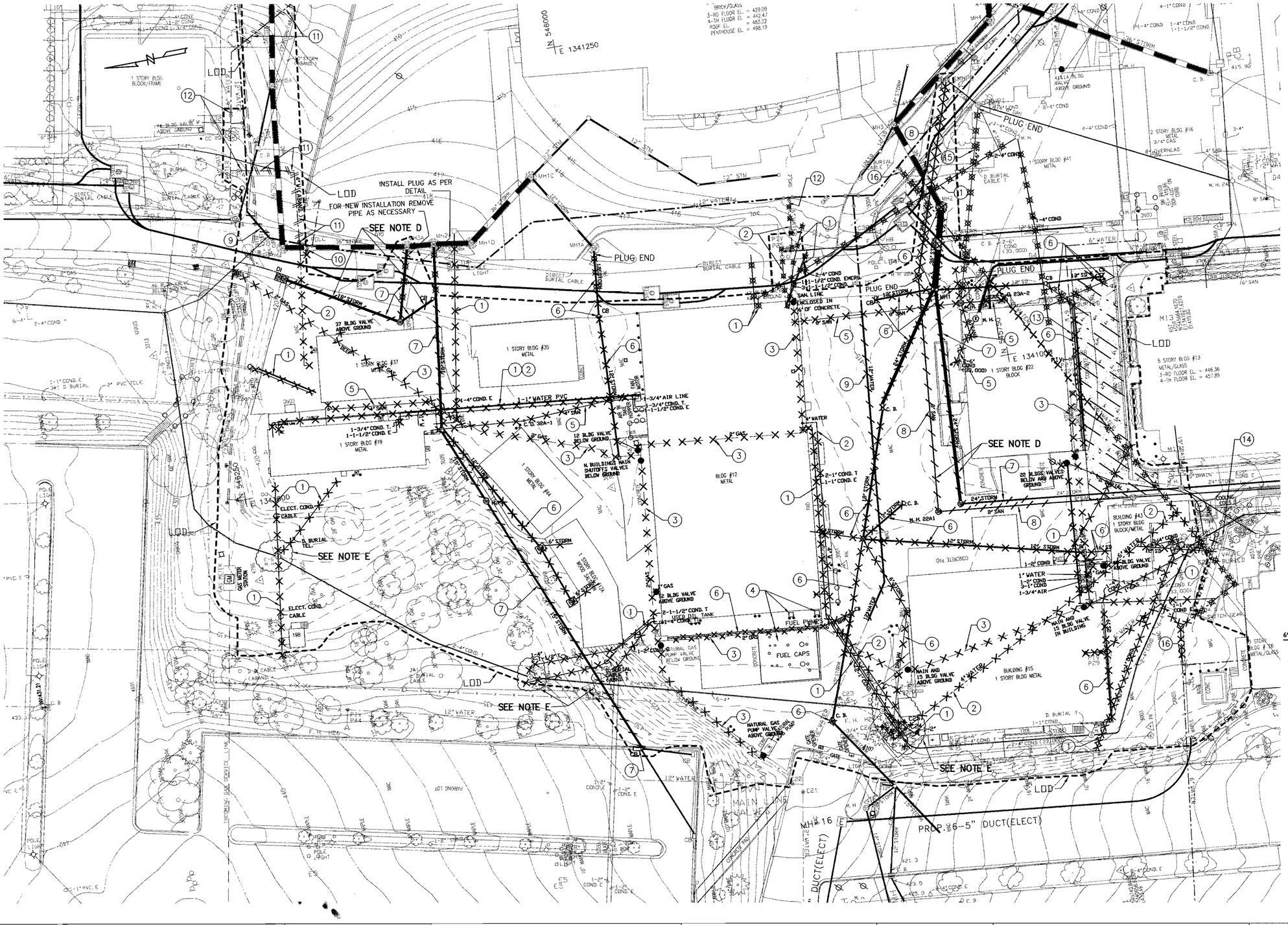
SCALE AS SHOWN

APL SHEET NO. C-102

COUNTY SHEET NO. 7 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-102.dwg | Jun 09, 2005 - 6:48am



UTILITY DEMOLITION NOTES:

A. ALL DEMOLISHED UTILITIES SHALL BE REMOVED. ABANDONED SEWER AND STORM PIPING ETC. SHALL BE EXCAVATED AND REMOVED FROM SITE UNLESS OTHERWISE NOTED.

B. ALL UTILITY SHUT OFF SHALL BE COMPLETED UNDER THE DIRECTION OF JHU/APL.

C. THE CONTRACTOR SHALL SCHEDULE THE WORK TO MAINTAIN CONTINUOUS SERVICE FOR ALL ADJACENT BUILDINGS.

D. THE CONTRACTOR SHALL INSTALL THE NEW SANITARY SEWER LATERAL, 12 INCH WATER LINE AND STORM SEWER, PRIOR TO THE REMOVAL OF THE EXISTING SYSTEMS. SEE DEMOLITION ITEMS 7, 8, 9 & 13 IN LEGEND BELOW.

E. THE CONTRACTOR SHALL NOT DAMAGE EXISTING CONDUITS. HAND DIGGING THIS AREA.

DEMOLITION LEGEND:

SYMBOL	DESCRIPTION
	(1) REMOVE EXISTING ELECTRICAL AND COMMUNICATION CONDUITS.
12" WATER	(2) REMOVE EXISTING WATER LINE.
2" GAS	(3) REMOVE EXISTING GAS LINE AND VALVE.
	(4) REMOVE EXISTING FUEL TANK AND PUMPS.
4" SAN	(5) REMOVE EXISTING SANITARY SEWER PIPE AND STRUCTURE.
12" STORM	(6) REMOVE EXISTING STORM SEWER PIPE AND STRUCTURE.
12" STORM	(7) REMOVE EXISTING STORM SEWER PIPE AND STRUCTURE AFTER RECONNECT NEW STORM SEWER SYSTEM.
8" SAN	(8) REMOVE EXISTING SANITARY SEWER PIPE AND STRUCTURE AFTER RECONNECT NEW SANITARY SEWER SYSTEM.
12" WATER	(9) REMOVE EXISTING 12" WATER LINE AFTER RECONNECT NEW WATER SYSTEM.
	(10) INSTALL NEW CAP AND TRUST BLOCK ON EXISTING 4" T.S.V.
6" WATER (ABAND.)	(11) REMOVE EXISTING ABANDON WATER VALVE AND LINE AS NEEDED TO INSTALL NEW ELECTRICAL DUCTBANK AND NEW HOT AND CHILLED WATER LINES.
	(12) INSTALL NEW CAP AND TRUST BLOCK ON EXISTING 6" WATERLINE / VALVE.
	(13) RECONNECT SPRINKLERS TO BUILDING 16 AND 41. SPRINKLER SERVICE MUST BE MAINTAINED DURING PROJECT.
	(14) TURN OFF AND CAP GAS LINE AT BUILDING 1.
	(15) ABANDON EXISTING UTILITY IN PLACE.
	(16) INSTALL NEW CAP AND TRUST BLOCK ON EXISTING 6" WATERLINE

GRAPHIC SCALE

0 30 60 90

1"= 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/25/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — LICENSED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
UTILITY DEMOLITION PLAN

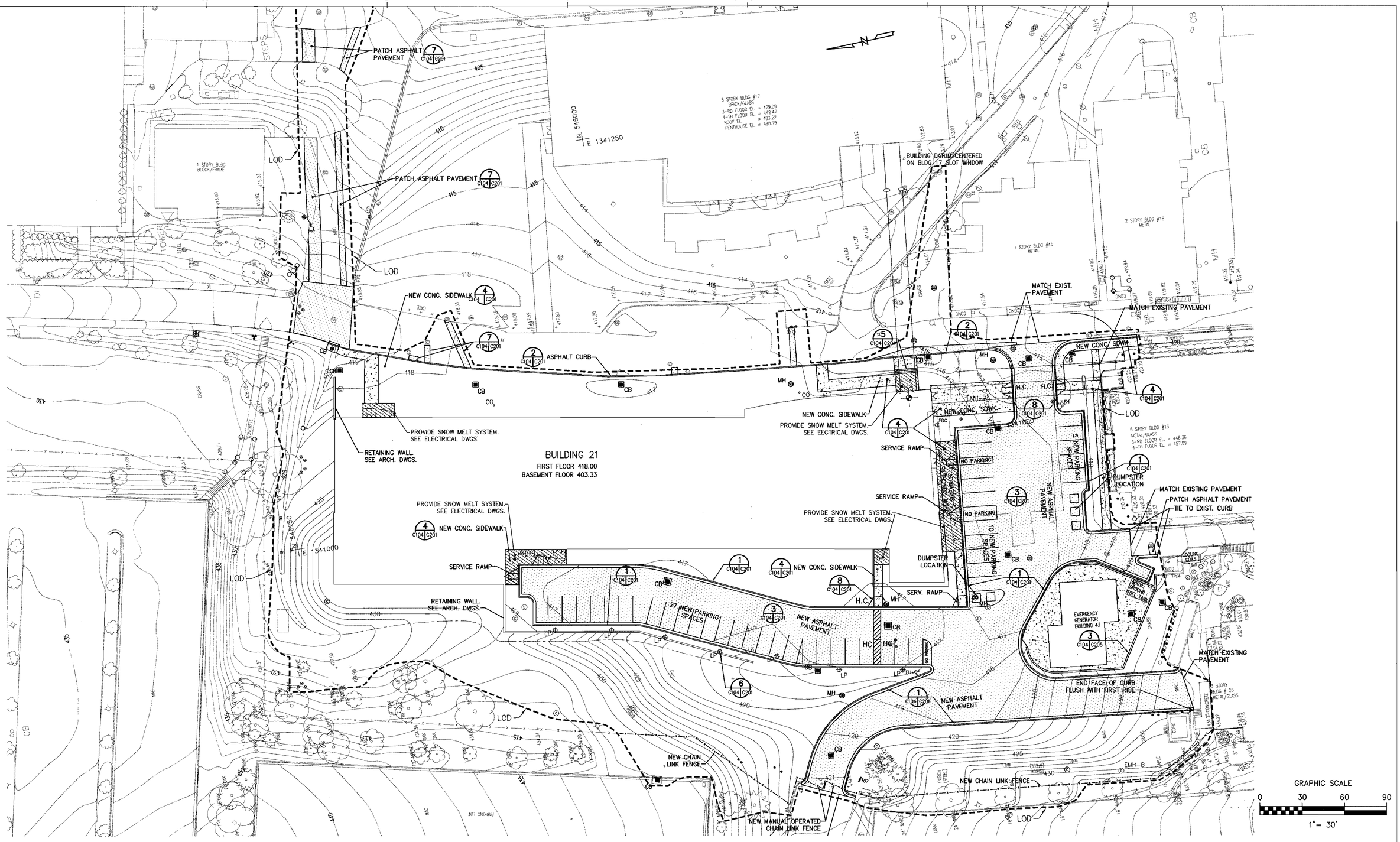
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-103

COUNTY SHEET NO. 8 of 33

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-103.dwg | Jun 08, 2005 - 8:49pm



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
SITE PLAN

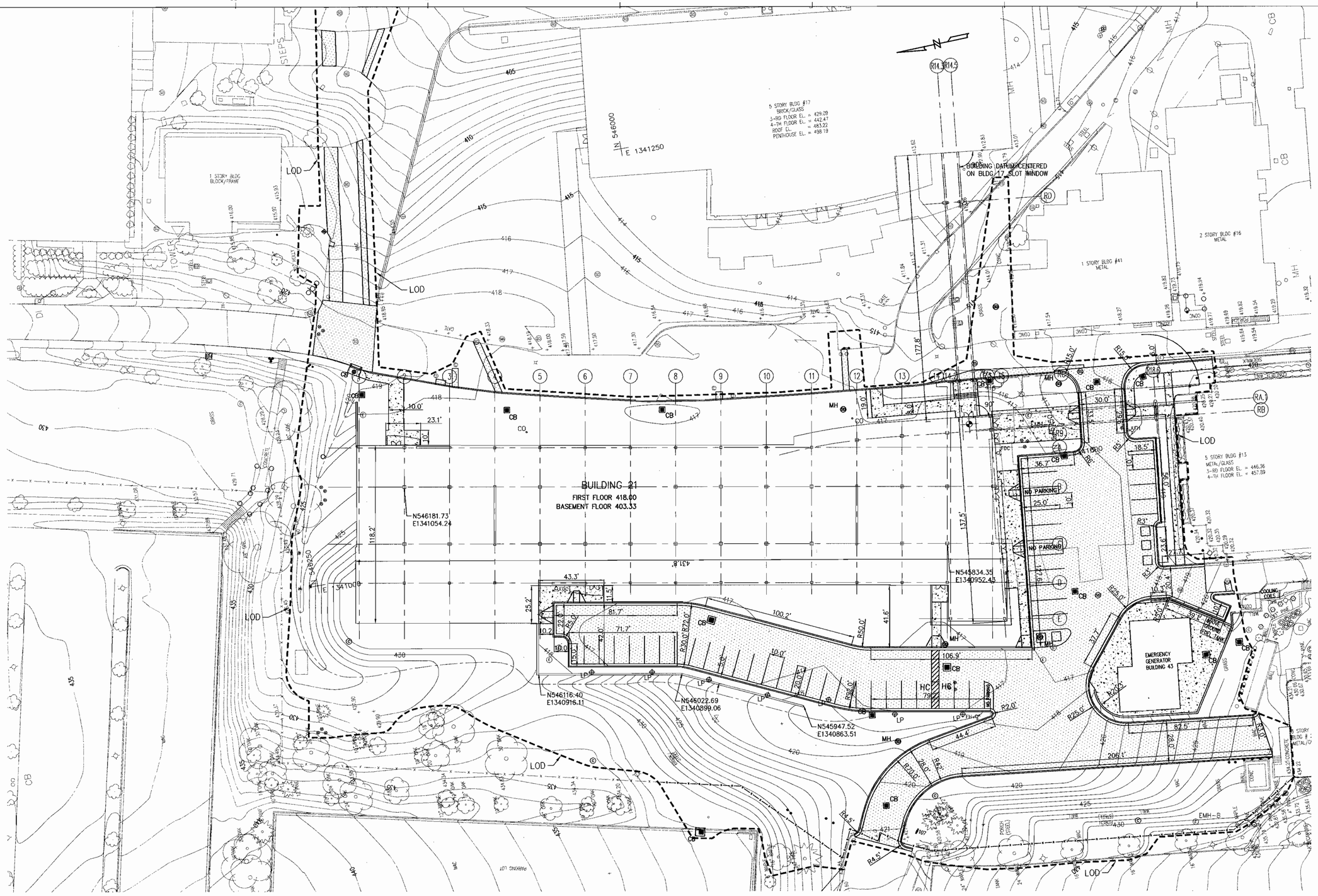
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-104

COUNTY SHEET NO. 9 of 33

SDP-05-133



NOTES:

1. THE COORDINATES AND ELEVATIONS USED IN THIS DRAWING ARE BASED ON THE SITE CONTROL MOMUNETS ESTABLISHED BY WHITMAN REQUARDT AND ASSOCIATES, LLP.

2. FOR UTILITY STRUCTURE LOCATIONS SEE SHEET C-106.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
LAYOUT PLAN

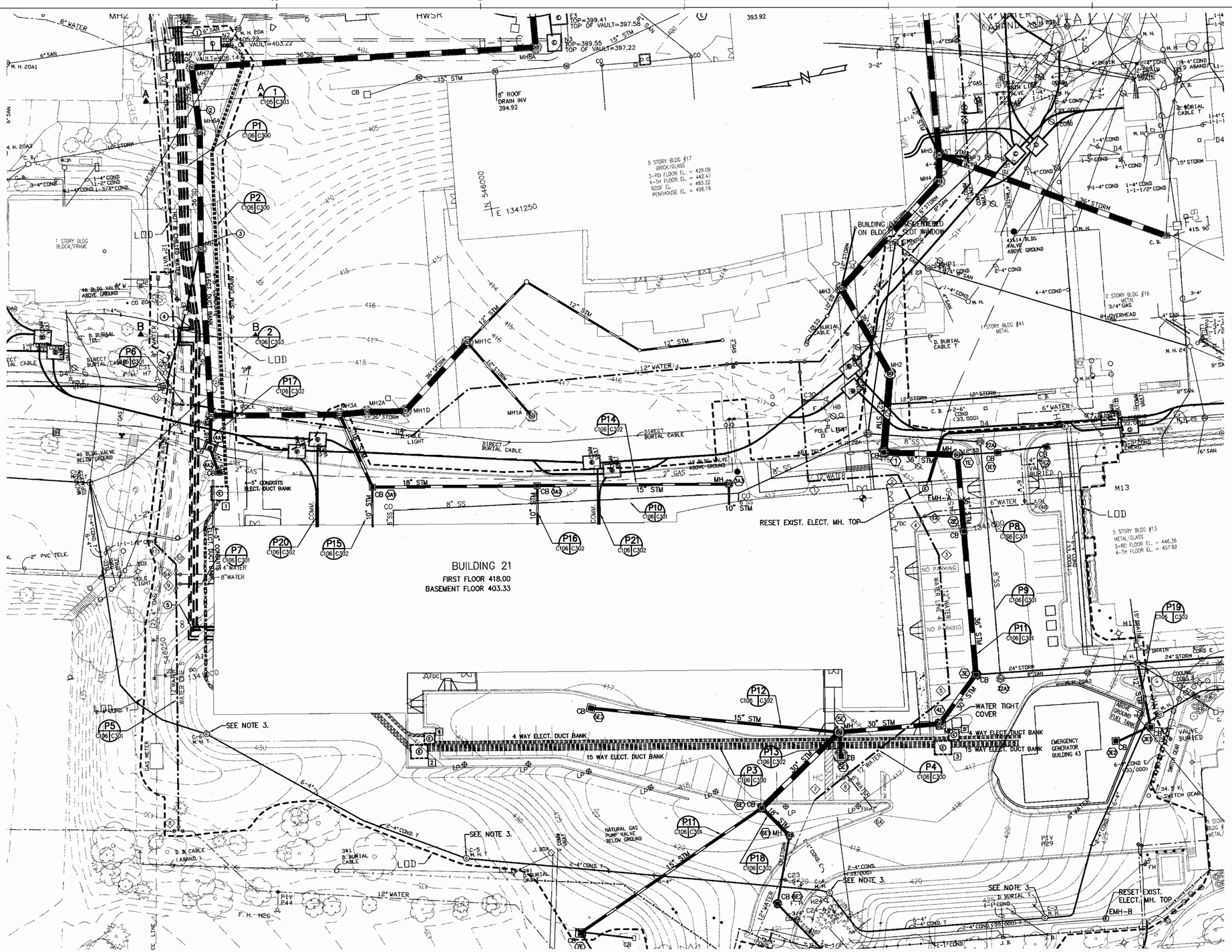
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-105

COUNTY SHEET NO. 10 of 33

SDP-05-133



NOTES:

1. THE CONTRACTOR SHALL INSTALL THE NEW STORM SEWER, 12 INCH WATER LINE, 8 INCH SANITARY SEWER AND 2 INCH GAS LINE PRIOR TO DEMOLITION OF THE EXISTING SYSTEMS.
2. ALL WATER AND SEWER LINES SHOWN ON THESE PLANS ARE PRIVATE AND ARE OWNED BY THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY.
3. RESET EXISTING COMMUNICATION MANHOLE TOP. REPLACE HATCH FRAMES AND COVERS. SEE DETAIL ON SHEET C-203.

STORM SEWER STRUCTURES

STRUCT. No.	TYPE / DETAIL	COORDINATES NORTHING	COORDINATES EASTING	TOP ELEV.	BOTTOM ELEV.	REMARKS
2	MH / G5.03	545789X	134105X	414.X	406.64	REPLACE MANHOLE
1	CB / G5.03	545787.42	1341053.95	414.45	407.07	
1E1	CB (EX.)	545717.51	1341040.52	417.90	412.40	NEW GRATE RESET TOP
1E2	CB / SD4.22	545686.91	1341038.31	419.34	414.21	
1E	MH / G5.13	545742.59	1341043.72	417.30	408.13	
2E	CB / G5.13, SD 4.32	545747.61	1340995.77	416.30	408.33	
3E	CB / G5.13, SD 4.22	545756.74	1340905.97	416.25	411.25	
4E	MH / G5.13	545784.99	1340880.10	417.53	411.64	WATER TIGHT COVER
5E	MH / G5.13	545847.74	1340886.66	416.83	412.43	
5E1	CB / G5.12, SD 4.22	545849.33	1340871.37	416.00	413.17	
5E2	CB / G5.12, SD 4.22	545997.25	1340930.50	416.00	413.17	
6E	CB / G5.13, SD 4.22	545903.83	1340849.05	417.60	412.35	
6E1	MH / G5.12	545890.16	1340828.66	419.25	415.00	
6E2	CB / G5.12, SD4.22	545905.49	1340788.12	419.96	416.36	REMOVE AND REPLACE
7E	CB / G5.12, SD 4.22	546029.29	1340793.53	431.62	426.92	REMOVE AND REPLACE
MH-3A	EX. MH	546117.27	1341140.99	418.94	405.84	EXIST.
3A1	CB / G5.12, SD 4.22	546109.54	1341093.00	417.00	407.79	
3A2	CB / G5.12, SD 4.22	546004.26	1341073.94	416.53	408.93	
3A3	MH / G5.12	545856.38	1341047.14	415.50	410.65	
MH-4A	EX. MH	546196.17	1341155.36	419.65	405.09	EXIST.
4A1	CB / G5.12, SD 4.32	546200.80	1341135.64	420.00	415.51	
4A2	CB / G5.12, SD 4.22	546198.41	1341119.64	418.50	415.67	
–	EX. MH.	545656.23	1340894.27	420.05	413.25	EXIST.
3E1	CB /3 SHEET 202	545655.61	1340853.24	426.00	413.33	NYLOPLAST
3E2	CB / 3 SHEET 202	545678.68	1340848.96	417.35	415.57	NYLOPLAST

SANITARY SEWER STRUCTURES

STRUCT. No.	TYPE / DETAIL	COORDINATES NORTHING	COORDINATES EASTING	TOP ELEV.	BOTTOM ELEV.	REMARKS
MH-22A	NEW MH	545795.08	1341067.25	414.99	404.04	
22A1	NEW MH	545727.11	1341049.16	417.64	407.50	
22A2	NEW MH	545742.26	1340900.64	416.59	409.81	
22A3	CO	545894.51	1341049.63	415.34	408.70	
22A4	CO	546100.04	1341076.94	417.65	410.75	

WATER LINE 4

No.	DESCRIPTION	COORDINATES NORTHING	COORDINATES EASTING	TOP OF PIPE ELEV.
1	1/4 HOR. BEND	545837.34	1341044.75	T.B. REQ.
2	1/4 & 1/16 HOR. BEND	545781.44	1341038.50	411.42
3	1/16 HOR. BEND	545765.70	1340984.02	411.11
4	12"x12"x6" TEE & VALVES	545772.86	1341008.80	411.06
4A	1/8 HOR. BEND	545763.32	1341011.50	413.25
4B	FIRE HYDRANT	545700.20	1341004.51	413.25
5	1/4 & 1/32 HOR. BEND	545775.42	1340897.07	411.31
6	12"x12"x6" TEE & VALVES	545848.16	1340859.41	411.85
6A	FIRE HYDRANT	545835.92	1340835.77	413.25
7	1/16 HOR. BEND (29)	545870.76	1340847.71	T.B. REQ.

WATER LINE 5

No.	DESCRIPTION	COORDINATES NORTHING	COORDINATES EASTING	TOP OF PIPE ELEV.
8	12"x12"x12" TEE & VALVES	546264.92	1340903.24	T.B. REQ.
9	12"x12"x8" TEE & VALVES	546237.47	1341055.67	416.48
10	1/8 HOR. BEND	546235.26	1341067.98	416.24
11	1/8 & 1/16 HOR. BEND	546245.70	1341083.00	415.95
12	12"x12"x12" TEE & VALVES	546218.49	1341166.97	414.50
12A	TIE-IN EXISTING	546203.33	1341163.26	414.50
13	TIE-IN EXIST.	546214.50	1341183.24	T.B. REQ.

HOT AND CHILLED WATER LINE

No.	DESCRIPTION	COORDINATES NORTHING	COORDINATES EASTING	TOP OF PIPE ELEV.
1	CONNECT TO EXISTING	546171.72	1341396.00	T.B. REQ.
2	1'35'38" HOR. BEND	546177.61	1341352.35	400.70
3	6'4'22" HOR. BEND	546192.60	1341260.67	408.14
4	8'7'48" HOR. BEND	546195.48	1341209.06	410.77
5	88'57'14" HOR. BEND	546232.42	1341025.28	420.24

ELECTRICAL STRUCTURES

STRUCT. No.	TYPE / DETAIL	COORDINATES NORTHING	COORDINATES EASTING	TOP ELEV.	BOTTOM ELEV.
1	MH (10' x 8')	546194.92	1341105.51	419.15	409.15
2	MH (10' x 8')	546107.82	1340923.82	418.17	407.71
3	MH (10' x 8')	545786.68	1340864.90	416.86	407.00
4	MH (6' x 6')	546099.97	1340930.67	416.84	408.17
5	MH (6' x 6')	545777.52	1340871.60	416.84	408.17

EXISTING COMM. AND ELECT. STRUCTURES TO RESET FRAME & COVER

STRUCT. No.	TYPE / DETAIL	EXIST. TOP ELEV.	PROP. TOP ELEV.	REMARKS
EMH-A	ELECT. MH.	419.23	416.88	
EMH-B	ELECT. MH.	428.33	430.50	
C-3	COMM. MH.	425.02	429.50	REPLACE FRAME & COVER
C-4	COMM. MH.	420.72	420.85	REPLACE FRAME & COVER
C-5	COMM. MH.	434.29	434.29	REPLACE FRAME & COVER
C-6	COMM. MH.	424.95	430.75	REPLACE FRAME & COVER

GRAPHIC SCALE

0 30 60 90

1"= 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/25/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
UTILITY PLAN

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-106

COUNTY SHEET NO. 11 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-106.dwg | Jun 09, 2005 - 6:28am

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
GRADING PLAN

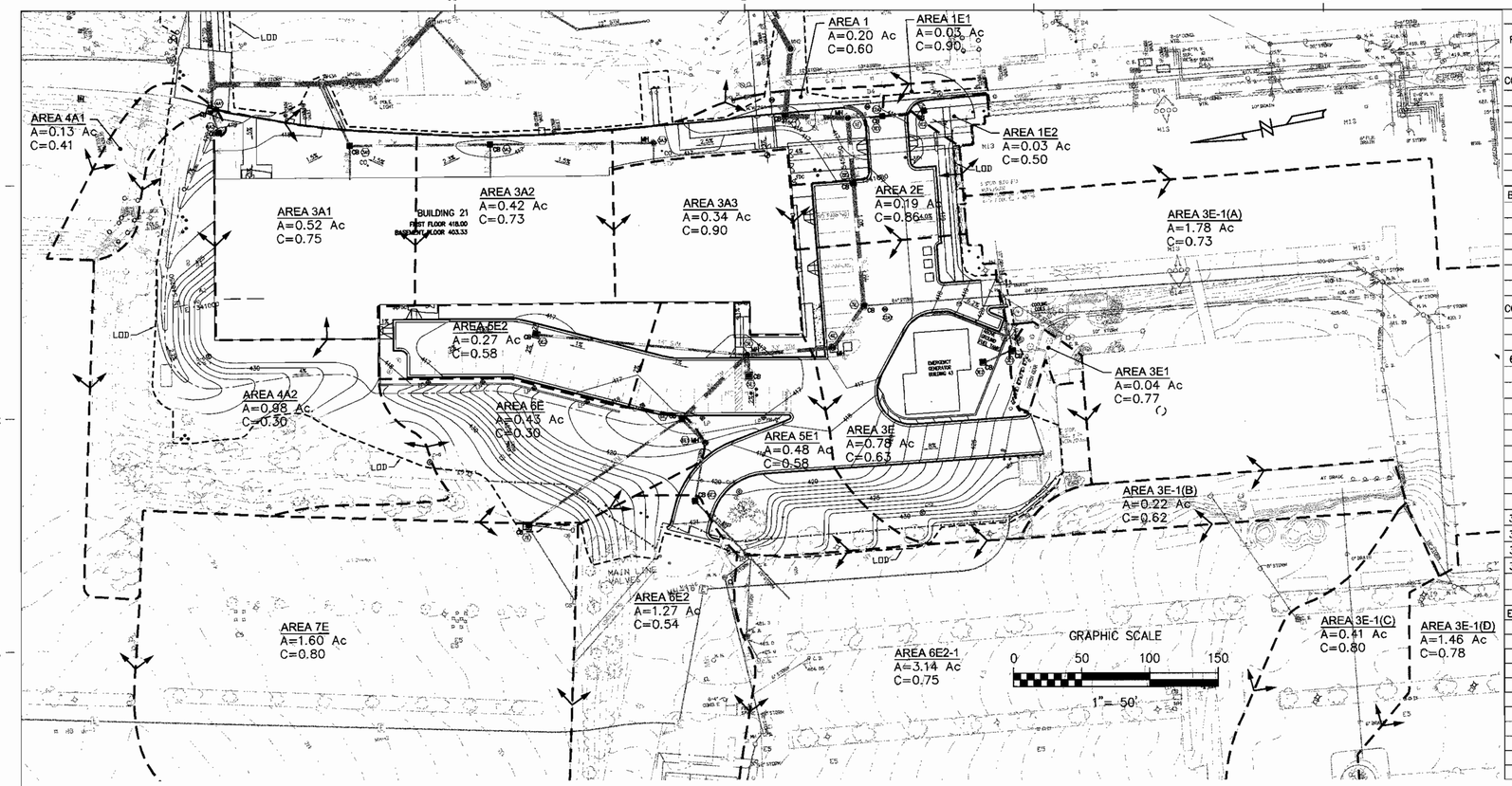
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

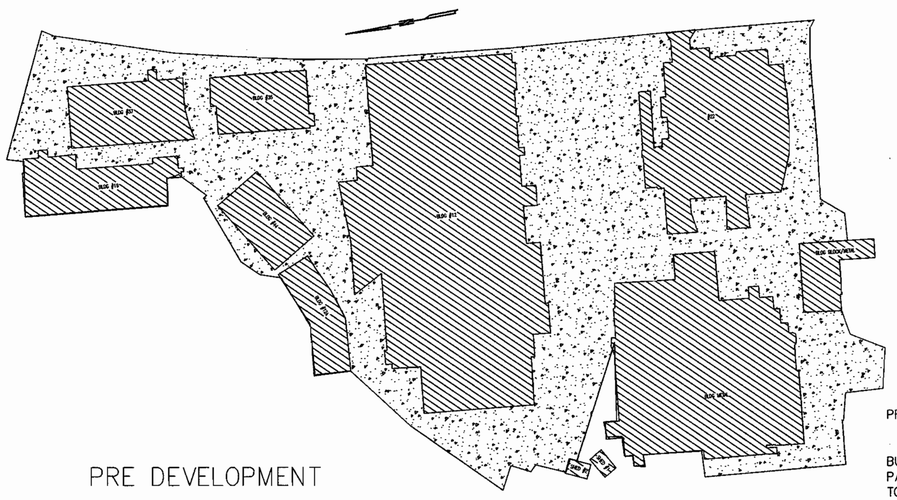
APL SHEET NO. C-107

COUNTY SHEET NO. 12 of 33

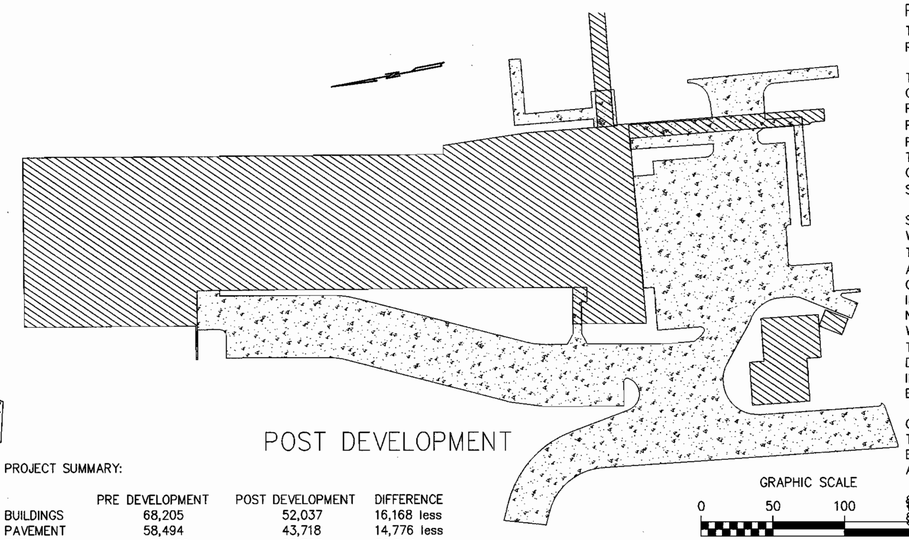
SDP 05-133



FROM NO.	TO NO.	INC. AREA (AC.)	TOTAL AREA (AC.)	C	C X A	PIPE SUM (C X A)	TIME (MIN.)	I (IN./HR.)	Q (CFS)	DES. SLOPE (%)	DIAMETER (IN.)	VELOCITY (FT./SEC.)	LENGTH (FT.)	TIME (MIN.)	REMARKS
CONNECT TO EXISTING STORM DRAIN NORTH SIDE OF 17															
4A2		0.98	0.98	0.30	0.29	0.29	5	8.50	2.50						
4A2	4A1								2.50	1.00	15	2.04	19	0.16	
4A1		0.13	0.13	0.41	0.05	0.05	5	8.50	0.45						
4A1	MH4A					0.35	5	8.50	2.95	1.00	15	2.41	16	0.11	
From Building 21 and area to east															
3A3		0.34	0.34	0.90	0.31	0.31	5	8.50	2.64						
BLDG	3A3								2.64	2.00	10	4.83	5	0.02	
3A3	3A2								2.64	1.00	15	2.15	120	0.93	
3A2		0.42	0.42	0.73	0.31										
3A2	3A1		0.76			0.62	5	8.50	5.24	1.00	18	2.97	103	0.58	
3A1		0.52	0.52	0.75	0.39										
3A1	MH3A		1.28			1.01	5	8.50	8.56	1.00	18	4.84	50	0.17	
CONNECT TO EXISTING STORM DRAIN TO SOUTH SIDE OF BUILDING 17															
7E		1.60	1.60	0.80	1.28										
7E	6E					1.28	5	8.50	10.88	10.85	15	8.87	137	0.26	EXISTING PIPE
6E2-1		3.14		0.75	2.36		5	8.50	20.02						EXISTING PIPE
6E2		1.27		0.54	0.69		5	8.50	5.83						EXISTING PIPE
6E		0.43		0.30	0.13		5	8.50	1.10						EXISTING PIPE
6E	5E		6.44			4.45	5	8.50	37.82	1.10	30	7.71	67	0.14	
5E2		0.27	0.27	0.58	0.16		5	8.50	1.33						
52E	5E					0.16	5	8.50	1.33	1.00	15	1.08	155	2.38	
5E1		0.48	0.48	0.58	0.28	0.28	5	8.50	2.38						
5E1	5E		0.48			0.28	5	8.50	2.38	1.00	15	1.94	15	0.13	
5E	4E		7.19			4.89	5	8.50	41.53	1.10	30	8.46	63	0.12	
4E	3E		7.19			4.89	5	8.50	41.53	1.10	30	8.46	38	0.07	
3E-1D		1.46		0.78	1.14										TO EXISTING MANHOLE
3E-1C		0.41		0.80	0.33										TO EXISTING MANHOLE
3E-1B		0.22		0.62	0.14										TO EXISTING MANHOLE
3E-1A		1.78		0.73	1.30										TO EXISTING MANHOLE
3E1		0.04		0.77	0.03										
3E1	EX.MH					0.03	5	8.50	0.26	12.50	12	0.33	41.00	2.05	
EX.MH	3E		3.91			2.93	5	8.50	24.93	1.23	24	7.94	101.00	0.21	EXISTING PIPE
3E		0.78		0.63	0.49		5	8.50	4.18						
3E	2E		11.88			8.31	5	8.50	70.65	1.50	36	9.99	90.00	0.81	
2E		0.19		0.86	0.16										
2E	1E		12.07			8.47	5	8.50	72.03	1.50	36	10.19	48.00	0.08	
1E2		0.03		0.50	0.02		5	8.50	0.13						
1E1	1E2		0.03			0.02	5	8.50	0.13	6.40	12	0.16	28.00	2.87	EXISTING PIPE
1E1		0.03		0.90	0.03		5	8.50	0.23						
1E1	1E		0.06			0.04	5	8.50	0.36	6.20	12	0.45	22.00	0.81	EXISTING PIPE
1E	1		12.16			8.53	5	8.50	72.52	1.50	36	10.26	46.00	0.07	
1		0.20		0.60	0.12		5	8.50	1.02						
1	2		12.36			8.65	5	8.50	73.54	0.60	42	7.64	45.0	0.10	REPLACE 36 INCH



PRE DEVELOPMENT



POST DEVELOPMENT

GRAPHIC SCALE
0 50 100 150
1"= 50'

PROJECT SUMMARY:

	PRE DEVELOPMENT	POST DEVELOPMENT	DIFFERENCE
BUILDINGS	68,205	52,037	16,168 less
PAVEMENT	58,494	43,718	14,776 less
TOTAL	126,699	95,755	30,944 less

PROJECT DESCRIPTION:

THE PROPOSED PROJECT IS TO REDEVELOP A PORTION OF THE BASIN "A" STORMWATER MANAGEMENT PLAN APPROVED UNDER SDP 02-88.

THE PROPOSED PROJECT IS TO DEMOLISH 11 SMALL BUILDINGS AND SUPPORTING PAVEMENT AND TO CONSTRUCT A NEW LARGE OFFICE BUILDING WITH AN EMERGENCY GENERATOR AND RELATED SUPPORTING PAVEMENT. THE EXISTING BUILDINGS AND PAVEMENT TO BE DEMOLISHED ARE ALL INCLUDED AS PRE-1984 ON THE STORMWATER MANAGEMENT PLAN FOR BASIN "A". THEY REPRESENT 68,205 SQUARE FEET OF BUILDING COVERAGE AND 58,494 SQUARE FEET OF PAVEMENT, SEE "PRE DEVELOPMENT PLAN". THE PROPOSED DEVELOPMENT IS A 283,000 SQUARE FEET 5 STORY OFFICE BUILDING WITH BASEMENT, GENERATOR SUPPORT BUILDING, AND SUPPORTING PAVEMENT. THE NEW BUILDING COVERAGE IS 52,037 SQUARE FEET, AND SUPPORTING PAVEMENT OF 43,718 SQUARE FEET, SEE "POST DEVELOPMENT PLAN".

STORMWATER MANAGEMENT PLAN:
WATER QUANTITY REQUIREMENTS:
THE PROJECT SITE IS FULLY WITHIN THE LIMITS OF BASIN "A" AS APPROVED IN SDP 02-88. THE APPROVED STORMWATER MANAGEMENT PLAN FOR BASIN "A" INCLUDED A POND TO PROVIDE QUANTITY CONTROL TO THE PRE-1984 DISCHARGE RATES. THIS PROPOSED DEVELOPMENT REDUCES THE IMPERVIOUSNESS OF THE PROJECT SITE AND THEREFORE IS WITHIN THE APPROVED PLAN. ACCORDINGLY, NO ADDITIONAL WATER QUANTITY CONTROLS ARE REQUIRED AS PART OF THIS PROJECT.
WATER QUALITY REQUIREMENTS:
THIS PROJECT IS A "REDEVELOPMENT" PROJECT. AS A REDEVELOPMENT PROJECT HOWARD COUNTY DESIGN MANUAL VOLUME I, CHAPTER 5.1.E REQUIRES THAT REDEVELOPMENT PROJECTS REDUCE THE IMPERVIOUS AREA BY AT LEAST 20 PERCENT. THE PROPOSED PROJECT REDUCES THE IMPERVIOUS AREA BY 24.4%. ACCORDINGLY, NO STRUCTURAL WATER QUALITY CONTROL DEVICES ARE REQUIRED.

CONCLUSIONS:
THE PROPOSED PROJECT IS A REDEVELOPMENT PROJECT WITHIN AN APPROVED STORMWATER MANAGEMENT BASIN. AS PROPOSED THIS PROJECT FULLY COMPLIES WITH STORMWATER MANAGEMENT REQUIREMENTS, AS APPROVED BY HOWARD COUNTY IN SDP-02-88.

THE EXISTING BASIN "A" POND PROVIDES SUFFICIENT CAPACITY FOR QUANTITY CONTROLS.
THE PROPOSED PROJECT REDUCES TOTAL IMPERVIOUS AREA BY 24.4 % AND THEREFOR MEETS THE QUALITY REQUIREMENTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/15
DIRECTOR — DATE 7/6/15

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

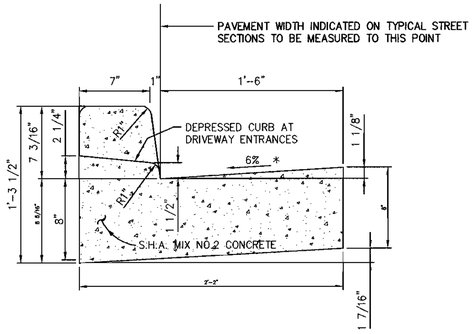
THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
DRAINAGE DIVIDER

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

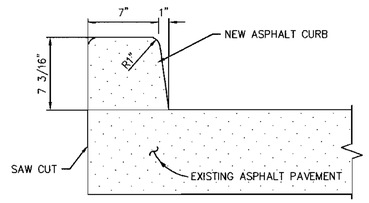
SCALE AS SHOWN
APL SHEET NO. C-108
COUNTY SHEET NO. 13 of 33

SDP 05-133

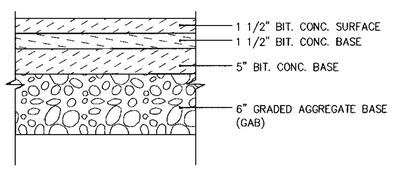
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-108.dwg | Jun 09, 2005 - 7:10am



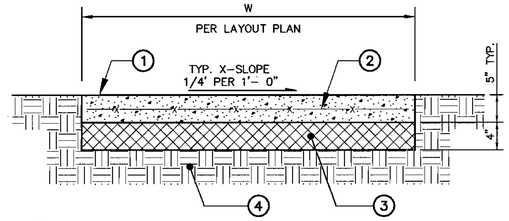
1 / C-103 C-201 STANDARD 7" COMBINATION CURB AND GUTTER DETAIL
NOT TO SCALE



2 / C-103 C-201 7" ASPHALT CURB
NOT TO SCALE



3 / C-103 C-201 PAVEMENT DETAIL
NOT TO SCALE



1. S.H.A. MIX NO.2 CONCRETE
2. WELDED WIRE FABRIC, 6"x6"-W1.4/W1.4
3. 4" GRADED AGGREGATE BASE
4. PREPARED SUBGRADE

NOTES:

A. SIDEWALK SHALL BE SCRIBED IN SQUARES EQUAL TO W (6 FT. MAX). USE 5' X 5' SQUARES IN FRONT OF BUILDING.

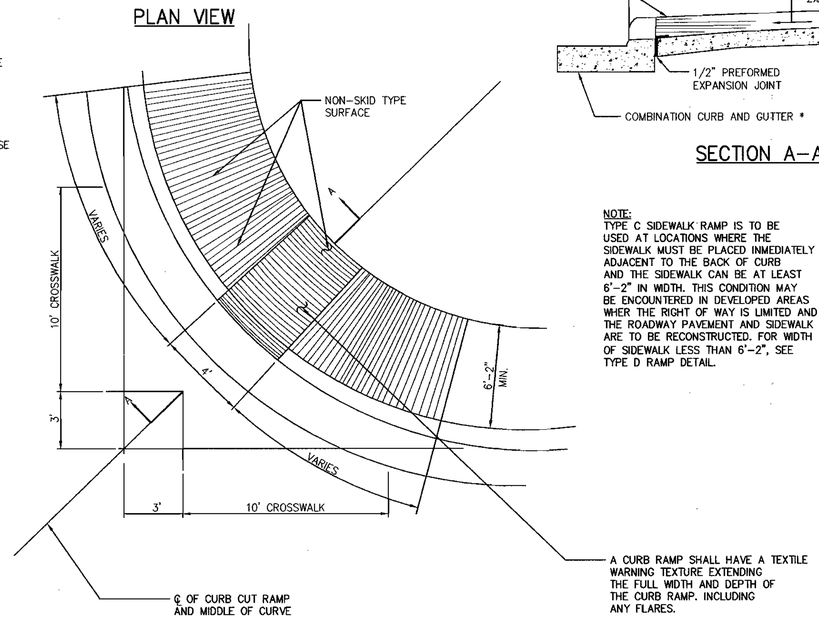
B. EXPANSION JOINTS SHALL BE PLACED AT INTERVALS NOT EXCEEDING 16'.

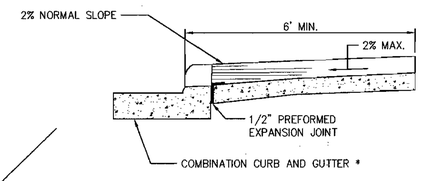
C. EXPANSION JOINTS SHALL CONSIST OF 1/2" PREFORMED BITUMINOUS JOINT FILLER SET 1/4" BELOW THE SURFACE.

4 / C-103 C-201 SIDEWALK SECTION AND DETAIL
NOT TO SCALE

* STANDARD 7" COMB. CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MOD. CURB AND GUTTER AND BIT. CURB EXCEPT THAT FLOW LINE LIP IS TO BE OMITTED.

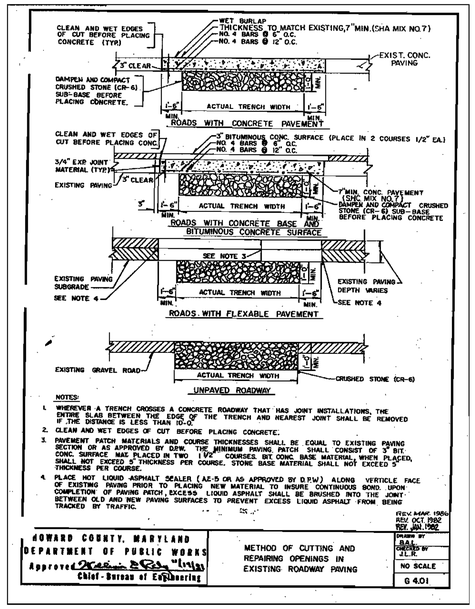
PLAN VIEW





SECTION A-A

NOTE:
TYPE C SIDEWALK RAMP IS TO BE USED AT LOCATIONS WHERE THE SIDEWALK MUST BE PLACED IMMEDIATELY ADJACENT TO THE BACK OF CURB AND THE SIDEWALK CAN BE AT LEAST 6'-2" IN WIDTH. THIS CONDITION MAY BE ENCOUNTERED IN DEVELOPED AREAS WHER THE RIGHT OF WAY IS LIMITED AND THE ROADWAY PAVEMENT AND SIDEWALK ARE TO BE RECONSTRUCTED. FOR WIDTH OF SIDEWALK LESS THAN 6'-2", SEE TYPE D RAMP DETAIL.



NOTES:
1. WHEREVER A TRENCH CROSSES A CONCRETE ROADWAY THAT HAS JOINT INSTALLATIONS, THE ENTIRE SLAB BETWEEN THE EDGE OF THE TRENCH AND NEAREST JOINT SHALL BE REMOVED IF THE DISTANCE IS LESS THAN 10'-0".
2. CLEAN AND WET EDGES OF CUT BEFORE PLACING CONCRETE.
3. PAVEMENT PATCH MATERIALS AND COURSE THICKNESSES SHALL BE EQUAL TO EXISTING PAVING SECTION OR AS APPROVED BY D.P.W. THE MINIMUM PAVING PATCH SHALL CONSIST OF 3" BIT. CONC. SURFACE MAT PLACED IN TWO (1 1/2") COURSES. BIT. CONC. BASE MATERIAL, WHEN PLACED, SHALL NOT EXCEED 5" THICKNESS PER COURSE. STONE BASE MATERIAL SHALL NOT EXCEED 5" THICKNESS PER COURSE.
4. PLACE HOT LIQUID ASPHALT SEALER (AE-5 OR AS APPROVED BY D.P.W.) ALONG VERTICLE FACE OF EXISTING PAVING PRIOR TO PLACING NEW MATERIAL TO INSURE CONTINUOUS BOND. UPON COMPLETION OF PAVING PATCH, EXCESS LIQUID ASPHALT SHALL BE BRUSHED INTO THE JOINT BETWEEN OLD AND NEW PAVING SURFACES TO PREVENT EXCESS LIQUID ASPHALT FROM BEING TRACKED BY TRAFFIC.

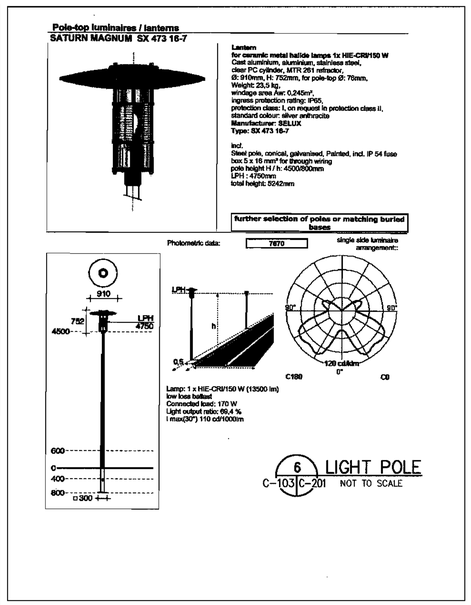
REV. MAR. 1980
REV. OCT. 1982
REV. JAN. 1982

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved [signature] 1-12-81
Chief-Bureau of Engineering

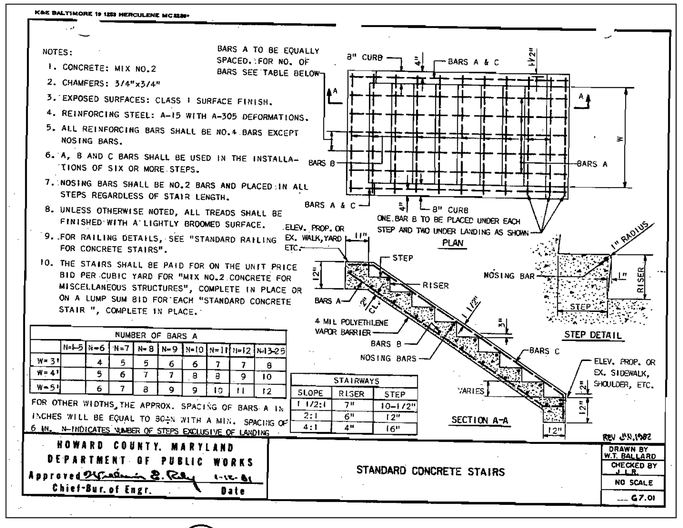
METHOD OF CUTTING AND REPAIRING OPENINGS IN EXISTING ROADWAY PAVING

DRAWN BY B.A.L.
CHECKED BY J.L.R.
NO SCALE
G 4.01

7 / C-103 C-201 PATCH AND PAVEMENT DETAIL
NOT TO SCALE



6 / C-103 C-201 LIGHT POLE
NOT TO SCALE



5 / C-103 C-201 CONCRETE STAIRS
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/28/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

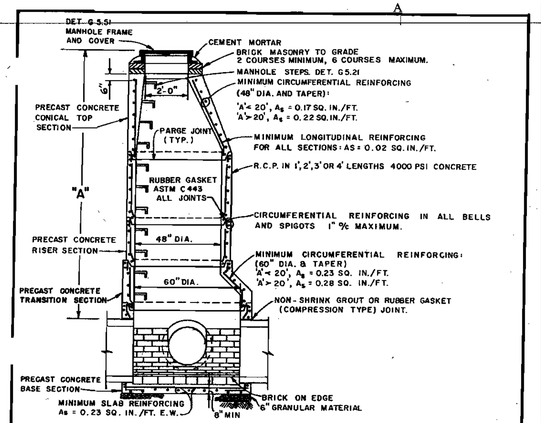
THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
APL SHEET NO. C-201
COUNTY SHEET NO. 14 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-201-202-203-204-205.dwg Jun 09, 2005 - 6:59am



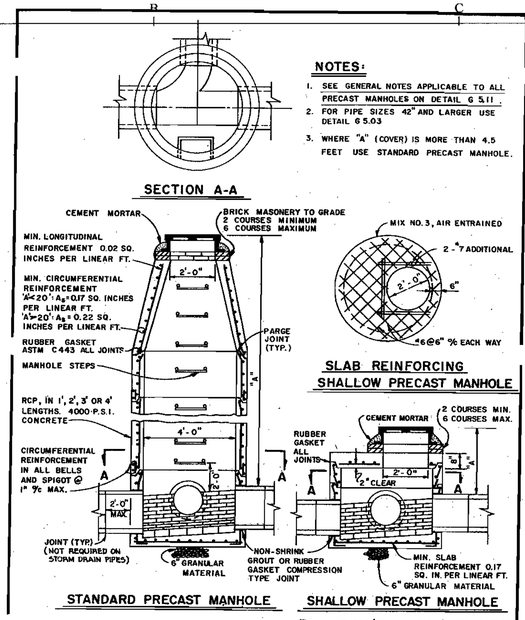
GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES

1. MANHOLE BASE SHALL BE BEDDED ON 6-INCH GRANULAR MATERIAL ON FIRM SUBGRADE.
2. EXCAVATION BELOW PIPES SHALL BE BACKFILLED WITH GRANULAR OR SELECT MATERIAL 1/3 OF WAY TO TOP OF PIPE.
3. CONNECTION BETWEEN MANHOLE WALL AND SEWER SHALL BE NON-SHRINK GROUT OR RUBBER GASKET (COMPRESSION TYPE) JOINT.
4. MANHOLE STEPS SHALL BE AS SPECIFIED ON DETAIL G5.21. MANHOLE COVER SHALL BE AS SPECIFIED ON DETAIL G5.51
5. PROVIDE 2 COATS COAL TAR EPOXY COATING, -16 MIL. DRY. SANITARY SEWER ONLY. (EXTERIOR SURFACE ONLY)
6. PROVIDE PIPE JOINT WITHIN 2'-0" MAXIMUM FROM OUTSIDE OF MANHOLE WALL.
7. MANHOLE CHANNELS SHALL BE FORMED TO PROVIDE A SMOOTH HYDRAULIC TRANSITION BETWEEN PIPES. BENCHES SHALL BE TO TOP OF PIPE OR AS SHOWN ON PLANS. MANHOLE CHANNELS AND BENCHES SHALL BE FORMED FROM SEWER BRICK, GRADE SS, ASTM C-32.
8. MANHOLE SHALL BE IN ACCORDANCE WITH ASTM C 478 EXCEPT AS SHOWN.

* EXCEPT STORM DRAIN PIPE

REV. JAN. 1985
REV. MAR. 1986 REV. JAN. 1988
REV. JAN. 1992

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	STANDARD PRECAST MANHOLES	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE G5.11

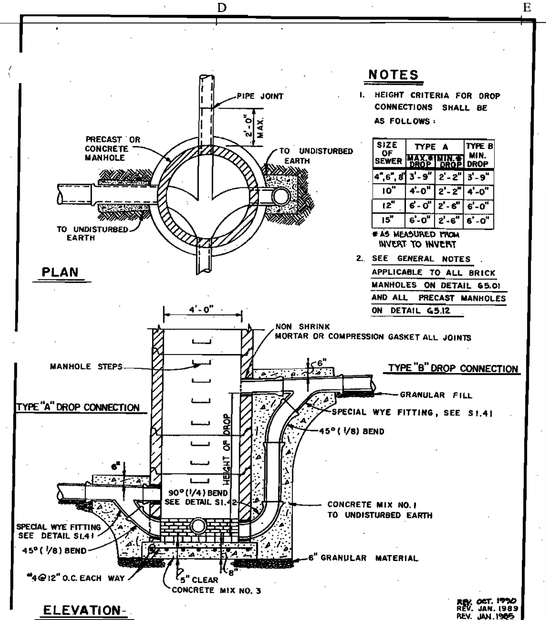


NOTES:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G 5.11.
2. FOR PIPE SIZES 42" AND LARGER USE DETAIL G 5.03
3. WHERE "A" (COVER) IS MORE THAN 4.5 FEET USE STANDARD PRECAST MANHOLE.

REV. MAR. 1986 / REV. JAN. 1988 / REV. JAN. 1992

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	4'-0" STANDARD AND SHALLOW PRECAST MANHOLE FOR USE WITH 24" AND SMALLER PIPE	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE G5.12



NOTES

1. HEIGHT CRITERIA FOR DROP CONNECTIONS SHALL BE AS FOLLOWS:

SIZE OF SEWER	TYPE A MAX. DROP	TYPE A MIN. DROP	TYPE B MIN. DROP
4", 6", 8"	3'-9"	2'-2"	3'-9"
10"	4'-0"	2'-2"	4'-0"
12"	6'-0"	2'-6"	6'-0"
15"	6'-0"	2'-6"	6'-0"

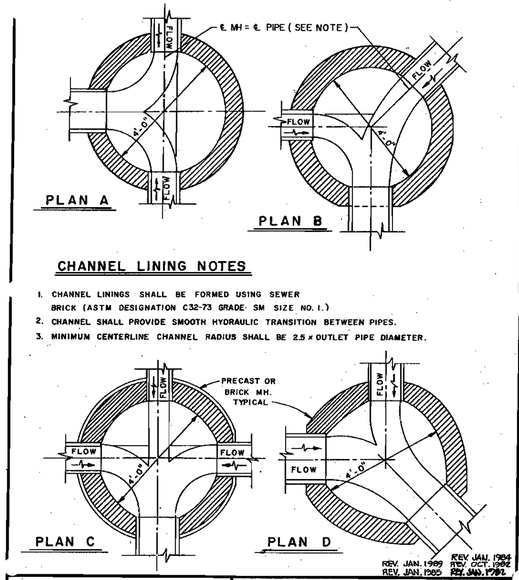
* AS MEASURED FROM INVERT TO INVERT

2. SEE GENERAL NOTES APPLICABLE TO ALL BRICK MANHOLES ON DETAIL G5.01 AND ALL PRECAST MANHOLES ON DETAIL G5.12

REV. OCT. 1990
REV. JAN. 1989
REV. JAN. 1988
REV. JAN. 1992
REV. OCT. 1992

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	DROP MANHOLE TYPE "A" AND TYPE "B"	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE S 1.32

NOTE: THE ℄ OF ALL PIPES ENTERING A MH SHALL INTERSECT WITHIN 1" ± OF THE LONGITUDINAL AXIS OF THE MH BARREL (CENTER), AS DETAILED ON THE CONTRACT DRAWINGS.

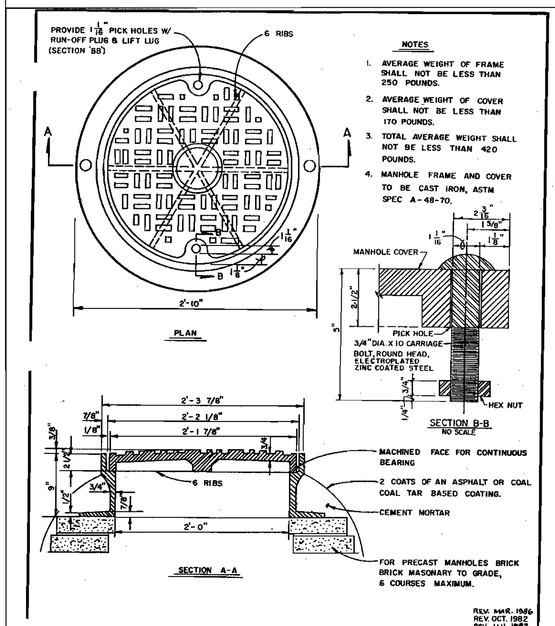


CHANNEL LINING NOTES

1. CHANNEL LININGS SHALL BE FORMED USING SEWER BRICK (ASTM DESIGNATION C32-73 GRADE- SM SIZE NO. 1.)
2. CHANNEL SHALL PROVIDE SMOOTH HYDRAULIC TRANSITION BETWEEN PIPES.
3. MINIMUM CENTERLINE CHANNEL RADIUS SHALL BE 2.5 x OUTLET PIPE DIAMETER.

REV. JAN. 1989
REV. OCT. 1992
REV. JAN. 1992

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	PLANS FOR CHANNEL CONFIGURATION TYPES "A", "B", "C" & "D"	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE G5.31

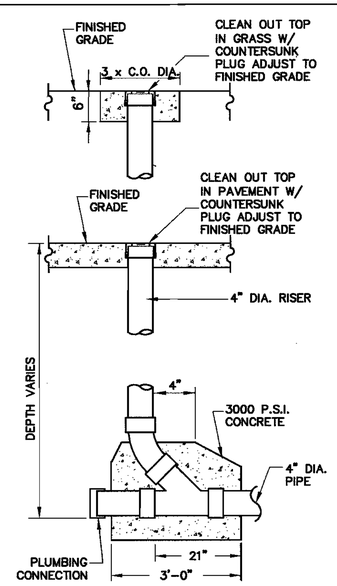


NOTES

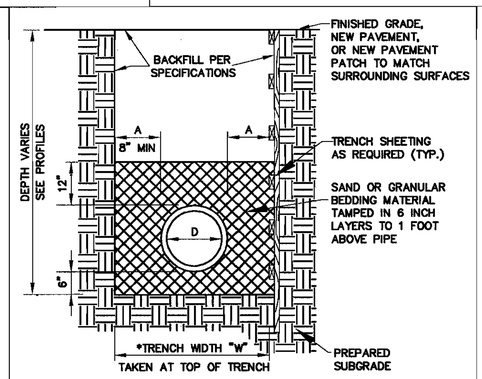
1. AVERAGE WEIGHT OF FRAME SHALL NOT BE LESS THAN 250 POUNDS.
2. AVERAGE WEIGHT OF COVER SHALL NOT BE LESS THAN 170 POUNDS.
3. TOTAL AVERAGE WEIGHT SHALL NOT BE LESS THAN 420 POUNDS.
4. MANHOLE FRAME AND COVER TO BE CAST IRON, ASTM SPEC A-48-70.

REV. MAR. 1986
REV. OCT. 1982
REV. JAN. 1982

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 1/14/83 Chief-Bureau of Engineering	STANDARD HEAVY TRAFFIC MANHOLE FRAME AND COVER	DRAWN BY: B.A.L. CHECKED BY: J.L.R. NO SCALE G 5.51



1 / C-202 DETAIL OF 4" CLEANOUT FOR SANITARY SEWER
NOT TO SCALE

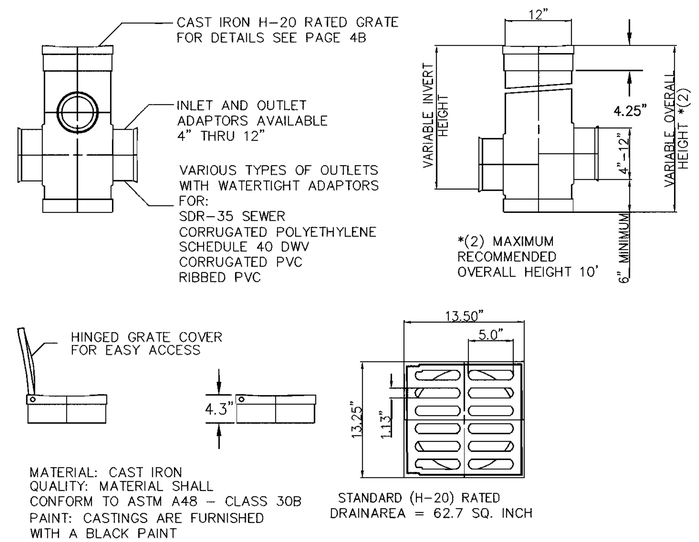


* FOR PIPES 12" OR LESS IN DIAMETER, THE TRENCH WIDTH SHALL NOT EXCEED 33"

PIPE DIA. "D"	"A"
3" & 4"	12"
6"	11"
8"	10"
10"	9"
12"	9"

PIPE DIA. "D"	"A"
15"	8"
18" TO 21"	10"
24" TO 30"	12"
33" TO 42"	15"
48" AND LARGER	18"

2 / C-202 TYPICAL PIPE TRENCH DETAIL FOR STORM AND SANITARY SEWERS
NOT TO SCALE



MATERIAL: CAST IRON
QUALITY: MATERIAL SHALL CONFORM TO ASTM A48 – CLASS 30B
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

STANDARD (H-20) RATED DRAINAREA = 62.7 SQ. INCH

3 / C105 C202 DRAIN TYPE 12"Ø
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/15/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
SEWER DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

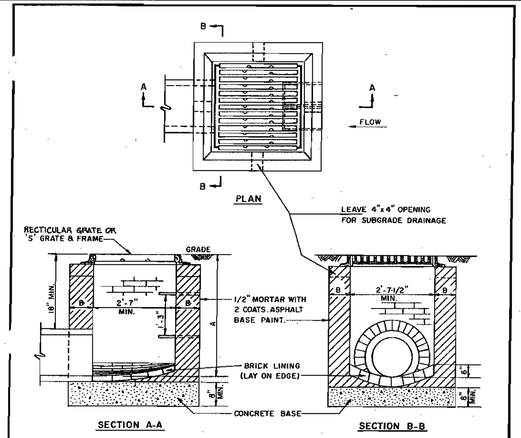
SCALE AS SHOWN

APL SHEET NO. C-202

COUNTY SHEET NO. 15 of 33

SDP 05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-201-202-203-204-205.dwg Jun 09, 2005 - 6:59am



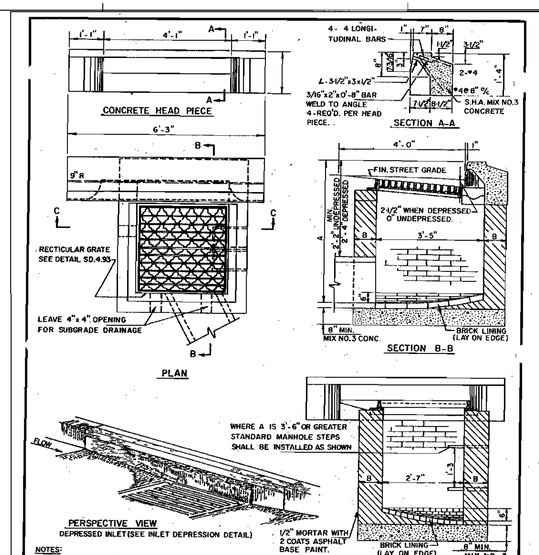
NOTES:
1. BOTTOM SHALL BE MIX NO.3 CONCRETE.
2. WALLS CAN BE BRICK OR MIX NO. 3 CONCRETE.
3. B=8" WHERE A IS LESS THAN 8'
   B=12" WHERE A IS 8' TO 14'.
4. TOP 4" OF WALLS SHALL BE BRICK MASONRY. ADDITIONAL BRICK SHALL BE USED TO BRING THE GRATE TO EXISTING GRADE IF REQUIRED.
5. INVERTS SHALL BE BRICK, GRADE SM (ASTM C32)
6. WHERE A IS 3'-6" OR GREATER STANDARD MANHOLE STEPS SHALL BE INSTALLED AS SHOWN.

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

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved [signature] 10-8-87
Chief - Bureau of Engineering

TYPE 'S' INLET

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



NOTES:
1. INVERTS SHALL BE BRICK-GRADE SM (ASTM C-32)
2. WALLS CAN BE BRICK-GRADE MS. (ASTM C-32) OR MIX #3 CONC.
3. B=8" WHERE A IS 7' OR LESS.
   B=12" WHERE A IS 7' TO 11'
4. TOP 4" OF WALLS SHALL BE BRICK MASONRY. ADDITIONAL BRICK SHALL BE USED TO BRING THE GRATE TO EXISTING GRADE IF REQUIRED.
5. SLAB SHALL BE MIX NO.3 CONCRETE

REV. JAN. 1989
REV. OCT. 1982
REV. JAN. 1982
REV. MAR. 1986

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved [signature] 10-8-87
Chief - Bureau of Engineering

TYPE S COMB. INLET

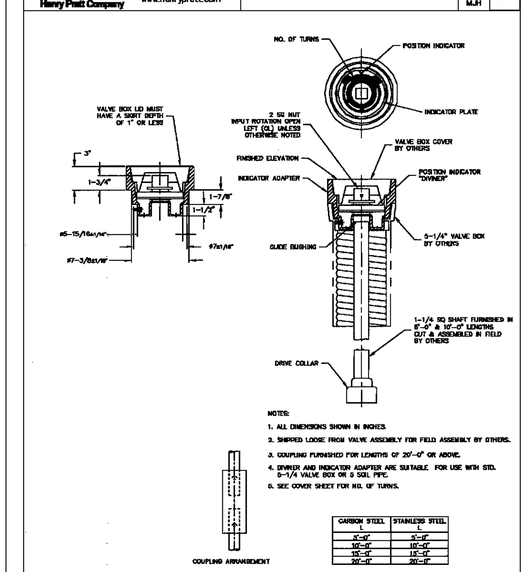
DRAWN BY: R.K.H.
CHECKED BY: J.L.R.
SCALE: NONE
SD-4.32

PRATT
Henry Pratt Company

HENRY PRATT COMPANY
401 S HIGHLAND
AURORA, IL 60506
PHONE: (877) 436-7877
www.henrypratt.com

GENERAL ARRANGEMENT DRAWING
DIVINER GROUND LEVEL
POSITION INDICATOR

DRAWING NO. S-2088
DATE 05-07-01
BY MJH
APP.

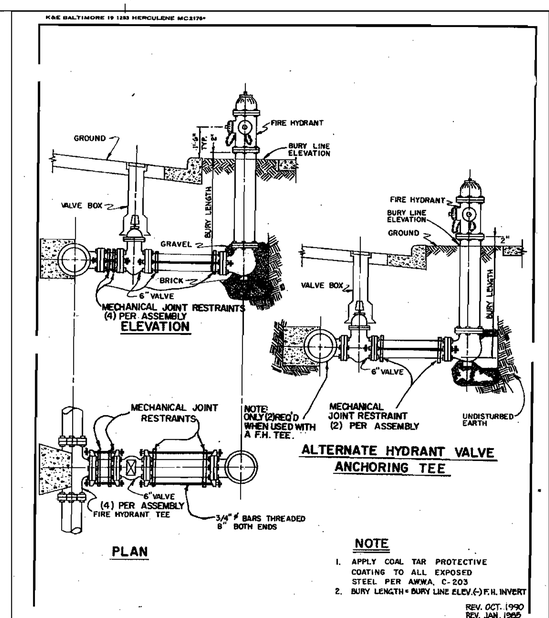


NOTES:
1. ALL DIMENSIONS SHOWN IN INCHES.
2. SHIPPED LOOSE FROM VALVE ASSEMBLY FOR FIELD ASSEMBLY BY OTHERS.
3. COUPLING FURNISHED FOR LENGTHS OF 20'-0" OR ABOVE.
4. DIVINER AND INDICATOR ADAPTER ARE SUITABLE FOR USE WITH STD. 5-1/4 VALVE BOX OR 5 SQIL PIPE.
5. SEE COVER SHEET FOR NO. OF TURNS.

CARBON STEEL L	STAINLESS STEEL L
5'-0"	5'-0"
10'-0"	10'-0"
15'-0"	15'-0"
20'-0"	20'-0"

REV-DATE	BY	APP.	REVISION	REV-DATE	BY	APP.	REVISION

K&E BALTIMORE 19 1283 HERCULENE MC5176*



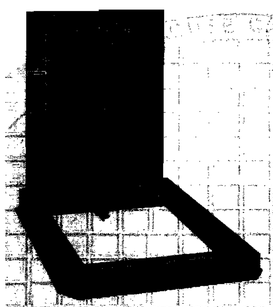
NOTE
1. APPLY COAL TAR PROTECTIVE COATING TO ALL EXPOSED STEEL PER AWWA. C-203
2. BURY LENGTH = BURY LINE ELEV.(-) F.H. INVERT

REV. OCT. 1990
REV. JAN. 1985
REV. JAN. 1981

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved [signature] 5-10-01
Chief - Bureau of Engineering

STANDARD WATER DETAILS
METHOD OF RESTRAINING FIRE HYDRANT AND VALVE TO MAIN

DRAWN BY: J.M.G.
CHECKED BY: F.A.W.
SCALE: NONE
W 2.11



DT-HD Style Hatch Frames & Covers

Channel Type Frame Heavy Duty Aluminum Hatch For H-20 Loading

Features

- Channel frame with drain connection
- Heavy duty loading
- Lift spring assist for easy operation
- Equipped with slam lock
- Black primer paint on exterior of frame
- Heavy duty hinges
- Flush lift handle
- Hold open arm
- 1/8" gasket in dovetail groove

DT-HD Style Basic Specifications

DT-HD Style Access Hatch, as manufactured by Syracuse Castings Corporation, Cicero, New York (315) 699-2601.

Material shall be 6061-T6 aluminum for bars, angle and extrusions. 1/4" diamond plate shall be 5086 aluminum.

Unit designed heavy duty, for H-20 wheel loads, where not subject to high density traffic.

Unit supplied with a heavy duty Pneu-Spring, for ease of operation when opening cover, cover shall be counter-balanced, so one person can easily open the hatch door.

Frame shall be of extruded aluminum with a continuous 1 1/4" anchor flange. A dovetail groove shall be extruded into the seat of the frame for a 1/8" silicone gasket.

Each hatch equipped with an aluminum, hold open arm. Door shall lock open in the 90 degree position. Each hold open arm shall have a red vinyl grip handle. Each hold open arm shall be fastened to the frame with a 1/2" grade 316 stainless steel bolt.

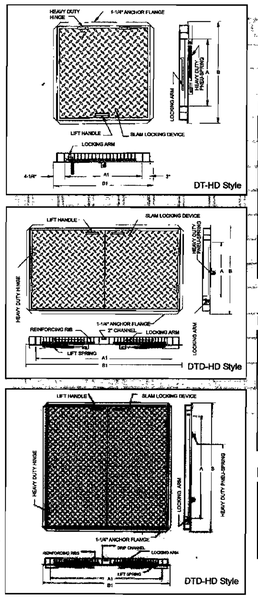
Hinges shall be of heavy-duty design. Material shall be grade 316 stainless steel with a 3/8" grade 316 stainless steel pin. Hinge shall be bolted to the channel frame and diamond plate with grade 316 stainless steel bolts and Ny-lock nuts.

Aluminum shall be supplied with mill finish. Exterior of frame which comes in contact with concrete shall have one coat black primer.

Each hatch shall be supplied with a stainless steel slam lock, with the keyway protected by a threaded aluminum plug. The plug shall be flush with the top of the 1/4" diamond plate. The slam lock shall be fastened with grade 316 stainless steel bolts and washers.

Each hatch shall be equipped with a stainless steel lift handle. Lift handles shall be flush with top of 1/4" diamond plate.

Each "DT-HD" Style hatch is supplied with a 1 1/2" threaded drain coupler on underside of channel frame for pipe connection.



DT-HD Style Hatch Frames & Covers

DT-HD Style — Single Leaf

Pattern Number	Dimensions in inches A x A1	B x B1
DT-1HD	24" x 24"	38 1/2" x 32 1/2"
DT-2HD	24" x 30"	38 1/2" x 38 1/2"
DT-3HD	24" x 36"	38 1/2" x 44 1/2"
DT-4HD	30" x 30"	44 1/2" x 38 1/2"
DT-5HD	30" x 36"	44 1/2" x 44 1/2"
DT-6HD	30" x 48"	44 1/2" x 56 1/2"
DT-7HD	36" x 36"	50 1/2" x 44 1/2"
DT-8HD	36" x 48"	50 1/2" x 56 1/2"
DT-9HD	42" x 42"	56 1/2" x 50 1/2"

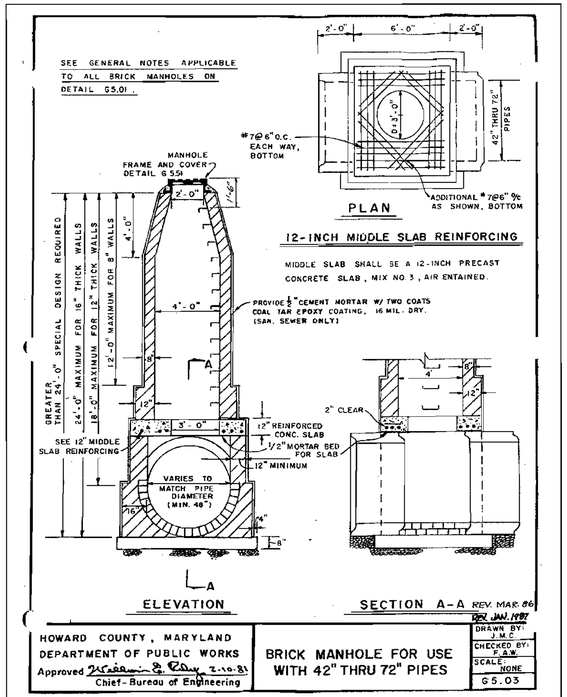
DTD-HD Style — Double Leaf

Pattern Number	Dimensions in inches A x A1	B x B1
DTD-10HD	30" x 48"	44 1/2" x 56 1/2"
DTD-11HD	30" x 54"	44 1/2" x 62 1/2"
DTD-12HD	36" x 48"	50 1/2" x 56 1/2"
DTD-13HD	36" x 60"	50 1/2" x 68 1/2"
DTD-14HD	42" x 48"	56 1/2" x 56 1/2"
DTD-17HD	48" x 72"	62 1/2" x 80 1/2"

DTD-HD Style — Double Leaf

Pattern Number	Dimensions in inches A x A1	B x B1
DTD-15HD	48" x 48"	62 1/2" x 56 1/2"
DTD-16HD	48" x 54"	62 1/2" x 62 1/2"
DTD-18HD	60" x 60"	74 1/2" x 68 1/2"

SEE GENERAL NOTES APPLICABLE TO ALL BRICK MANHOLES ON DETAIL G5.01.



REV. MAR. 86
REV. JAN. 1987

12-INCH MIDDLE SLAB REINFORCING

MIDDLE SLAB SHALL BE A 12-INCH PRECAST CONCRETE SLAB, MIX NO. 3, AIR ENTAINED.

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved [signature] 2-10-81
Chief-Bureau of Engineering

BRICK MANHOLE FOR USE WITH 42" THRU 72" PIPES

DRAWN BY: J.M.G.
CHECKED BY: F.A.W.
SCALE: NONE
G5.03

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 6/29/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05
DIRECTOR — DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
STROM DRAIN AND WATER DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

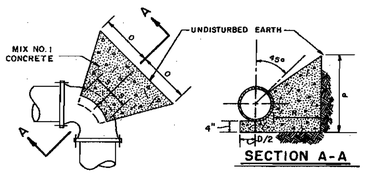
SCALE AS SHOWN
APL SHEET NO. C-203
COUNTY SHEET NO. 16 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-201-202-203-204-205.dwg Jun 09, 2005 - 6:59am

DIA.	O	P	R	S
6"	1'-2"	1'-2"	1'-8"	5"
8"	1'-7"	1'-6"	1'-8"	6"
10"	1'-8"	2'-1"	1'-8"	6"
12"	2'-0"	2'-6"	1'-11"	7"
14"	2'-8"	2'-6"	1'-11"	9"
16"	2'-10"	3'-0"	2'-2"	10"
18"	3'-1"	3'-6"	2'-6"	1'-0"
20"	3'-6"	3'-10"	2'-10"	1'-0"
24"	4'-8"	4'-0"	3'-0"	1'-0"
30"	5'-9"	5'-0"	3'-10"	1'-2"
36"	6'-10"	6'-0"	4'-10"	1'-2"

AREA OF BEARING = 2xOxP



PLAN

SECTION A-A

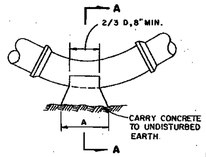
NOTE

BUTTRESS DIMENSIONS ARE BASED ON A STATIC WATER PRESSURE OF 150 PSI. AND A MINIMUM SOIL BEARING PRESSURE OF 3000 PSF. WHEN ACTUAL FIELD CONDITIONS ARE DIFFERENT THE AREA OF BEARING SHALL BE INCREASED AS DETERMINED BY THE ENGINEER.

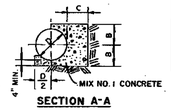
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved 2-10-81
Chief - Bureau of Engineering

STANDARD WATER DETAILS
BUTTRESSES FOR 1/4 BENDS

DRAWN BY: J.M.C.
CHECKED BY: F.A.W.
SCALE: NONE
W2.24



PLAN

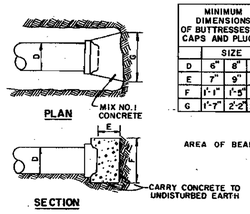


SECTION A-A

MINIMUM DIMENSIONS OF BUTTRESS FOR HORIZONTAL BENDS *								
BEND		6"	8"	10"	12"	16"	20"	24"
1/64 (5 5/8°)	A	–	–	–	–	–	1'-8"	2'-0"
	B	–	–	–	–	–	10"	1'-0"
	C	–	–	–	–	–	10"	1'-0"
1/32 (11 1/4°)	A	8"	8"	1'-0"	1'-2"	1'-7"	2'-0"	2'-5"
	B	7"	8"	9"	10"	1'-0"	1'-2"	1'-4"
	C	8"	8"	8"	8"	10"	10"	1'-0"
1/16 (22 1/2°)	A	1'-	1'-2"	1'-6"	1'-10"	2'-5"	3'-0"	3'-7"
	B	7"	8"	9"	10"	1'-1"	1'-2"	1'-5"
	C	8"	9"	10"	11"	1'-2"	1'-4"	1'-6"
1/8 (45°)	A	1'-5"	1'-10"	2'-4"	2'-10"	3'-9"	4'-8"	5'-7"
	B	7"	8"	10"	11"	1'-3"	1'-7"	1'-11"
	C	8"	9"	10"	11"	1'-2"	1'-4"	1'-9"

AREA OF BEARING = A X 2B

BUTTRESS FOR HORIZONTAL BENDS



PLAN

SECTION

MINIMUM DIMENSIONS OF BUTTRESSES FOR CAPS AND PLUGS *			
	SIZE		
D	6"	8"	10"
E	7"	9"	11"
F	1'-1"	1'-5"	1'-9"
G	1'-7"	2'-2"	2'-8"

AREA OF BEARING = F X G

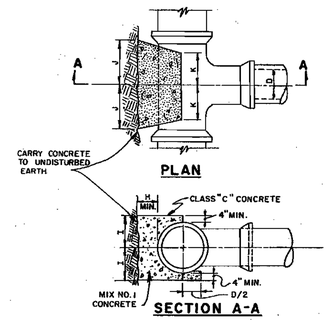
BUTTRESS FOR CAPS AND PLUGS

* ALL BUTTRESS DIMENSIONS ARE BASED ON A STATIC WATER PRESSURE OF 150 P.S.I. AND A MINIMUM SOIL BEARING PRESSURE OF 3000 P.S.F. WHERE ACTUAL FIELD CONDITIONS ARE DIFFERENT, THE AREA OF BEARING SHALL BE INCREASED AS DETERMINED BY THE ENGINEER.

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved 2-10-81
Chief - Bureau of Engineering

STANDARD WATER DETAILS
BUTTRESSES FOR CAPS AND HORIZONTAL BENDS

DRAWN BY: M.T.K.
CHECKED BY: F.A.W.
SCALE: NONE
W 2.21



PLAN

SECTION A-A

MINIMUM DIMENSIONS OF BUTTRESS FOR TEES							
	SIZE OF BRANCH						
D	6"	8"	10"	12"	16"	20"	24"
H	8"	9"	10"	1'-0"	1'-4"	1'-8"	2'-2"
I	10"	1'-1"	1'-4"	1'-7"	2'-2"	2'-8"	3'-2"
J	6"	8"	1'-1"	1'-1"	1'-5"	1'-9"	2'-1"
K	6"	7"	8"	9"	10"	1'-2"	1'-4"

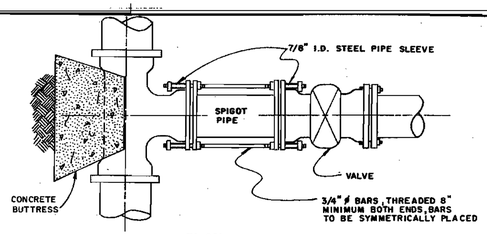
1. AREA OF BEARING = 2J X 2I.
2. BUTTRESS DIMENSIONS ARE BASED ON A WATER PRESSURE OF 150 PSI. AND A MINIMUM SOIL BEARING PRESSURE OF 3000 PSF. WHERE THE ACTUAL FIELD CONDITIONS ARE DIFFERENT, THE AREA OF BEARING SHALL BE INCREASED AS DETERMINED BY THE ENGINEER.

BUTTRESS FOR TEES

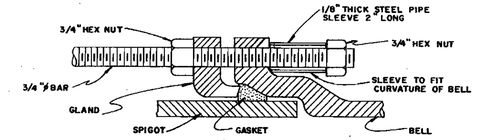
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved 2-10-81
Chief - Bureau of Engineering

STANDARD WATER DETAILS
BUTTRESS FOR TEES

DRAWN BY: M.T.K.
CHECKED BY: F.A.W.
SCALE: NONE
W2.23



PLAN



CROSS - SECTION

SLEEVE AND BAR ASSEMBLY

NOTE

APPLY COAL TAR PROTECTIVE COATING TO ALL EXPOSED STEEL AS PER AWWA C-203.

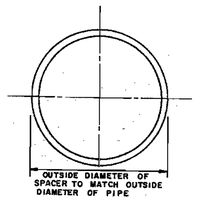
VALVE SIZE	NUMBER OF 3/4" ϕ BARS REQUIRED	MAX LENGTH OF SPIGOT PIPE
6"	2	27"
8"	2	27"
10"	4	27"
12"	6	27"
14"	8	36"
16"	8	36"
18"	10	36"
20"	12	36"
24"	16	36"

EV. OCT. 1990
REV JAN. 1994

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved 2-10-81
Chief - Bureau of Engineering

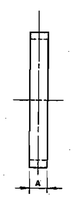
STANDARD WATER DETAILS
METHOD OF RESTRAINING VALVE TO MAIN

DRAWN BY: J.M.C.
CHECKED BY: F.A.W.
SCALE: NONE
W 2.14



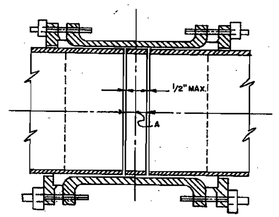
SECTION

NO SCALE



ELEVATION

NO SCALE



METHOD OF INSTALLATION

MAXIMUM SPACER LENGTH (A)

SIZE	A
6"	3.25"
8"	3.75"
10"	3.75"
12"	3.75"
16"	3.75"
20"	3.75"
24"	3.75"
30"	4.25"
36"	4.25"

SPACER

SPACER SHALL BE INSTALLED IN ALL CASES WHERE ENDS OF PIPE DO NOT ABUT.

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved 2-10-81
Chief - Bureau of Engineering

STANDARD WATER DETAILS
MECHANICAL JOINT SLEEVE AND SPACER

DRAWN BY: J.M.C.
CHECKED BY: F.A.W.
SCALE: NONE
W.4.15.

NOTES:

1. **WATER MAIN SPECIFICATIONS / NOTES**

1. **GENERAL:**
ALL WATER MAIN CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS CONTAINED IN THE CURRENT ISSUE OF THE "HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION," ARTICLE 10 EXCEPT AS MODIFIED HEREIN.

JHU/APL'S WATER SYSTEM DIFFERS FROM HOWARD COUNTY'S STANDARDS IN 3 SPECIFIC AREAS AS ENUMERATED BELLOW IN SECTION 2.

2. **MODIFICATIONS:**

A. **VALVES**
VALVES SHALL OPEN LEFT–COUNTERCLOCKWISE. WHERE VALVES ARE LOCATED IN NON–TRAFFICKED AREAS, THEY SHALL BE FURNISHED WITH POST TYPE OPERATORS. WHEN VALVES ARE LOCATED IN PAVED OR TRAFFICKED AREAS, THE VALVES SHALL BE FURNISHED WITH A STANDARD VALVE BOX AND A VALVE POSITION INDICATOR. THE INDICATOR SHALL BE THE DIVINER GROUND LEVEL POSITION INDICATOR AS MANUFACTURED BY THE HENRY PRATT COMPANY.

B. **HYDRANTS**
ALL OUTLET NOZZLES SHALL HAVE NATIONAL STANDARD FIRE HOSE COUPLING SCREW THREADS.

C. **PIPE JOINT BONDING**
1) ALL PIPE JOINTS SHALL BE BONDED TO INSURE ELECTRICAL CONTINUITY. BONDING MAY BE ACCOMPLISHED EITHER WITH SHOP WELDED COPPER TERMINAL STRAPS AND COPPER JUMPER STRAPS WITH CORROSION RESISTANT BOLTS, WITH COPPER WIRE EXOTHERMIC WELDED IN THE FIELD, OR BRASS WEDGES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2) ALL BONDING BETWEEN JOINTS FOR PIPE, FITTINGS, VALVES, AND SPECIALS SHALL BE TESTED FOR ELECTRICAL CONTINUITY. EACH JOINT SHALL BE INSPECTED BY JHU/APL AND RESISTANCE TESTED PRIOR TO COATING AND BACKFILLING. NO RESISTANCE WILL BE PERMISSIBLE ACROSS ANY JOINT.
3) ALL BONDED JOINTS SHALL BE COATED WITH A RUST–INHIBITIVE PAINT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691–4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

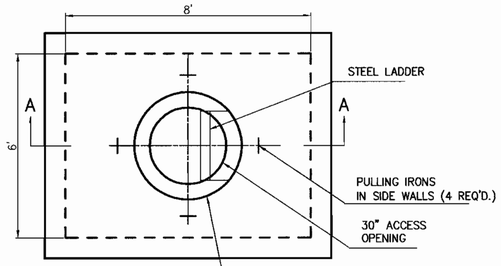
THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
WATER LINE DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
APL SHEET NO. C-204
COUNTY SHEET NO. 17 of 33

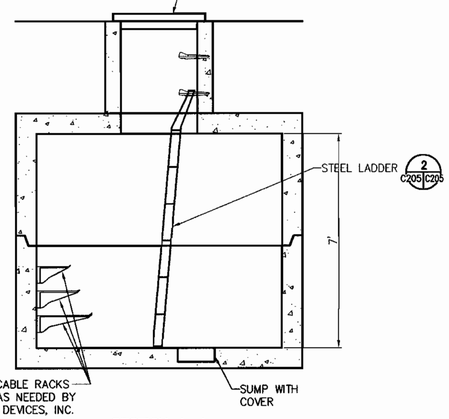
SDP 05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-201-202-203-204-205.dwg Jun 09, 2005 - 6:59am

NOTE: LOCKABLE TYPE MANHOLE COVERS ARE REQUIRED.

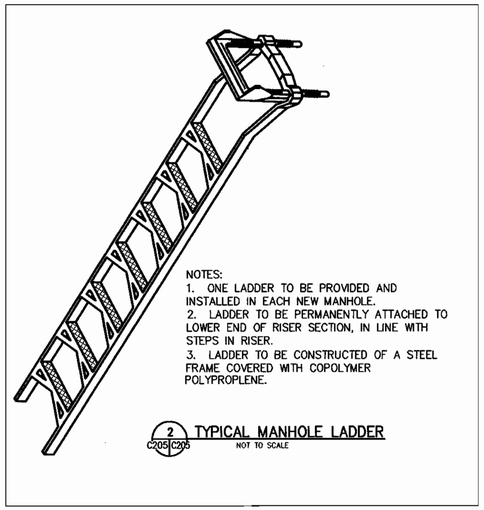


PLAN VIEW



SECTION A-A

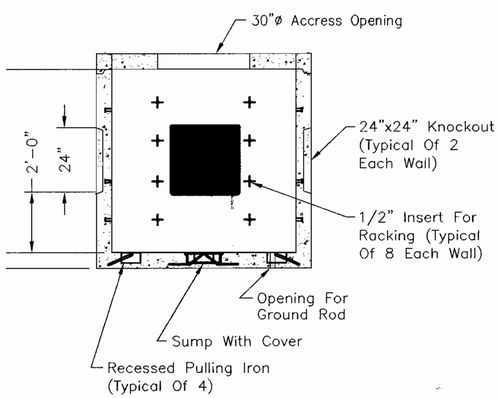
1 C300 C205 PRECAST ELECTRICAL MANHOLE
NOT TO SCALE



2 C205 C205 TYPICAL MANHOLE LADDER
NOT TO SCALE

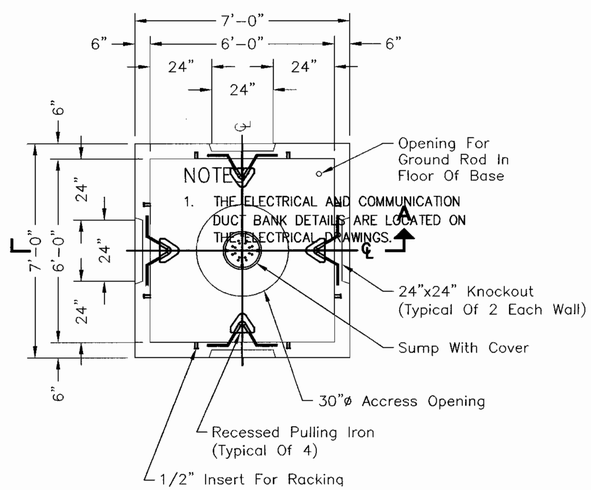
NOTES:

1. CONCRETE: 28 DAY COMPRESSIVE STRENGTH F'C = 5,000 PSI.
2. REINFORCING: ASTM A-615, GRADE 60.
3. JOINT SEALANT: BUTYL RUBBER SS-S-00210.
4. DESIGNED FOR MAXIMUM SOIL COVER OF 4'-0" ABOVE BOX.
5. SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO.



SECTION VIEW A-A

2 PRECAST ELECTRICAL MANHOLE



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/28/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
ELECTRICAL MANHOLE

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

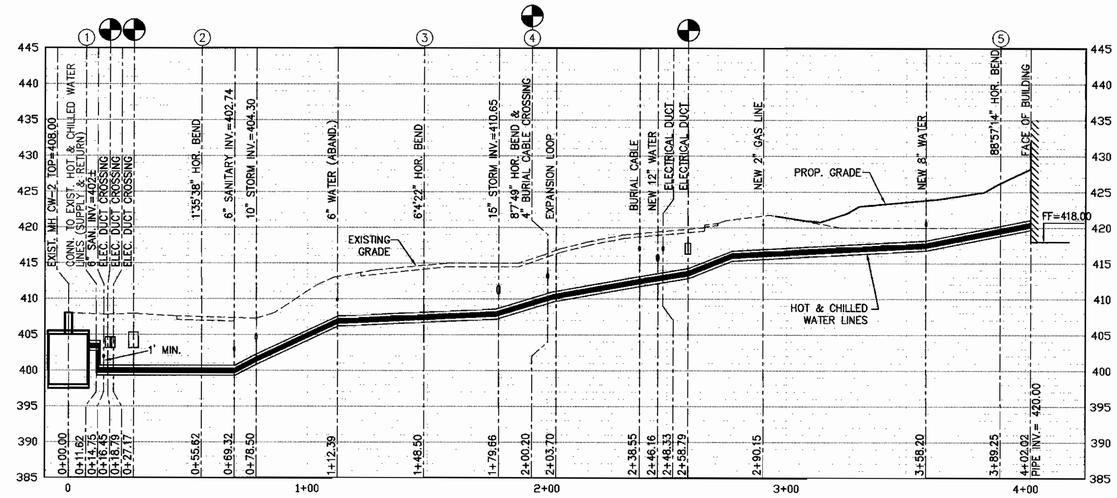
SCALE AS SHOWN

APL SHEET NO. C-205

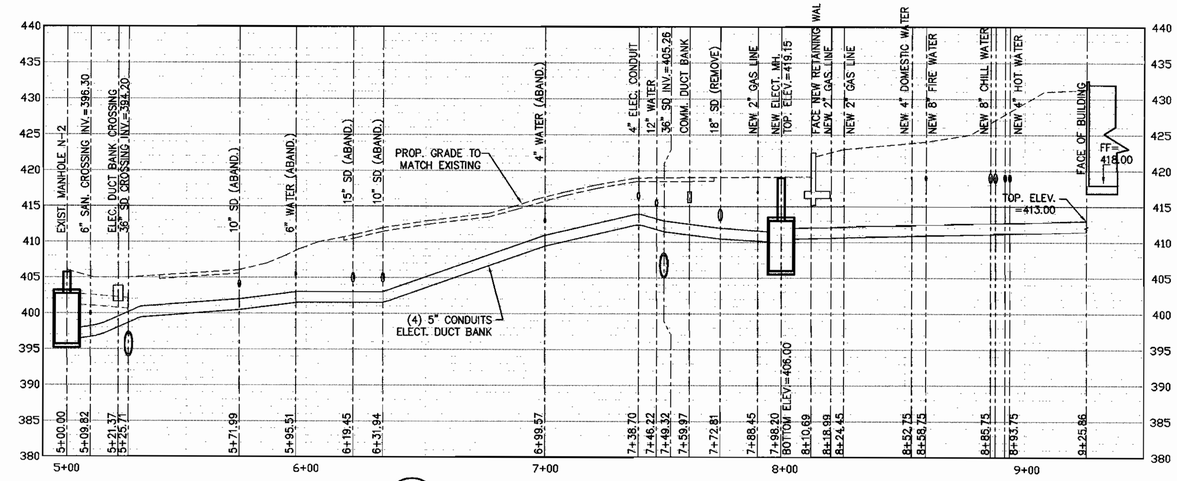
COUNTY SHEET NO. 18 of 33

SDP 05-133

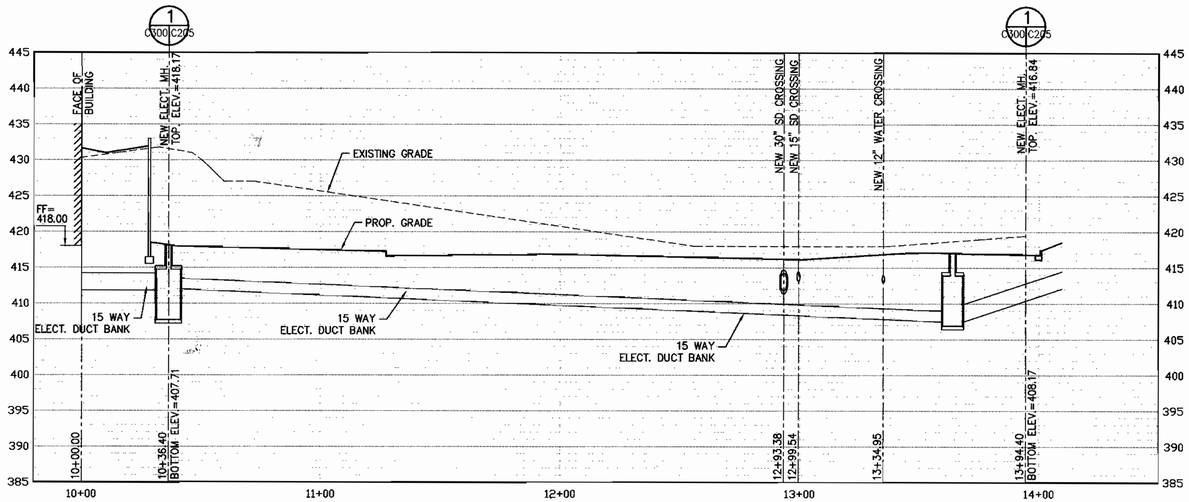
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-201-202-203-204-205.dwg Jun 09, 2005 - 6:59am



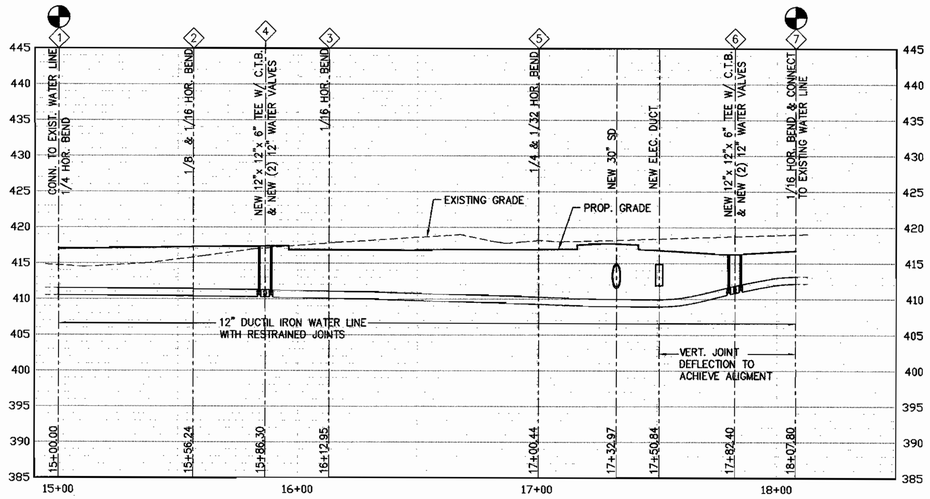
P1 HOT & CHILLED WATER PROFILE
C106 C300 SC. HOR: 1"=30' VER: 1"=10'



P2 ELECTRICAL PROFILE
C106 C300 SC. HOR: 1"=30' VER: 1"=10'



P3 ELECTRICAL PROFILE
C106 C300 SC. HOR: 1"=30' VER: 1"=10'



P4 WATER LINE PROFILE
C106 C300 SC. HOR: 1"=30' VER: 1"=10'

GRAPHIC SCALE

0 30 60 90
HOR.: 1"= 30'

0 10 20 30
VERT.: 1"= 10'

LEGEND:

TEST PIT REQUIRED

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/28/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND LICENSED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

PROFILES

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

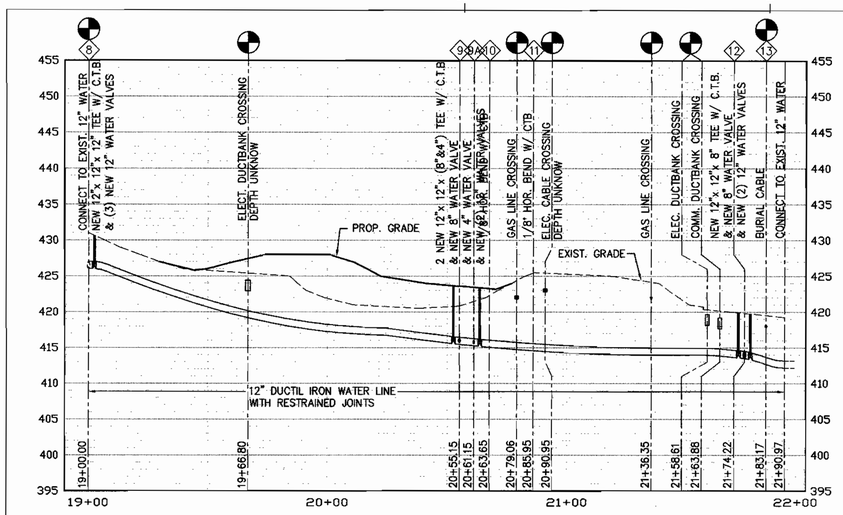
SCALE AS SHOWN

APL SHEET NO. C-300

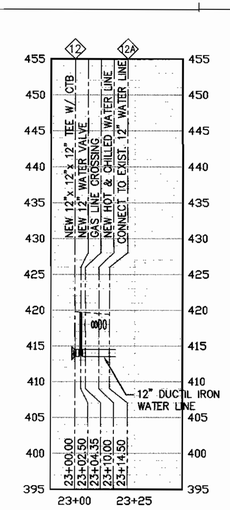
COUNTY SHEET NO. 19 of 33

SDP-05-133

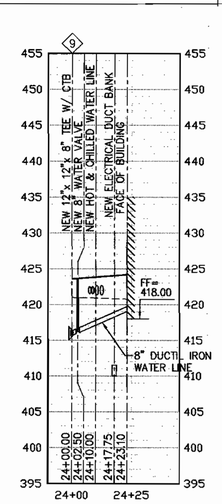
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-300.dwg Jun 08, 2005 - 8:21pm



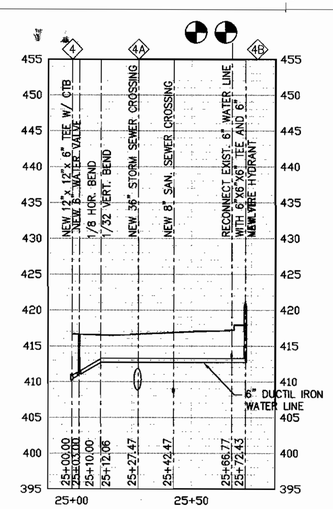
P5 WATER LINE PROFILE
C106 C301 SC. HOR: 1"=30' VER: 1"=10'



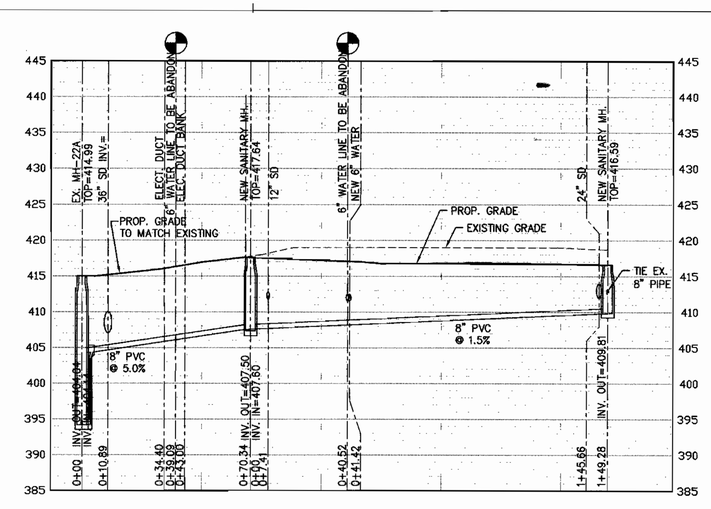
P6 WATER LINE PROFILE
C106 C301 SC. HOR: 1"=30' VER: 1"=10'



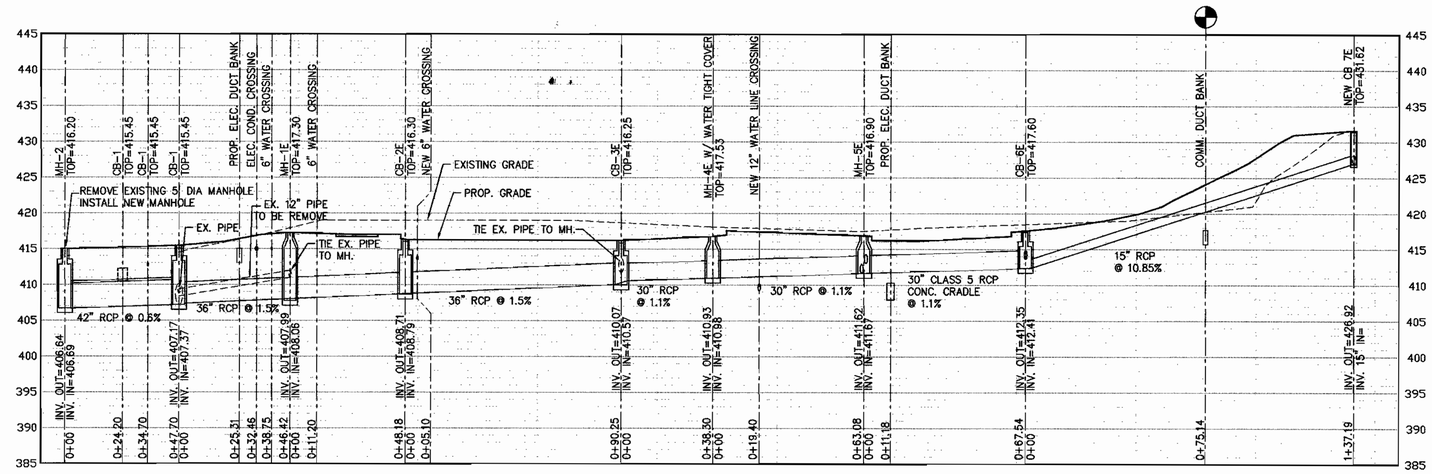
P7 WATER LINE PROFILE
C106 C301 SC. HOR: 1"=30' VER: 1"=10'



P8 WATER LINE PROFILE
C106 C301 SC. HOR: 1"=30' VER: 1"=10'



P9 SANITARY SEWER PROFILE
C106 C301 SC. HOR: 1"=30' VER: 1"=10'



P11 STORM SEWER PROFILE
C106 C301 SC. HOR: 1"=30' VER: 1"=10'

LEGEND:

TEST PIT REQUIRED

GRAPHIC SCALE

0 30 60 90
HOR.: 1"= 30'

0 10 20 30
VERT.: 1"= 10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 6/25/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

PROFILES

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

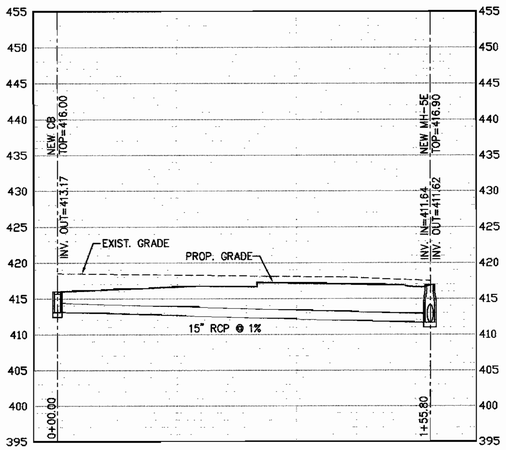
SCALE AS SHOWN

APL SHEET NO. C-301

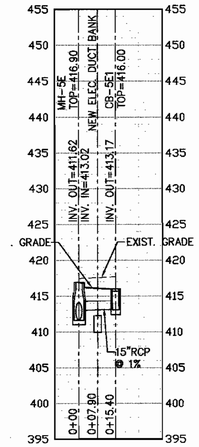
COUNTY SHEET NO. 20 of 33

SDP-05-133

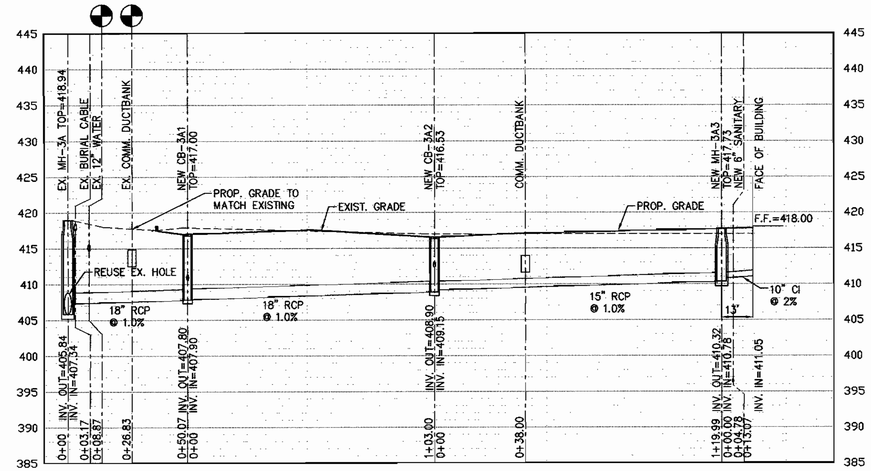
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-300.dwg | Jun 08, 2005 - 8:20pm



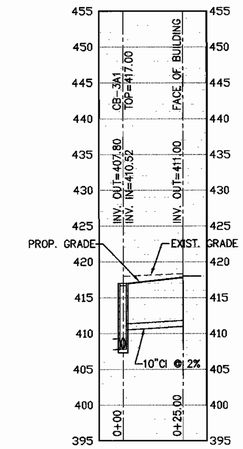
P12 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



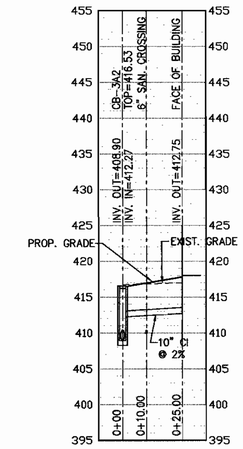
P13 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



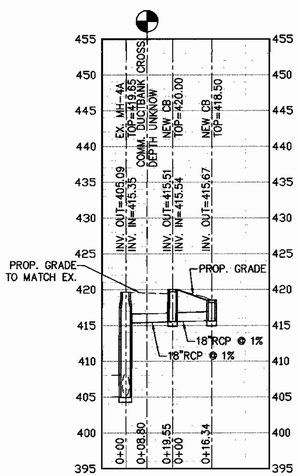
P14 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



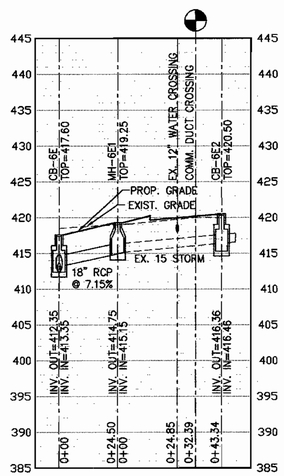
P15 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



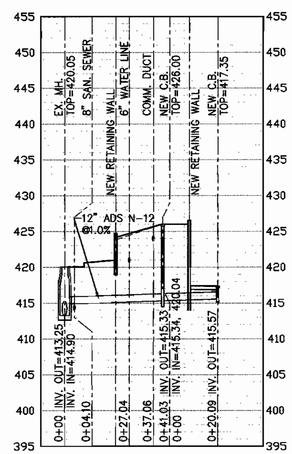
P16 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



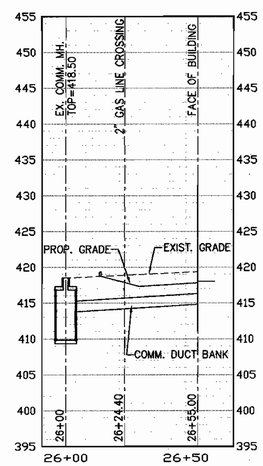
P17 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



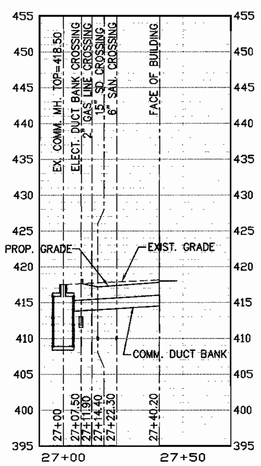
P18 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



P19 STORM SEWER PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



P20 COMMUNICATION DUCT BANK PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'



P21 COMMUNICATION DUCT BANK PROFILE
C106 C302 SC. HOR: 1"=30' VER: 1"=10'

LEGEND:

TEST PIT REQUIRED

GRAPHIC SCALE
0 30 60 90
HOR.: 1"= 30'
0 10 20 30
VERT.: 1"= 10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 10/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05
DIRECTOR — DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

PROFILES

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

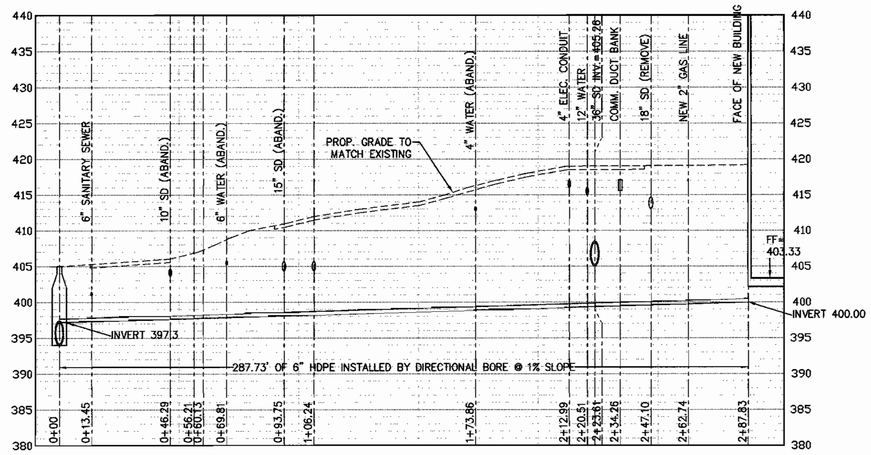
SCALE AS SHOWN

APL SHEET NO. C-302

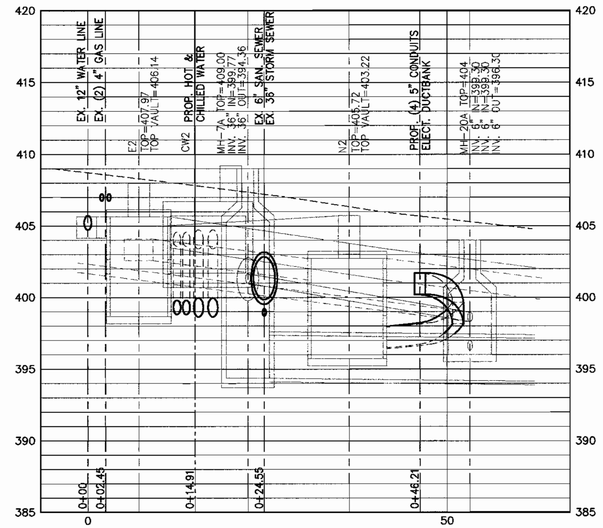
COUNTY SHEET NO. 21 of 33

SDP 05-133

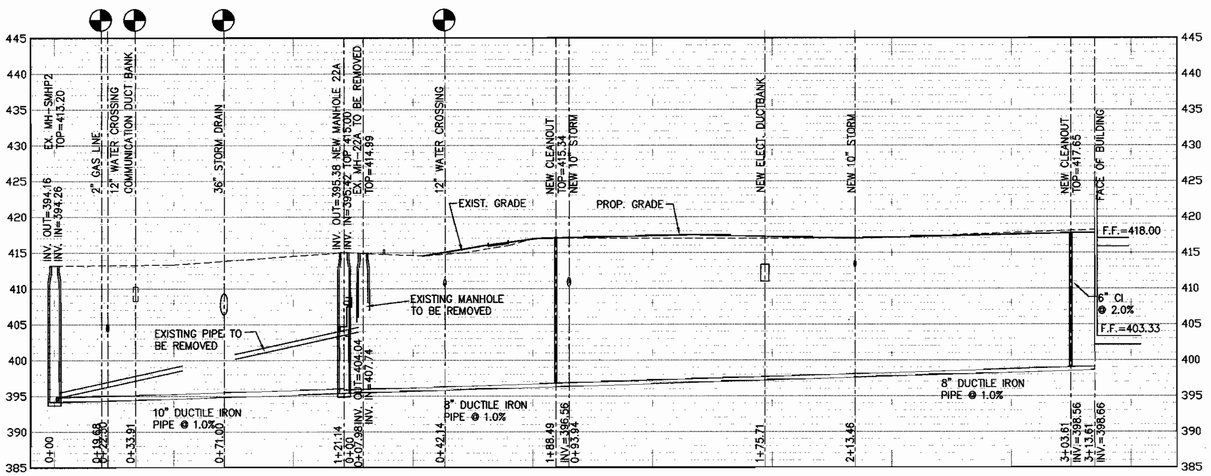
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-300.dwg | Jun 08, 2005 - 8:21pm



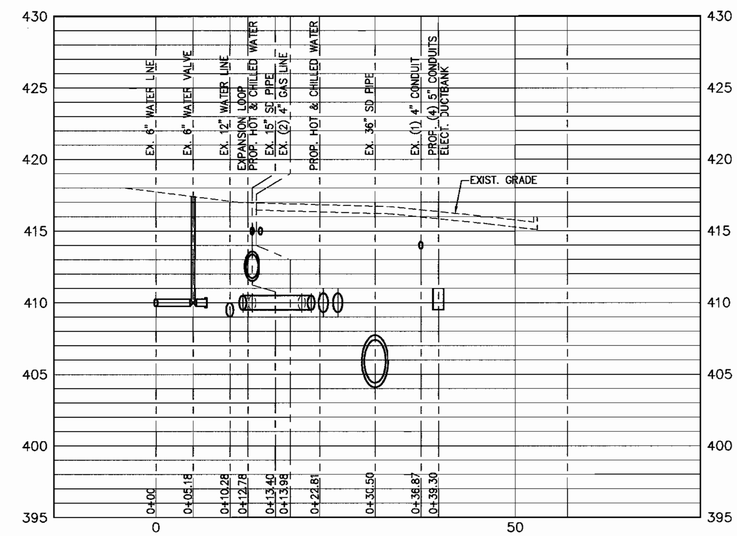
P22 FOUNDATION DRAIN PROFILE
C106 C303 SC. HOR: 1"=30'
VER: 1"=10'



1 SECTION A-A
C106 C303 SC. HOR: 1"=10'
VER: 1"=5'



P10 SANITARY SEWER PROFILE
C106 C303 SC. HOR: 1"=30'
VER: 1"=10'



2 SECTION B-B
C106 C303 SC. HOR: 1"=10'
VER: 1"=5'

LEGEND:

TEST PIT REQUIRED

GRAPHIC SCALE

HOR.: 1"= 30'

VERT.: 1"= 10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/28/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/15/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

PROFILES

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

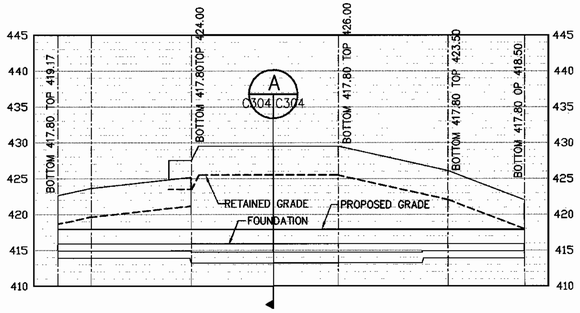
SCALE AS SHOWN

APL SHEET NO. C-303

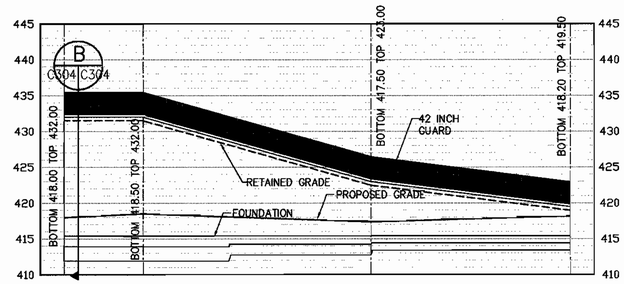
COUNTY SHEET NO. 22 of 33

SDP-05-133

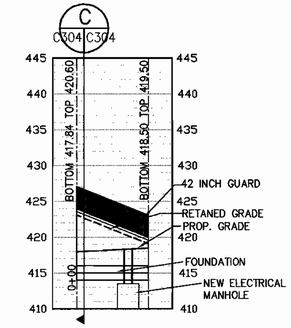
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-300.dwg | Jun 09, 2005 - 7:05am



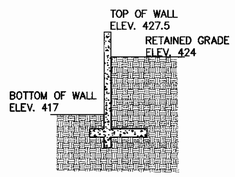
WP1 RETAINING WALL PROFILE
C105 C304 SC. HOR: 1"=30'
VER: 1"=10'



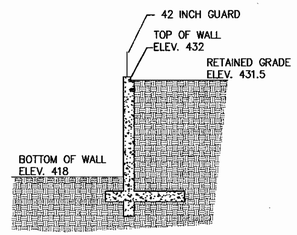
WP2 RETAINING WALLL PROFILE
C105 C304 SC. HOR: 1"=30'
VER: 1"=10'



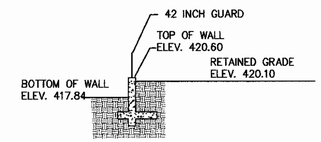
WP3 RETAINING WALL PROFILE
C105 C304 SC. HOR: 1"=30'
VER: 1"=10'



A RETAINING WALL SECTION
C304 C304 NOT TO SCALE



B RETAINING WALL SECTION
C304 C304 NOT TO SCALE



C RETAINING WALL SECTION
C304 C304 NOT TO SCALE

NOTES:
1. SEE STRUCTURAL DRAWINGS FOR CONSTRUCTION DETAILS.

NOTES:
1. SEE STRUCTURAL DRAWINGS FOR CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL DRAWINGS FOR GUARD DETAILS

NOTES:
1. SEE STRUCTURAL DRAWINGS FOR CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL DRAWINGS FOR GUARD DETAILS

GRAPHIC SCALE
0 30 60 90
HOR.: 1"= 30'
0 10 20 30
VERT.: 1"= 10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

RETAINING WALL PROFILES

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
APL SHEET NO. C-304
COUNTY SHEET NO. 23 of 23

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-300.dwg | Jun 09, 2005 - 7:05am

PLANT SCHEDULE

QUANTITY	KEY	GENUS	SPECIES	VARIETY	COMMON NAME	SIZE	SPACING	REMARKS
TREES								
14	KP	KOELREUTERIA	PANICULATA		GOLDENRAINTREE	2-1/2"-3"CALIPER	8'-10' O.C.	
SHRUBS								
62	SJ	SPIREA	JAPONICA	"NEON FLASH"	"NEON FLASH" SPIREA	18" - 24" HEIGHT	24" O.C.	# 3 CONT.
53	IC	ILEX	CRENATA	GREEN LUSTRE'	G. L. JAPANESE HOLLY	18" - 24" HEIGHT	32" O.C.	

NOTE:

1. ALL DISTURBED AREAS WHICH ARE NOT PAVED OR UNDERBUILDING WILL HAVE GRASS PLANTED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/28/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

STATE OF MARYLAND — LICENSED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
LANDSCAPE PLANTING PLAN

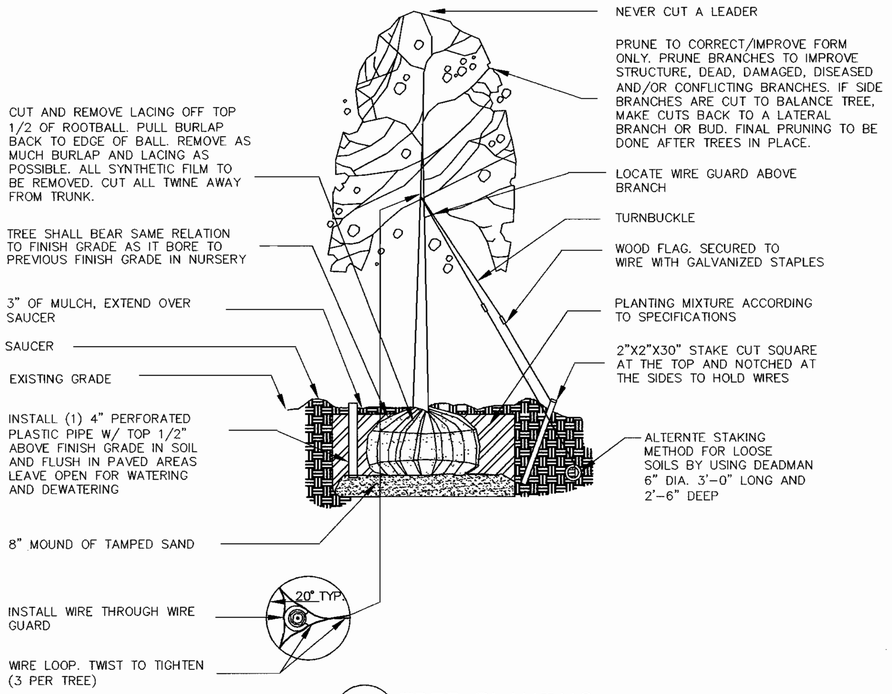
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. L-100

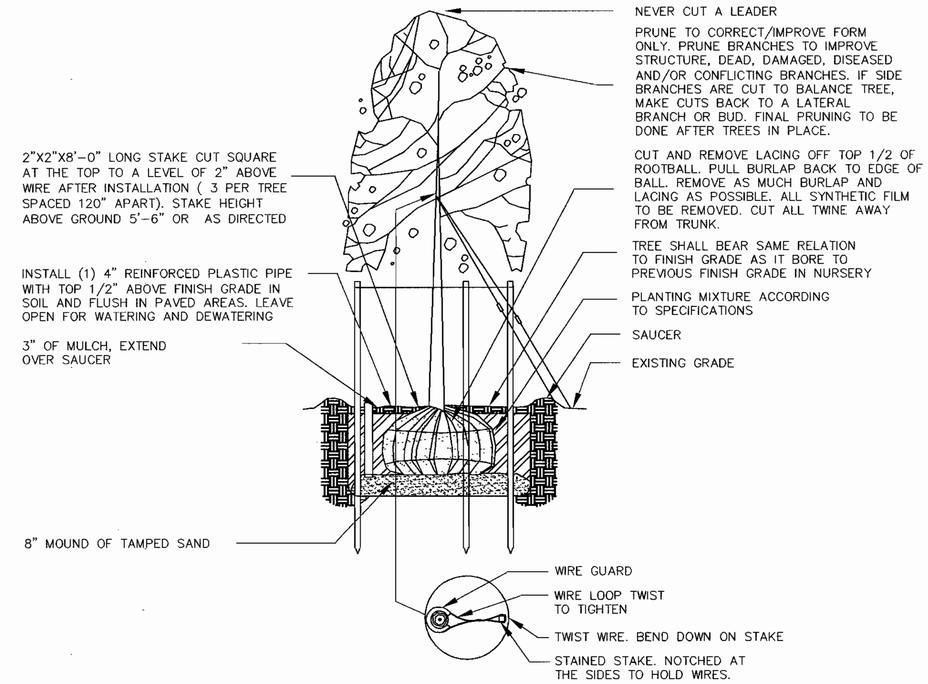
COUNTY SHEET NO. 24 of 33

SDP 05-133



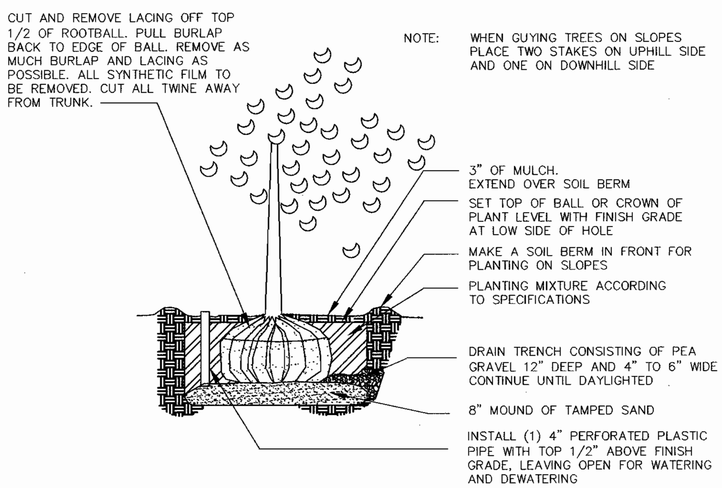
1 TREE PLANTING - GUYING

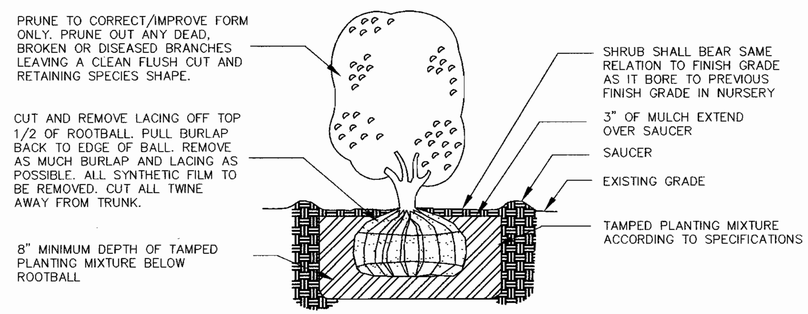
SCALE 1/2" = 1'-0"



2 TREE PLANTING - STAKING

SCALE 1/2" = 1'-0"





4 SHRUB PLANTING - BALLED AND BURLAPPED

SCALE 1" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/15/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
LANDSCAPE DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. L-200

COUNTY SHEET NO. 25 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\L-200.dwg | Jun 08, 2005 - 8:37pm

TEMPORARY SEEDING NOTES:

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

SEEDED PREPARATION:

LOOSEN UPPER THREE INCHES OF SOIL BY RAKING DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS:

APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ.FT.) ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SEEDING:

FOR THE PERIOD MARCH 1 THROUGH APRIL 30, AND AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 1-½ BUSHEL PER ANNUAL RYE (3.2 LBS/ 1,000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS/ ACRE OF WEEPING LOVE GRASS (0.07 LBS/1,000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28 PROTECT BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED RAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.

MULCHING:

APPLY 1-½ TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 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 GAL./1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./ 1,000 SQ.FT.) FOR ANCHORING.
REFER TO THE 1988 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATES AND METHODS NOT COVERED.

PERMANENT SEEDING NOTES:

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

SEEDBED PREPARATION:

LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS:

APPLY WO TONS PER ACRE DOLOMITIC LIME STONE (92 LBS./1,000 SQ.FT.) AND 600 LBS PER ACRE 20-20-20 FERTILIZER (14 LBS/1,000 SQ.FT.) BEFORE SEEDING HARROW OR DISCING INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, (9 LBS./1,000 SQ.FT.).

SOIL AMENDMENTS:

FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 100 LBS PER ACRE (2.3 LBS/1,000 SQ.FT.) OF 3-WAY TALL FESCUE, FOR THE PERIOD MAY 1 THROUGH JULY 21, SEED WITH 60 LBS/ACRE (0.05 LBS/1,000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28. PROJECT SITE BY:
OPTION (1) - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRINGS
OPTION (2) - USE 500
OPTION (3) - SEED WITH 100 LBS/ACRE 3-WAY TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STAW. ALL SLOPES SHOULD BE HYDROSEEDED.

MULCHING:

APPLY 1-½ TO 2 TONS PER ACRE (10 TO 90 LBS/1,000 SQ.FT.) OF UNROTTED SMALL GRAIN GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GAL./ 1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER USE 348 GALLONS PER ACRE (8 GAL/1,000 SQ.FT.) FOR ANCHORING.

MAINTENANCE:

INSPECT ALL SEEDED AREAS (ONCE PER MONTH) AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

SEQUENCE OF CONSTRUCTION (S.O.C.):

DURATION (WEEKS):

PHASE 1

4 1. CONTRACTOR SHALL OBTAIN A GRADING PERMIT.

3 2. NOTIFY APL AND COUNTY SEDIMENT CONTROL INSPECTOR AT LEAST 14 DAYS PRIOR TO BEGINNING WORK TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.

2 3. INSTALL OR ASSUME CUSTODY OF TEMPORARY SECURITY FENCE OUTSIDE CONSTRUCTION AREA AND GAIN APPROVAL OF FENCE INSTALLATION.

1 4. PERFORM CLEARING ONLY AS NECESSARY TO INSTALL TREE PROTECTION, STABILIZED CONSTRUCTION ENTRANCE, SUPER SILT FENCE, INLET, PROTECTION DIVERSION DIKE AND ALL OTHER SEDIMENT CONTROL FACILITIES WITHIN THE PROJECT LIMIT AS SHOWN ON SHEET ES-02.

3 5. DO NOT START S.O.C.#6 UNTIL FIRST RECEIVING PERMISSION FROM THE INSPECTOR TO PROCEED.

PHASE 2

3 6. REMOVE EXISTING BUILDINGS AND PAVEMENT AS SHOWN ON THE DEMOLITION PLAN. LEAVE EXISTING GRAVEL BASE COURSE IN PLACE TO STABALIZE THE SITE, ADJUST THE EXISTING STORM DRAINS AND ASSOCIATED SEDIMENT CONTROL FACILITIES TO MAINTAIN POSITIVE DRAINAGE OF THE SITE.

2. 7. ESTABLISH STAGING AREA FOR CONSTRUCTION. REMOVE TREES INDICATED FOR REMOVAL.

4 8. EXCAVATE FOR NEW UTILITIES, BASEMENT AND FOUNDATIONS, CONSTRUCT NEW UTILITIES AND BASEMENT. ESTABLISH SUMP PIT OR PORTABLE SEDIMENT TANKS AND ASSOCIATED PUMPING TO REMOVE WATER FROM THE EXCAVATION. THE CONTRACTOR SHALL MAINTAIN STORM WATER FLOW THROUGH THE SITE. INSTALL SEDIMENT CONTROL DEVICES AS SHOWN ON SHEET ES-03.

3 9. PROVIDE AND INSTALL REMAINDER OF CONSTRUCTION.

4 10. PERFORM FINE GRADING AND PERMANENT STABILIZATION OF THE SITE INCLUDING SOD, LANDSCAPE PLANTING, AND VEGETATIVE STABILIZATION.

3 11. REMOVE EROSION AND SEDIMENT CONTROLS UPON RECIEVING PERMISSION FROM THE COUNTY INSPECTOR, CLEAN STORM DRAINS OF SEDIMENT.

4 12. PROVIDE AND INSTALL PERMANENT SECURITY FENCE AS SHOWN.

2 13. AFTER APPROVAL OF NEW FENCE AND GATE BY APL, REMOVE TEMPORARY PROJECT SECURITY FENCE AND RESTORE AREA DISTRUBED BY FENCE REMOVAL.

SEDIMENT CONTROL NOTES

1) 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 THIS 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 THE FOLLOWING:
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.

4) 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 DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5) 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.

6) SITE ANALYSIS:

TOTAL AREA OF SITE	361 ACRES
AREA DISTURBED	4.4 ACRES
AREA TO BE ROOFED OR PAVED	2.2 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.0 ACRES
TOTAL CUT	32,550 YD
TOTAL FILL	9,550 YD

7) WASTE WILL EITHER BE LEGALLY DISPOSED OF OFF SITE OR IN THE ONSITE STORAGE AREA APPROVED BY SDP 05-50.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE PREPARED ON THE SAME DAY OF DISTURBANCE.

9) ADDITIONAL SEDIMENT CONTROLS 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 LENGTHS THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY (MAXIMUM 100 FT/DAY/CREW). ALL DISTURBED NON-PAVED TRENCH AREAS SHALL BE MULCHED AND SEEDED AT THE END OF EACH DAY TO ESTABLISH TURF. ALL DISTURBED PAVED TRENCH AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT TRAFFIC BEARING COVER.

* ANY CUT WIL BE TRANSFERRED TO A SITE WITH APPROVED AND ACTIVE PERMITTED PROJEC

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. "

James E. Loesch — 6/10/05
SIGNATURE OF DEVELOPER — Date
PRINT NAME BELOW SIGNATURE
James E. Loesch

BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR UTILITIES CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. "

R.E. Dugan — June 17, 2005
SIGNATURE OF ENGINEER — Date
PRINT NAME BELOW SIGNATURE
R.E. Dugan

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers — 6/16/05
USDA-NATURAL RESOURCES CONSERVATION SERVICE — Date

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

John R. Robertson — 6/16/05
HOWARD SOIL CONSERVATION DISTRICT — Date

TOP SOIL SPECIFICATIONS - SOIL TO BE USED AS TOP SOIL MUST MEET THE FOLLOWING:

TOPSOIL SHALL BE A SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM OR LOAMY SAND. OTHER SOILS MAY BE USED IT RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURE SUBSOIL AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS TASH, OR OTHER MATERIALS LARGER THAN 3/4" IN DIAMETER.

TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

WHERE THE TOPSOIL 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/1,000 SQ.FT.) PRIOR TO THE PLACEMENT OF TOPSOIL, LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

FOR SITE 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.

ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZERS, COMPOSED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED 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:

A) COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.

B) COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE:

C) COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQ.FT.
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 AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LBS/1,000 SQ.FT. AND ⅓ THE NORMAL LIME APPLICATION RATE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/29/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EROSION & SEDIMENT CONTROL NOTES
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
APL SHEET NO. ES-01
COUNTY SHEET NO. 26 of 33

SDP-05-133

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. "

James E Loesch — 6/10/05
SIGNATURE OF DEVELOPER — Date
PRINT NAME BELOW SIGNATURE
James E. Loesch

BY THE ENGINEER:

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

R E Burgoyne — June 9, 2005
SIGNATURE OF ENGINEER — Date
PRINT NAME BELOW SIGNATURE
R.E. BURGOYNE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers — 6/16/05
USDA-NATURAL RESOURCES CONSERVATION SERVICE — Date

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

John R Robertson — 6/16/05
HOWARD SOIL CONSERVATION DISTRICT — Date

EROSION AND SEDIMENT CONTROL LEGEND

	STORM DRAIN INLET PROTECTION STD. & SPEC. E-16-5B STD. & SPEC. E-16-5A	IP
—SF—	SILT FENCE STD. & SPEC. E-16-3	SF
CE	CONSTRUCTION ENTRANCE STD. & SPEC. F-17-3	CE
—SSF—	SUPER SILT FENCE STD. & SPEC. H-26-3	SSF
	EARTH DIKE STD. & SPEC. A-1-6	ED
	LIMITS OF CLEARING AND GRADING	
	EXISTING DRAINAGE DIVIDES	
—TP—	TREE PROTECTION STD. & SPEC. G-23-3	

THIS SHEET FOR EROSION AND SEDIMENT CONTROL ONLY!

EROSION AND SEDIMENT NOTES:

1) ONSITE SPOIL STORAGE WILL BE AS APPROVED IN SDP 05-050.

GRAPHIC SCALE
0 40 80 120
1"= 40'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/20/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/20/05
DIRECTOR — DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EROSION & SEDIMENT CONTROL
PHASE I
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
APL SHEET NO. ES-02
COUNTY SHEET NO. 27 of 33

SDP05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\ES-02.dwg | Jun 08, 2005 - 8:27pm

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. "

James E. Loesch — 6/10/05
SIGNATURE OF DEVELOPER — Date
PRINT NAME BELOW SIGNATURE
James E. Loesch

BY THE ENGINEER:

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

R E Bourne — June 7, 2005
SIGNATURE OF ENGINEER — Date
PRINT NAME BELOW SIGNATURE
R E Bourne

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers — 6/16/05
USDA-NATURAL RESOURCES CONSERVATION SERVICE — Date

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

John R Robertson — 6/16/05
HOWARD SOIL CONSERVATION DISTRICT — Date

EROSION AND SEDIMENT CONTROL LEGEND

- STORM DRAIN INLET PROTECTION STD. & SPEC. E-16-5B STD. & SPEC. E-16-5A — IP
- SF — SILT FENCE STD. & SPEC. E-16-3 — SF
- CE — CONSTRUCTION ENTRANCE STD. & SPEC. F-17-3 — CE
- SSF — SUPER SILT FENCE STD. & SPEC. H-26-3 — SSF
- EARTH DIKE STD. & SPEC. A-1-6 — ED
- LIMITS OF CLEARING AND GRADING
- EXISTING DRAINAGE DIVIDES
- TP — TREE PROTECTION STD. & SPEC. G-23-3

THIS SHEET FOR EROSION AND SEDIMENT CONTROL ONLY!

GRAPHIC SCALE
0 40 80 120
1" = 40'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/15/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EROSION & SEDIMENT CONTROL
END CONDITION
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

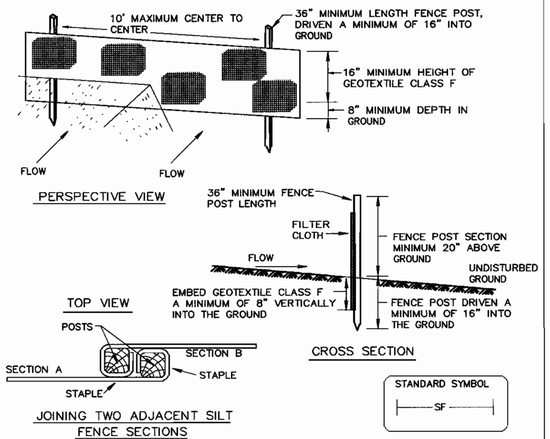
APL SHEET NO. ES-03

COUNTY SHEET NO. 28 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\ES-03.dwg | Jun 09, 2005 - 6:36am

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" 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.

2. 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:

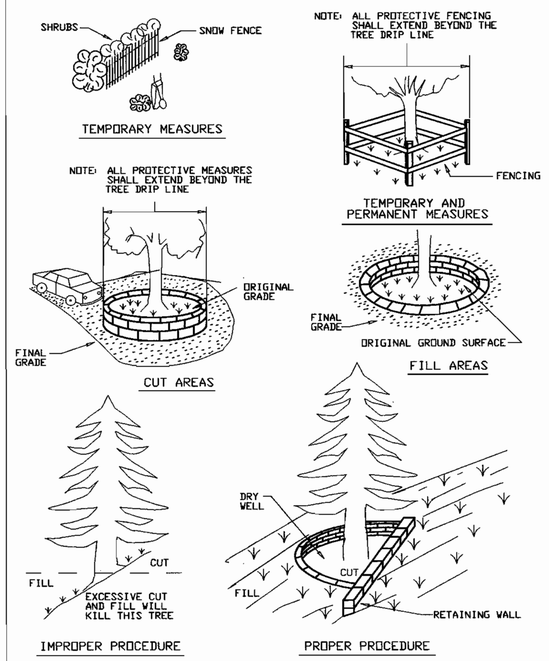
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

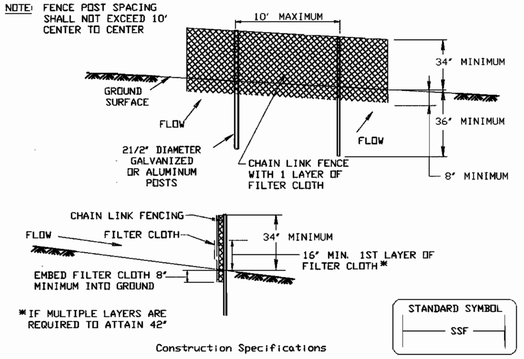
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 31 - TREE PROTECTION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 23 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. 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.

2. 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.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. 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

7. 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/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	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

SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) 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 beunlimited. 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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. "

James E. Loesch — 6/10/05
SIGNATURE OF DEVELOPER — Date
PRINT NAME BELOW SIGNATURE
James E. Loesch

BY THE ENGINEER:

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

R C Burgoyne — Jun 7, 2005
SIGNATURE OF ENGINEER — Date
PRINT NAME BELOW SIGNATURE
R C Burgoyne

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers — 6/16/05
USDA-NATURAL RESOURCES CONSERVATION SERVICE — Date

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

John R Robertson — 6/16/05
HOWARD SOIL CONSERVATION DISTRICT — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EROSION & SEDIMENT CONTROL DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

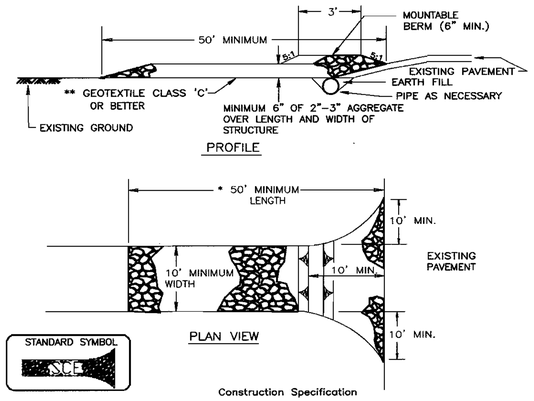
APL SHEET NO. ES-04

COUNTY SHEET NO. 29/33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\ES-04.dwg | Jun 08, 2005 - 8:34pm

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. 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.

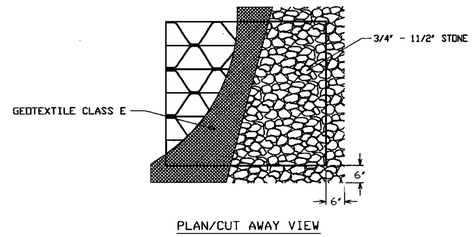
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

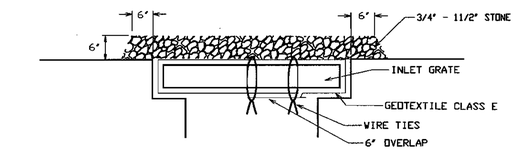
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone 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.

6. 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 23B – AT GRADE INLET PROTECTION





STANDARD SYMBOL AGIP

MAX. DRAINAGE AREA = 1/4 ACRE

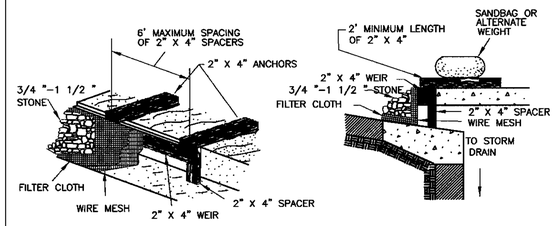
Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

2. Place 3/4" to 11/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

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

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



MAX. DRAINAGE AREA = 1/4 ACRE

STANDARD SYMBOL CIP

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

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" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

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

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

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 entering the inlet under or around the geotextile.

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

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

James E. Loesch — Date 6/10/05
SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE
James E. Loesch

BY THE ENGINEER:

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

R E Burgess — June 14, 2005
R E BURGESS
SIGNATURE OF ENGINEER — Date
PRINT NAME BELOW SIGNATURE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers — 6/16/05
USDA–NATURAL RESOURCES CONSERVATION SERVICE — Date

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

John R Robertson — 6/16/05
HOWARD SOIL CONSERVATION DISTRICT — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/21/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EROSION & SEDIMENT CONTROL DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

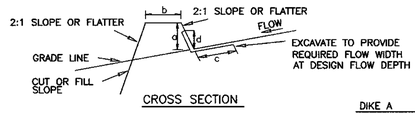
APL SHEET NO. ES-05

COUNTY SHEET NO. 30 of 33

SDP-05-133

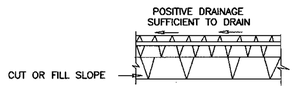
S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\ES-05.dwg Jun 08, 2005 - 8:33pm

DETAIL 1 – EARTH DIKE



CROSS SECTION

	DIKE A	DIKE B
a–DIKE HEIGHT	18"	30"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	12"	24"



PLAN VIEW

STANDARD SYMBOL
A–2 / B–3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non–erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

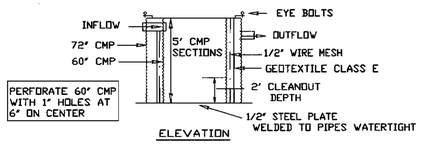
6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

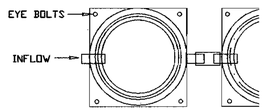
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 1 – 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 21 – PORTABLE SEDIMENT TANK



ELEVATION



PLAN VIEW

STANDARD SYMBOL
☒ PST

Construction Specifications

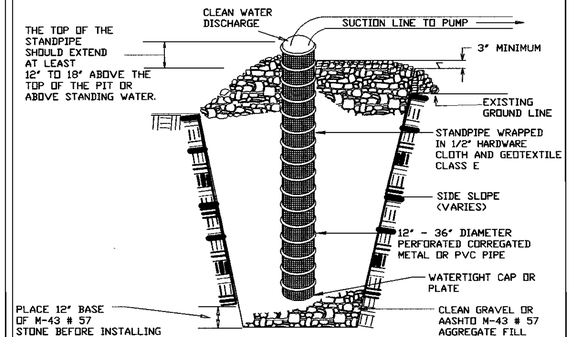
1. The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.

2. An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.

3. Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D – 14 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20B – SUMP PIT



CROSS SECTION

STANDARD SYMBOL
☒ SP

Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.

2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class E. The perforations shall be 1/2" x 6" slits or 1" diameter holes.

3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.

4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3' minimum above the anticipated standing water elevation.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D – 13 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. "

James E. Loesch — Date 6/10/05
SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE
James E. Loesch

BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR UTILITIES CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. "

R E Burgoyne — Date June 14, 2005
SIGNATURE OF ENGINEER
PRINT NAME BELOW SIGNATURE
R E Burgoyne

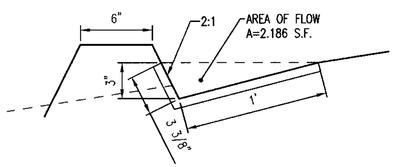
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers — Date 6/16/05
USDA–NATURAL RESOURCES CONSERVATION SERVICE

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

John R Robertson — Date 6/16/05
HOWARD SOIL CONSERVATION DISTRICT

EARTH DIKE (DIKE A)



AS OPEN CHANNEL:

$Q = V \times A$

$V = \frac{1.486}{n} R^{2/3} \; ½$; $R=R/A$

TYPE	h	A (SF)	P (FT.)	R	S (%)	V (ft/sec.)	Q (CFS)
A1	0.50	0.547	2.560	0.213	0.020	3.390	1.850
A2	1.00	2.186	5.120	0.427	0.020	5.390	11.780

FLOW:

$Q = c \times A \times I$

c=0.35

I = 8.50 in/hr

A1 = 0.72 Ac ; Q1 = 2.14 CFS

A2= 0.08 Ac ; Q2 = 0.24 CFS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/21/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691–4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EROSION & SEDIMENT CONTROL
DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

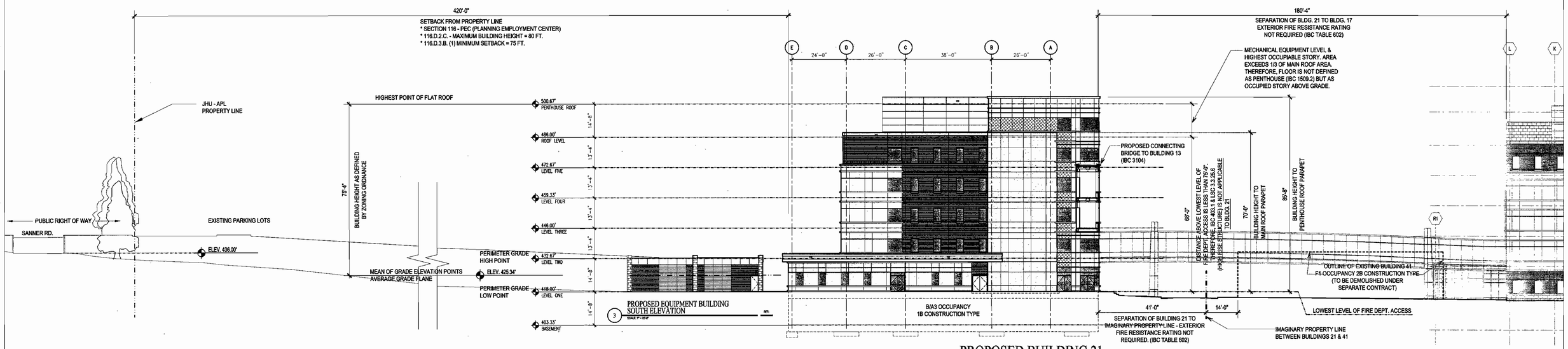
SCALE AS SHOWN

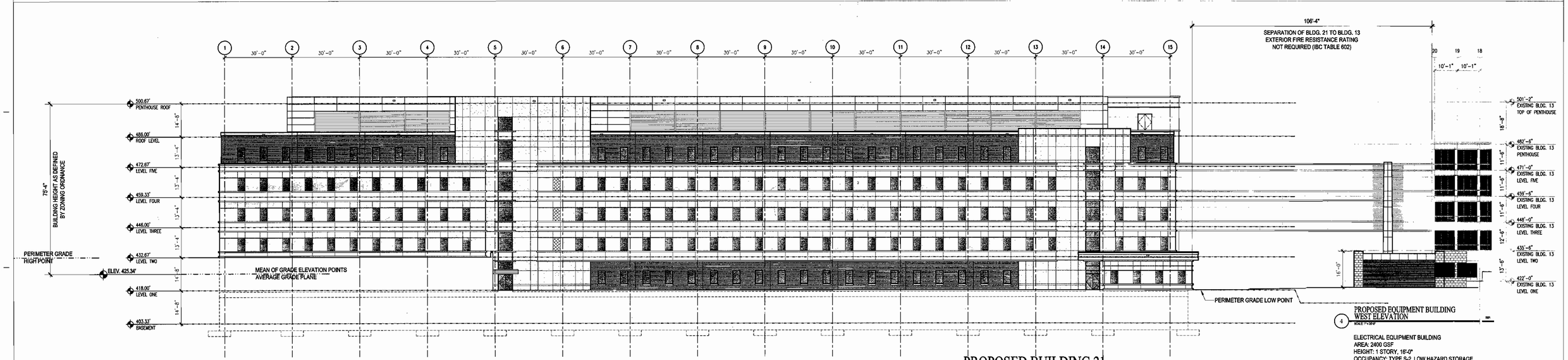
APL SHEET NO. ES-06

COUNTY SHEET NO. 31 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\ES-06.dwg | Jun 08, 2005 – 8:33pm





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/21/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

ARCHITECTURAL REGISTRATION BOARD
STATE OF MARYLAND

BUILDING 21

SITE DEVELOPMENT PLAN

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

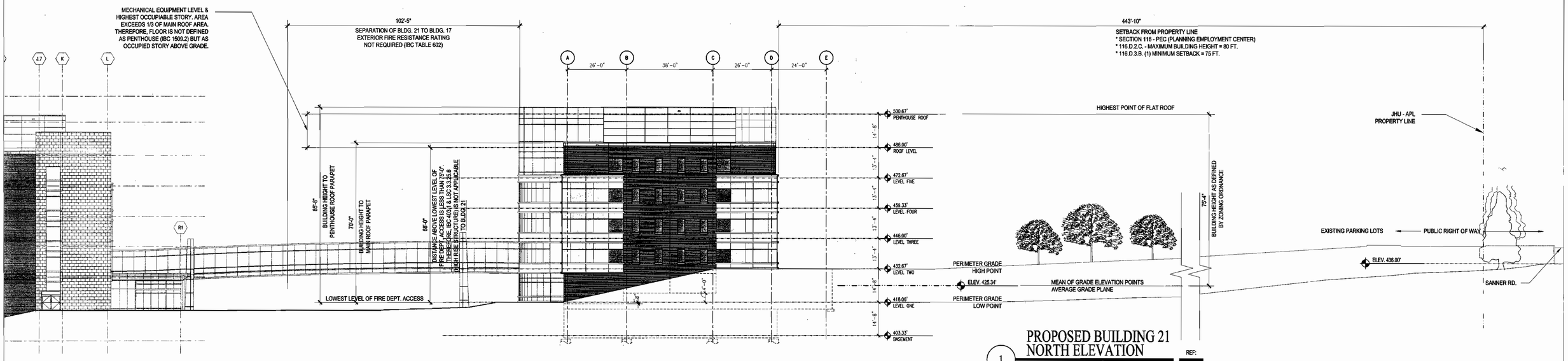
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

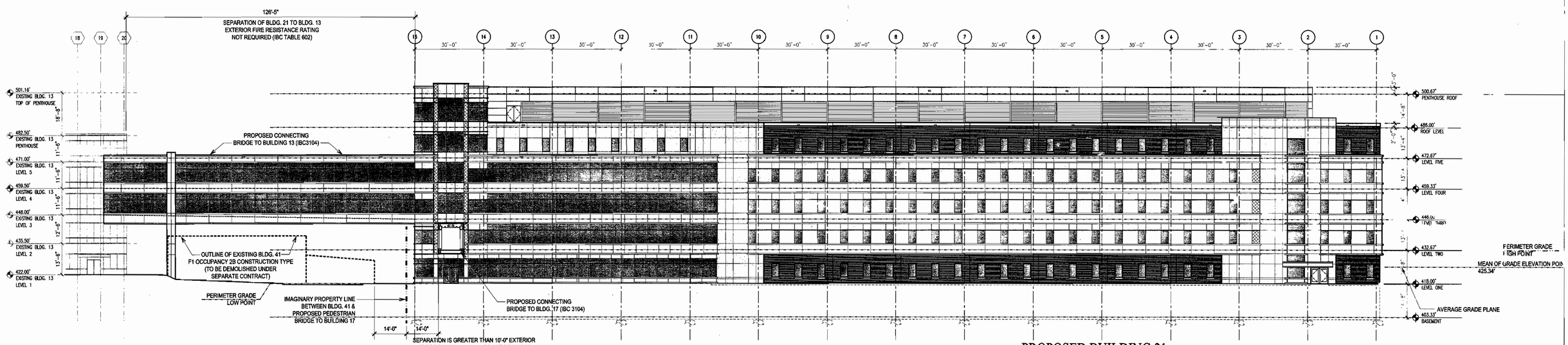
APL SHEET NO. A1

COUNTY SHEET NO. 32 of 33

SDP-05-133



1 PROPOSED BUILDING 21 NORTH ELEVATION
SCALE: 1" = 20'-0"
REF:



2 PROPOSED BUILDING 21 EAST ELEVATION
SCALE: 1" = 20'-0"
REF:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/25/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

ARCHITECTURAL REGISTRATION BOARD
STATE OF MARYLAND

BUILDING 21

SITE DEVELOPMENT PLAN

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

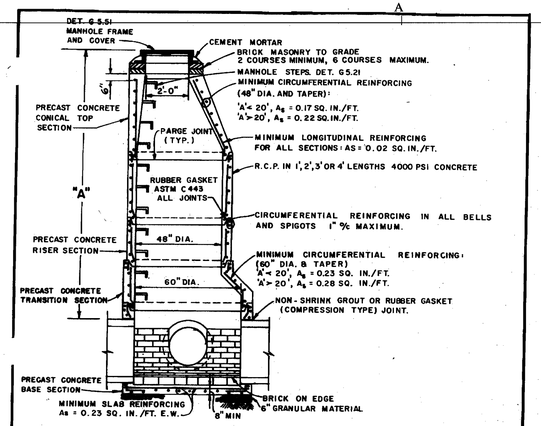
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. A2

COUNTY SHEET NO. 33 of 33

SDP-05-133



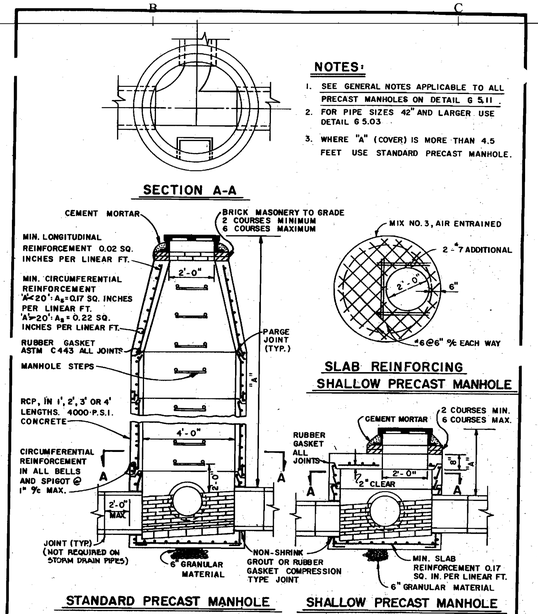
GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES

1. MANHOLE BASE SHALL BE BEDDED ON 6-INCH GRANULAR MATERIAL ON FIRM SUBGRADE.
2. EXCAVATION BELOW PIPES SHALL BE BACKFILLED WITH GRANULAR OR SELECT MATERIAL 1/3 OF WAY TO TOP OF PIPE.
3. CONNECTION BETWEEN MANHOLE WALL AND SEWER SHALL BE NON-SHRINK GROUT OR RUBBER GASKET (COMPRESSION TYPE) JOINT.
4. MANHOLE STEPS SHALL BE AS SPECIFIED ON DETAIL G5.21. MANHOLE COVER SHALL BE AS SPECIFIED ON DETAIL G5.51
5. PROVIDE 2 COATS COAL TAR EPOXY COATING, - 18 MIL. DRY. SANITARY SEWER ONLY. (EXTERIOR SURFACE ONLY)
6. PROVIDE PIPE JOINT WITHIN 2'-0" MAXIMUM FROM OUTSIDE OF MANHOLE WALL.
7. MANHOLE CHANNELS SHALL BE FORMED TO PROVIDE A SMOOTH HYDRAULIC TRANSITION BETWEEN PIPES. BENCHES SHALL BE TO TOP OF PIPE OR AS SHOWN ON PLANS. MANHOLE CHANNELS AND BENCHES SHALL BE FORMED FROM SEWER BRICK, GRADE SS, ASTM C-32.
8. MANHOLE SHALL BE IN ACCORDANCE WITH ASTM C 478 EXCEPT AS SHOWN.

* EXCEPT STORM DRAIN PIPE

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

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	STANDARD PRECAST MANHOLES	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE G5.11

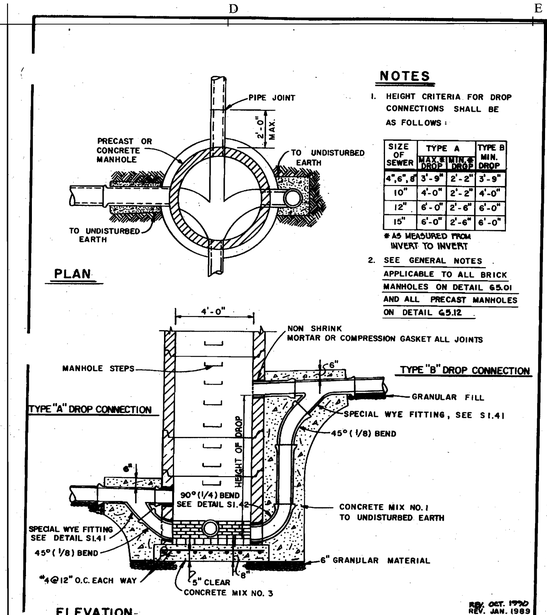


NOTES:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G 5.11
2. FOR PIPE SIZES 42" AND LARGER USE DETAIL G 5.03
3. WHERE "A" (COVER) IS MORE THAN 4.5 FEET USE STANDARD PRECAST MANHOLE.

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

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	4'-0" STANDARD AND SHALLOW PRECAST MANHOLE FOR USE WITH 24" AND SMALLER PIPE	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE G5.12



NOTES

1. HEIGHT CRITERIA FOR DROP CONNECTIONS SHALL BE AS FOLLOWS:

SIZE OF SEWER	TYPE A MAX. DROP	TYPE A MIN. DROP	TYPE B MIN. DROP
4", 6", 8"	3'-9"	2'-2"	3'-9"
10"	4'-0"	2'-2"	4'-0"
12"	6'-0"	2'-6"	6'-0"
15"	6'-0"	2'-6"	6'-0"

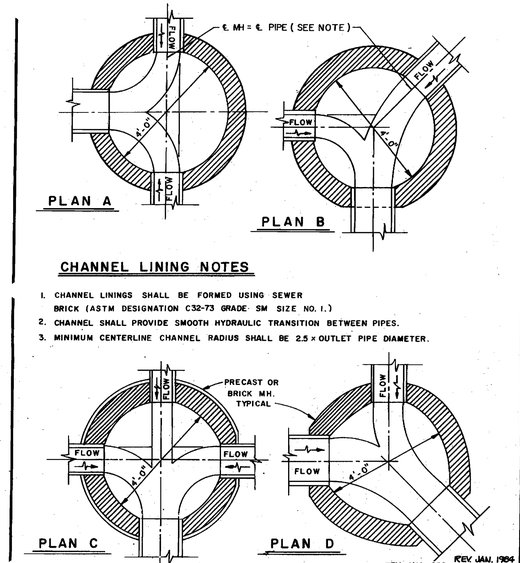
* AS MEASURED FROM INVERT TO INVERT

2. SEE GENERAL NOTES APPLICABLE TO ALL BRICK MANHOLES ON DETAIL G5.01 AND ALL PRECAST MANHOLES ON DETAIL G5.12

REV. OCT. 1990 REV. JAN. 1989 REV. JAN. 1985 REV. JAN. 1986 REV. OCT. 1982

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	DROP MANHOLE TYPE "A" AND TYPE "B"	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE S1.32

NOTE: THE ℄ OF ALL PIPES ENTERING A MH SHALL INTERSECT WITHIN 1" ± OF THE LONGITUDINAL AXIS OF THE MH BARREL (CENTER), AS DETAILED ON THE CONTRACT DRAWINGS.

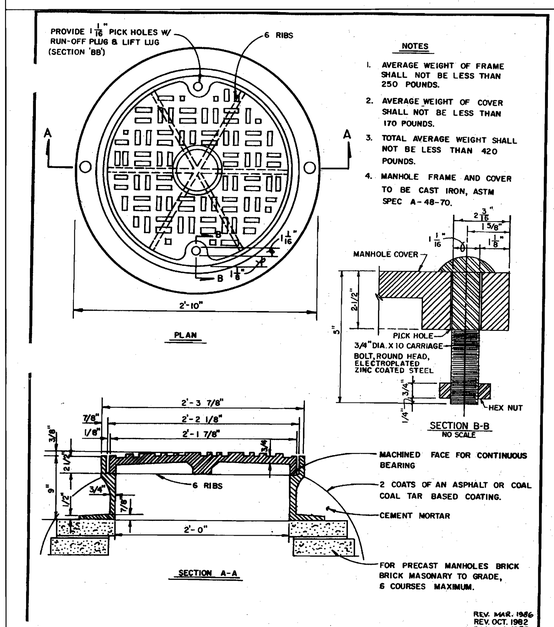


CHANNEL LINING NOTES

1. CHANNEL LININGS SHALL BE FORMED USING SEWER BRICK (ASTM DESIGNATION C32-73 GRADE SM SIZE NO. 1.)
2. CHANNEL SHALL PROVIDE SMOOTH HYDRAULIC TRANSITION BETWEEN PIPES.
3. MINIMUM CENTERLINE CHANNEL RADIUS SHALL BE 2.5 × OUTLET PIPE DIAMETER.

REV. JAN. 1989 REV. JAN. 1985 REV. JAN. 1986 REV. JAN. 1984 REV. OCT. 1982 REV. JAN. 1982

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 2-10-81 Chief-Bureau of Engineering	PLANS FOR CHANNEL CONFIGURATION TYPES "A","B","C" & "D"	DRAWN BY: J.M.C. CHECKED BY: F.A.W. SCALE: NONE G5.31

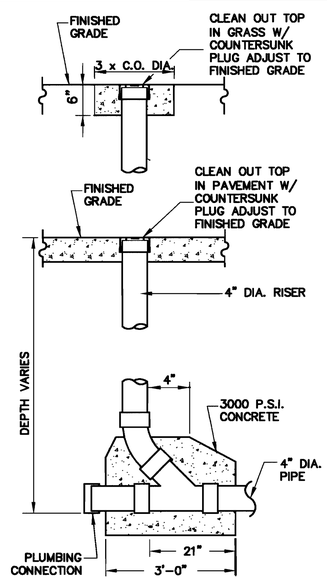


NOTES

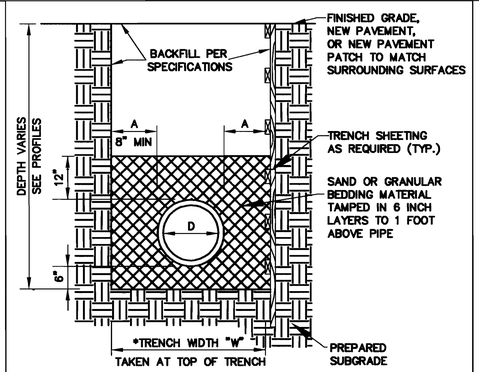
1. AVERAGE WEIGHT OF FRAME SHALL NOT BE LESS THAN 250 POUNDS.
2. AVERAGE WEIGHT OF COVER SHALL NOT BE LESS THAN 170 POUNDS.
3. TOTAL AVERAGE WEIGHT SHALL NOT BE LESS THAN 420 POUNDS.
4. MANHOLE FRAME AND COVER TO BE CAST IRON, ASTM SPEC A-48-70.

REV. MAR. 1986 REV. OCT. 1982 REV. JAN. 1982

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS Approved [signature] 1/6/84 Chief-Bureau of Engineering	STANDARD HEAVY TRAFFIC MANHOLE FRAME AND COVER	DRAWN BY: B.A.L. CHECKED BY: J.C.R. NO SCALE G 5.51



1 / X C-202 DETAIL OF 4" CLEANOUT FOR SANITARY SEWER
NOT TO SCALE

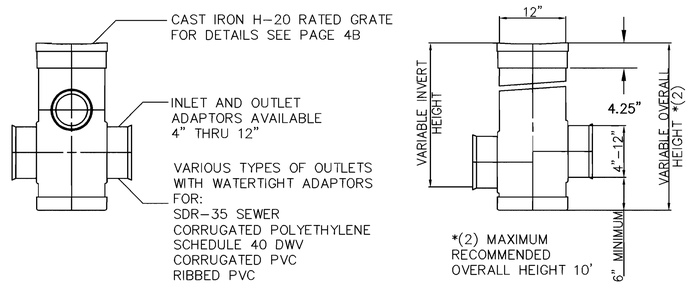


* FOR PIPES 12" OR LESS IN DIAMETER, THE TRENCH WIDTH SHALL NOT EXCEED 33"

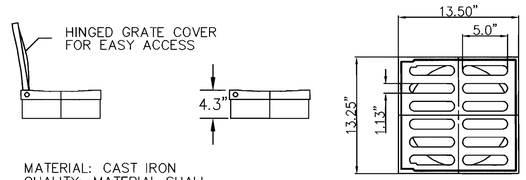
PIPE DIA. "D"	"A"
3" & 4"	12"
6"	11"
8"	10"
10"	9"
12"	9"

PIPE DIA. "D"	"A"
15"	8"
18" TO 21"	10"
24" TO 30"	12"
33" TO 42"	15"
48" AND LARGER	18"

2 / X C-202 TYPICAL PIPE TRENCH DETAIL FOR STORM AND SANITARY SEWERS
NOT TO SCALE



*(1) ADAPTORS CAN BE MOUNTED ON ANY ANGLE 0° TO 359°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTORS SEE SHEET # 6



MATERIAL: CAST IRON
QUALITY: MATERIAL SHALL CONFORM TO ASTM A48 – CLASS 30B
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

STANDARD (H-20) RATED DRAINAREA = 62.7 SQ. INCH

3 / C105 C202 DRAIN TYPE 12"Ø
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL

BUILDING 21

SDP 6/14/05

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
SEWER DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

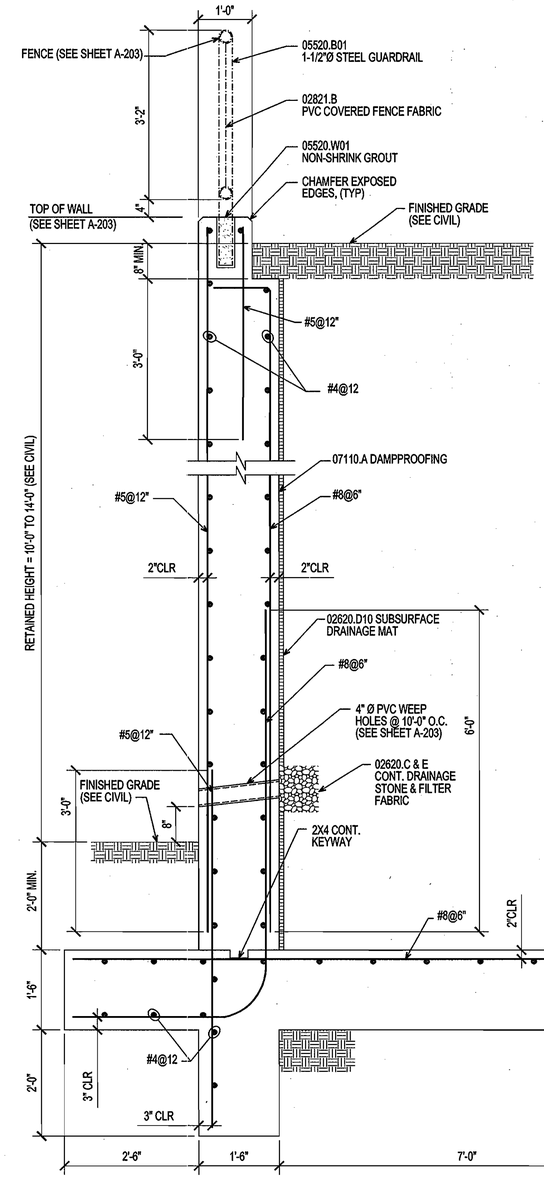
SCALE AS SHOWN

APL SHEET NO. C-202

COUNTY SHEET NO. 15 of 33

SDP 05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-201-202-203-204-205.dwg Jun 09, 2005 - 6:59am



6A SECTION

0 3" 6" 1' 2' 3'

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

NOTES:
1. FOR WALLS WITH RETAINED HEIGHT = 10'-0" TO 14'-0".
2. FOR WALL LOCATIONS AND EXTENTS, SEE SHEET C-105 AND A-203.
3. PROVIDE TYPICAL CONTROL AND EXPANSION JOINTS AS SHOWN ON TYPICAL DETAILS ON SHEET S-501.

RTKL

RTKL Associates Inc.
901 South Bond Street
Baltimore, MD 21231
Tel: 410-537-6000
Fax: 410-276-2136

Title :
Dwgnr:
Description :
Scope :

Job #
Date: 4:22PM, 14 FEB 06

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 050214
LicNo:0500000000, Ver 5.6.0, 1-Dec-2003
STONE-BOND ENGINEERING Engineering Software

Cantilevered Retaining Wall Design

Page 1
WALL EOW.CSDatafiles

Description: Section 6A - Cantilever Retaining Wall (10' - 14' Retained Height)

Criteria

Retained Height	=	10.00 ft
Wall height above soil	=	3.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	24.00 in
Soil Density	=	120.00 pcf
Wind on Stem	=	30.0 psf

Soil Data

Allow Soil Bearing	=	4,000.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	35.0 psf/ft
Toe Active Pressure	=	0.0 psf/ft
Passive Pressure	=	350.0 psf/ft
Water height over heel	=	0.0 ft
Footing|Soil Friction	=	0.410
Soil height to ignore for passive pressure	=	24.00 in

Footing Strengths & Dimensions

f'c = 3,500 psi	Fy =	60,000 psi
Min. As %	=	0.0014
Toe Width	=	2.50 ft
Heel Width	=	8.50
Total Footing Width	=	11.00
Footing Thickness	=	18.00 in
Key Width	=	18.00 in
Key Depth	=	24.00 in
Key Distance from Toe	=	2.50 ft
Cover @ Top = 3.00 in	@ Btm.=	3.00 in

Surcharge Loads

Surcharge Over Heel	=	500.0 psf
NOT Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	500.0 psf
NOT Used for Sliding & Overturning		

Design Summary

Total Bearing Load	=	21,249 lbs	
...resultant acc.	=	23.21 in	
Soil Pressure @ Toe	=	3,999 psf	OK
Soil Pressure @ Heel	=	0 psf	OK
Allowable		4,000 psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	5,598 psf	
ACI Factored @ Heel	=	0 psf	
Footing Shear @ Toe	=	29.0 psi	OK
Footing Shear @ Heel	=	63.6 psi	OK
Allowable	=	160.5 psi	
Wall Stability Ratios			
Overturning	=	2.35	OK
Sliding	=	1.68	(Vertical Co
Sliding Calcs (Vertical Component NOT Used)			
Lateral Sliding Force	=	6,991.5 lbs	
less 100% Passive Force	=	4,725.0 lbs	
less 100% Friction Force	=	6,769.4 lbs	
Added Force Req'd	=	0.0 lbs	OK
...for 1.5 : 1 Stability	=	0.0 lbs	OK

Stem Construction — Top Stem

Design height	=	Stem OK
Wall Material Above "Ht"	=	0.00
Thickness	=	Concrete
Rebar Size	=	10.00
Rebar Spacing	=	# 8
Rebar Placed at	=	6.00
Design Data		Edge
fc/FB + fa/Fa	=	0.736
Total Force @ Section	lbs =	11,735.7
Moment....Actual	ft-# =	76,039.5
Moment....Allowable	=	101,920.1
Shear....Actual	psi =	63.1
Shear....Allowable	psi =	107.5
Bar Develop ABOVE Ht.	in =	37.00
Bar Lap/Hook BELOW Ht.	in =	10.22
Wall Weight	=	225.0
Rebar Depth 'd'	in =	15.50
Masonry Data		
f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Special Inspection	=	
Modular Ratio 'n'	=	
Short Term Factor	=	
Equiv. Solid Thick.	=	
Masonry Block Type = Normal Weight		
Concrete Data		
f'c	psi =	4,000.0
Fy	psi =	60,000.0

Footing Design Results

		Toe	Heel
Factored Pressure	=	5,598	0 psf
Mu : Upward	=	16,122	25,621 ft-#
Mu : Downward	=	4,222	99,724 ft-#
Mu: Design	=	11,900	85,205 ft-#
Actual 1-Way Shear	=	29.00	68.57 psi
Allow 1-Way Shear	=	160.57	160.57 psi

Toe Reinforcing = # 8 @ 6.00 in
Heel Reinforcing = # 8 @ 6.00 in
Key Reinforcing = # 5 @ 12.00 in

Other Acceptable Sizes & Spacings
Toe: #4@ 10.00 in, #5@ 16.25 in, #6@ 21.75 in, #7@ 29.50 in, #8@ 38.75 in, #9@ 4
Heel: #4@ 2.50 in, #5@ 3.50 in, #6@ 5.00 in, #7@ 7.00 in, #8@ 9.00 in, #9@ 11.50
Key: #4@ 6.75 in, #5@ 10.00 in, #6@ 21.0

RTKL

RTKL Associates Inc.
901 South Bond Street
Baltimore, MD 21231
Tel: 410-537-6000
Fax: 410-276-2136

Title :
Dwgnr:
Description :
Scope :

Job #
Date: 4:22PM, 14 FEB 06

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 050214
LicNo:0500000000, Ver 5.6.0, 1-Dec-2003
STONE-BOND ENGINEERING Engineering Software

Cantilevered Retaining Wall Design

Page 2
WALL EOW.CSDatafiles

Description: Section 6A - Cantilever Retaining Wall (10' - 14' Retained Height)

Summary of Overturning & Resisting Forces & Moments

Item		OVERTURNING Force lbs	Distance ft	Moment ft-#		RESISTING Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=	7,011.5	6.77	53,893.8	Soil Over Heel	= 13,440.0	7.50	100,800.0
Toe Active Pressure	=				Sloped Soil Over Heel	=		
Surcharge Over Toe	=				Surcharge Over Heel	=		
Adjacent Footing Load	=				Adjacent Footing Load	=		
Added Lateral Load	=				Axial Dead Load on Stem	=	0.00	
Load @ Stem Above Soil	=	80.0	19.00	1,710.0	Soil Over Toe	= 600.0	1.25	750.0
Seismic Load	=				Surcharge over Toe	=		
					Stem Weight(s)	= 4,675.0	3.25	15,893.8
Total	=	6,991.5	O.T.M. =	55,303.8	Earth @ Stem Transitions	=		
Resisting/Overturning Ratio	=		2.35		Footing Weight	= 2,475.0	5.50	13,612.4
Vertical Loads used for Soil Pressure =		21,249.0	lbs		Key Weight	= 450.0	3.25	1,462.5
					Vert. Component	=		
					Total =	21,249.0 lbs	R.M.=	132,519.7

Vertical component of active pressure NOT used for soil pressure

NOTE: ISSUED TO DOCUMENT THE DESIGN & STRUCTURAL CALCULATIONS FOR THE C.I.P. CONCRETE SITE RETAINING WALLS.

Rev. 11/27/06
Approved

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1/9/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/10/07
DIRECTOR	DATE 1/11/07

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARLAND — ROBERT S. KNIGHT — No. 13411 — PROFESSIONAL ENGINEER

BUILDING 21 & 43

REVISED SITE DEVELOPMENT PLAN

02/20/06

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EXTERIOR SITE RETAINING WALLS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. A-4

COUNTY SHEET NO. 33B

SDP-05-133

K:\JHU_APL_Bldg21\Cad\CIVIL\Shea\A-4.dwg Dec 18, 2006 - 2:47pm

RTKL Associates Inc.
901 South Bond Street
Baltimore, MD 21231
Tel: 410-537-6000
Fax: 410-276-2136

Title :
Dsgnr:
Description :
Scope :
Job #
Date: 4:21PM, 14 FEB 06

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 5B0514
User: KW-0302007, Ver 5.8.0, 1-Dec-2003
(c)1983-2001 ENERCALC Engineering Software

Cantilevered Retaining Wall Design

Page 1
WALLBOW.Calc(stem)

Description Section 5D - Cantilever Retaining Wall (5' - 10' Retained Height)

Criteria

Retained Height	=	12.00 ft
Wall height above soil	=	3.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	24.00 in
Soil Density	=	120.00 pcf
Wind on Stem	=	30.0 psf

Soil Data

Allow Soil Bearing	=	4,000.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	35.0 psf/ft
Toe Active Pressure	=	0.0 psf/ft
Passive Pressure	=	360.0 psf/ft
Water height over heel	=	0.0 ft
Footing|Soil Friction	=	0.410
Soil height to ignore for passive pressure	=	24.00 in

Footing Strengths & Dimensions

f'c = 3,500 psi		Fy =	60,000 psi
Min. As %		=	0.0014
Toe Width		=	2.00 ft
Heel Width		=	6.00
Total Footing Width		=	8.00
Footing Thickness		=	14.00 in
Key Width		=	12.00 in
Key Depth		=	18.00 in
Key Distance from Toe		=	2.00 ft
Cover @ Top = 3.00 in	@ Btm.=		3.00 in

Surcharge Loads

Surcharge Over Heel = 500.0 psf
NOT Used To Resist Sliding & Overturning

Surcharge Over Toe = 500.0 psf
NOT Used for Sliding & Overturning

Design Summary

Total Bearing Load	=	11,555 lbs
...resultant ecc.	=	22.46 in
Soil Pressure @ Toe	=	3,620 psf OK
Soil Pressure @ Heel	=	0 psf OK
Allowable	=	4,000 psf
Soil Pressure Less Than Allowable		
ACI Factored @ Toe	=	5,067 psf
ACI Factored @ Heel	=	0 psf
Footing Shear @ Toe	=	29.8 psi OK
Footing Shear @ Heel	=	87.4 psi OK
Allowable	=	100.6 psi
Wall Stability Ratios		
Overturning	=	1.90 OK
Sliding	=	1.57 (Vertical Co
Sliding Calcs (Vertical Component NOT Used)		
Lateral Sliding Force	=	5,044.0 lbs
less 100% Passive Force	=	3,309.0 lbs
less 100% Friction Force	=	4,737.5 lbs
Added Force Req'd	=	0.0 lbs OK
...for 1.5 : 1 Stability	=	0.0 lbs OK

Stem Construction — Top Stem

		Stem OK
Design height	ft =	0.00
Wall Material Above "Ht"	=	Concrete
Thickness	=	12.00
Rebar Size	=	# 7
Rebar Spacing	=	6.00
Rebar Placed at	=	Edge
Design Data		
fb/FB + fa/Fa	=	0.796
Total Force @ Section	lbs =	7,412.0
Moment....Actual	ft-# =	27,951.5
Moment....Allowable	=	46,921.0
Shear....Actual	psi =	65.0
Shear....Allowable	psi =	107.5
Bar Develop ABOVE Ht.	in =	32.37
Bar Lap/Hook BELOW Ht.	in =	9.67
Wall Weight	=	150.0
Rebar Depth 'd'	in =	9.50
Masonry Data		
f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Special Inspection	=	
Modular Ratio 'n'	=	
Short Term Factor	=	
Equiv. Solid Thick.	=	
Masonry Block Type = Normal Weight		
Concrete Data		
f'c	psi =	4,000.0
Fy	psi =	60,000.0

Other Acceptable Sizes & Spacings
Toe: #4@ 13.00 in, #5@ 20.25 in, #6@ 28.50 in, #7@ 39.00 in, #8@ 49.25 in, #9@ 4
Heel: #4@ 3.50 in, #5@ 5.25 in, #6@ 7.50 in, #7@ 10.25 in, #8@ 13.25 in, #9@ 17.0
Key: #4@ 16.00 in, #5@ 24.75 in, #6@ 35.

Footing Design Results

	Toe	Heel
Factored Pressure =	5,067	0 psf
Mu' : Upward =	9,677	5,129 ft-#
Mu' : Downward =	2,562	37,013 ft-#
Mu: Design =	6,615	31,883 ft-#
Actual 1-Way Shear =	29.82	87.37 psi
Allow 1-Way Shear =	100.57	100.57 psi
Toe Reinforcing =	# 7 @ 6.00 in	
Heel Reinforcing =	# 7 @ 6.00 in	
Key Reinforcing =	# 5 @ 12.00 in	

RTKL Associates Inc.
901 South Bond Street
Baltimore, MD 21231
Tel: 410-537-6000
Fax: 410-276-2136

Title :
Dsgnr:
Description :
Scope :
Job #
Date: 4:21PM, 14 FEB 06

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 5B0514
User: KW-0302007, Ver 5.8.0, 1-Dec-2003
(c)1983-2001 ENERCALC Engineering Software

Cantilevered Retaining Wall Design

Page 2
WALLBOW.Calc(stem)

Description Section 5D - Cantilever Retaining Wall (5' - 10' Retained Height)

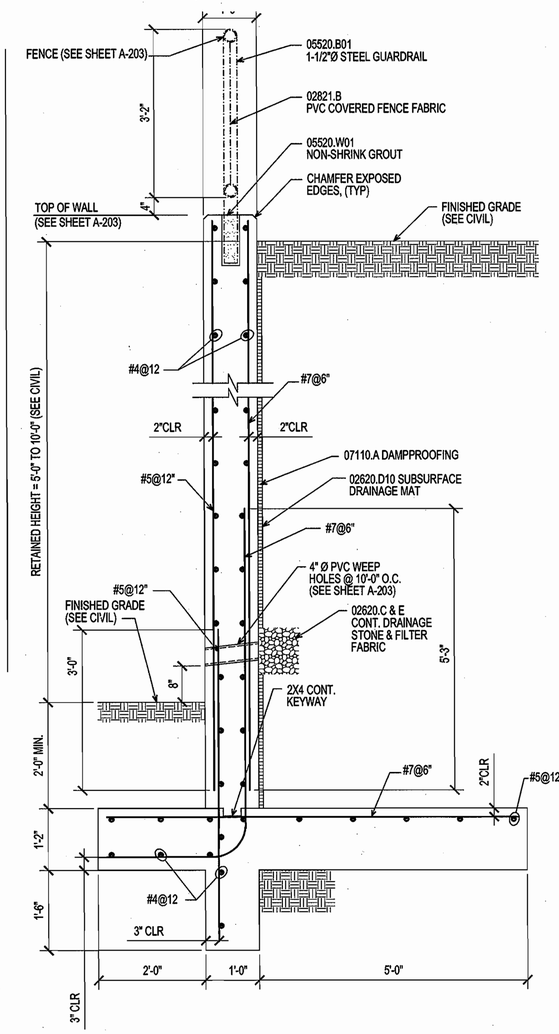
Summary of Overturning & Resisting Forces & Moments

Item		....OVERTURNING.... Force lbs	Distance ft	Moment ft-#		....RESISTING.... Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=	4,954.0	5.24	25,956.0	Soil Over Heel	=	7,200.0	5.50	39,600.0
Toe Active Pressure	=				Sloped Soil Over Heel	=			
Surcharge Over Toe	=				Surcharge Over Heel	=			
Adjacent Footing Load	=				Adjacent Footing Load	=			
Added Lateral Load	=				Axial Dead Load on Stem	=		0.00	
Load @ Stem Above Soil	=	90.0	14.67	1,320.0	Soil Over Toe	=	430.0	1.00	430.0
SeismicLoad	=				Surcharge Over Toe	=			
					Stem Weight(s)	=	2,250.0	2.50	5,625.0
					Earth @ Stem Transitions	=			
					Footing Weight	=	1,406.0	4.00	5,600.0
					Key Weight	=	225.0	2.50	562.5
					Vert. Component	=			
Total	=	5,044.0	O.T.M. =	27,276.0	Total =		11,555.0 lbs	R.M.=	51,867.5
Resisting/Overturning Ratio			=	1.90					
Vertical Loads used for Soil Pressure =				11,555.0 lbs					

Vertical component of active pressure NOT used for soil pressure

NOTE: ISSUED TO DOCUMENT THE DESIGN & STRUCTURAL CALCULATIONS FOR THE C.I.P. CONCRETE SITE RETAINING WALLS.

Rev. 11/27/06
Approved



5D SECTION 0 3" 6" 1' 2' 3'
SCALE: 3/4" =1'-0"

NOTES:
1. FOR WALLS WITH RETAINED HEIGHT = 5'-0" TO 10'-0".
2. FOR WALL LOCATIONS AND EXTENTS, SEE SHEET C-105 AND A-203.
3. PROVIDE TYPICAL CONTROL AND EXPANSION JOINTS AS SHOWN ON TYPICAL DETAILS ON SHEET S-501.

RTKL Associates Inc.
901 South Bond Street
Baltimore, MD 21231
Tel: 410-537-6000
Fax: 410-276-2136

Title :
Dsgnr:
Description :
Scope :
Job #
Date: 4:19PM, 14 FEB 06

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 5B0514
User: KW-0302007, Ver 5.8.0, 1-Dec-2003
(c)1983-2001 ENERCALC Engineering Software

Cantilevered Retaining Wall Design

Page 1
WALLBOW.Calc(stem)

Description Section 4F - Cantilever Retaining Wall (0' - 5' Retained Height)

Criteria

Retained Height	=	7.00 ft
Wall height above soil	=	3.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	24.00 in
Soil Density	=	120.00 pcf
Wind on Stem	=	30.0 psf

Soil Data

Allow Soil Bearing	=	4,000.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	35.0 psf/ft
Toe Active Pressure	=	0.0 psf/ft
Passive Pressure	=	360.0 psf/ft
Water height over heel	=	0.0 ft
Footing|Soil Friction	=	0.410
Soil height to ignore for passive pressure	=	24.00 in

Footing Strengths & Dimensions

f'c = 3,500 psi		Fy =	60,000 psi
Min. As %		=	0.0014
Toe Width		=	1.50 ft
Heel Width		=	4.00
Total Footing Width		=	5.50
Footing Thickness		=	12.00 in
Key Width		=	12.00 in
Key Depth		=	12.00 in
Key Distance from Toe		=	1.50 ft
Cover @ Top = 3.00 in	@ Btm.=		3.00 in

Surcharge Loads

Surcharge Over Heel = 500.0 psf
NOT Used To Resist Sliding & Overturning

Surcharge Over Toe = 500.0 psf
NOT Used for Sliding & Overturning

Design Summary

Total Bearing Load	=	5,355 lbs
...resultant ecc.	=	16.39 in
Soil Pressure @ Toe	=	2,590 psf OK
Soil Pressure @ Heel	=	0 psf OK
Allowable	=	4,000 psf
Soil Pressure Less Than Allowable		
ACI Factored @ Toe	=	3,612 psf
ACI Factored @ Heel	=	0 psf
Footing Shear @ Toe	=	19.7 psi OK
Footing Shear @ Heel	=	54.1 psi OK
Allowable	=	100.6 psi
Wall Stability Ratios		
Overturning	=	1.87 OK
Sliding	=	1.63 (Vertical Co
Sliding Calcs (Vertical Component NOT Used)		
Lateral Sliding Force	=	2,576.7 lbs
less 100% Passive Force	=	2,169.0 lbs
less 100% Friction Force	=	2,195.5 lbs
Added Force Req'd	=	0.0 lbs OK
...for 1.5 : 1 Stability	=	0.0 lbs OK

Stem Construction — Top Stem

		Stem OK
Design height	ft =	0.00
Wall Material Above "Ht"	=	Concrete
Thickness	=	12.00
Rebar Size	=	# 6
Rebar Spacing	=	12.00
Rebar Placed at	=	Edge
Design Data		
fb/FB + fa/Fa	=	0.593
Total Force @ Section	lbs =	3,348.2
Moment....Actual	ft-# =	10,775.9
Moment....Allowable	=	18,167.5
Shear....Actual	psi =	25.4
Shear....Allowable	psi =	107.5
Bar Develop ABOVE Ht.	in =	22.29
Bar Lap/Hook BELOW Ht.	in =	6.22
Wall Weight	=	150.0
Rebar Depth 'd'	in =	9.50
Masonry Data		
f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Special Inspection	=	
Modular Ratio 'n'	=	
Short Term Factor	=	
Equiv. Solid Thick.	=	
Masonry Block Type = Normal Weight		
Concrete Data		
f'c	psi =	4,000.0
Fy	psi =	60,000.0

Other Acceptable Sizes & Spacings
Toe: Not req'd, Mu < S * Fr
Heel: #4@ 7.75 in, #5@ 12.00 in, #6@ 17.00 in, #7@ 23.25 in, #8@ 30.50 in, #9@ 39
Key: Not req'd, Mu < S * Fr

Footing Design Results

	Toe	Heel
Factored Pressure =	3,612	0 psf
Mu' : Upward =	3,574	653 ft-#
Mu' : Downward =	1,432	9,367 ft-#
Mu: Design =	2,172	6,734 ft-#
Actual 1-Way Shear =	15.89	54.13 psi
Allow 1-Way Shear =	100.57	100.57 psi
Toe Reinforcing =	# 6 @ 12.00 in	
Heel Reinforcing =	# 6 @ 12.00 in	
Key Reinforcing =	# 5 @ 12.00 in	

RTKL Associates Inc.
901 South Bond Street
Baltimore, MD 21231
Tel: 410-537-6000
Fax: 410-276-2136

Title :
Dsgnr:
Description :
Scope :
Job #
Date: 4:19PM, 14 FEB 06

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 5B0514
User: KW-0302007, Ver 5.8.0, 1-Dec-2003
(c)1983-2001 ENERCALC Engineering Software

Cantilevered Retaining Wall Design

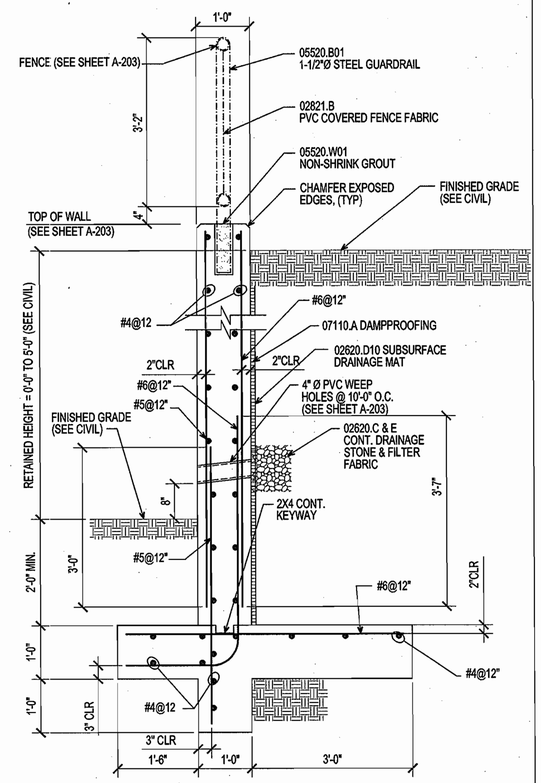
Page 2
WALLBOW.Calc(stem)

Description Section 4F - Cantilever Retaining Wall (0' - 5' Retained Height)

Summary of Overturning & Resisting Forces & Moments

Item		....OVERTURNING.... Force lbs	Distance ft	Moment ft-#		....RESISTING.... Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=	2,288.7	3.35	7,653.3	Soil Over Heel	=	2,520.0	4.00	10,080.0
Toe Active Pressure	=				Sloped Soil Over Heel	=			
Surcharge Over Toe	=				Surcharge Over Heel	=			
Adjacent Footing Load	=				Adjacent Footing Load	=			
Added Lateral Load	=				Axial Dead Load on Stem	=		0.00	
Load @ Stem Above Soil	=	90.0	9.50	855.0	Soil Over Toe	=	360.0	0.75	270.0
SeismicLoad	=				Surcharge Over Toe	=			
					Stem Weight(s)	=	1,500.0	2.00	3,000.0
					Earth @ Stem Transitions	=			
					Footing Weight	=	625.0	2.75	2,268.7
					Key Weight	=	150.0	2.00	300.0
					Vert. Component	=			
Total	=	2,376.7	O.T.M. =	8,508.3	Total =		5,355.0 lbs	R.M.=	15,918.7
Resisting/Overturning Ratio			=	1.87					
Vertical Loads used for Soil Pressure =				5,355.0 lbs					

Vertical component of active pressure NOT used for soil pressure



4F SECTION 0 3" 6" 1' 2' 3'
SCALE: 3/4" =1'-0"

NOTES:
1. FOR WALLS WITH RETAINED HEIGHT = 0'-0" TO 5'-0".
2. FOR WALL LOCATIONS AND EXTENTS, SEE SHEET C-105 AND A-203.
3. PROVIDE TYPICAL CONTROL AND EXPANSION JOINTS AS SHOWN ON TYPICAL DETAILS ON SHEET S-501.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1/9/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/10/07
DIRECTOR	DATE 1/11/07

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — ROBERTS, KNIGHT — No. 13484 — PROFESSIONAL ENGINEER

BUILDING 21 & 43

REVISED SITE DEVELOPMENT PLAN

02/20/06

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
EXTERIOR SITE RETAINING WALLS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

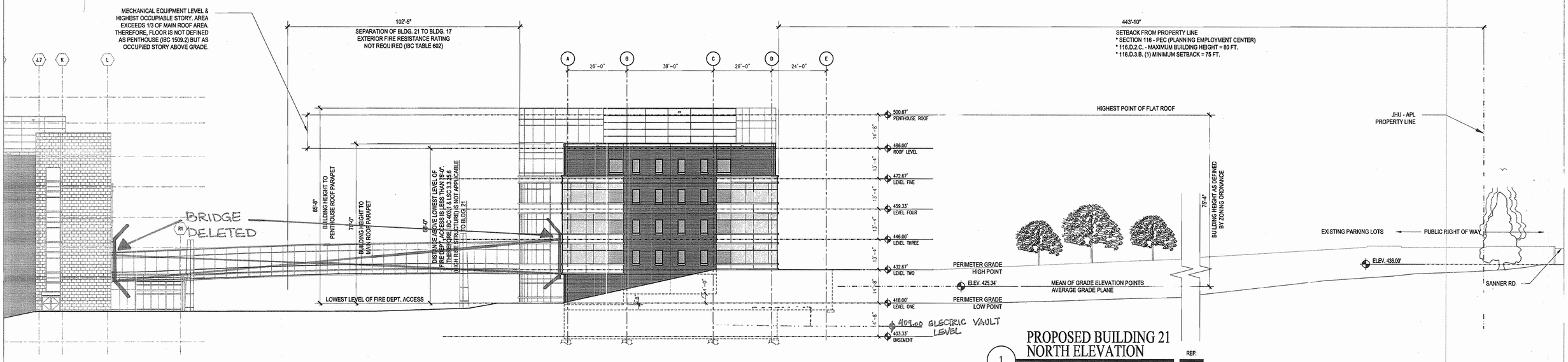
SCALE AS SHOWN

APL SHEET NO. A-3

COUNTY SHEET NO. 33A

SDP-05-133

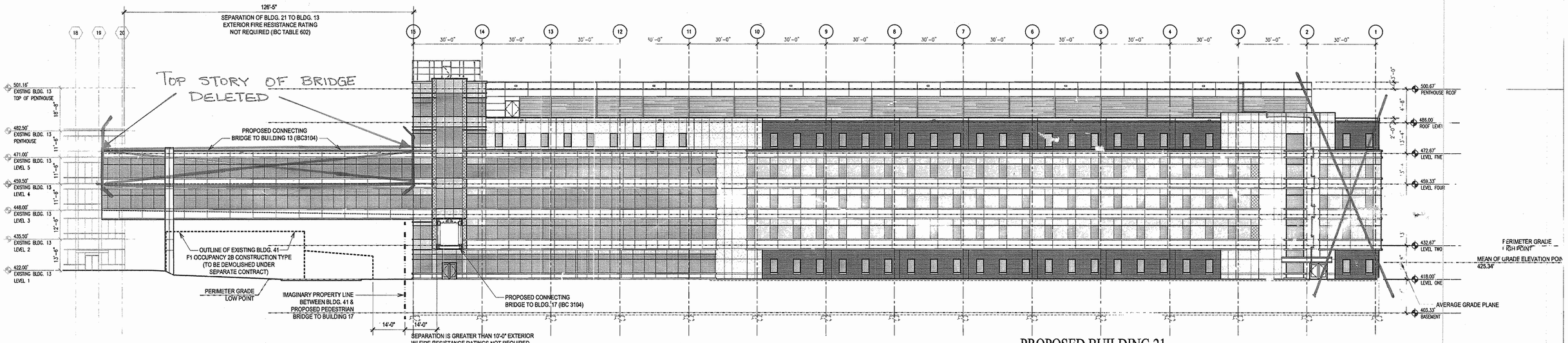
K:\JHU_APL_Bldg21\Cad\CIVIL\Sheet\A-3.dwg Dec 18, 2006 - 2:56pm



1 PROPOSED BUILDING 21 NORTH ELEVATION

SCALE: 1" = 20'-0"

REF:



* REVISED ELEVATIONS DEPICT SHORTENED FOOTPRINT OF BLDG. 21 AND THE DELETION OF 2 BRIDGE LEVELS.

2 PROPOSED BUILDING 21 EAST ELEVATION

SCALE: 1" = 20'-0"

REF:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 10/25/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/15
DIRECTOR	DATE 7/15/15

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

ARCHITECTURAL REGISTRATION BOARD 3494 STATE OF MARYLAND

BUILDING 21

SITE DEVELOPMENT PLAN

* REVISED S.D.P. 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

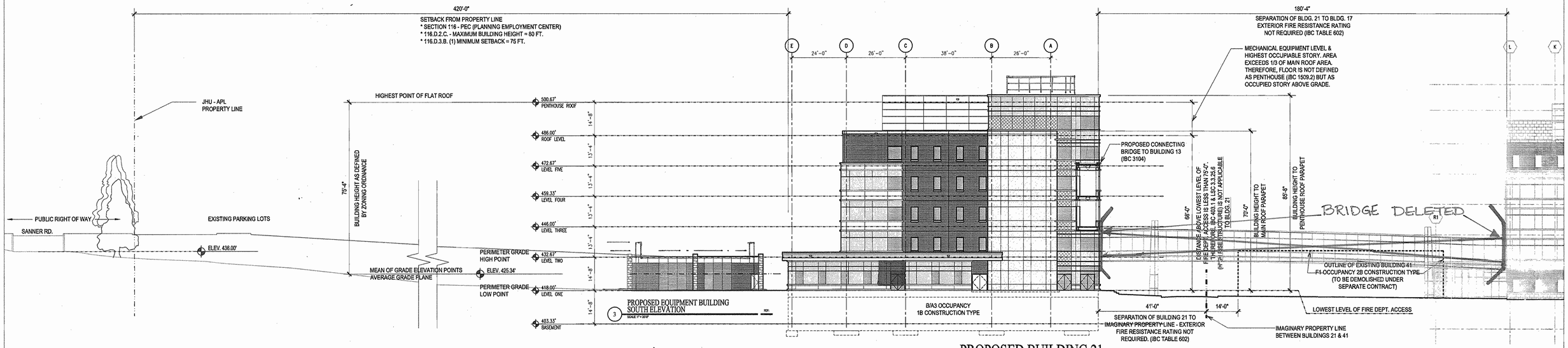
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

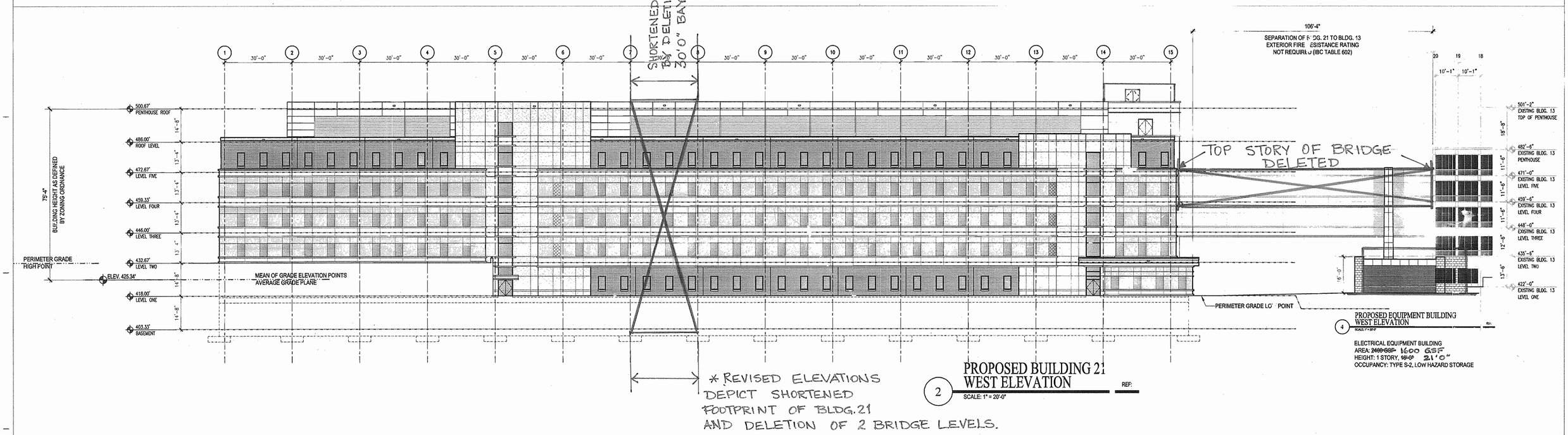
SCALE AS SHOWN

API SHEET NO. A2

COUNTY SHEET NO. 33 of 33

SDP-05-133





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/28/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

ARCHITECTURAL REGISTRATION BOARD 3494-21 STATE OF MARYLAND

BUILDING 21

SITE DEVELOPMENT PLAN

* REVISED S. D. P. 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

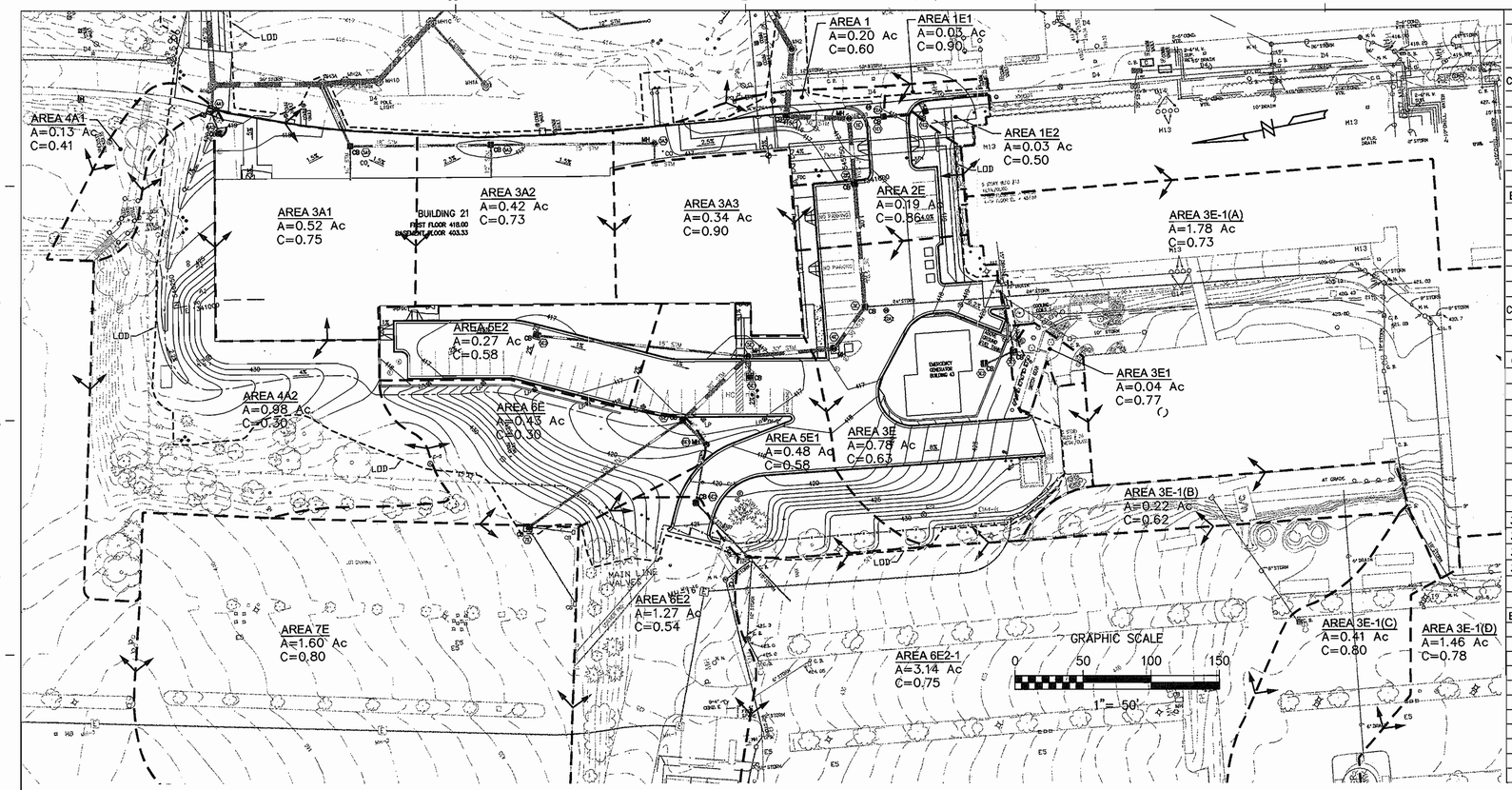
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. A1

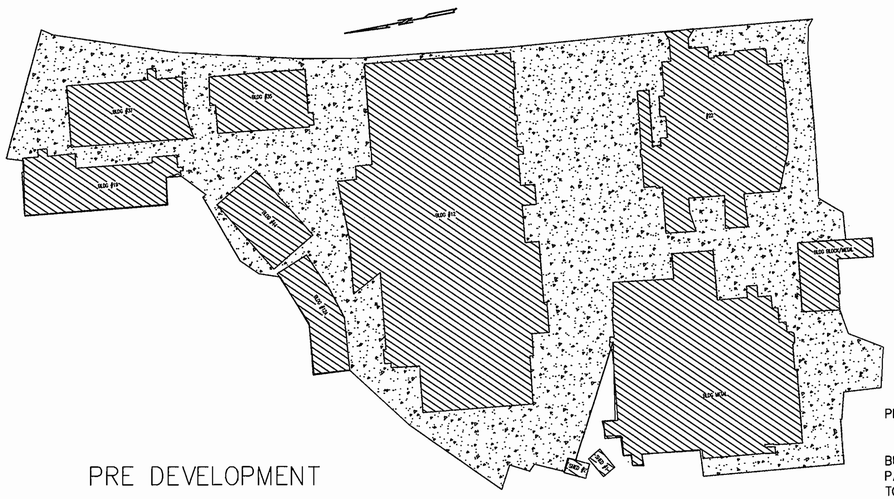
COUNTY SHEET NO. 32 of 33

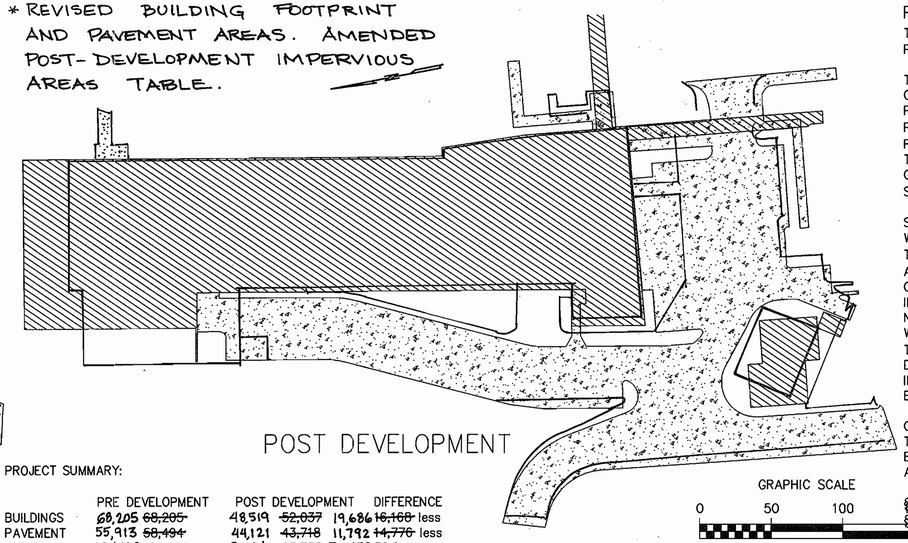
SDP-05-133



FROM NO.	TO NO.	INC. AREA (AC.)	TOTAL AREA (AC.)	C	C X A	SUM (C X A)	TIME (MIN.)	I (IN./HR.)	Q (CFS)	DES. SLOPE (%)	DIAMETER (IN.)	VELOCITY (FT./SEC.)	LENGTH (FT.)	TIME (MIN.)	REMARKS
						PIPE									
CONNECT TO EXISTING STORM DRAIN NORTH SIDE OF 17															
4A2		0.98	0.98	0.30	0.29	0.29	5	8.50	2.50						
4A2	4A1								2.50	1.00	15	2.04	19	0.16	
4A1		0.13	0.13	0.41	0.05	0.05	5	8.50	0.45						
4A1	MH4A					0.35	5	8.50	2.95	1.00	15	2.41	16	0.11	
From Building 21 and area to east															
3A3		0.34	0.34	0.90	0.31	0.31	5	8.50	2.64						
BLDG	3A3								2.64	2.00	10	4.83	5	0.02	
3A3	3A2								2.64	1.00	15	2.15	120	0.93	
3A2		0.42	0.42	0.73	0.31										
3A2	3A1		0.76			0.62	5	8.50	5.24	1.00	18	2.97	103	0.58	
3A1		0.52	0.52	0.75	0.39										
3A1	MH3A		1.28			1.01	5	8.50	8.56	1.00	18	4.84	50	0.17	
CONNECT TO EXISTING STORM DRAIN TO SOUTH SIDE OF BUILDING 17															
7E		1.60	1.60	0.80	1.28										
7E	6E					1.28	5	8.50	10.88	10.85	15	8.87	137	0.26	EXISTING PIPE
6E2-1		3.14		0.75	2.36		5	8.50	20.02						EXISTING PIPE
6E2		1.27		0.54	0.69		5	8.50	5.83						EXISTING PIPE
6E		0.43		0.30	0.13		5	8.50	1.10						EXISTING PIPE
6E	5E		6.44			4.45	5	8.50	37.82	1.10	30	7.71	67	0.14	
5E2		0.27	0.27	0.58	0.16		5	8.50	1.33						
52E	5E					0.16	5	8.50	1.33	1.00	15	1.08	155	2.38	
5E1		0.48	0.48	0.58	0.28	0.28	5	8.50	2.38						
5E1	5E		0.48			0.28	5	8.50	2.38	1.00	15	1.94	15	0.13	
5E	4E		7.19			4.89	5	8.50	41.53	1.10	30	8.46	63	0.12	
4E	3E		7.19			4.89	5	8.50	41.53	1.10	30	8.46	38	0.07	
3E-1D		1.46		0.78	1.14										TO EXISTING MANHOLE
3E-1C		0.41		0.80	0.33										TO EXISTING MANHOLE
3E-1B		0.22		0.62	0.14										TO EXISTING MANHOLE
3E-1A		1.78		0.73	1.30										TO EXISTING MANHOLE
3E1		0.04		0.77	0.03										
3E1	EX.MH					0.03	5	8.50	0.26	12.50	12	0.33	41.00	2.05	
EX.MH	3E		3.91			2.93	5	8.50	24.93	1.23	24	7.94	101.00	0.21	EXISTING PIPE
3E		0.78		0.63	0.49		5	8.50	4.18						
3E	2E		11.88			8.31	5	8.50	70.65	1.50	36	9.99	90.00	0.81	
2E		0.19		0.86	0.16										
2E	1E		12.07			8.47	5	8.50	72.03	1.50	36	10.19	48.00	0.08	
1E2		0.03		0.50	0.02		5	8.50	0.13						
1E1	1E2		0.03			0.02	5	8.50	0.13	6.40	12	0.16	28.00	2.87	EXISTING PIPE
1E1		0.03		0.90	0.03		5	8.50	0.23						
1E1	1E		0.06			0.04	5	8.50	0.36	6.20	12	0.45	22.00	0.81	EXISTING PIPE
1E	1		12.16			8.53	5	8.50	72.52	1.50	36	10.26	46.00	0.07	
1		0.20		0.60	0.12		5	8.50	1.02						
1	2		12.36			8.65	5	8.50	73.54	0.60	42	7.64	45.0	0.10	REPLACE 36 INCH

* REVISED BUILDING FOOTPRINT AND PAVEMENT AREAS. AMENDED POST-DEVELOPMENT IMPERVIOUS AREAS TABLE.





PROJECT SUMMARY:

	PRE DEVELOPMENT	POST DEVELOPMENT	DIFFERENCE
BUILDINGS	68,205 ~~68,205~~	48,519 ~~52,037~~	19,686 ~~16,168~~ less
PAVEMENT	55,913 ~~58,494~~	44,121 ~~43,718~~	11,792 ~~14,776~~ less
TOTAL	124,118 ~~126,699~~	92,640 ~~95,755~~	31,478 ~~30,944~~ less

PROJECT DESCRIPTION:

THE PROPOSED PROJECT IS TO REDEVELOP A PORTION OF THE BASIN "A" STORMWATER MANAGEMENT PLAN APPROVED UNDER SDP 02-88.

THE PROPOSED PROJECT IS TO DEMOLISH 11 SMALL BUILDINGS AND SUPPORTING PAVEMENT AND TO CONSTRUCT A NEW LARGE OFFICE BUILDING WITH AN EMERGENCY GENERATOR AND RELATED SUPPORTING PAVEMENT. THE EXISTING BUILDINGS AND PAVEMENT TO BE DEMOLISHED ARE ALL INCLUDED AS PRE-1984 ON THE STORMWATER MANAGEMENT PLAN FOR BASIN "A". THEY REPRESENT 68,205 SQUARE FEET OF BUILDING COVERAGE AND 58,494 SQUARE FEET OF PAVEMENT, SEE "PRE DEVELOPMENT PLAN". THE PROPOSED DEVELOPMENT IS A 283,000 SQUARE FEET 5 STORY OFFICE BUILDING WITH BASEMENT, GENERATOR SUPPORT BUILDING, AND SUPPORTING PAVEMENT. THE NEW BUILDING COVERAGE IS 52,037 SQUARE FEET, AND SUPPORTING PAVEMENT OF 43,718 SQUARE FEET, SEE "POST DEVELOPMENT PLAN".

STORMWATER MANAGEMENT PLAN:
WATER QUANTITY REQUIREMENTS:
THE PROJECT SITE IS FULLY WITHIN THE LIMITS OF BASIN "A" AS APPROVED IN SDP 02-88. THE APPROVED STORMWATER MANAGEMENT PLAN FOR BASIN "A" INCLUDED A POND TO PROVIDE QUANTITY CONTROL TO THE PRE-1984 DISCHARGE RATES. THIS PROPOSED DEVELOPMENT REDUCES THE IMPERVIOUSNESS OF THE PROJECT SITE AND THEREFORE IS WITHIN THE APPROVED PLAN. ACCORDINGLY, NO ADDITIONAL WATER QUANTITY CONTROLS ARE REQUIRED AS PART OF THIS PROJECT.
WATER QUALITY REQUIREMENTS:
THIS PROJECT IS A "REDEVELOPMENT" PROJECT. AS A REDEVELOPMENT PROJECT HOWARD COUNTY DESIGN MANUAL VOLUME I, CHAPTER 5.1.E REQUIRES THAT REDEVELOPMENT PROJECTS REDUCE THE IMPERVIOUS AREA BY AT LEAST 20 PERCENT. THE PROPOSED PROJECT REDUCES THE IMPERVIOUS AREA BY 24.4%. ACCORDINGLY, NO STRUCTURAL WATER QUALITY CONTROL DEVICES ARE REQUIRED.

CONCLUSIONS:
THE PROPOSED PROJECT IS A REDEVELOPMENT PROJECT WITHIN AN APPROVED STORMWATER MANAGEMENT BASIN. AS PROPOSED THIS PROJECT FULLY COMPLIES WITH STORMWATER MANAGEMENT REQUIREMENTS, AS APPROVED BY HOWARD COUNTY IN SDP-02-88.

THE EXISTING BASIN "A" POND PROVIDES SUFFICIENT CAPACITY FOR QUANTITY CONTROLS.
THE PROPOSED PROJECT REDUCES TOTAL IMPERVIOUS AREA BY 24.4 % AND THEREFOR MEETS THE QUALITY REQUIREMENTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/23/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/23/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05

* REVISED SDP 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
DRAINAGE DIVIDER

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

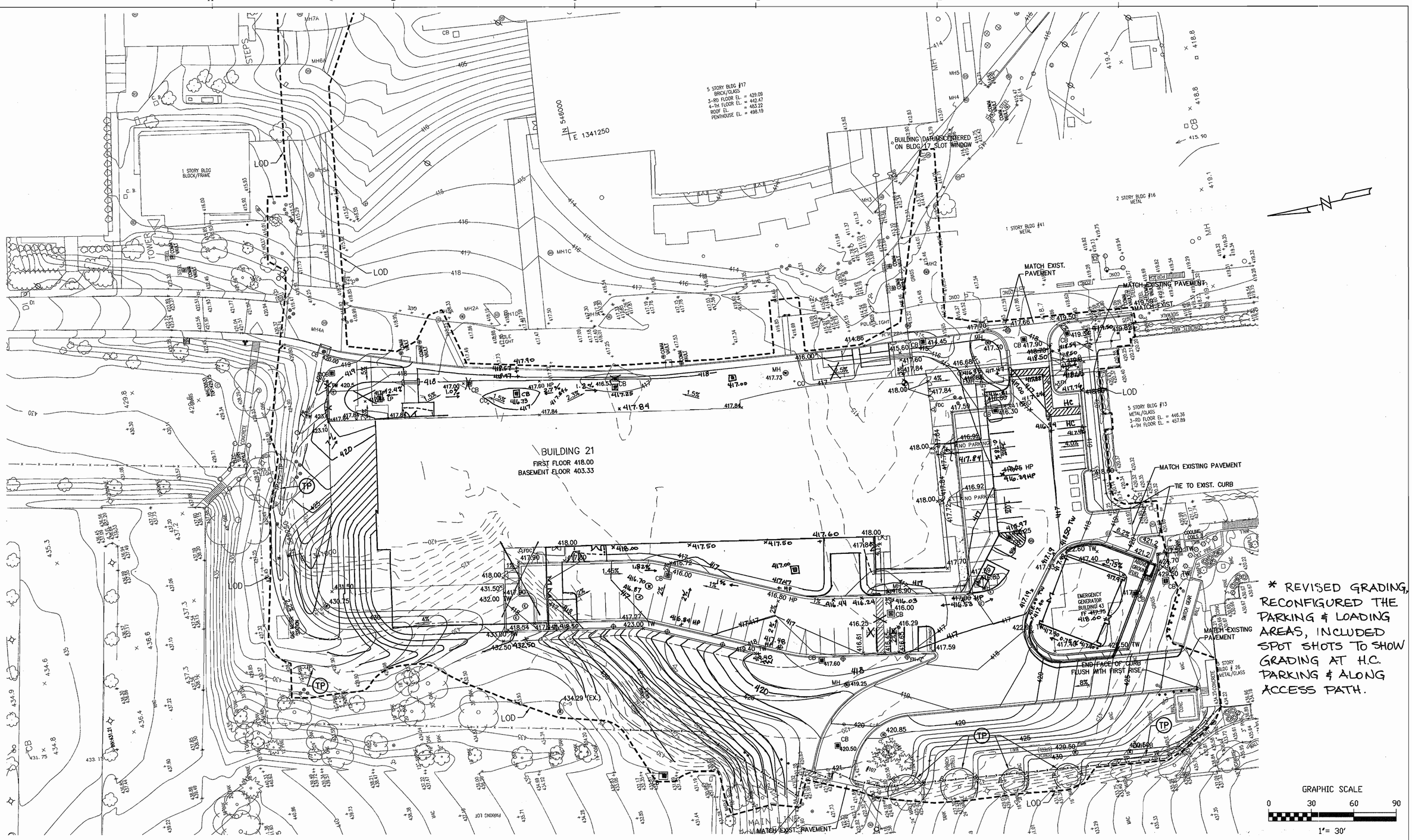
SCALE AS SHOWN

APL SHEET NO. C-108

COUNTY SHEET NO. 13 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-108.dwg - Jun 09, 2005 - 7:10am



* REVISED GRADING, RECONFIGURED THE PARKING & LOADING AREAS, INCLUDED SPOT SHOTS TO SHOW GRADING AT H.C. PARKING & ALONG ACCESS PATH.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 6/23/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

* REVISED SDP 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
GRADING PLAN

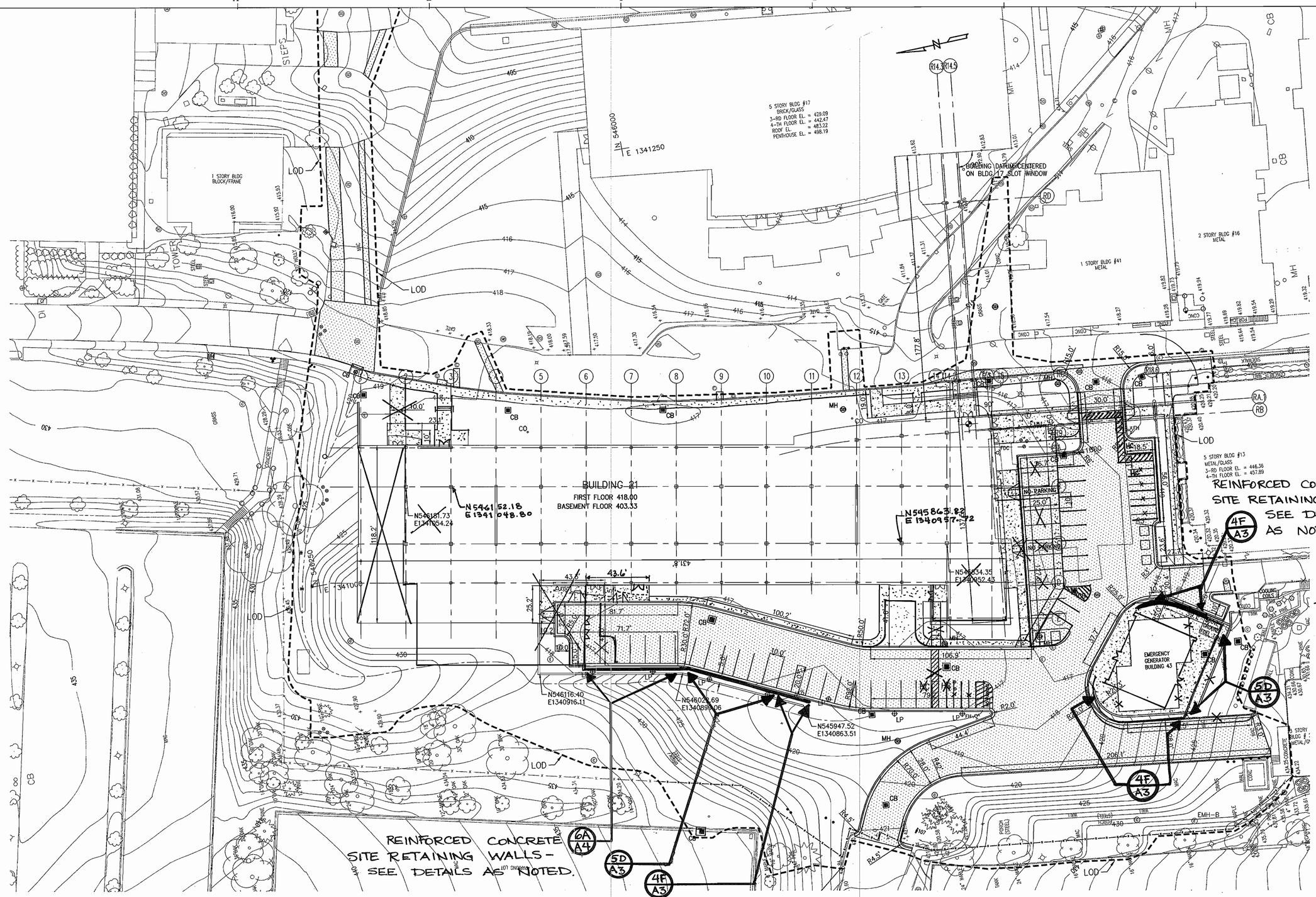
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-107

COUNTY SHEET NO. 12 of 33

SDP 05-133



NOTES:

1. THE COORDINATES AND ELEVATIONS USED IN THIS DRAWING ARE BASED ON THE SITE CONTROL MOMUNETS ESTABLISHED BY WHITMAN REQUARDT AND ASSOCIATES, LLP.

2. FOR UTILITY STRUCTURE LOCATIONS SEE SHEET C-106.

* AMENDED LAYOUT PLAN TO REFLECT THE REVISED SITE DUE TO THE SHORTENING OF BUILDING 21, THE ADDITION OF THE SUBSTATION, AND THE RE-ORIENTATION OF BUILDING 43.

GRAPHIC SCALE
0 30 60 90
1"= 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 10/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

* REVISED SDP 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
LAYOUT PLAN

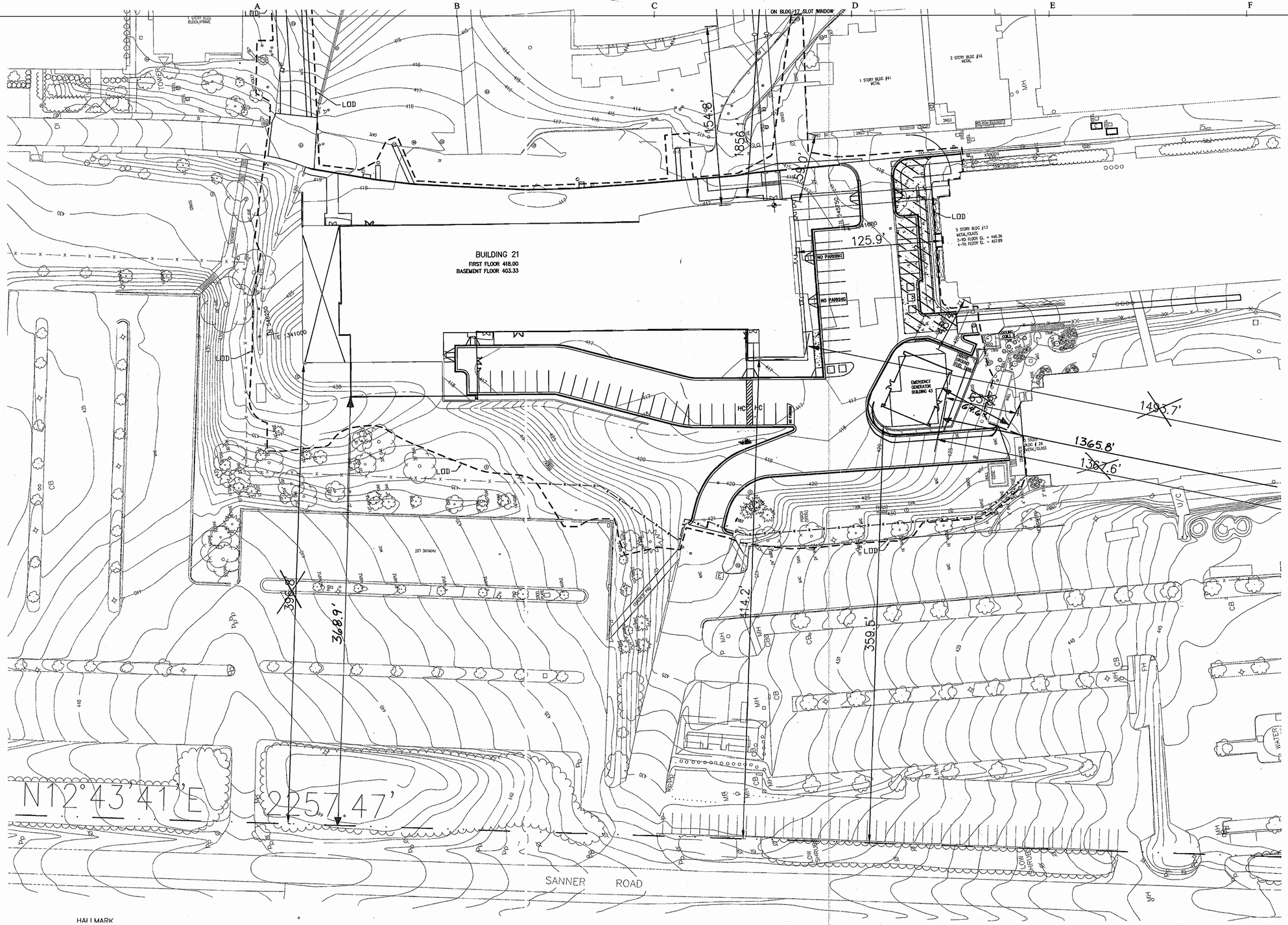
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-105

COUNTY SHEET NO. 10 of 33

SDP-05-133



NOTES:

1. THIS DRAWING IS PROVIDED FOR SDP AND ZONING USE. THE CONSTRUCTOR SHALL LAYOUT THE BUILDING FROM THE CIVIL LAYOUT PLAN.
2. DIMENTIONS ARE TO ADJACENT BUILDINGS OR PERPENDICULAR TO THE PROPERTY LINE.

N

* REVISED FOOTPRINT OF BUILDING 43, ADJUSTED NORTH END OF BUILDING 21, AND REVISED DIMENSION TIES FOR BUILDING SETBACKS.

GRAPHIC SCALE
0 40 80 120
1"= 40'

HAI I MARK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/25/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND

BUILDING 21

SDP 6/14/05

* REVISED SDP 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
BUILDING SETBACK DIMENSIONS

TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-03

COUNTY SHEET NO. 3 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-03.dwg Jun 08, 2005 - 8:24pm

GENERAL NOTES: (CONT.)

10. THE SUBJECT PROPERTY IS ZONED PEC PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN.

11. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. NO LANDSCAPE PLANTINGS ARE REQUIRED FOR THIS PLAN SINCE NO PROPOSED IMPROVEMENTS ARE ADJACENT TO PUBLIC ROAD OR ADJOINING PROPERTY. PLANTINGS ARE NOT REQUIRED, THEREFORE NO SURETY IS REQUIRED.

12. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN, WAS OBTAINED FROM FIELD SURVEYS PERFORMED BY WHITMAN, REQUARDT AND ASSOCIATES (TOPOGRAPHY), AVAILABLE RECORDS AND APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS IN EARLY 2004 AND MAY NOT REFLECT EXACT CONDITIONS. WHILE EVERY EFFORT HAS BEEN MADE TO ENSURE THE ACCURACY OF THESE DRAWINGS IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION. THE CONTRACTOR MUST FIELD VERIFIED EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR MUST TEST PIT TO DETERMINE THE EXACT LOCATION AT ALL CROSSINGS IN ADVANCE OF CONSTRUCTION.

13. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.

14. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER.

15. ACCESS TO THE SECURE AREA OF THE APPLIED PHYSICS LABORATORY (WITHIN THE FENCED ENCLOSURE) MUST BE ARRANGED IN ADVANCE BY CONTACTING JHU/APL PLANT FACILITIES OFFICE (443) 778-4777.

16. SECURITY MUST BE MAINTAINED WITHIN THE CONSTRUCTION AREA. ALL REQUIRED FENCE CONSTRUCTION AND RELOCATION SHALL BE BY THE CONTRACTOR WHO SHALL BE RESPONSIBLE TO COORDINATE WITH JHU-APL AS TO WHEN SUCH WORK IS REQUIRED.

17. THE CONTRACTOR SHALL CONTACT MR. WILLIAM KOZAK (443) 778-5137 AT LEAST FIVE DAYS BEFORE STARTING WORK, UTILITY WORK, OR NEEDING TO SHUT DOWN ANY UTILITIES. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEMS.

18. THE CONTRACTOR SHALL SHUT DOWN EXISTING UTILITIES ONLY AFTER NORMAL WORKING HOURS AT JHU-APL. WORK MUST BE SCHEDULE ACCORDINGLY THROUGH JHU-APL. NORMAL WORKING HOURS ARE 8:30 A.M. TO 5:00 P.M., MONDAY THROUGH FRIDAY.

19. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION, 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK, AT (410) 313-1880.

20. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.

21. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.

22. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED.

23. THE AREA SHOWN IS LOCATED ON TAX MAP #41.

24. ALL SITE UTILITIES ARE THE PROPERTY OF APL. APL WILL HORIZONTALLY LOCATE ALL ACTIVE UTILITIES FOR THE CONTRACTOR.

25. TRAFFIC SHALL BE MAINTAINED BY THE CONTRACTOR ALONG EXISTING ROADWAYS DURING PROPOSED WORK, AT ALL TIMES. THE PAVED DRIVE EAST OF THE BUILDING 21 SITE SHALL BE MAINTAINED AT LEAST 22 FEET WIDE.

26. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.

27. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES.

28. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY CHANGES MADE WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

29. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.

30. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES INDICATED TO BE SAVED DURING CONSTRUCTION.

31. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL MEET CURRENT HOWARD COUNTY SCD, DILP, & CID STANDARDS AND DIRECTIVES.

32. EXISTING SIGNS, GUARDRAILS AND OTHER MINOR SITE FEATURES IN THE WAY OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

33. CONTRACTOR SHALL CONTACT JHU-APPLIED PHYSICS LAB PLANT FACILITIES OFFICE (443) 778-4777, 48 HOURS PRIOR START OF THE EXCAVATION AND MUST NOTIFY ALL PUBLIC UTILITY COMPANIES AND THE OWNER OF UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.

34. TRENCH AND INSTALLATION OF NEW UTILITIES SHALL BE SCHEDULED SO THAT ALL TRENCHES WILL BE BACK FILLED OR COVERED WITH STEEL PLATES AT THE END OF EACH DAY. NO TRENCHES WILL BE ALLOWED TO BE OPEN AT THE END OF EACH WORK DAY. TRENCH AREAS SHALL BE MULCHED AND TEMPORARY SEEDED IN NON-PAVED AREA, AND TRAFFIC BEARING TEMPORARY SURFACE SHALL BE INSTALLED IN PAVED AREAS.

35. CONTRACTOR SHALL PREPARE CONSTRUCTION SHOP DRAWING FOR THE NEW UTILITIES AND RETAINING WALLS. SHOP DRAWINGS SHALL SHOW IN SECTIONS AND PLANS THE VERTICAL AND HORIZONTAL LOCATION FOR ALL PIPES, CONDUITS, MANHOLES, DUCTBANKS AND RETAINING WALL. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY APL BEFORE START OF WORK IN THIS AREA.

36. CONTRACTOR SHALL MAINTAIN CONTINUOUS FLOW IN THE STORM DRAIN PIPES DURING CONSTRUCTION.

37. HANDICAPPED PARKING PROVIDED ON THIS PROJECT IS ASSIGNED TO STAFF AS NEEDED. PUBLIC ACCESS HANDICAPPED PARKING IS ADJACENT TO BUILDING 26.

38. THESE PLANS REFERENCE HOWARD COUNTY CONTROL MONUMENT 41EA.

39. THERE ARE NO EXISTING OR NEW EASEMENTS, WITHIN THE AREA OF THIS DEVELOPMENT PLAN.

40. THE OUTDOOR LIGHTING WILL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS IN ACCORDANCE WITH SECTION 134 OF THE ZONING REGULATIONS.

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY

STORMWATER MANAGEMENT DRAINAGE AREA
"A" BASIN DEVELOPMENT ACCOUNTING

DATE: 10-27-04

	FINAL PLAN "A" HoCo APPROVED	B17 AND B20 DEVELOPMENT	PRE SI's DEMOLITION	SYSTEMS INTEGRATION BUILDINGS CONCLUSION 12 & 15	PRE BUILDING 21 DEMOLITION CONCLUSION	BUILDING 21	POST SI's CONSTRUCTION DEMOLITION
AS OF DATE	2/28/2002	MARCH 2004					
	(ACRES)	(ACRES)	(ACRES)	(ACRES)	(ACRES)	(ACRES)	(ACRES)
DRAINAGE AREA	43.2	43.2	43.2	42.4	42.4	42.4	42.4
EXISTING IMPERVIOUS DRAINAGE AREA – PRE 1984	27.2	27.2	27.0	27.2	24.4	24.4	24.4
PROPOSED IMPERVIOUS DRAINAGE AREA – POST 1984	11.7	1.4	0.6	4.0		2.2	
TOTAL IMPERVIOUS AREA	38.9	28.6	27.6	31.2	28.4	30.6	30.6
IMPERVIOUS DRAINAGE AREA MAXIMUM ALLOWABLE IMPERVIOUS AREA (38.9 AC.) AVAILABLE	0.0	10.3	11.3	7.7	10.5	8.3	8.3

~~FLOOR SPACE USAGE~~

BUILDING 21	Rooftop	Penthouse	5th Floor	4th Floor	3rd Floor	2nd Floor	1st Floor	Basement	Bridges	Total
B-Business	0	2,600	40,100	42,000	37,350	42,000	40,615	38,250	0	242,915
A-3 Assembly	0	0	0	0	4,350	0	0	4,350	0	8,700
S-2 Storage	0	0	0	0	300	0	0	0	0	300
S-2 MEP Equip	0	21,250	0	0	0	0	5,035	0	0	26,285
IBC 3104 Pedestrian Walkway	0	0	0	0	0	0	0	0	4,800	4,800
Total Floor Area GSF	0	23,850	40,100	42,000	42,000	42,000	45,650	42,600	4,800	283,000
BUILDING 43										
S-2 LOW HAZARD STORAGE							2,400			2,400

FLOOR SPACE USAGE

BUILDING 21	Rooftop	Penthouse	5th Floor	4th Floor	3rd Floor	2nd Floor	1st Floor	Basement	Bridge 13	Total
B-Business	0	100	37,300	39,200	39,200	39,200	33,920	38,900	0	227,820
A-3 Assembly	0	0	0	0	0	0	3,080	0	0	3,080
S-2 Storage	0	0	0	0	0	0	150	0	0	150
S-2 MEP Equip	0	22,000	0	0	0	0	8,550	0	0	30,550
IBC 3104 Pedestrian Walkway	0	0	0	0	0	0	0	0	1,400	1,400
Total Floor Area GSF	0	22,100	37,300	39,200	39,200	39,200	45,700	38,900	1,400	263,000
BUILDING 43										
S-2 Low Hazard Storage							2300			2300

LEGEND

EXISTING		NEW
8"SAN	SANITARY SEWER	6" SAN
M4-018	SANITARY SEWER MANHOLE	
CO	SANITARY SEWER CLEANOUT	CO
8"SD	STORM DRAIN	12" SD
D6-46	STORM DRAIN MANHOLE	
	DROP INLET	
	YARD INLET	
	STORM SEWER CLEANOUT	CO
RD	ROOF DRAIN	RD
HW EW	HEADWALL, ENDWALL	
8"STM	STEAM LINE	
MV	STEAM VALVE	
	STEAM MANHOLE	
8"W	WATER MAIN, BUILDING SERVICE	10" W
WV	WATER VALVE	WV
FH PIV	POST INDICATOR VALVE	PIV
	FIRE HYDRANT WITH SHUTOFF VALVE	
	FIRE HYDRANT	FH
	FIRE DEPARTMENT CONNECTION	FD
TR361	DECIDUOUS TREE	
TR245	EVERGREEN TREE	
	RIPRAP	
	TREELINE	
	SHRUBS	
420	INDEX CONTOUR	405
	INTERMEDIATE CONTOUR	399
	EDGE OF WATER	400.36x
428.7	SPOT ELEVATION	
CA10 429.70	SURVEY CONTROL POINT NO. CA10 BENCHMARK ELEVATION = 429.70 FT.	
276.88' N85°57'30"E	PROPERTY BOUNDARY	
	CONCRETE SIDEWALK	
	HANDICAP RAMP	
	STAIRS	
	RETAINING WALL	398.66x
	HANDRAIL	
	CURB AND GUTTER	
	TRANSITION CURB AND GUTTER	
	DEPRESSED CURB AND GUTTER	
	ASPHALT PAVEMENT	
	PARKING STRIPE	
FP	FLAGPOLE	FP
V	BUILDING	
5'WIDE 6'HEIGHT SIGN	UTILITY TUNNEL AND ACCESS OPENING	
	TRAFFIC SIGN	
B-8	SOIL BORING	
	ABANDON EXISTING UNDERGROUND LINE	
	LIMIT OF DISTURBANCE	

* FLOOR SPACE USAGE TABLE MODIFIED TO REFLET MODIFICATIONS TO BLDG. 21 & BLDG. 43.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 10/25/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/29/05

DIRECTOR — DATE 7/5/05

RTKL

RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

STATE OF MARYLAND — PROFESSIONAL ENGINEER

BUILDING 21

SDP 6/14/05

* REVISED SDP 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
GENERAL NOTES & LEGEND
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

APL SHEET NO. C-02

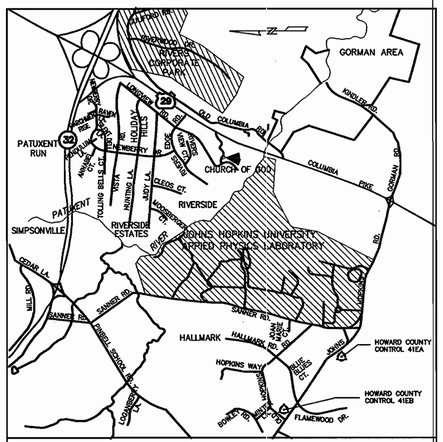
COUNTY SHEET NO. 2 of 33

SDP-03-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-02.dwg Jun 08, 2005 - 8:23pm

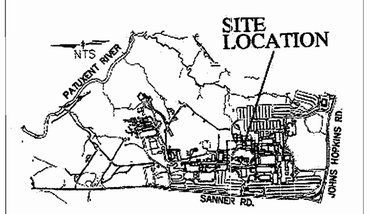
BUILDING 21

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
LOCATED SOUTHEAST OF INTERSECTION OF ROUTE 29 & 32
HOWARD COUNTY, MD



VICINITY MAP
SCALE: 1"=2000'

KEY LEGEND



SCALE: NTS

DEVELOPER & ENGINEER CERTIFICATES

1) BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONAL 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. AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DIRSTICT.

James E. Loesch — SIGNATURE OF DEVELOPER — DATE 6/10/05

2) BY THE ENGINEER:

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

R E Burgoyne — DESIGN ENGINEER SIGNATURE — DATE June 14, 2005

R E Burgoyne — PRINTED NAME — 20906 REGISTRATION NUMBER

3) CERTIFICATION BY PROFESSIONAL:

THERE ARE NO WETLANDS ON THE SITE THAT WILL BE DISTURBED. THEREFORE, THE REQUIREMENT OF 401 AND 404 WETLANDS PERMITS FORM THE STATE OF MARYLAND AND CORPS OF ENGINEERS ARE NOT NEEDED.

R E Burgoyne — PROFESSIONAL SIGNATURE — DATE June 14, 2005

R E BURGOYNE — PRINTED NAME

( ) THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.

Lisa Myers — USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/16/05

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

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — DATE 6/16/05

SITE ANALYSIS TOTAL APL PROPERTY:

A. AREA OF PARCEL/LOT = 361+/- ACRES PLAN SUBMISSION/DISTURBED AREA = 4.4 ACRES

B. PRESENT ZONING = PEC

C. PARKING TABULATION: EXISTING PARKING SPACES = 4,798
TOTAL SPACES REQUIRED = 2,850

D. EXISTING BUILDING COVERAGE:
COVERAGE = 25.5 ACRES
= 7.1%
BUILDING DEMOLITION = 1.6 ACRES

E. PROPOSED BUILDING COVERAGE: 6.04
BUILDING 21 GROSS FLOOR AREA = ~~0.6~~ ACRES
BUILDING 43 GROSS FLOOR AREA = 0.05 ACRES
BUILDING 21 COVERAGE = 1.0~~1~~6 ACRES
BUILDING 43 COVERAGE = 0.05 ACRES
= 0.03%

F. TOTAL PROPOSED BUILDING COVERAGE:
COVERAGE = 25.0 ACRES
= 6.9%

G. PROPOSED BUILDINGS DISTURBED AREA = 4.4 ACRES

H. PROPOSED USE = EDUCATION/RESEARCH

I. FLOOR SPACE USE = EDUCATION/RESEARCH

J. MAXIMUM NUMBER OF EMPLOYEES = 4,600

K. NO LOT SUBDIVISION IS ANTICIPATED.

L. CASE NUMBERS APPLICABLE: WAIVER PRELIMINARY PLAN, #WP-01-80, F-02-40, SDP-02-88, F-04-188, F-05-140, SDP-04-133 AND SDP 05-50

M. SANITARY SEWER / WATER SERVICE SEE GENERAL NOTES.

N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING AND BUILDINGS)= 278.2 ACRES, 77.1 % OF TOTAL LOT AREA.

O. PROPOSED OPEN SPACE AREA = 277.55 ACRES, 76.9% OF TOTAL LOT (PROPOSED BUILDINGS = 1.05 ACRE)

GENERAL NOTES:

1. WATER IS PUBLIC (HOWARD COUNTY)
2. SEWER IS PUBLIC (HOWARD COUNTY)
3. THE FLOOD PLAIN LIMITS FOR THIS PROJECT WERE TAKEN FROM HOWARD COUNTY STUDY. THERE IS NO FLOOD PLAIN WITHIN THE LIMITS OF THIS PLAN.
4. DIMENSION TO NEW STRUCTURES ARE PERPENDICULAR TO PROPERTY LINE.
5. THE PURPOSE OF THIS SDP PLAN IS TO REPRESENT A NEW BUILDING AND ASSOCIATED UTILITIES INCLUDING STORMWATER MANAGEMENT WATER QUALITY STRUCTURE. THE NEW BUILDING WILL BE FOR LABORATORY OPERATION AND RESEARCH.
6. ALL EXISTING UTILITIES WITHIN THE FOOTPRINT OF THE NEW BUILDING ARE TO BE RELOCATED OUTSIDE THE BUILDING FOOTPRINT AS SHOWN.
7. SOIL MAP USED SHEET NO.29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
8. FOREST CONSERVATION OBLIGATION ADDRESSED WITH F-02-040.
9. STORMWATER MANAGEMENT POND IS PRIVATELY OWNED AND MAINTAINED. IN ACCORDANCE WITH F--02-40.

GENERAL NOTES CONTINUE ON SHEET C-02

DRAWING INDEX:

APL NO.	COUNTY NO.	TITLE
C-01	1	COVER SHEET & VICINITY MAP
C-02	2	GENERAL NOTES & LEGEND
C-03	3	BUILDING SETBACK DIMENSIONS
C-04	4	TEMPORARY SECURITY FENCE & CONSTRUCTION STAGING
C-100	5	EXISTING CONDITIONS & SOIL MAP
C-101	6	BUILDING DEMOLITION PLAN
C-102	7	PART 2 DEMOLITATION PLAN
C-103	8	UTILITY DEMOLITION PLAN
C-104	9	SITE PLAN
C-105	10	LAYOUT PLAN
C-106	11	UTILITY PLAN
C-107	12	GRADING PLAN
C-108	13	DRAINAGE CALCULATIONS
C-201	14	DETAILS
C-202	15	SEWER DETAILS
C-203	16	STORM DRAIN AND WATER DETAILS
C-204	17	WATER LINE DETAILS
C-205	18	ELECTRICAL MANHOLE DETAILS
C-300	19	PROFILES
C-301	20	PROFILES
C-302	21	PROFILES
C-303	22	PROFILES
C-304	23	RETAINING WALL PROFILES
L-100	24	LANDSCAPE PLANTING PLAN
L-200	25	LANDSCAPE DETAILS
ES-01	26	EROSION & SEDIMENT CONTROL NOTES
ES-02	27	EROSION & SEDIMENT CONTROL PHASE I
ES-03	28	EROSION & SEDIMENT CONTROL PHASE II
ES-04	29	EROSION & SEDIMENT CONTROL DETAILS
ES-05	30	EROSION & SEDIMENT CONTROL DETAILS
ES-06	31	EROSION & SEDIMENT CONTROL DETAILS
A-1	32	SOUTH AND WEST ELEVATION
A-2	33	NORTH AND EAST ELEVATION
A-3	33 A	EXTERIOR SITE RETAINING WALLS
A-4	33 B	EXTERIOR SITE RETAINING WALLS

* ADDED SHEETS 33A & 33B TO DRAWING INDEX

CONTACT PERSON FOR OWNER: J. E. LOESCH
TELEPHONE: 443-778-5134
FAX: 443-778-6122

ADDRESS CHART

LOT/PARCEL #	STREET ADDRESS
1	11100 JOHNS HOPKINS ROAD, LAUREL MD 20723, CONTACT J.E. LOESCH 443-778-5134

ADDRESS CHART

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL NO
J.H.U. APPLIED PHYSICS LAB	N/A	PARCEL 1

PLAT# OR L/F	GRID#	ZONING	TAX MAP NO	ELECT DISTR	CENSUS TRACT
17042 THRU 17046	16	PEC	41	5	6051.02

WATER CODE	SEWER CODE
E-21	6480000

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 6/24/05
CHIEF, DIVISION OF LAND DEVELOPMENT Cindy Hamilton	DATE 6/29/05
DIRECTOR	DATE 7/5/05

RTKL
RTKL Associates Inc.
901 SOUTH BOND STREET
Baltimore, MD 21202
410 537 6000
www.rtkl.com
© RTKL Associates Inc.

CERVANTES & ASSOCIATES, P.C.
ENGINEERS · PLANNERS · SURVEYORS
3701 PENDER DRIVE, SUITE 110
FAIRFAX, VA. 22030
(703) 691-4114

JHU/APL INTERNAL USE
This information shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or part for any purpose other than evalaluation or, in the case of a contract award, to preform the work required hereunder, without the express written consent of JHU/APL.

BUILDING 21

SDP 6/14/05
* REVISED SDP 01/10/07

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
COVER SHEET & VICINITY MAP
TAX MAP 41 PARCEL 123
ELECTION DISTRIC NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
APL SHEET NO. C-01
COUNTY SHEET NO. 1 of 33

SDP-05-133

S:\ACTIVEPROJECTS\21030 APL PROJECTS\21030.36 BLDG 21\Cadd\C-01.dwg Jun 09, 2005 - 7:09am